

ADB GEF PROJECT IMPLEMENTATION REPORT (PIR)

I. Project Profile

ADB Official Project Title: Cook Islands Renewable Energy Sector Project
ADB Project Number: Loan 3193/Grant 0415/Grant 0493/Grant 0548

1. General Information	1	GEF ID (PMIS ID)	9067
	2	Focal Area(s)	Climate Change
	3	Region	Asia
	4	Country	Cook Islands
	5	GEF Project Title	Cook Islands Renewable Energy Sector Project
	6	Project Size (FSP; MSP)	\$43.65 million
	7	Trust Fund (GEFTF; SCCF; LDCF)	\$4.26 million
2. Milestone Dates	8	GEF CEO Endorsement Date (mm/dd/yy)	13 July 2016
	9	ADB Approval Date (mm/dd/yy)	29 August 2016
	10	GEF Grant Signing (mm/dd/yy)	14 September 2016
	11	Project Implementation Start Date (mm/dd/yy)	18 October 2016
	12	Date of 1st GEF Grant Disbursement (mm/dd/yy)	1 September 2017
	13	Final date of GEF Grant Disbursement / Proposed/Revised Implementation End (mm/dd/yy)	31 December 2019
	14	Actual Implementation End (mm/dd/yy)	To be determined
	15	Expected Financial Closure Date (mm/dd/yy)	To be determined
3. Funding	16	PPG/PDF Funding (USD)	N/A
	17	GEF Grant (USD)	\$4.26 million
	18	Total GEF Disbursement as of 30 June 2018 (USD)	\$2.76 million
	19	Confirmed Co-Finance at CEO Endorsement (USD)	\$4.26 million
	20	Materialized Co-Finance at project mid-term (USD)	N/A
	21	Materialized Co-Finance at project completion (USD)	N/A
4. Evaluations	22	Proposed Mid-term date (mm/dd/yy)	17 September 2018
	23	Actual Mid-Term date - if applicable (mm/dd/yy)	
	24	Proposed Terminal Evaluation date (mm/dd/yy)	N/A
	25	Actual Terminal Evaluation Date (mm/dd/yy)	N/A
	26	Tracking Tools Required (Yes/No/ Focal Area TT)	
	27	Tracking Tools Date - if applicable (mm/dd/yy)	
		Midterm Tracking Tool Terminal Evaluation Tracking Tool	

5. Ratings	28	Overall Implementation Progress Rating (IP)	Satisfactory
	29	Overall Development Objectives Rating (DO)	Satisfactory
	30	Overall Risk Rating	Low risk
	31	Overall Project Rating	Satisfactory
6. Status	32	Status (GEF grant for ADB board approval/ GEF grant on-going)	On-going
	33	Implementation Status (1 st , 2 nd , 3 rd PIR..., Final PIR)	2 nd PIR
7. Files	34	PIR File Name (GEFID#_2018_ADB_Country_ProjectName)	GEFID9067_2018_PIR_ADB_Cook Islands

II. Project Contacts

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Project	
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III. Project Implementation

A. Project Description:

On 21 November 2014, the Board of Directors of ADB approved a loan (LN3193) of NZ\$12.98 million (\$11.19 million) from ADB's ordinary capital resources (OCR) and the administration of a grant (GR0415) not exceeding €5.30 million (\$7.26 million) provided by the European Union for the original Renewable Energy Sector Project (original project). The Government of the Cook Islands (government) provided a contribution equivalent to \$5.83 million to bring the total investment cost to \$24.28 million. The loan and grant became effective on 9 February 2015 and are expected to close on 31 December 2019.

On 19 November 2014, the government appointed ADB as the agency to administer a grant (GR0493) of \$4,264,654 from the Global Environment Facility (GEF) to expand the scale of the original project and deliver greater benefits. On 29 August 2016, ADB approved the first additional financing from GEF administered by ADB, which became effective on 18 October 2016. The first additional financing with the additional contribution from the government of \$1.31 million has increased the overall project investment from the current \$24.28 million to \$29.85 million.

The first additional financing allows installation of a battery energy storage system (BESS) with a preliminary capacity of 1.0 MW and 4.0 MWh, which will provide load shifting to offset renewable generation at the existing 1.0 MW solar photovoltaic (PV) facility at the Rarotonga Airport. The BESS, funded by GEF, will allow 2.0 MW of additional solar PV generation, which is about 8% progress towards the total estimated renewable generation.

The impact of the current project will be increased energy security in an environmentally sustainable manner. The outcome will be increased access to a higher share of electricity generated by renewable energy sources. The current project will: (i) construct up to five solar photovoltaic (PV) power plants with a total installed capacity of about 2-megawatt peak (MWp) coupled with batteries to store electricity from solar energy; (ii) rehabilitate the existing distribution network for Phase 1 subprojects; and (iii) provide institutional strengthening to the government to develop the energy efficiency policy implementation plan. The project owner's engineer (POE) has been providing project management support to the implementing agencies to help implement the current project.

In December 2016, GCF's Board approved a grant of \$12,000,000, which was processed as the second additional financing (GR0548) to the project. The grant was approved on 30 October 2017 and is administered by ADB. The additional GCF grant, plus the additional contribution from the government of \$1.80 million, has increased the overall project investment to \$43.65 million. The Grant Agreement (GA) and the Project Agreement (PA) for GR0548 have been signed on 20 June and the grant was declared effective on 30 July 2018.

B. Implementation Progress (IP) Rating:

Overall implementation progress is satisfactory, and the project is not facing any major risk that may threaten the successful delivery of expected outputs. As of 16 July 2018, (i) cumulative contract award for the current project is at \$17.78million, or 78.25% of financing administered by ADB; and (ii) cumulative disbursements for the current project has reached \$13.99 million, or 61.60% of

financing administered by ADB. The current project is currently rated on track in the project performance rating system. The latest implementation status of the current project is summarized in Table 1.

Table 1: Summary of Implementation Status

Site	Update
Phase 1	
Mangaia	<p>Progress to date:</p> <ul style="list-style-type: none"> • Land agreements in place and compensation paid (both for new site and existing power station) • Land has been cleared and prepared in accordance with POE civil specifications • Contractor started construction in April 2018 • Construction was completed in August 2018
Mauke	<p>Progress to date:</p> <ul style="list-style-type: none"> • Land agreements in place and compensation paid for power station site • Land agreements to be finalised for substation sites required for distribution upgrade • Land has been cleared and prepared in accordance with POE civil specifications • Contractor commenced work on the solar power station in August 2017 and on the distribution works in January 2018 • Contractor has completed the solar power station in June 2018, and is expected to complete the distribution network in October 2018
Mitiaro	<p>Progress to date:</p> <ul style="list-style-type: none"> • Land agreements in place and compensation paid • Land has been cleared and prepared in accordance with POE civil specifications • Contractor commenced work on the power station and distribution network in June 2017 • Contractor completed the power station and distribution network in April 2018
Atiu	<p>Progress to date:</p> <ul style="list-style-type: none"> • Land agreements in place and compensation paid • Land has been cleared and prepared in accordance with POE civil specifications • Contractor started construction of the power station in November 2017 • Contractor completed construction in August 2018
Phase 2	
Aitutaki	<ul style="list-style-type: none"> • Land agreements are in place for the power station site • Island council completed land clearing as per the MoU • Turnkey contractor was engaged in June 2018 • Initial designs have been submitted and site studies undertaken. • Contractor is expected to complete construction by June 2018
Rarotonga	<p>GEF BESS</p> <ul style="list-style-type: none"> • Design: 1 MW 4 MWh modular/containerized BESS to be installed at Rarotonga airport • Contractor engaged in May 2017 • Variation for larger transformer to allow increased power capability of the inverter offered (to 1.35MW) • 90% design submitted in October 2017 • Factory acceptance test undertaken in March 2018 • Contractor experienced some delays in finalizing documentation and FAT outstanding items, as well as mobilization to site • Installation on site 50% complete as of August 2018, commissioning expected September 2018. <p>GCF BESS:</p> <ul style="list-style-type: none"> • Design: 2 x 1 MW / 4MWh modular / containerized BESS to be installed at Rarotonga airport for load shifting; plus 1 x 4MW / 1MWh modular / containerized BESS to be installed at Rarotonga power station for grid stability • Tender issued date 10th November 2017 and award expected in September 2018. • No physical implementation to date

* Prepared by the Consultant.

a. GEF Grant Disbursement

On 1 June 2017, the battery energy storage system (BESS) turnkey contract of \$3.1 million (about NZ\$4.3 million) funded by GEF was awarded and as of 30 June 2018, disbursements totaled \$2.8 million.

A variation to the project owner’s engineers’ contract to include support for the BESS implementation was also made and awarded in the amount of \$388,784.59. No disbursement has been made under this yet.

b. Gender Action Plan Implementation Status

This project is classified having no gender elements, so no gender action plan was prepared.

c. Social and Environmental Safeguard Plan Implementation Status

Overall status of Safeguards implementation - The GEF component is classified as category B for environment, and C for both involuntary resettlement and indigenous peoples. No significant environmental impacts are envisaged from the onsite installation of the BESS system. The initial environmental examination was updated to include the additional project scope and necessary mitigation measures for the on-site installation, operation and decommissioning of the BESS. A due diligence report was also prepared and proved that no land acquisition or displacement will result and that the people of the project area do not meet the ADB criteria (distinctiveness and vulnerability) of indigenous peoples. All safeguard documentation was prepared in accordance with the Government of Cook Islands national laws, policies and guidelines and ADB’s *Safeguard Policy Statement* (2009). Semi-annual safeguard monitoring reports since the GEF component became effective up to date have been submitted.

Status of loan covenant compliance related to Safeguards – The grant covenants related to safeguards are all being complied with.

Corrective action, if any – N/A

C. Global Environmental Benefits (GEB) Objective/ Development Objective (DO) Rating:

Design and Monitoring Framework Indicator Status
(as of 31 July 2018)

Project-Specific Indicators	Type of Measurement	Baseline Value	Baseline Date	Achieved By (Year)	Performance Targets (No)	Data Sources	DO Rating / Remarks
Impact:							
Increased energy security							
100% of islands convert energy system from diesel fuel to renewable energy source	Percent	0	31-Dec-2012	2022	100	Government statistics	Not yet due (13 of 15 islands now complete)

Project-Specific Indicators	Type of Measurement	Baseline Value	Baseline Date	Achieved By (Year)	Performance Targets (No)	Data Sources	DO Rating / Remarks
Outcome:							
Increased access to a higher share of electricity generated from renewable energy sources							
About 6.0 MW of additional solar photovoltaic (PV) without negatively affecting the grid. This will result in additional fuel savings and carbon dioxide reduction of about 1.5 million liters and of about 6,370 tons per annum	Number	0	31-Dec-2012	2022	100	Government statistics Project completion report (PCR)	Not yet due
Output 1:							
Installation of additional 3 units of BESSs with a preliminary capacity of 3.0 MW and 12.0 MWh							
About 6.0 MW of additional solar PV without negatively affecting the grid. This will result in additional fuel savings and carbon dioxide reduction of about 1.5 million liters and of about 6,370 tons per annum	Number	0	31-Dec-2012	2019	6	Project progress reports PCR	Not yet due
Output 2:							
Institutional strengthening and project management support							
Energy efficiency policy implementation plan is developed	Percent	0	31-Dec-2012	2019	100	Project progress reports PCR	Completed. 2016 CIRECIP published
Capacity of OEC and REDD (10 staff in total) for renewable energy technology assessments and tariff setting in private-sector-funded projects	Percent	0	31-Dec-2012	2019	100	Project progress reports PCR	Not yet due

Project-Specific Indicators	Type of Measurement	Baseline Value	Baseline Date	Achieved By (Year)	Performance Targets (No)	Data Sources	DO Rating / Remarks
developed							
The updated CIRECIP, which incorporates load demand update, viable renewable technology choice, and least-cost investment plan, developed	Percent	0	31-Dec-2012	2019	100	Project progress reports PCR	Completed. 2016 CIRECIP published
Project management support for REDD and TAU to implement Phase 1 and Phase 2 subprojects (6 in total) completed	Percent	0	31-Dec-2012	2019	100	Project progress reports PCR	Project management unit engaged

Activities	Completed	Progress/Status
1. Four Phase 1 subprojects in Atiu, Mangaia, Mauke, and Mitiaro	Yes	Completed
1.1 Bidding for single turnkey contract completed (by Q1 2016)	Yes	Completed
1.2 Turnkey contract awarded (by Q3 2016)	Yes	Completed
1.3 Start of civil works and installation (by Q3 2017)	Yes	Completed
1.4 Systems commissioning, including test run (by Q2 2018)	Yes	Completed
1.5 O&M training by turnkey contractor completed (by Q2 2018)		
2. One Phase 2 subproject in Aitutaki	Yes	Completed
2.1 Feasibility studies completed (by Q4 2016)	Yes	Completed
2.2 Bidding for one turnkey contract completed (by Q4 2017)	Yes	Completed
2.3 Turnkey contract awarded (by Q1 2018)		Completed
2.4 Start of civil works and installation (by Q4 2018)		Ongoing
2.5 Systems commissioning, including test run (by Q2 2019)		Not yet due
2.6 O&M training by turnkey contractor completed (by Q2 2019)		Not yet due
3. One Phase 2 Battery Energy Storage System in Rarotonga	Yes	Completed
3.1 Feasibility studies completed (by Q1 2016)	Yes	Completed
3.2 Bidding for one turnkey contract completed (by Q4 2016)	Yes	Completed
3.3 Turnkey contract awarded (by Q2 2017)		Completed
3.4 Start of civil works and installation (by Q4 2017)		Ongoing
3.5 Systems commissioning, including test run (by Q1 2018)		Ongoing
3.6 O&M training by turnkey contractor completed (by Q2 2018)		Ongoing
4. Three Phase 2 Battery Energy Storage System in Rarotonga	Yes	Completed
4.1 Feasibility studies completed (by Q1 2017)	Yes	Completed
4.2 Bidding for two turnkey contracts completed (by Q4 2017)		Completed
4.3 Turnkey contracts awarded (by Q2 2018)		Not yet finalized
4.4 Start of civil works and installation (by Q3 2018)		Not yet due
4.5 Systems commissioning, including test run (by Q1 2019)		Not yet due
4.6 O&M training by turnkey contractor completed (by Q2 2019)		Not yet due
5. Institutional strengthening and project management support	Yes	Completed
5.1 Selection of consultants and award of contracts (by Q1 2015)		Ongoing
5.2 Project management support completed (by Q3 2019)	Yes	Completed
5.3 Update of the CIRECIP completed (Q2 2019)		

Activities	Completed	Progress/Status
5.4 Implementation of the environmental and social safeguard actions (2015–2019)		Ongoing

D. Risk Rating:

The BESS turnkey contract has been awarded in June 2017 and then the awarded contractor has commenced works. Moreover, no additional land acquisition is required. Therefore, the GEF component is not facing any major risk that may threaten the successful delivery of expected outputs.

E. Overall Rating of the Project:

Overall implementation progress since effectiveness is satisfactory and the overall project is not facing any major risk that may threaten the successful delivery of expected outputs. The overall project is currently rated *on track* in the project performance rating system. The latest implementation status of the current project is summarized in Table 1.

F. Additional Comments – Good Practices and Lessons Learned:

N/A

G. Knowledge Management:

- Applied Energy Symposium and Forum, REM2016: Renewable Energy Integration with Mini/Microgrid Conference Proceedings of “Cook Islands: Planning 100% Renewable Energy in Different Guises” was published in December 2016 (<http://www.sciencedirect.com/science/article/pii/S1876610216314849>).
- Asia Clean Energy Forum, “The Promise of Storage: Implementing Renewable Energy in Mini-grids” was presented in June 2018 (<https://d2oc0ihd6a5bt.cloudfront.net/wp-content/uploads/sites/837/2018/06/Chris-Blanksby-and-James-Mason-The-Promise-of-Storage-Integrating-Renewable-Energy-in-Mini-Grids.pdf>).

H. Location Data:

The plan for the GEF-funded subproject on Rarotonga is to install a Battery Energy Storage System (BESS) into the Rarotonga grid. The BESS is to be housed in containers positioned on one of two potential sites located on government-owned freehold land at the Rarotonga airport on the northwest coast of Rarotonga. Access to both sites would be from public roads across the parcels in question. Storage of materials and staging during construction would be on the same respective parcels.

The preferred and most likely site for the BESS is on the airport property inside the security fence encircling the existing solar photovoltaic (PV) array just southwest of the terminal building (see Figure 1, right, and Figure 2, next page).



Figure 1. Photo taken in 2016 showing existing PV installation (inside yellow ring).

The second option is on the south side of the runway adjacent to the substation that serves the airport and its PV array (Figure 2, next page). Both options are technically feasible.

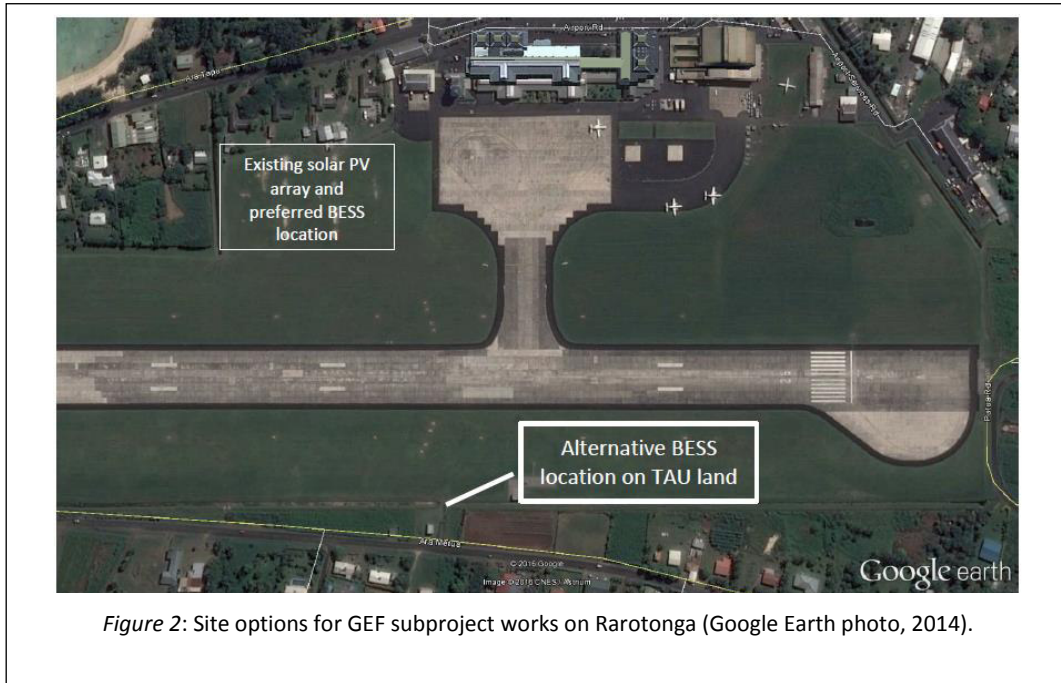


Figure 2: Site options for GEF subproject works on Rarotonga (Google Earth photo, 2014).

Figure 3 (below) shows an aerial photo of the area with GIS overlays of coastal hazard zones (red, blue, and yellow fill) and cadastral boundaries (dashed white lines). The boundary shown in fluorescent-

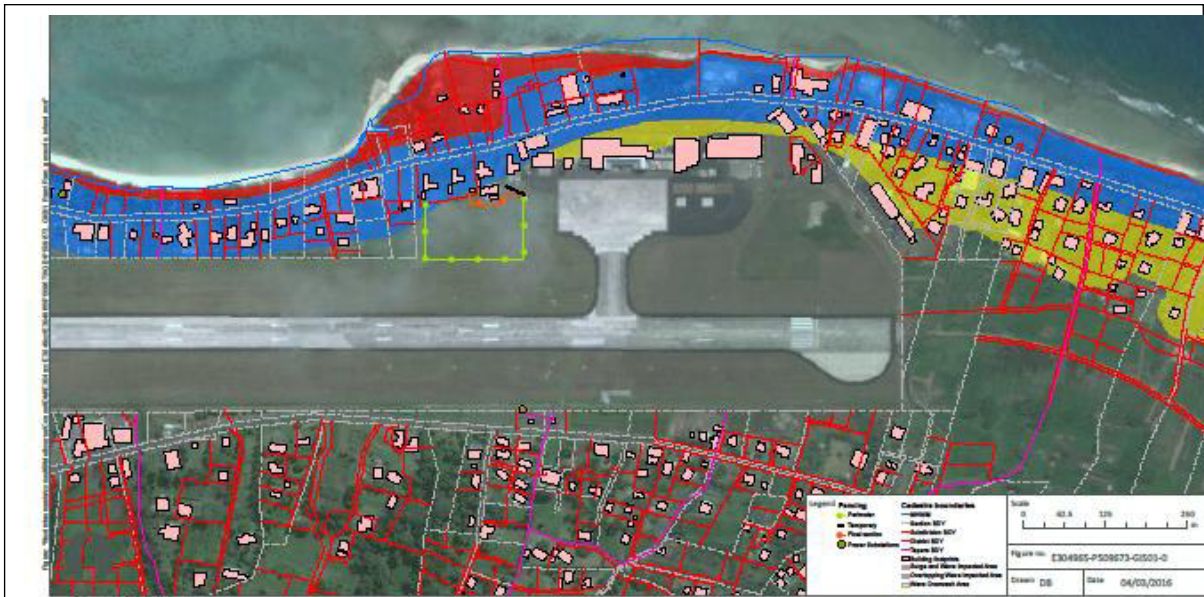


Figure 3: The preferred location of the BESS is inside the security fence (marked in green) that encircles the perimeter of the existing solar array. The alternate site is at the TAU substation (marked by an olive-green dot on the south side of the runway).

green marks the preferred BESS location inside the security fence surrounding the existing PV array. The alternate site at the Te Aponga Uira o Tumu Te Varovaro (TAU) substation is marked by an olive-green dot on the south side of the runway.

For Projects that have conducted Midterm Review Mission and Project Completion Mission (from 1 July 2017 to 30 June 2018)

IV. Materialized Cofinancing

Materialized Co-financing

Sources of Co-financing ¹	Name of Co-financer	Type of Co-financing ²	Amount Confirmed at CEO endorsement / approval	Actual Amount Materialized at Midterm	Actual Amount Materialized at Closing
Asian Development Bank			\$11.19 million	Not yet due	
European Union			\$7.26 million	Not yet due	
Green Climate Fund			\$12.00 million	Not yet due	
Government of Cook Islands			\$8.94 million	Not yet due	
		TOTAL	\$39.39 million		

Explain "Other Sources of Co-financing": _____

Reminder: Kindly include in your submission a copy of the following:

1. For projects that conducted **Midterm Review Mission**: Copy of the MOU Midterm Review Mission; BTOR and Updated Tracking Tools
2. For projects that conducted **Project Completion Mission**: Copy of the PCR, Copy of the MOU Midterm Review Mission; and Updated Tracking Tools

¹ Sources of Co-financing may include: Bilateral Aid Agency(ies), Foundation, GEF Agency, Local Government, National Government, Civil Society Organization, Other Multi-lateral Agency(ies), Private Sector, Other

² Type of Co-financing may include: Grant, Soft Loan, Hard Loan, Guarantee, In-Kind, Other



Signature: 
Name of Project Officer: Eun young So
Position: Energy Specialist
Date: 14/08/2018

Endorsed by: 
Division Director: Oily Norojono
PATE

AUG 15 2018

Annex 1: DEFINITION OF RATINGS

Implementation Progress Ratings

Highly Satisfactory (HS): Implementation of **all** components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.

Satisfactory (S): Implementation of **most** components is in substantial compliance with the original/formally revised plan except for only a few that is subject to remedial action.

Moderately Satisfactory (MS): Implementation of **some** components is in substantial compliance with the original/formally revised plan with **some** components requiring remedial action.

Moderately Unsatisfactory (MU): Implementation of **some** components is not in substantial compliance with the original/formally revised plan with **most** components requiring remedial action.

Unsatisfactory (U): Implementation of **most** components is not in substantial compliance with the original/formally revised plan.

Highly Unsatisfactory (HU): Implementation of **none** of the components is in substantial compliance with the original/formally revised plan.

Global Environment Objective/Development Objective Ratings

Highly Satisfactory (HS): Project is expected to achieve or exceed **all** its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.

Satisfactory (S): Project is expected to achieve **most** of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.

Moderately Satisfactory (MS): Project is expected to achieve **most** of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve **some** of its major global environmental objectives or yield some of the expected global environment benefits.

Moderately Unsatisfactory (MU): Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only **some** of its major global environmental objectives.

Unsatisfactory (U): Project is expected **not** to achieve **most** of its major global environment objectives or to yield any satisfactory global environmental benefits.

Highly Unsatisfactory (HU): The project has failed to achieve, and is not expected to achieve, **any** of its major global environment objectives with no worthwhile benefits.

Risk Rating

Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risks of projects should be rated on the following scale:

High Risk (H): There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.

Substantial Risk (S): There is a probability of between 51% and 75% that assumptions may fail to hold and/or the project may face substantial risks.

Modest Risk (M): There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.

Low Risk (L): There is a probability of up to 25% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.