

# Project Administration Manual

Project Number: 46453  
November 2014

## Cook Islands: Renewable Energy Sector Project

## Contents

### ABBREVIATIONS

I.	PROJECT DESCRIPTION	5
	A. Impact and Outcome	5
	B. Outputs	5
II.	IMPLEMENTATION PLANS	9
	A. Project Readiness Activities	9
	B. Overall Project Implementation Plan	10
III.	PROJECT MANAGEMENT ARRANGEMENTS	11
	A. Project Implementation Organizations–Roles and Responsibilities	11
	B. Key Persons Involved in Implementation	12
	C. Project Organization Structure	13
IV.	COSTS AND FINANCING	14
	A. Detailed Cost Estimates by Expenditure Category	15
	B. Allocation and Withdrawal of Loan and Grant Proceeds	16
	C. Detailed Cost Estimates by Financier	17
	D. Detailed Cost Estimates by Outputs/Components	18
	E. Detailed Cost Estimates by Year	19
	F. Contract Award and Disbursement S-curve	20
	G. Fund Flow Diagram	21
V.	FINANCIAL MANAGEMENT	22
	A. Financial Management Assessment	22
	B. Disbursement	23
VI.	PROCUREMENT AND CONSULTING SERVICES	25
	A. Advance Contracting	25
	B. Procurement of Goods, Works and Consulting Services	25
	C. Procurement Plan	26
	D. Consultant's Terms of Reference	27
VII.	SAFEGUARDS	28
VIII.	GENDER AND SOCIAL DIMENSIONS	29
IX.	PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION	30
	A. Project Design and Monitoring Framework	27
	B. Monitoring	29
	C. Reporting	39
	D. Stakeholder Communication Strategy	39
X.	ANTICORRUPTION POLICY	41
XI.	ACCOUNTABILITY MECHANISM	42
XII.	RECORD OF PAM CHANGES	43

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### **Project Administration Manual Purpose and Process**

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with government and Asian Development Bank (ADB) policies and procedures. The PAM includes references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Finance and Economic Management (MFEM), Te Aponga Uira (TAU), and Renewable Energy Development Division (REDD) are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MFEM, TAU, and REDD of their obligations and responsibilities for project implementation, in accordance with ADB's policies and procedures.

At Loan and Grant Negotiations, the borrower and ADB agreed to the PAM and ensured consistency with the Loan and Grant agreements. Such agreement is reflected in the minutes of the Loan and Grant Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan, project, and Grant Agreements, the provisions of the Loan, project, and Grant Agreement shall prevail.

After ADB Board approval of the project's report and recommendation of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

## Abbreviations

ADB	–	Asian Development Bank
CIIC	–	Cook Islands Investment Corporation
CIRECIP	–	Cook Islands Renewable Energy Chart Implementation Plan
EMP	–	environment management plan
EU	–	European Union
GDP	–	gross domestic product
GWh	–	gigawatt-hour
IEE	–	initial environmental examination
MFEM	–	Ministry of Finance and Economic Management
MWp	–	Megawatt peak
O&M	–	operation and maintenance
OCR	–	ordinary capital resources
OEC	–	Office of the Energy Commissioner
PMU	–	project management unit
POE	–	project owner's engineers
PSC	–	project steering committee
REDD	–	Renewable Energy Development Division
SPS	–	Safeguard Policy Statement
TAU	–	Te Aponga Uira (Rarotonga Power Authority)

## I. PROJECT DESCRIPTION

1. The project will provide a loan from Asian Development Bank's (ADB) ordinary capital resources (OCR) and a European Union (EU) grant. It will support the construction of up to six solar photovoltaic power plants in the Cook Islands Southern group, provide institutional strengthening to the Office of the Energy Commissioner (OEC) and Renewable Energy Development Division (REDD), as well as provide project management support to the power utilities, Te Aponga Uira (TAU), and REDD to implement core and noncore subprojects.

### A. Impact and Outcome

2. The impact of the project will be increased energy security in an environmentally sustainable manner. The outcome will be an increased access to a higher share of electricity generated by renewable energy sources.

### B. Outputs

3. The project will have two outputs:

- (i) **Solar Photovoltaic Power System Development.** The project will construct up to six solar photovoltaic power plants with a total installed capacity of about 3 megawatt peak coupled with advanced secondary battery energy storage installation, and rehabilitate the existing distribution network for core and noncore subprojects. The project will feature three core subprojects on Mangaia, Mauke, and Mitiaro and up to three noncore subprojects on Aitutaki, Atiu, and Rarotonga.
- (ii) **Institutional Strengthening and Project Management Support.** The project will provide institutional strengthening to OEC and REDD for (a) developing the energy efficiency policy implementation plan including an energy audit and monitoring scheme to enhance demand side energy efficiency management practices for targeted major electricity consumer groups; (b) developing capacity for renewable energy technology assessment and appropriate off-take tariff setting for power purchase agreements for private sector funded projects; and (c) updating the Cook Islands Renewable Energy Chart Implementation Plan (CIRECIP)<sup>1</sup> through refining electricity load demand up to 2020, renewable technology choice, and least cost investment plan. The consultants to be engaged under this component will be the project owner's engineers (POE) who will also provide project management support for REDD and TAU to help implement core and noncore subprojects in the Southern group islands.

### C. Subproject Eligibility Criteria

4. The project will be implemented as a sector loan under ADB's Operations Manual Section D3 – Sector Lending.<sup>2</sup> The sector lending approach allows the Government of Cook Islands to take the lead in identifying, prioritizing, appraising, designing, and implementing subprojects. The implementing agencies for the project will propose on behalf of the government solar photovoltaic power plant systems for Aitutaki, Atiu, and Rarotonga (noncore subprojects) for approval by ADB. The approval of noncore subprojects will be based on

<sup>1</sup> Government of Cook Islands. 2012. *Cook Islands Renewable Energy Chart Implementation Plan*. Rarotonga.

<sup>2</sup> Available at <http://www.adb.org/documents/operations-manual>.

satisfactory technical, economic, social, and environmental assessments compliance with eligibility criteria agreed on between the government and ADB.

5. Three core subprojects for solar photovoltaic power plant systems in Mangaia, Mauke, and Mitiaro have been prepared and met the eligibility criteria. Initial noncore subproject feasibility studies have been prepared for Aitutaki, Atiu, and Rarotonga. Finalization of due diligence for technical feasibility, economic and financial analysis, and environmental and social safeguards will be prepared during project implementation.

6. **Selection Criteria.** The selection of noncore subprojects will be guided by CIRECIP.<sup>3</sup> Stakeholder consultations will be undertaken to investigate eligibility of noncore subprojects for financing under the project according to the criteria. These include:

- (i) **Access to renewable energy.** Subprojects shall confirm contribution to CIRECIP implementation and must be in line with the government priority. Choice of renewable technology is solar photovoltaic power and/or its associated grid stabilization facilities such as secondary battery to control frequency and voltage fluctuation.
- (ii) **Technical viability.** Subproject shall demonstrate technical viability with solar irradiation resource assessment, electricity yield forecasting, electricity load demand forecasting, geological and topological assessment, capital and operation and maintenance costs estimates, layout design, and grid integration simulation.
- (iii) **Economic efficiency.** The subprojects must be economically viable and shall have demonstrated an economic internal rate of return (EIRR) equal to or greater than 12%, or with EIRR of not less than 10% for subprojects with significant unquantifiable benefits. An economic analysis shall be conducted in accordance with ADB's Guidelines for the Economic Analysis of Projects (1997, as amended from time to time). Each subproject will be assessed for its contribution to: (a) savings in diesel use and associated costs including freight, (b) savings in transmission losses, and (c) savings in reduced CO<sub>2</sub> emissions.
- (iv) **Financial viability.** The financial rate of return shall be greater than weighted average cost of capital, and must be robust under various adverse conditions; and the subproject investment cost, operation and maintenance cost, and cash inflows must be clearly presented and reasonable. The electricity tariff to be applied shall be set based upon levelized cost of electricity in principal and applicable laws and regulations to ensure financial sustainability of the subproject.
- (v) **Environmental Impact.** Subproject environmental selection criteria will exclude subprojects that are likely to cause major environmental impacts (environmental category A), according to ADB's Safeguard Policy Statement (SPS, 2009).<sup>4</sup> Environmental screening will be conducted for all subprojects. In selecting subproject sites, the following environmental criteria will be used for the first level of screening. If the site does not meet any of the criteria, then the subproject will

<sup>3</sup> See footnote 1.

<sup>4</sup> Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>.

not be approved as part of the project. Subprojects approved for funding under the project must not: (a) be classified as category A in accordance with ADB's SPS; (b) result in significant loss of, or damage to, natural environments, such as forests, reefs, mangroves, or other sensitive areas; (c) have a permanent negative effect on a known or endangered species; or (d) cause permanent damage to irreplaceable cultural relics and archaeological sites.

- (vi) **Land acquisition and resettlement.** No subproject that requires land acquisition with significant resettlement impact, according to ADB's SPS, will be eligible for funding under the project. The inclusion of a candidate subproject for project financing is contingent on compliance with agreed eligibility criteria. To minimize land acquisition and its impacts, the criteria are as follows: (a) the subproject is designed to minimize land acquisition including reduction of geometric standards where needed to avoid significant impacts, (b) the inclusion of the subproject has broader community support, (c) the proposed works minimize the displacement of residential structures or other permanent structures, (d) there is negotiated agreement with affected owners and communities for acquisition of land, and (e) there is no other significant adverse environmental or social impact.
- (vii) **Counterpart funds.** The Ministry of Finance and Economic Management (MFEM) will confirm that funds and resources necessary for the installation, operation, and maintenance of each subproject are provided on time.

7. The ADB loan will also finance the costs of the consulting services to assist TAU and REDD for preparation of noncore subprojects, preparation of bidding documents, assistance during the bidding process, project supervision, and commissioning of core and noncore subprojects.

#### **D. Subproject Selection Procedure**

8. For noncore subprojects, the POE will conduct stakeholder consultations in cooperation with TAU and REDD, report the results, and propose subprojects for appraisal to TAU and REDD, respectively. The Office of the Energy Commissioner (OEC) will endorse candidate subprojects for appraisal.

9. After the endorsement of candidate noncore subprojects, the POE, in cooperation with TAU and REDD, will undertake the required appraisal to justify subproject eligibility. Appraisal will involve collecting and analyzing baseline data to assess feasibility and expected impact using methods and tools established for the sample subprojects. Each noncore subproject appraisal will cover (i) a technical feasibility study, (ii) an economic analysis in accordance with ADB's Guidelines on the Economic Analysis of Projects, (iii) a financial analysis, (iv) a social and poverty analysis in accordance with the method and procedure used in the sample subproject feasibility study, (v) an initial environmental examination (IEE) and environmental management plan in accordance with the environmental assessment and review framework (EARF, included in the linked documents), and (vi) resettlement plan in accordance with land acquisition and resettlement framework (included in the linked documents). Each component of the assessment will confirm acceptable ratings against the criteria, or recommend further works to complete the assessment.

10. OEC will review the appraisal report and endorse the subproject that meets all the eligibility criteria. The subproject appraisal report endorsed by the OEC will then be submitted to

MFEM for final endorsement before submitting to ADB for approval. ADB will review the appraisal report and, if necessary, may request additional materials and studies to justify the subproject. ADB's formal approval for noncore subprojects must be obtained before the tender document preparation for any subproject, and its inclusion for financing under the project. Upon receiving ADB approval, the POE will commence tender document preparation.

11. OEC and MFEM will be responsible for obtaining approval of the higher authorities of government for inclusion of any subproject in the national budget and for ensuring that counterpart funds are available.

## II. IMPLEMENTATION PLANS

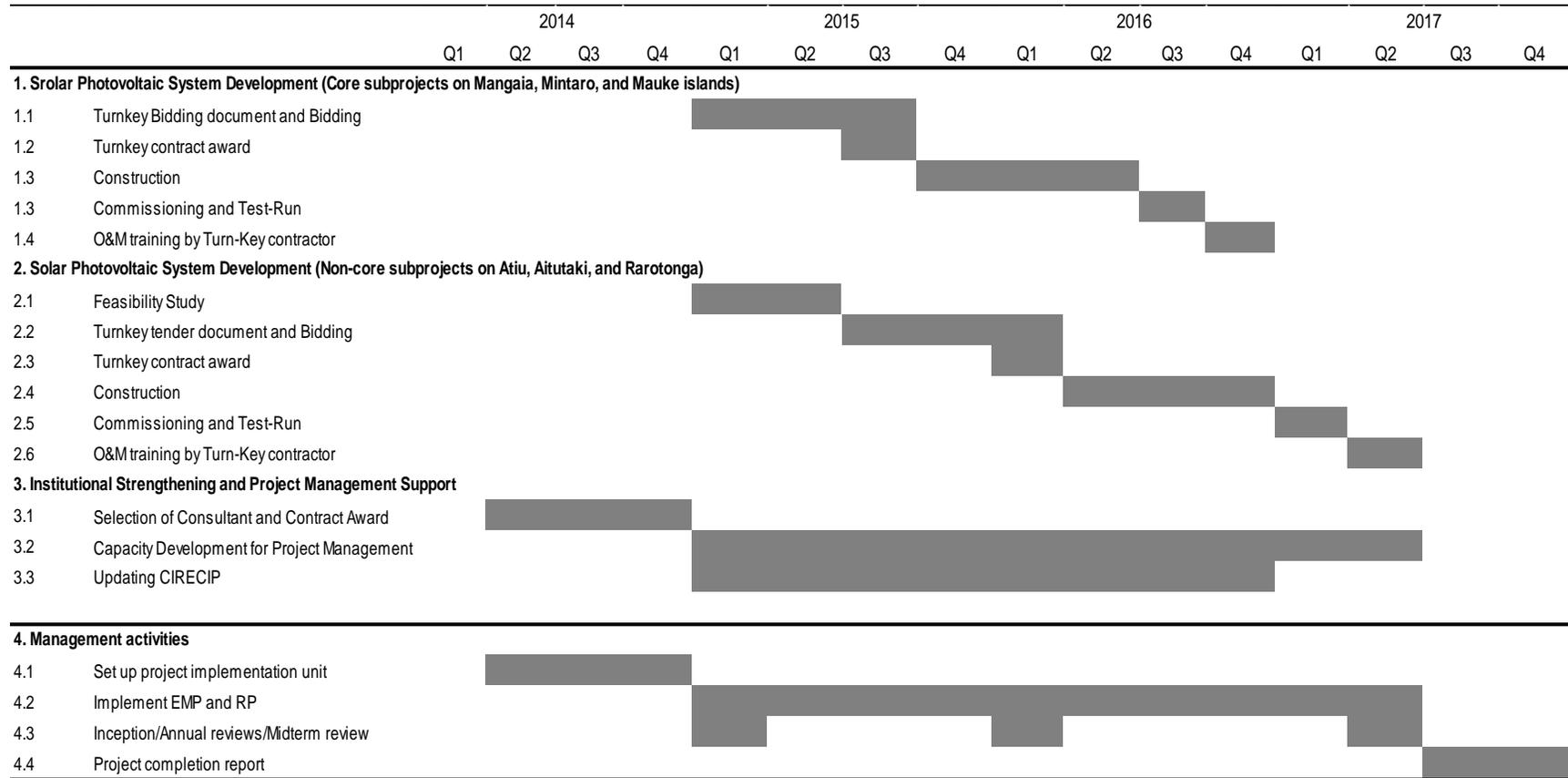
12. The project is expected to be approved in November 2014. After the loans are declared effective, the project implementation period is 36 months, and is estimated to be complete by November 2017. The financial loan closing date will be in May 2018. The project's milestones of readiness activities and overall project implementation schedule are as follows:

### A. Project Readiness Activities

INDICATIVE ACTIVITIES	2014										2015		Who is responsible	
	3	4	5	6	7	8	9	10	11	12	1	2		
Establish project implementation arrangements	✓	✓												MFEM, OEC, REDD, TAU
Advance contracting actions		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	MFEM, REDD
Loan negotiations			✓											ADB, MFEM, REDD, TAU
ADB Board consideration										✓				ADB
Loan signing											✓			ADB, MFEM, REDD, TAU
Government legal opinion provided											✓	✓	✓	MFEM, REDD, TAU
Loan effectiveness													✓	ADB, MFEM, REDD, TAU

ADB = Asian Development Bank, MFEM = Ministry of Finance and Economic Management, OEC = Office of the Energy Commissioner, REDD = Renewable Energy Development Division, TAU = Te Aponga Uira.

**B. Overall Project Implementation Plan**



CIRECIP=Cook Islands Renewable Energy Chart Implementation Plan, EMP: Environment Monitoring Plan, RP: Resettlement Plan

### III. PROJECT MANAGEMENT ARRANGEMENTS

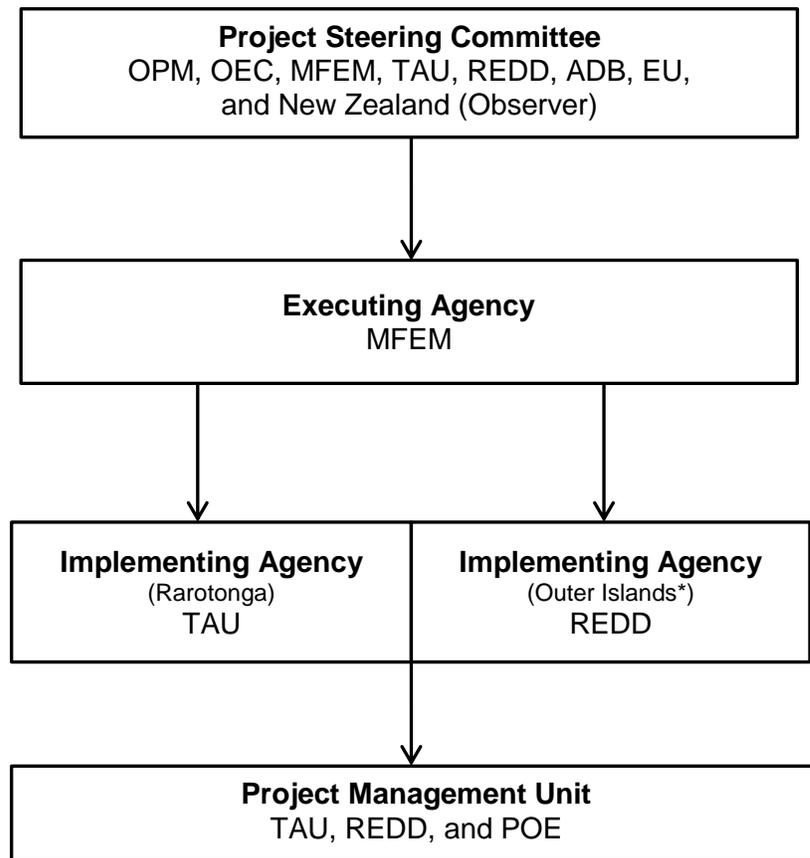
13. The key organizations involved in the project include (i) the Ministry of Finance and Economic Management who will represent the Cook Islands as the Borrower and is the executing agency; (ii) the Office of the Prime Minister, OEC, REDD, TAU, ADB, EU, and New Zealand government (observer) who will form part of the project steering committee (PSC); and (iii) TAU and REDD who will be involved in the day-to-day implementation of the project. The project management unit (PMU) hosted by REDD will be established, which is comprised of the appointed staff from REDD and TAU. ADB will monitor all project implementation activities. Details of the implementation organizations' key roles and responsibilities are indicated in the table below:

#### A. Project Implementation Organizations–Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
<ul style="list-style-type: none"> <li>• Ministry of Finance and Economic Management (MFEM)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Borrower and Executing Agency</li> <li>➤ Overall responsibility for project implementation</li> <li>➤ Supervise and endorse procurement and consultant selection</li> <li>➤ Submit withdrawal application to ADB</li> <li>➤ Submit required annual audit reports and financial statements to ADB</li> <li>➤ Coordinate appropriate government representation for loan negotiations, loan signing, and loan effectiveness</li> </ul>
<ul style="list-style-type: none"> <li>• Project steering committee (PSC)</li> </ul>	<ul style="list-style-type: none"> <li>➤ PSC will include representatives of: Office of the Prime Minister, Chief of Staff (Chair); MFEM, Finance Secretary (member); TAU CEO (member); REDD Director (member); OEC (member); ADB (member), EU (member); New Zealand (observer)</li> <li>➤ Oversee implementation of the project and its consistency with CIRECIP</li> <li>➤ Monitor project progress and cooperatively resolve issues hindering progress</li> <li>➤ Guide the executing and implementing agencies</li> </ul>
<ul style="list-style-type: none"> <li>• Te Aponga Uira (TAU)</li> <li>• Renewable Energy Development Division (REDD)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Implementing agencies</li> <li>➤ TAU to implement project outputs for Rarotonga</li> <li>➤ REDD to implement project outputs for Mangaia, Mauke, Mitiaro, Aitutaki, and Atiu</li> <li>➤ Establish a Project Management Unit which will be responsible for day to day implementation of the projects</li> <li>➤ Prepare overall implementation plan and annual budgets</li> <li>➤ Select, engage, and supervise project owner's engineers (REDD)</li> <li>➤ Ensure timely bidding and award of turnkey contracts</li> <li>➤ Safeguards monitoring</li> <li>➤ Monitoring and evaluation of project performance in accordance with project design and monitoring framework</li> <li>➤ Review of withdrawal applications before submission to executing agency</li> </ul>
<ul style="list-style-type: none"> <li>• Asian Development Bank (ADB)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Project financier for concessional loan, and administration of EU grant</li> <li>➤ Conduct regular project reviews</li> <li>➤ Monitor and support project implementation and compliance</li> </ul>



### C. Project Organization Structure



ADB = Asian Development Bank, EU = European Union, MFEM = Ministry of Finance and Economic Management, OPM = Office of Prime Minister, OEC = Office of Energy Commissioner, POE = project owners' engineers, REDD = Renewable Energy Development Division, TAU = Te Aponga Uira.

\* Aitutaki, Atiu, Mangaia, Mauke, and Mitiaro.

#### IV. COSTS AND FINANCING

14. The project is estimated to cost \$24.28 million (Table 1).

**Table 1: Project Investment Plan**  
(\$ million)

Item	Amount
<b>A. Base Cost<sup>a</sup></b>	
1. Solar photovoltaic module procurement	2.80
2. Solar photovoltaic power system development	14.91
3. Institutional strengthening and project management support	1.26
4. Land acquisition	1.42
5. Tax and duties	1.61
<b>Subtotal (A)</b>	<b>22.00</b>
<b>B. Contingencies<sup>b</sup></b>	1.39
<b>C. Financing Charge During Implementation<sup>c</sup></b>	<b>0.64</b>
<b>D. Administration Charges<sup>d</sup></b>	<b>0.25</b>
<b>Total (A+B+C+D)</b>	<b>24.28</b>

<sup>a</sup> In April 2014 prices. The amounts are indicative since the noncore subprojects will be appraised during implementation.

<sup>b</sup> Physical contingencies estimated at 5.0% of base cost. Price contingency is based on estimated international inflation rate during project implementation. Detailed breakdown of contingency is shown in Table A, page 11.

<sup>c</sup> Include interest and commitment charges. Interest during construction for the Asian Development Bank loan has been computed at the 3-year forward NZ dollar swap rate plus spread 0.5%. Commitment charges for an Asian Development Bank loan are 0.15% per year to be charged on the undisbursed loan amount.

<sup>d</sup> It comprises ADB's administration fee and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the EU.

Source: Asian Development Bank estimates.

15. The loan will be used for the procurement of equipment and materials, civil works, services, related transportation, insurance, installation costs, and interest and commitment charges on the loan during construction for noncore subprojects on Aitutaki, Atiu, and Rarotonga. The loan will also be used to finance consulting services and contingencies. The grant will be used for the procurement of equipment and materials, civil works, related transportation, insurance, and installation costs for core subprojects on Mangaia, Mauke, and Mitiaro. The Government of Cook Islands will finance land acquisition, environmental and social monitoring, taxes and duties, and solar photovoltaic module procurement.

**Table 2: Financing Plan**

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary Capital Resources (loan)	11.19 <sup>a</sup>	46.09
European Union (grant)	7.26 <sup>b</sup>	29.90
Government of Cook Islands <sup>c</sup>	5.83	24.01
<b>Total</b>	<b>24.28</b>	<b>100.00</b>

Note: Numbers may not be sum precisely because of rounding.

OCR = ordinary capital resources.

<sup>a</sup> Equivalent to NZ\$12.98 million.

<sup>b</sup> Equivalent to EUR5.30 million.

<sup>c</sup> The government's contribution comprises land acquisition, tax and duties (exemption), and solar photovoltaic module procurement.

Source: Asian Development Bank estimates.

## A. Detailed Cost Estimates by Expenditure Category

Item	NZ\$ million			US \$ million			% of Total
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	
A. Investment Costs <sup>a</sup>							
1 Solar photovoltaic module procurement	3.25	0.00	3.25	2.80	0.00	2.80	11.53%
2 Turn Key Contract-Solar photovoltaic system development	17.30	0.00	17.30	14.91	0.00	14.91	61.41%
3 Consulting Services- Institutional Strengthening and Project Management Supprt	1.46	0.00	1.46	1.26	0.00	1.26	5.19%
4 Land Acquisition	0.00	1.65	1.65	0.00	1.42	1.42	5.85%
5 Tax and Duties	0.00	1.87	1.87	0.00	1.61	1.61	6.63%
Subtotal (A)	22.01	3.51	25.52	18.97	3.03	22.00	90.61%
B. Contingencies <sup>b</sup>							
1 Physical	1.28	0.00	1.28	1.10	0.00	1.10	4.53%
2 Price	0.33	0.00	0.33	0.29	0.00	0.29	1.18%
Subtotal (B)	1.61	0.00	1.61	1.39	0.00	1.39	5.71%
C. Financing Charges During Implementation <sup>c</sup>							
1 Interest During Implementation	0.64	0.00	0.64	0.55	0.00	0.55	2.28%
2 Commitment Charges	0.10	0.00	0.10	0.09	0.00	0.09	0.36%
Subtotal (C)	0.74	0.00	0.74	0.64	0.00	0.64	2.64%
D. Administration Charges <sup>d</sup>	0.28	0.00	0.28	0.25	0.00	0.25	1.01%
<b>Total Project Cost (A+B+C+D)</b>	<b>24.64</b>	<b>3.51</b>	<b>28.16</b>	<b>21.24</b>	<b>3.03</b>	<b>24.28</b>	<b>100.00%</b>

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> In April 2014 prices.

<sup>b</sup> Physical contingencies computed at 5.0% of base cost. Price contingencies are based on estimated international inflation rates during construction.

<sup>c</sup> Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 3-year NZ\$ swap rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

<sup>d</sup> It comprises ADB's administration fee and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the European Commission.

Source: Asian Development Bank estimates.

**B. Allocation and Withdrawal of Loan and Grant Proceeds****TABLE 1**

<b>ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS</b>			
<b>Number</b>	<b>Item</b>	<b>Total Amount Allocated for ADB Financing (NZ\$) Category</b>	<b>Basis for Withdrawal from the Loan Account</b>
1	Turnkey Contract – Solar PV System Development (noncore)*	9,164,000	100% of total expenditure claimed**
2	Consulting Services – Institutional Strengthening and Project Management	1,462,000	100% of total expenditure claimed**
3	Interest and Commitment Charge	742,000	100% of amounts due
4	Unallocated	1,612,000	
<b>Total</b>		<b>12,980,000</b>	

\* The portion of this item relating to the solar photovoltaic power system development for the noncore subproject on Rarotonga is subject to the condition for withdrawal described in paragraph 6 of Schedule 3.

\*\* Exclusive of taxes and duties imposed within the territory of the Borrower.

**TABLE 2**

<b>ALLOCATION AND WITHDRAWAL OF GRANT PROCEEDS</b>			
<b>Number</b>	<b>Item</b>	<b>Total Amount Allocated for EU Financing (\$) Category</b>	<b>Basis for Withdrawal from the Grant Account</b>
1	Turnkey Contract – Solar PV System Development (core)	7,010,000	100% of total expenditure claimed*
2	Unallocated**	250,000	
<b>Total</b>		<b>7,260,000</b>	

\* Exclusive of taxes and duties imposed within the territory of the Recipient.

\*\* Includes the ADB's administrative fee, audit costs and bank charges, to the extent that these items are not covered by the interest and investment income earned on the grant, or any additional grant from the EU.

### C. Detailed Cost Estimates by Financier

		(US\$ million)						
Item		ADB	%	EU <sup>d</sup>	%	Government	%	Total
A.	Investment Costs <sup>a</sup>							
	1 Solar PV module procurement	0.00	0.00%	0.00	0.00%	2.80	100.00%	2.80
	2 Turnkey Contract-Solar PV System Development	7.90	52.98%	7.01	47.02%	0.00	0.00%	14.91
	3 Consulting Services-Institutional Strengthening and Project Management	1.26	100.00%	0.00	0.00%	0.00	0.00%	1.26
	4 Land Acquisition	0.00	0.00%	0.00	0.00%	1.42	100.00%	1.42
	5 Tax and Duties	0.00	0.00%	0.00	0.00%	1.61	100.00%	1.61
	Subtotal (A)	9.16	41.64%	7.01	31.86%	5.83	26.50%	22.00
B.	Contingencies <sup>b</sup>	1.39	100.00%	0.00	0.00%	0.00	0.00%	1.39
C.	Financing Charges During Implementation <sup>c</sup>	0.64	100.00%	0.00	0.00%	0.00	0.00%	0.64
D.	Administration Charges	0.00	0.00%	0.25	100.00%	0.00	0.00%	0.25
Total Project Cost (A+B+C+D)		11.19	46.09%	7.26	29.90%	5.83	24.01%	24.28

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> In April 2014 prices. Turnkey contract-solar PV system development will be financed by ADB and EC funds in parallel. Environment and social monitoring, and audit cost is inclusive in solar PV module procurement funded by the government.

<sup>b</sup> Physical contingencies computed at 5.0% of base cost. Price contingencies are based on estimated international inflation rates during construction.

<sup>c</sup> Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 3-year NZ\$ swap rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

<sup>d</sup> Administered by the Asian Development Bank. It comprises ADB's administration fee and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the European Commission.

Source: Asian Development Bank estimates.

**D. Detailed Cost Estimates by Outputs/Components**

Item	US\$ million				
	Core Subprojects	%	Non-Core Subprojects	%	Total Cost
A. Investment Costs <sup>a</sup>					
1 Solar PV module procurement	0.69	24.64%	2.11	75.36%	2.80
2 Turnkey contract-Solar PV system development	7.01	47.02%	7.90	52.98%	14.91
3 Consulting Services-Institutional Strengthening and Project Management Supprt	0.55	43.48%	0.71	56.52%	1.26
4 Land Acquisition	0.62	43.48%	0.80	56.52%	1.42
5 Tax and Duties	0.70	43.48%	0.91	56.52%	1.61
Subtotal (A)	9.57	43.48%	12.43	56.52%	22.00
B. Contingencies <sup>b</sup>					
1 Physical	0.48	43.48%	0.62	56.52%	1.10
2 Price	0.12	43.48%	0.16	56.52%	0.29
Subtotal (B)	0.60	43.48%	0.78	56.52%	1.39
C. Financing Charges During Implementation <sup>c</sup>					
1 Interest During Implementation	0.24	43.48%	0.31	56.52%	0.55
2 Commitment Charges	0.04	43.48%	0.05	56.52%	0.09
Subtotal (C)	0.28	43.48%	0.36	56.52%	0.64
D. Administration Charges <sup>d</sup>	0.25	100.00%	0.00	0.00%	0.25
<b>Total Project Cost (A+B+C+D)</b>	<b>10.69</b>	<b>44.04%</b>	<b>13.58</b>	<b>55.93%</b>	<b>24.28</b>

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> In April 2014 prices.

<sup>b</sup> Physical contingencies computed at 5.0% of base cost. Price contingencies are based on estimated domestic and international inflation rates during construction.

<sup>c</sup> Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 3-year NZ\$ swap rate plus a spread of 0.4%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

<sup>d</sup> It comprises ADB's administration fee and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the European Commission.

Source: Asian Development Bank estimates.

## E. Detailed Cost Estimates by Year

(US\$ million)

Item	Total	2014	2015	2016	2017
A. Investment Costs					
1 Solar PV module procurement	2.80	0.69	2.11	0.00	0.00
2 Turnkey contract-Solar PV System Development	14.91	0.00	2.45	9.69	2.77
3 Consulting Services-Institutional Strengthening and Project Management	1.26	0.00	0.50	0.50	0.25
4 Land Acquisition	1.42	0.00	1.42	0.00	0.00
5 Tax and Duties	1.61	0.07	0.50	0.64	0.40
Subtotal <sup>a</sup>	22.00	0.76	6.99	10.84	3.42
B. Contingencies <sup>b</sup>	1.39	0.06	0.42	0.69	0.22
C. Financing Charges During Implementation <sup>c</sup>	0.64	0.02	0.07	0.29	0.25
D. Administration Charges <sup>d</sup>	0.25	0.00	0.09	0.16	0.00
Total Project Cost (A+B+C+D)	24.28	0.84	7.57	11.98	3.89
% of Total Project Cost	100.00%	3.45%	31.16%	49.35%	16.01%

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> In April 2014 prices.

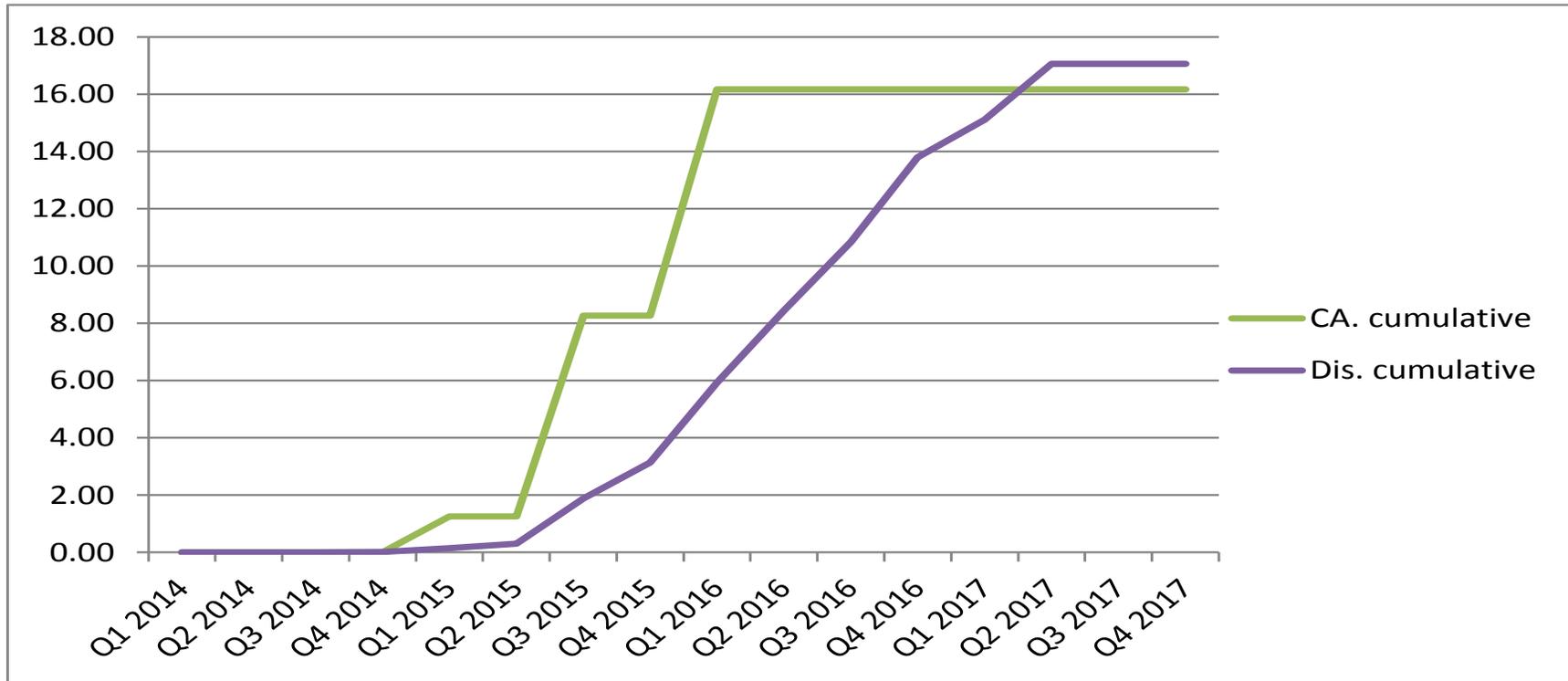
<sup>b</sup> Physical contingencies computed at 5.0% of base cost. Price contingencies are based on estimated international inflation rates during construction.

<sup>c</sup> Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 3-year NZ\$ swap rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

<sup>d</sup> It comprises ADB's administration fee and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the European Commission.

Source: Asian Development Bank estimates.

### F. Contract Award and Disbursement S-curve

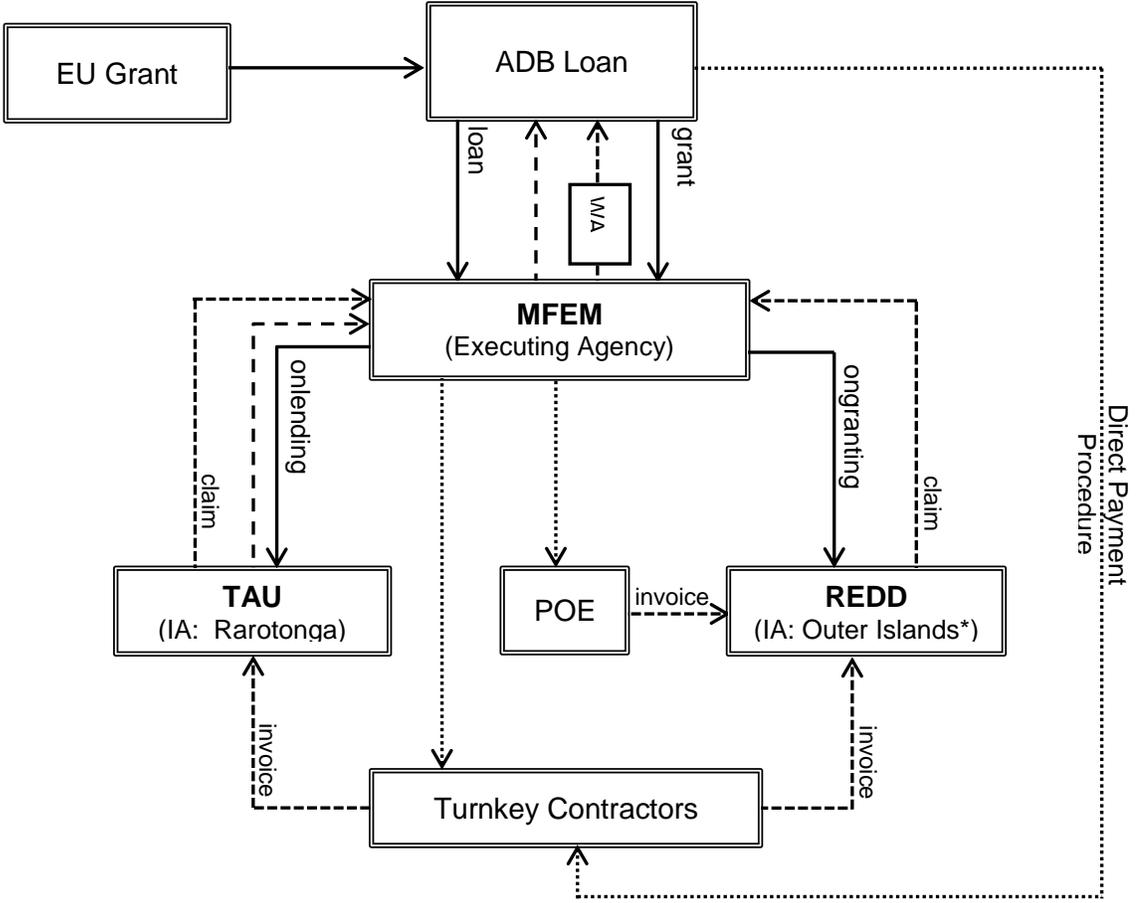


(Unit: US\$ million)

	2014				2015				2016				2017			
	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Contract Award	0.00	0.00	0.00	0.00	1.26	0.00	7.01	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Disbursement	0.00	0.00	0.00	0.02	0.13	0.16	1.58	1.26	2.79	2.51	2.40	2.94	1.31	1.96	0.00	0.00
CA. cumulative	0.00	0.00	0.00	0.00	1.26	1.26	8.27	8.27	16.17	16.17	16.17	16.17	16.17	16.17	16.17	16.17
Dis. cumulative	0.00	0.00	0.00	0.02	0.15	0.31	1.88	3.14	5.93	8.45	10.85	13.79	15.10	17.06	17.06	17.06

\*Difference is for interest and commitment charge during construction for which no contracts are awarded.

**G. Fund Flow Diagram**



ADB= Asian Development Bank, EU = European Union, IA = implementing agency, MFEM = Ministry of Finance and Economic Management, POE = project owner's engineers, REDD = Renewable Energy Development Division, TAU, Te Aponga Uira, WA = withdrawal application.

————> Funds flow    .....-> Disbursement    - - -> Repayment    - - - -> Document Flow

\* Aitutaki, Atiu, Mangaia, Mauke, and Mitiaro.

## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

16. MFEM is the central agency in the Cook Islands government responsible for advising the government on financial and economic issues. It is divided into four divisions: (i) revenue management, (ii) development coordination, (iii) treasury, and (iv) statistics. The development coordination division is governed by the Cook Islands Official Development Assistance Policy (September 2011), which strengthens governance and management of aid effectiveness, strengthens partnerships in the coordination and delivery of development assistance, and ensures accountability of development assistance. MFEM has implemented previous ADB assistance successfully, recently through the Avatiu Port Development Project, and the ongoing Economic Recovery Support Program. Technical Assistance for Public Finance Management and Public Sector Performance Review was successfully completed in August 2012.

17. The government continues to meet the principles of responsible fiscal management set out in the MFEM Act to promote sound public financial management through the budget process. These initiatives are monitored through ADB's Economic Recovery Support Program (Subprogram 2).<sup>5</sup> The government is proactive in remaining within ceilings for net debt to GDP (35%) and debt servicing to revenue (5%). In this regard, the financial risk in lending to the government is assessed as moderate.

18. TAU is a government-owned power authority responsible for generation, distribution, and retailing of electricity on the main island of Rarotonga. Its operation is governed by the Te Aponga Uira O Tumu-Te-Varovaro Act 1991, Te Aponga Uira O Tumu-Te-Varovaro Amendment Act 1999, and the Cook Islands Investment Corporation Act 1992. Its legislation constitutes it as a state-owned enterprise, and its objective is to provide reliable and economical energy, and to operate facilities efficiently and profitably. The prime functions of TAU are the generation, distribution, and retailing of electricity on the island of Rarotonga. TAU's financial performance has been solid from 2010 to 2013, and with no abnormal incident occurring over that period. In 2013, its operating ratio was around 92%, the return on net fixed assets was 3.7%, the current ratio was 9.66, and the debt to equity ratio was 1%. On-lending from MFEM to TAU for noncore subproject for Rarotonga is estimated at NZ\$2.45 million and will bring the debt to equity ratio to less than 10%. Therefore, the financial risk of on-lending to TAU as a state-owned entity is assessed as moderate. Projections of TAU's financial performance, based on audited financial statements, are included in the financial analysis appendix.

19. An assessment of the TAU's financial management was conducted in accordance with ADB's Guidelines on the Financial Management and Analysis of Projects.<sup>6</sup> TAU has a sound accounting system following the New Zealand Generally Accepted Accounting Practice (NZ GAAP). TAU has six qualified and experienced staff in its finance department. There have been no major accountability issues over the past 3 years.

20. REDD, under the Office of the Prime Minister, is an implementing agency solely responsible for implementation of the CIRECIP. REDD is also the implementing agency for renewable energy project in the northern group islands funded by the Government of New Zealand. It will be the implementing agency for the subprojects on Mangaia, Mauke, Mitiaro, Atiu, and Aitutaki. REDD is also found capable of recording all transactions and balances,

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<sup>5</sup> ADB. 2012. *Report and Recommendation to the President for Proposed Policy-Based Loan for Subprogram 2, Cook Islands: Economic Recovery Support Program*. Manila.

<sup>6</sup> ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

support the preparation of regular and reliable financial statements, safeguard the entity's assets, and is subject to an annual audit.

21. During project implementation, REDD will be supported by POE including a financial specialist. The specialist's terms of reference includes (i) assisting the PMU in preparing project audit reports, and corporate audit reports as required by ADB; (ii) conducting tariff analysis to ensure financial sustainability of core and noncore subprojects, and make recommendations; (iii) reviewing project audit reports to ensure financial soundness of all subprojects; and (iv) developing capacity in financial analysis and management within REDD and TAU. The overall financial management risk for REDD, together with the institutional support, is assessed as moderate.

22. Power assets in the outer islands are maintained by the island administration committees (IACs), who are governed by the Island Government Act 2013. The Island Government Act provides clear processes for IAC financial management. The National Government provides annual budget allocations to IACs based on approved plans that are to be reported and monitored to ensure accountability. While an estimate of the tariff was used for the purposes of demonstrating financial viability of core subprojects, the IACs will need to ensure a suitable tariff is introduced upon completion of the project. To ensure sufficient cost recovery, the project provides a covenant to ensure that electricity tariffs are adjusted to maintain financial sustainability of the project.

## **B. Disbursement**

23. The Loan proceeds and EU grant will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time),<sup>7</sup> and detailed arrangements agreed upon between the executing agency and ADB.

24. Only reimbursement and direct payment procedures will be used under the project. The POE will be responsible for preparing disbursement projections. MFEM will maintain project accounts. The POE will coordinate with MFEM to arrange allocation of counterpart funds for individual subprojects. The POE will be responsible for collecting supporting documents, preparing withdrawal applications, and submitting these to MFEM. MFEM will be responsible for screening withdrawal applications and submission to ADB.

25. Before the submission of the first withdrawal application, MFEM should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is US\$100,000, unless otherwise approved by ADB. Individual payments below this amount should generally be by the EA/IAs and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept Was below the minimum amount.

## **C. Accounting**

26. MFEM will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following accrual-based accounting following NZ GAAP or equivalent. MFEM will prepare project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

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<sup>7</sup> Available at: [http://www.adb.org/Documents/Handbooks/Loan\\_Disbursement/loan-disbursement-final.pdf](http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf).

#### D. Auditing and Public Disclosure

27. MFEM will cause the detailed project financial statements to be audited in accordance with NZ GAAP or equivalent by an independent auditor acceptable to ADB. Separate financial statements will be maintained for subprojects implemented by REDD and TAU. The audited project financial statements together with the auditors' opinion will be submitted in the English language to ADB within six months of the end of the fiscal year by MFEM.

28. MFEM will also cause the entity-level financial statements of TAU to be audited in accordance with NZ GAAP or equivalent, by an independent auditor acceptable to ADB. The audited entity-level financial statements, together with the auditors' report and management letter, will be submitted in the English language to ADB within one month after their approval by the competent authority.

29. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; and (iii) the level of compliance for each financial covenant contained in the legal agreements for the project.

30. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

31. The government, MFEM, REDD, and TAU have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.<sup>8</sup> ADB reserves the right to require a change in the auditor, in a manner consistent with the constitution of the borrower; or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB; or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

32. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011). After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

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<sup>8</sup> ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting

33. All advance contracting will be undertaken in conformity with ADB's Procurement Guidelines (2013, as amended from time to time)<sup>9</sup> and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).<sup>10</sup> The issuance of invitations to bid under advance contracting will be subject to ADB approval. The borrower, MFEM, TAU, and REDD have been advised that approval of advance contracting does not commit ADB to finance the project.

34. Advance contracting for the recruitment of consulting services as the project owner's engineers may commence upon ADB's approval at its Staff Review Meeting. ADB will promptly advise the government upon approval. The steps to be concluded in advance will include the successful recruitment of consultants.

### B. Procurement of Goods, Works and Consulting Services

35. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines.

36. To ensure competitive bidding, international competitive bidding contract packages will be adopted. International competitive bidding with single-stage two-envelope bidding procedure will be used for all turnkey contracts, which will include engineering design, solar photovoltaic equipment, secondary battery, and transmission and distribution lines, as well as their transportation to the identified project sites, installation and civil works, commissioning, and O&M knowledge transfer program. ADB's prior review procedures will be followed. The borrower agreed to include the relevant sections of ADB's Anticorruption Policy (1998) in all bidding and contractual documents. The borrower may grant a margin of preference in the evaluation of bids under international competitive bidding in accordance with paragraphs 2.55 and 2.56 of the Procurement Guidelines for domestically manufactured Goods and Works and domestic contractors, provided that for the margin of preference for Works, the borrower's gross national product falls below the threshold as defined annually by ADB. Procurement eligibility for activities under the EU grant shall be extended to include the countries and territories eligible under the EU rules and regulations for the project.<sup>11</sup>

37. Before the start of any procurement, ADB and the government will review the public procurement laws of the government to ensure consistency with ADB's Procurement Guidelines.

38. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.

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<sup>9</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

<sup>10</sup> Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

<sup>11</sup> Defined in Annex IV of the Partnership Agreement ACP-EU signed in Cotonou on 23 June 2000 as last revised in Ouagadougou, on 22 June 2010.

39. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants.<sup>12</sup> The terms of reference for all consulting services are detailed in Section D.

40. Institutional strengthening and project management support component is comprised of an estimated 60 person-months (28 international, 32 national) of consulting services to (i) facilitate project management and implementation for TAU and REDD, and (ii) strengthen the institutional capacity of OEC and REDD. Consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality:cost ratio of 90:10. Higher quality ratio is essential as the project entails not only comprehensive institutional and project management support, but specific technical complexity.

### C. Procurement Plan

#### Basic Data

<b>Project Name:</b> Renewable Energy Sector Project	
<b>Country:</b> Cook Islands	<b>Executing Agency:</b> MFEM
<b>Project Amount:</b> \$24.27million	<b>Loan Number:</b> TBA
<b>Date of First Procurement Plan:</b> April 2014	<b>Date of this Procurement Plan:</b> Oct 2014

#### 1. Process Thresholds, Review and 18-month Procurement Plan

41. Except as ADB may otherwise agree, the following thresholds shall apply to procurement of goods and works.

#### Procurement of Good and Works

Method	Threshold
International Competitive Bidding for Works	Above \$3,000,000
International Competitive Bidding for Goods	Above \$1,000,000
Shopping for Works	Below or equal to \$100,000
Shopping for Goods	Below or equal to \$100,000

#### 2. ADB Prior and Post Review

42. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
<b>Procurement of Goods and Works</b>		
International Competitive Bidding Works	Prior	
International Competitive Bidding Goods	Prior	
Shopping for Works	Prior	
Shopping for Goods	Prior	
<b>Recruitment of Consulting Firms</b>		
Quality- and Cost-Based Selection	Prior	

<sup>12</sup>Checklists for actions required to contract consultants by method available in the e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>.

### 3. Goods and Works Contracts Estimated to Cost More than \$1 Million

General Description	Contract Value	Procurement Method	Prequalification of Bidders	Advertisement Date	Comments
Turnkey Contract 1	\$ 7.01 mil	ICB	N/A	Q1 2015	Mauke, Mangaia, and Mitiaro
Turnkey Contract 2	TBD	ICB	N/A	Q3 2015	Atiu and Aitutaki
Turnkey Contract 3	TBD	ICB	N/A	Q3 2015	Rarotonga

ICB = international competitive bidding, N/A = not applicable, TBD = to be disclosed.

### 4. Consulting Services Contracts Estimated to Cost More than \$100,000

43. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months. MFEM has requested ADB to help select the POE who will assist MFEM, TAU, and REDD during procurement of the turnkey contracts.

General Description	Contract Value	Recruitment Method	Advertisement Date	International or National Assignment	Comments
Institutional strengthening and project management support	\$1.26 mil	QCBS (90:10)	Q2 2014	International	Project owner's engineers

QCBS = quality- and cost-based selection.

#### D. Consultant's Terms of Reference

44. The consultant's terms of reference are included in Appendix 1 of this Project Administration Manual.

## VII. SAFEGUARDS

45. The project has been classified as category B for environment following ADB's SPS. An EARF has been prepared for noncore subprojects, and an IEE has been prepared for core subprojects. The main environmental impacts will be during site preparation, which will include the cutting of about 141 trees and clearing of vegetative cover from the proposed sites and surrounding areas to prevent shading. There will be impacts from noise and dust due to transportation of plant and materials as well as operation of construction machinery. These impacts will be short-term (approximately one week for the smaller plant and up to a month for the larger plant). Operational impact includes maintenance of the plant and management of used batteries. It is proposed, as a special condition in the technical specifications, that handling and disposal of used batteries will be taken care of by suppliers. The solar photovoltaic power system will not have any significant long-term adverse environmental impacts.

46. During implementation, MFEM, TAU, and REDD, with support from the environmental expert under the institutional strengthening and project management support component, will prepare IEE for noncore subprojects, and develop and update the IEE and the EMP based on the detailed designs for core and noncore subprojects. ADB will clear the updated documents. The EMPs from the updated assessments will be integrated into the bid and contract documents. During project implementation, the environment expert will enhance the capacity of MFEM, TAU, and REDD in safeguards implementation and monitoring.

47. The project has been classified as Category B for involuntary resettlement following SPS. The project is not expected to involve physical displacement, but will require a total of 7.4 ha of land. A resettlement plan has been prepared for the three core subprojects. A resettlement framework has been prepared for the project providing guidelines to prepare the resettlement plan for noncore subprojects. The resettlement plan will be updated after the detailed design and compensation will be provided to affected persons before the start of civil works in respective sites.

48. The project has been classified as Category C for Indigenous Peoples following SPS. The population in the project area comprises the mainstream population of Cook Islands. The project is not expected to impact any distinct and vulnerable group of indigenous peoples as defined under SPS.

46. Pursuant to the SPS, ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.

## VIII. GENDER AND SOCIAL DIMENSIONS

49. The project will be implemented on the following six sites: (i) Rarotonga through TAU; and (ii) Mangaia, Mauke, Mitiaro, Aitutaki, and Atiu through REDD. There is an estimated 4,130 households and a population of 15,000 people in the six project sites. Rarotonga Island is the most populated with 3,009 households, and Mauke is the least populated with about 90 households. From the 2011 census, about 99% of households in the project sites are connected to the main grid, while the remaining households use solar panels, generators, and wind turbines.

50. According to the 2012 Pacific Regional Millennium Development Goals tracking report by the Pacific Islands Forum Secretariat, poverty is not an issue for the Cook Islands. However, there is an issue over income inequality between Rarotonga and outer islands. A high per capita GDP is a result of expatriate residents and a tourist-based economy in Rarotonga. However, it conceals the subsistence lifestyle of the Pa Enua population, where development is lagging. GDP per capita is estimated at about \$10,000, and Cook Islanders have access to New Zealand's job market and welfare system. There is also good access to education and health services, safe drinking water, and improved sanitation.

51. During the project preparatory technical assistance, consultations were held with women community groups, landowners, island officials, and representatives from key stakeholders of organizations including REDD, OEC, CIIC, and TAU. The social safeguards specialist, one of the POE, will ensure ongoing consultations with these stakeholders during project implementation, and develop a stakeholder consultation, participation, and communication plan. These stakeholders will provide inputs to the PMU on implementation activities through these consultations. The PMU will also monitor and ensure the participation of poor households and women in consultation activities and project-related contract packages; gender awareness of target groups; and collection of poor household and gender related data for monitoring and evaluation purposes.

## IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

### A. Project Design and Monitoring Framework

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> Increased energy security in an environmentally sustainable manner</p>	<p><b>By 2020:</b> 100% of islands convert energy system from diesel fuel to renewable energy source (2012 baseline: 0%)</p>	<p>Government statistics</p>	<p><b>Assumptions</b> Stable macroeconomic conditions for the Cook Islands</p> <p>Stability in electricity demand</p> <p>World oil prices remain high and volatile</p> <p><b>Risk</b> Policy actions and development partner support are inadequate to implement the CIRECIP.</p>
<p><b>Outcome</b> Increased access to a higher share of electricity generated from renewable energy sources</p>	<p><b>By end of 2018:</b> Four islands in the southern group fully convert energy system from diesel fuel to renewable energy sources (2012 baseline: 0%)</p>	<p>Government statistics</p> <p>Project completion report</p>	<p><b>Assumptions</b> The government continues to prioritize implementing the CIRECIP.</p> <p>Tariffs are adequate for system O&amp;M.</p> <p><b>Risk</b> Implementation is delayed due to delays in noncore subproject preparation, land acquisition, and procurement.</p>
<p><b>Outputs</b> 1. Solar photovoltaic power system development</p>	<p><b>By end of 2016:</b> Solar photovoltaic power system of core subprojects (with 780 kW of installed capacity) connected to the existing power grid on Mangaia, Mauke, and Mitiaro islands (2012 baseline: 0%)</p> <p><b>By end of 2017:</b> Solar photovoltaic power system of noncore subprojects (2,400 kW) connected to the existing power grid on Atiu, Aitutaki, and Rarotonga islands</p>	<p>Project progress reports</p> <p>Project completion report</p>	<p><b>Assumptions</b> REDD and TAU have sufficient capacity to implement and maintain the project.</p> <p>The government adopts policy actions recommended under the institutional strengthening and project management component.</p> <p><b>Risks</b> Support, performance, and coordination at REDD and TAU are weak and</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>2. Institutional strengthening and project management support</p>	<p>(2012 baseline: 0%)</p> <p><b>By end of 2017:</b> Energy efficiency policy implementation plan is developed (2012 baseline: 0%)</p> <p>Capacity of OEC and REDD (10 staff in total) for renewable energy technology assessments and tariff setting in private-sector-funded projects developed (2012 baseline: 0%)</p> <p>The updated CIRECIP, which incorporates load demand update, viable renewable technology choice, and least-cost investment plan, developed (2012 baseline: 0%)</p> <p>Project management support for REDD and TAU to implement core and noncore subprojects (6 in total) completed (2012 baseline: 0%)</p>		<p>inadequate.</p>
<p><b>Activities with Milestones</b></p> <p><b>1. Three core subprojects on Mangaia, Mauke, and Mitiaro islands</b></p> <p>1.1 Bidding for single turnkey contract completed (Q3 2015)</p> <p>1.2 Turnkey contract awarded (Q3 2015)</p> <p>1.3 Start of construction (Q4 2015)</p> <p>1.4 Systems commissioning, including test run (Q3 2016)</p> <p>1.5 O&amp;M training by turnkey contractor completed (Q4 2016)</p> <p><b>2. Three noncore subprojects on Atiu, Aitutaki, and Rarotonga</b></p> <p>2.1 Feasibility studies completed (Q2 2015)</p> <p>2.2 Bidding for two turnkey contracts completed (Q1 2016)</p> <p>2.3 Turnkey contracts awarded (Q1 2016)</p> <p>2.4 Start of construction (Q2 2016)</p> <p>2.5 Systems commissioning, including test run (Q1 2017)</p> <p>2.6 O&amp;M training by turnkey contractor completed (Q2 2017)</p> <p><b>3. Institutional strengthening and project management support</b></p> <p>3.1 Selection of consultants and award of contracts (Q1 2015)</p> <p>3.2 Project management support completed (Q2 2017)</p> <p>3.3 Update of the CIRECIP completed (Q4 2016)</p> <p>3.4 Implementation of the environmental and social safeguard actions (2015–2017)</p>			<p><b>Inputs</b></p> <p><b>ADB:</b> NZ\$12.98 million (equivalent to \$11.19 million)</p> <p><b>European Union:</b> €5.30 million (equivalent to \$7.26 million)</p> <p><b>Government of the Cook Islands:</b> \$5.83 million</p>

## **B. Monitoring**

52. **Project performance monitoring.** The POE will establish a project performance and monitoring system within 6 months of loan effectiveness. ADB and the government will agree on a set of indicators for monitoring and evaluating the project's performance in achieving its goals and objectives. These indicators may be refined and monitored during project implementation. The indicators will include data for monitoring economic development, reduction in transmission losses, increase in solar power generation, decrease in diesel power generation, environmental impact, social impact, and institutional development. The POE will monitor and evaluate the indicators according to the agreed framework and determine the efficiency and effectiveness of the project. The baseline data at outcome and output levels will be updated and reported through quarterly reports and after each ADB review mission. These quarterly reports will be the bases of updating the ADB's project reporting system. Beneficiaries will be involved in project monitoring and evaluation.

53. **Compliance monitoring.** In addition to the standard assurances, compliance with the specific assurances will be monitored. Implementation of covenants will be (i) summarized in the EA's quarterly progress reports, (ii) discussed during PSC meetings, and (iii) reviewed during biannual loan review missions.

54. **Safeguards monitoring (Resettlement).** MFEM, TAU, and REDD, with support from consultants, will monitor all activities associated with land acquisition and resettlement. The monitoring will include reporting on progress of activities in the implementation of the RP with particular focus on public consultations, land acquisition, payment of compensation, and level of satisfaction among affected persons. MFEM, in cooperation with TAU and REDD, will prepare and submit semi-annual monitoring reports to ADB. The resettlement framework and resettlement plan provide detailed arrangements for monitoring and reporting.

55. The safeguard specialists of the POE will assist MFEM, TAU, and REDD in monitoring safeguard activities and preparation, and review and disclosure of safeguard monitoring reports. The checklist for safeguard supervision and the outline of safeguard monitoring report on resettlement for ADB missions, and MFEM, TAU, and REDD, respectively, are provided below.

## Checklist for Safeguard Supervision/Monitoring (Resettlement)

PROJECT INFORMATION					
Loan/Grant No.:	Project Name:				
Approval Date:	Closing Date:			Cumulative Progress (%):	
Project Team Leader(s):				Project Analyst:	
<b>1) Resettlement Categorization</b>					
(Original)	A	B	C	FI	
(additional financing, if any)	A	B	C	FI	
<i>(Please complete the following sections if the project has been categorized as A, B or FI involving land acquisition/resettlement issues)</i>					
<b>2) Resettlement Planning</b>					
Resettlement Planning Documents:	RF	RP	Number of RPs	ES/MS	
RP Finalized or Updated after Detailed Design: (Attach a list of subprojects and status if necessary.)	Yes	No	If no, actions?		
Final/Updated RP Disclosed and Posted on ADB Website:	Yes	No	If no, actions?		
Compensation Rates Approved by the Government:	Yes	No	If no, actions?		
<b>3) Institutional Setup for Resettlement</b>					
PIU/PMU Resettlement Staff Assigned:	Yes	No	If no, actions?		
	If yes, Name:		Since:		
			(month)	/	(year)
Resettlement Specialist Consultant Mobilized:	Yes	No	If no, actions?		
	If yes, Name:		Since:		
			(month)	/	(year)
Grievance Redress Mechanism Established:	Yes	No	If no, why?		
Allocation of Government Budget:	Yes	No	If no, actions?		
	If yes, amount\$:				
<b>4) Resettlement Monitoring and Reports</b>					
Internal Monitoring System Established:	Yes	No	If no, actions?		
External Monitor Engaged (if needed):	Yes	No	If no, actions?		
	If yes, Name:		Since:		
			(month)	/	(year)
Monitoring Report Submitted to ADB:	Yes	No	If no, actions?		
	If Yes, provide information below				
	<b>Baseline Report</b>	<b>Report 1</b>	<b>Report 2</b>	<b>Report 3</b>	<b>Report 4</b>
Submission Date (m/yr)					
ADB Review Date (m/yr)					
Web-posting Date (m/yr)					
Name of ADB Reviewer					
<b>5) Resettlement Field Review with Participation of Safeguard Specialist/Officer/Staff Consultant</b>					
	Yes	No	If no, actions?		
	If Yes, provide information below				
Mission Date (m/yr)					
Type of mission					
Name of safeguard specialist/officer/staff consultants					



### Suggested Contents of Resettlement Monitoring Report

Heading/Section	Contents
Introduction	<p>Brief background on the project/subproject and progress status</p> <p>The project's category and planning documents (original, updated or new plans) on resettlement impacts</p> <p>Institutional arrangements and budget allocation for resettlement/social management</p> <p>Arrangement for monitoring</p>
Monitoring Activities	<p>Methodology for monitoring (whether checklists prepared, etc.)</p> <p>Period the monitoring covers</p> <p>Main activities: site visits, consultations, surveys, etc.</p>
Monitoring Results and Actions Required	<p>Progress and performance in implementation of the resettlement plan and other programs (how these were implemented, what are the outputs, etc.)</p> <p>Results on consultations, disclosure, and grievance redress (whether these have been effective)</p> <p>Whether the implementation comply with the approved resettlement plan (e.g., whether compensation rates were at replacement cost, etc.)</p> <p>Results on outcome (whether affected persons were able to restore livelihoods)</p> <p>Compliance on monitoring and disclosure (whether reports have been submitted and posted on website)</p> <p>Whether any issues and corrective measures were identified to achieve the resettlement plan objective. If yes, actions with target dates and responsible agency/person</p> <p>Follow-up item/plan for next report</p>
Summary and Conclusions	<p>Summary of main findings</p> <p>Main issues identified and corrective actions noted</p> <p>A table on follow-up action which can be updated each period to track completion of actions required</p>
Attachments	<p>Monitoring checklist (based on items identified in the resettlement plan)</p> <p>Photographs</p> <p>Additional information as required</p>

56. **Safeguards monitoring (Environment).** The EA, with support from the POE, will monitor the contractor(s) and check compliance with the approved site-specific environmental management plan (CEMP) and any other contract requirements on a regular basis. The quarterly monitoring reports will cover a summary of the contractor's monthly reports, details of monitoring data collected and analysis of monitoring results, recommended mitigation measures, environmental training conducted, and environmental regulatory violations. The EA will prepare the report on a quarterly basis and submit to ADB. The following checklist can be used for safeguard supervision monitoring. The following table sets out the suggested contents for an environmental monitoring report.

### Checklist for Safeguard Supervision/Monitoring (Environment)

PARD Safeguards Implementation Checklist: Environment					
Date: _____					
PROJECT INFORMATION					
Loan/Grant No.:		Project Name:			
Approval Date:		Closing Date:		Cumulative Progress (%):	
Project Team Leader(s):				Implementing Agency	
<b>1) Categorization</b>					
(Original)		A	<input type="checkbox"/>	B	<input type="checkbox"/>
(additional financing, if any)		A	<input type="checkbox"/>	B	<input type="checkbox"/>
		C	<input type="checkbox"/>	FI	<input type="checkbox"/>
		A	<input type="checkbox"/>	B	<input type="checkbox"/>
		C	<input type="checkbox"/>	FI	<input type="checkbox"/>
<i>(Please complete the following sections if the project has been categorized as A, B or FI)</i>					
<b>2) Planning</b>					
Documents:		EARF	<input type="checkbox"/>	IEE/EIA	<input type="checkbox"/>
IEE/EIA Disclosed and Posted on ADB Website:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
EMP Finalized or Updated after Detailed Design:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
CEMP submitted, reviewed and approved:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
(Attach a list of subprojects and status if necessary.)					
<b>3) Institutional Setup</b>					
PIU/PMU Environment Staff Assigned:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name:				Since:	/
				(month)	(year)
Environmental Specialist/Consultant Mobilized:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, National Specialist's Name:				Since:	/
				(month)	(year)
If yes, International Specialist's Name:				Since:	/
Participation of Gov. Environment Agency/Division:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name:				Since:	/
				(month)	(year)
Grievance Redress Mechanism Established:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Allocation of Government Budget:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, amount\$:					
<b>4) Monitoring and Reports</b>					
Internal Monitoring System Established:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Compliance monitoring incorp. into Q Progress Reports:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
External Monitor Engaged (if needed):		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name:				Since:	/
				(month)	(year)
Monitoring Report Submitted to ADB:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If Yes, provide information below					
	<b>Baseline Report</b>	<b>Report 1</b>	<b>Report 2</b>	<b>Report 3</b>	<b>Report 4</b>
Submission Date (m/yr)					
ADB Review Date (m/yr)					
Web-posting Date (m/yr)					
Name of ADB Reviewer					
<b>5) Field Review with Participation of Safeguard Specialist/Officer/Staff Consultant</b>					
		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If Yes, provide information below					
Mission Date (m/yr)					
Type of mission:					
Participants (safeguard specialist/officer/staff consultants)					



### Suggested Outline of Monitoring Report (Environment)

Heading/Section	Contents
Introduction	Brief background on the project and subproject Institutional arrangements for project management and environmental management
Monitoring Activities	Who participated in the monitoring Methodology for monitoring (whether checklists were prepared, etc.) When the monitoring was undertaken and what period it covers Summary of other monitoring undertaken in the period (i.e., from contractor's monthly reports and if any survey/sample monitoring were undertaken) Main activities: observations/inspections, consultations, interviews with contractor staff, etc.
Works in Progress	Details of the works being undertaken (with photographs) Include whether any environmental training/awareness has been provided to contractor staff in the period (what, by whom, etc.)
Monitoring Results and Actions Required	Whether works and measures comply with the approved EMP/CEMP Should follow sequence of items identified in EMP/CEMP and verify that all mitigations measures noted are being implemented Corrective actions cited (date to be resolved and person responsible on contractor team and verification by IA/PMU)
Summary and Conclusions	Summary of main findings Main issues identified and corrective actions noted Can include summary table which can be updated each period to track completion of actions required
Attachments	Monitoring checklist (based on items identified in the EMP/CEMP) refer to annex 1 Additional photographs Additional information as required

57. ADB and MFEM will conduct twice annual reviews throughout the implementation of the project as well as a midterm loan review. The review will monitor (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. Within 6 months of physical completion of the project, MFEM will submit a project completion report to ADB.<sup>13</sup>

<sup>13</sup> Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>.

### C. Reporting

58. The MFEM in cooperation with TAU and REDD will provide ADB with (i) quarterly progress reports (covering safeguards) in a format consistent with ADB's project performance reporting system; (ii) semi-annual safeguards monitoring reports; (iii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iv) a project completion report within 3 months of physical completion of the project. To ensure projects continue to be both viable and sustainable, project accounts and the EA audited financial statements, together with the associated auditor's report, should be adequately reviewed.

59. The quarterly progress report should also incorporate data on financial progress of the project which includes the expenditure and receipts data incurred during that quarter, cumulative during the fiscal year, and cumulative since project commencement. It should be submitted to ADB within 30 days after the end of each quarter.

### D. Stakeholder Communication Strategy

60. The Stakeholder Communications Strategy is described in Table 7. ADB, MFEM, REDD, and TAU will disclose all relevant project information. At the minimum, this includes all information regarding the bidding process, bidders, contract awards, use of funds disbursed under the project, environment and social safeguard monitoring, and physical progress.

**Table 7: Stakeholder Communication Strategy**

Information	Means of Communication	Responsibility	Audience	Frequency
Report and Recommendation of the President (RRP) with links to relevant documents	ADB Website	ADB	ADB, Government of Cook Islands, Cook Islands civil society and individuals	Once
Project information during design and construction phase	stakeholder consultations and public notice board	MFEM, REDD TAU	Project beneficiaries including the women and the poor households	Regular intervals during design and construction phase
EMP monitoring report	ADB Website	ADB	Affected people and other interested stakeholders	Semi-annual
Information on RP activities	Stakeholder consultation and public notice board	MFEM, REDD TAU	Affected people and other interested stakeholders	All the time
RP monitoring report	ADB Website	ADB	Affected people and other interested stakeholders	Semi-annual
Project Performance Reports and Project Information Documents	ADB Website	ADB	ADB, Government of the Cook Islands, Civil Society and individuals	Quarterly

<b>Information</b>	<b>Means of Communication</b>	<b>Responsibility</b>	<b>Audience</b>	<b>Frequency</b>
Quarterly progress reports	ADB Website	ADB	ADB, Government of the Cook Islands, Civil Society and individuals	Quarterly
Project Completion Report	ADB Website	ADB	ADB, Government of the Cook Islands, Civil Society and individuals	Once

Source: Asian Development Bank.

ADB = Asian Development Bank, REDD = Renewable Energy Development Division, TAU = , EMP = environmental management plan, RP = resettlement plan.

## X. ANTICORRUPTION POLICY

61. ADB and EU reserve the right to investigate, directly or through agents, any violations of the Anticorruption Policy relating to the project.<sup>14</sup> All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of MFEM, TAU, REDD, and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.<sup>15</sup>

62. To support these efforts, relevant provisions are included in the loan and grant agreements and the bidding documents for the project. For the project, MFEM will undertake anticorruption actions, including (i) causing TAU and REDD to review and endorse the procurement process of goods and services and the engagement of the POE; and (ii) having full time officials from TAU and REDD review bidding, construction, and operations, as well as conduct periodic inspection of the contractors' activities related to fund withdrawals and settlements.

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<sup>14</sup> Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>.

<sup>15</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

## **XI. ACCOUNTABILITY MECHANISM**

63. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.<sup>16</sup>

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<sup>16</sup> For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

## **XII. RECORD OF PAM CHANGES**

64. All revisions/updates during course of implementation should be retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

## DRAFT TERMS OF REFERENCE

1. **Solar Photovoltaic Power Engineer and Team Leader** (international, 10 person-months, intermittent). The expert should have post graduate degree in engineering or other relevant field, and at least 15 years of experience in solar photovoltaic engineering with the design, specification and installation of grid connected solar photovoltaic system, and in power electric engineering with the design, specification, and implementation of middle and low voltage systems. Familiarity with ADB's procurement, disbursements, and project monitoring requirements is highly preferable. The activities to be undertaken will include but not limited to the following:

- (i) Review existing documents and data relating to core (Mangaia, Mauke, Mitiaro) and noncore (Aitutaki, Atiu, Rarotonga) subprojects.
- (ii) Prepare tender documents for turnkey contracts for all core and noncore subprojects and submit to the PMU for approval, and assist the PMU for bid documents evaluation and contract negotiation.<sup>17</sup>
- (iii) Assist the PMU to conduct holistic engineering design (to be submitted by turnkey contractors) review for all core and noncore subprojects which includes validating technical specification and performance, and reviewing geotechnical assessment, electrical interfaces, materials, control interfacing, and foundation design. Assist the PMU to guide and instruct the turnkey contractors for corrective actions or design and drawings revision where necessary.
- (iv) Assist the PMU to review control and construction documents (to be prepared by turnkey contractors) for all core and noncore subprojects to verify compliance with design specification, applicable code and standard, and contracts. Assist the PMU to guide and instruct the turnkey contractors for corrective actions or design and draw revision where necessary.
- (v) Assist the PMU in construction supervision which includes cost oversight including variation order, bill of quantity check, and invoice check processing.
- (vi) Develop initial pre-commissioning, test-run, and final acceptance procedure and submit to the PMU for approval. Jointly conduct pre-commissioning, test run, and final acceptance to verify compliance with functional guarantee of equipment and the designed performance of all subprojects.
- (vii) Develop (a) common technical standard for solar photovoltaic mini-grid system, and (b) operation and maintenance (O&M) strategy including supporting scheme to the outer islands. Assist the PMU to review and approve O&M training program and O&M procedure manual (to be submitted by turnkey contractors) and to assess completeness of the O&M training program for invoice processing.
- (viii) Develop project performance monitoring system incorporating core and noncore subprojects' implementation progress, contract award and disbursement, project performance management system, and compliance with loan covenants to comprehensively monitor core and noncore subprojects performances and identify eminent and potential bottlenecks for implementation. These data and findings in the performance monitoring system are migrated into quarterly progress report and project completion report to be submitted to ADB.
- (ix) Guide and assist the PMU to prepare quarterly progress report and project completion report in ADB formats.

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<sup>17</sup> Tender document for all turn-key contracts must include contractor and/or supplier's obligation for final disposal of end-use lithium-Ion batteries at the stage of decommissioning.

- (x) In cooperation with other international and national experts, develop project management capacity enhancement training module in project preparation, procurement, disbursement, monitoring and administration, and evaluation upon completion. Lead to conduct capacity enhancement training for staffs in the PMU and the other relevant agencies.

2. **Solar Photovoltaic Power Engineer** (international, 7 person-months, intermittent). The expert should have post graduate degree in engineering or other relevant field; and at least 8 years of experience in solar photovoltaic engineering with the design, specification and installation of grid-connected solar photovoltaic system, and in power electric engineering with the design, specification, and implementation of middle and low voltage systems. The expert provides assistance to all activities of the team leader. The activities to be undertaken will include but not limited to the following:

- (i) Review existing documents and data relating to core (Mangaia, Mauke, Mitiaro) and noncore (Aitutaki, Atiu, Rarotonga) subprojects.
- (ii) Conduct field survey for potential project sites on noncore subprojects islands. Conduct rapid geological and topological assessment, and reassess solar resource assessment conducted during PPTA to finalize site selection.
- (iii) Assess the existing transmission and distribution system, and grid codes. Conduct grid synchronization analysis, load profile analysis to assess the noncore subprojects' impacts upon grid stability, protection, and control and monitoring.
- (iv) Develop system configuration designs for all noncore subprojects with necessary output fluctuation control measures; prepare detailed capital and O&M cost estimates; and procurement packaging plan.
- (v) Prepare feasibility study reports for three noncore subprojects and submit to the PMU for approval. In cooperation with the other experts, assist PMU to prepare due diligence reports for three noncore subprojects incorporating technical, financial and economic, and safeguard feasibility assessments for ADB approval.
- (vi) In cooperation with team leader, develop project management capacity enhancement training module in project preparation including site selection, system configuration design, costing, and grid synchronization and protection. Assist team leader to conduct capacity enhancement training in project preparation for staff in the PMU and the other relevant agencies.

3. **Energy Economist** (international, 3 person-months, intermittent). The expert should have postgraduate degree in economics, finance or other relevant field, and at least 8 years of experience in master planning and policy analysis in energy sector including renewable energy development. Experience in the master planning model development in load forecasting, least-cost option analysis, economic dispatching, economic analysis and investment planning is highly preferable. The activities to be undertaken will include but not limited to the following:

- (i) Review CIRECIP and the other relevant documents and data, and identify gaps and issues in implementing CIRECIP up to 2020.
- (ii) Develop electricity load demand and supply simulation. Simulate several electricity load demand growth and optimal load supply scenarios in terms of stable power supply, load management with 100% renewable energy penetration into the grid, universal and reliable electricity access, and demand side energy efficiency for planning period up to 2020 to meet target.

- (iii) Update indicative capital and O&M cost requirements and its fund sources in CIRECIP up to 2020. Assess possible private sector participation in implementing CIRECIP, identify gaps and provide recommendations for private sector participation.
- (iv) Draft CIRECIP updates including energy efficiency implementation plan in full consultation with major stakeholders and submit to the project steering committee.
- (v) Perform the economic analysis for the three noncore subprojects, guided by ADB's *Guidelines for the Economic Analysis of Projects* (1997) specifically including (a) electricity demand analysis, (b) least-cost and equalizing discount rate analysis, (c) economic viability analysis, and (d) risk analysis.
- (vi) Incorporate into the economic analysis an economic quantification of environmental impact following ADB's *Economic Valuation of Environmental Impacts: A Workbook* (1996), and *Environmental Assessment Guidelines* (2003).
- (vii) Assist solar photovoltaic engineer in the preparation of feasibility study report and due diligence report for the three noncore subprojects.
- (viii) In cooperation with team leader, develop project management capacity enhancement training module in project economic analysis. Lead to conduct capacity enhancement training in project economic analysis for staffs in the PMU and other relevant agencies.
- (ix) In cooperation with solar photovoltaic engineer, develop capacity enhancement training in energy sector master planning, and lead to conduct training for staff in REDD, PMU, and the other relevant agencies.

4. **Environment Specialist** (international, 3 person-months, intermittent). The expert should have post graduate degree in environment or relevant field, and at least 10 years of experience in environmental assessment and monitoring for project funded by ADB, preferably in the Pacific region. The activities to be undertaken will include but not limited to the following:

- (i) Assist the PMU to monitor the environment management plan (EMP) and report to ADB every 6 months for three core subprojects (Mangaia, Mauke, Mitiaro). Guide and assist the PMU for any corrective actions for EMP implementation and revisions for three core subprojects.
- (ii) Review the environment impact assessment (EIA) report, the feasibility study, and other relevant reports that were prepared by local institutes for the three noncore subprojects (Aitutaki, Atiu, Rarotonga).
- (iii) Evaluate environmental impacts of the three noncore subprojects proposed, and recommend environmentally-friendly options for the design and construction, which emphasizes on (a) biodiversity conservation, (b) public health and safety, (c) physical cultural resources, (d) pollution prevention and abatement, and ensure those aspects are documented and incorporated in the EIA reports.
- (iv) Assist team leader in the preparation of due diligence report for the three noncore subprojects.
- (v) Assist the PMU to prepare comprehensive EMP for three noncore subprojects that meets the ADB requirements. Ensure environmental baseline indicators and performance targets are to be incorporated in the EMP.
- (vi) Prepare initial environmental examination (IEE) for three noncore subprojects and obtain approval of the PMU to submit to ADB.
- (vii) In cooperation with solar photovoltaic engineer, prepare environmental safeguard part in due diligence report for three noncore subprojects.

- (viii) In cooperation with team leader, develop project management capacity enhancement training module in environmental safeguard. Lead to conduct capacity enhancement training in environmental safeguard for staff in the PMU and the other relevant agencies.

5. **Social Safeguards Specialist** (international, 3 person-months, intermittent). The experts should have post graduate degree in social science or relevant field, and at least 10 years working experience. The expert will undertake the following activities:

- (i) Take the overall responsibility of resettlement and social safeguards during the design, implementation, and monitoring of the project, in accordance with the ADB's Safeguard Policy Statement (SPS) and relevant laws of the Cook Islands.
- (ii) Develop and implement stakeholder consultation and communication programs to ensure the full awareness and participation of affected communities and stakeholders.
- (iii) Assist in establishing and implementing the project's grievance redress mechanism.
- (iv) Liaise with relevant government and local authorities for their participation in and oversight of census and detailed measurement survey and negotiation with landowners/affected persons (APs) for purposes of acquisition and compensation of land for the project.
- (v) Assist the PMU to update land acquisition/resettlement plan (RP) and monitor implementation of the RP for three core subprojects (Mangaia, Mauke, and Mitiaro). Guide and assist the PMU for any corrective actions for land acquisition and resettlement plans' implementation and revisions for three core subprojects.
- (vi) Visit the proposed project site and assess the land acquisition and resettlement impacts of the three noncore subprojects (Aitutaki, Atiu, Rarotonga) and prepare RP in accordance with the project's resettlement framework (RF) and ADB's *Safeguard Policy Statement* (2009).
- (vii) Assist the PMU and undertake the following tasks in coordination with relevant agencies and stakeholders for preparing/updating and implementing RPs: (a) collect/update APs' baseline information such as annual household income, size of land holding, source of income, education status through questionnaire survey; (b) identify poverty households, female-headed households, and disabled households among APs through questionnaire survey and focused-group discussion, and identify type of livelihood supports which have been already extended or will be extended to them by the local government; (c) undertake detailed measurement survey and prepare an entitlement matrix; (d) undertake meaningful consultation with all affected households to assess the level of their support to the project, compensation rate, and identify issues, if any; (d) monitor the status of land acquisition process; and (e) prepare land acquisition implementation plan.
- (viii) Assist the PMU to monitor and ensure the poor household's and the women's participation in consultation activities; provision of gender awareness to target groups; encouraging the poor household and the women participation in Project related contracts; and collection of the poor household and the gender related data for monitoring and evaluation purposes.
- (ix) In cooperation with solar photovoltaic engineer, prepare social safeguard parts in due diligence report for noncore subproject for ADB approval.

- (x) Facilitate disclosure of the RP to affected communities, including providing a summary of its contents to APs in local language on eligibility, entitlement, grievance mechanism, timeline of land acquisition, and compensation payment.
- (xi) Prepare semi-annual monitoring reports on land acquisition/resettlement and social safeguards.
- (xii) Coordinate with other specialists and provide safeguard inputs to overall project reports, including quarterly progress reports.
- (xiii) In cooperation with team leader, develop project management capacity enhancement training module in social safeguard. Lead to conduct capacity enhancement training in social safeguard for staffs in the PMU and the other relevant agencies.

6. **Financial Specialist** (international, 2 person-months, intermittent). The experts should have post graduate degree in finance or relevant field, and at least 7 year working experience. The expert will undertake the following activities:

- (i) Carry-out financial analysis of the three noncore subprojects, and prepare preliminary projected financial statements (balance sheet, income statement, and statement of cash flows) for the next 10 years. In cooperation with the team leader, prepare financial analysis and management in due diligence reports
- (ii) Review project audit report and corporate audit report (TAU, REDD) and assess financial soundness of all the subprojects and TAU, and REDD. Guide and assist the PMU to monitor the financial management capabilities and internal control of TAU, and REDD based upon financial management assessment under the PPTA.
- (iii) Guide and assist the PMU to prepare project audit report and corporate audit report in accordance with the requirements of ADB.
- (iv) In cooperation with the team leader, develop project management capacity enhancement training module in financial analysis and management. Lead to conduct capacity enhancement training in financial analysis and management for staff in the PMU and other relevant agencies.
- (v) In cooperation with energy economist, conduct tariff and subsidy analysis to ensure sound financial performance of all the core and noncore subprojects and provide recommendations for necessary improvement in tariff level and structure.

7. **Project Management Specialist** (international-local hire, 9.5 person-months, intermittent). The experts should have at least 5 years working experience, with strong familiarity in international procurement and disbursement procedures. In addition, the expert should have at least 5 years of experience in managing various projects in Cook Islands, and should preferably be recruited locally. The expert will assist both team leader and international solar photovoltaic power engineer in performing all tasks, particularly the following activities:

- (i) Prepare tender documents for commercial parts of turnkey contracts for all core and noncore subprojects and submit to the PMU for approval, and assist the PMU for bid documents evaluation and contract negotiation in cooperation with the team leader.
- (ii) Assess project administration capacity including business process and working procedure inside the PMU to identify strength and weakness in project management, and provide recommendation for further improvement in overall project management.

- (iii) Guide and assist the PMU to process invoice and prepare withdrawal application in accordance with ADB requirements.
- (iv) Visit the project sites; collect the updated information; and guide and assist the PMU to prepare quarterly progress report and project completion report in ADB formats.
- (v) Guide and assist the PMU for bid advertisement, evaluation, contract negotiation, and contract award in cooperation with the team leader.

8. **Project Monitoring Specialist** (international-local hire, 9.5 person-months, intermittent). The experts should have at least 5 years working experience in managing and monitoring various projects in Cook Islands, and should preferably be recruited locally. The expert will assist both international environment and social safeguard specialists in performing all tasks, particularly on the following activities:

- (i) Assist the PMU to monitor the environment management plan (EMP) and report to ADB every 6 months for three core subprojects (Mangaia, Mitiaro, and Mauke). Guide and assist the PMU for any corrective actions for EMP implementation and revisions for three core subprojects.
- (ii) Visit the proposed project site and assess the land acquisition and resettlement impacts of the three noncore subprojects (Aitutaki, Atiu, Rarotonga) and prepare RP in accordance with the project's resettlement framework (RF) and ADB's *Safeguard Policy Statement* (2009).
- (iii) Visit the project sites; collect the updated information; and assist both environment and social safeguards specialists to prepare semi-annual monitoring reports on land acquisition/resettlement, social safeguards and environment.
- (iv) Coordinate with other specialists and provide both environment and social safeguard inputs to overall project reports, including quarterly progress reports.