

Project Administration Manual

Project Number: 46122
August 2014

Proposed Grant and Administration of Grant
Republic of Maldives: Preparing Outer Islands for
Sustainable Energy Development

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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 the Government of Maldives (government) and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Government through the Ministry of Finance and Treasury is wholly responsible for the execution of ADB financed projects, as agreed jointly between the recipient and ADB, and in accordance with government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MEE, STELCO and FENAKA of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Grant Negotiations the recipient and ADB shall agree to the PAM and ensure consistency with the Grant agreement. Such agreement shall be reflected in the minutes of the grant negotiations. In the event of any discrepancy or contradiction between the PAM and the government, the provisions of the 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
ADF	–	Asian Development Fund
CPS	–	country partnership strategy
DMF	–	design and monitoring framework
DSM	–	demand side management
EIB	–	European Investment Bank
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
ENPV	–	Economic net present value
EPU	–	Energy Planning Unit
FENAKA	–	FENAKA Corporation Limited
FIRR	–	financial internal rate of return
FNPV	–	financial net present value
FMA	–	financial management assessment
GAP	–	gender action plan
GDP	–	gross domestic product
IDB	–	Islamic Development Bank
IEE	–	initial environmental examination
LIBOR	–	London interbank offered rate
LCOE	–	levelized cost of electricity
MEA	–	Maldives Energy Authority
MEE	–	Ministry of Environment and Energy
MOFT	–	Ministry of Finance and Trade
NPV	–	net present value
O&M	–	operation and maintenance
PCA	–	procurement capacity assessment
PAM	–	project administration manual
PFM	–	public financial management
PIU	–	project implementation unit
PMCs	–	project management consultants
PMU	–	project management unit
PPTA	–	project preparation technical assistance
RRP	–	report and recommendation to the President
TOR	–	terms of reference
STELCO	–	State Electricity Company
WACC	–	weighted average cost of capital

WEIGHTS AND MEASURES

kWh	–	kilowatt-hour
kWp	–	kilowatt- peak
MW	–	Megawatt
MWp	–	megawatt-peak

NOTES

In this report, "\$" refers to US dollars.

I. PROJECT DESCRIPTION

Rationale

1. The Maldives, located 750 km south west of Sri Lanka, is an archipelago consisting of 26 atolls¹ and a total land area of about 300 sq. km. About half the country's population lives on the outer islands. The Maldives has about 141 MW of installed diesel generation capacity on the inhabited islands and another 105 MW on the tourism islands. While the Maldives has the unique distinction of being the first and the only country in South Asia with 100% access to electricity, this achievement has come at a cost. Given the geographic location of islands, each island is electrified with its own diesel powered grid system resulting in expensive and not very reliable supply. The cost of diesel power is unaffordable at 30-70 cents/kWh and requires government subsidies in excess of \$50 million annually. Electricity sector subsidies are also one of identified areas for government expenditure management. In 2012, Maldives spent over \$470 million for oil imports of which fuel imports for electricity generation contributes significantly.² The 100% diesel dependence of Maldives also makes its carbon emissions per unit of electricity among the highest in the region. State owned STELCO and FENAKA are the main electricity utilities responsible for supplying electricity to the communities in inhabited islands except a few where Island Councils are still responsible for the supplies.

2. The Maldives has significant renewable energy resources namely solar power and in some pockets wind power. Energy sector studies reveal that the cost of energy generation based on renewable energy and fossil fuel hybrids would be significantly lower compared to existing options. The transition to renewable energy based systems has sound economic rationale. The Government's effort to increase electricity production from indigenous sources, including solar and wind power, to enhance energy security will reduce the pressure on the balance of payments and improve the fiscal position³. The Government has initiated two programs – Preparing Outer Islands for Sustainable Energy Development (POISED) and Accelerating Sustainable Private Investments in Renewable Energy (ASPIRE) to support energy efficiency and renewable energy investments.

3. The proposed project on the outer islands would transform the existing grids through physical investments in renewable energy, energy management and control systems, storage and improvements in distribution networks and significantly reduce the requirement for diesel to generate electricity. Private sector investment projects to support solar photovoltaic investments on larger islands (initially planned for STELCO serviced areas) are under consideration outside and complementary to the Project. In addition, Government through policy measures as well investment interventions supported by ADB's Private Sector Operations Department and the Strategic Climate Fund encourages tourism industry to move towards low carbon energy pathway. . ADB will also support the utilities on demand-side-management (DSM) interventions targeting household and other sectors through ongoing technical assistance.

4. The Government has a Maldives National Energy Policy and Strategy, 2010 to support the development of the energy sector including a sector roadmap and investment plan for implementation. Capacity at institutions including the Maldives Energy Authority (MEA), the Ministry of Environment and Energy (MEE) and the utilities are being progressively enhanced

¹ The Maldives has 1192 islands of which 194 islands are inhabited.

² The Maldives is considered one of the most oil vulnerable countries with oil imports close to 35% of GDP in 2012.

³ ADB. *Report and Recommendation of the President MLD: Preparing Outer Islands for Sustainable Energy Development*. Manila. 2014

for achieving the roadmap. The project is aligned to ADB's Strategy 2020 of supporting sustainable energy growth, Energy Policy 2009 and is a part of the Maldives COBP for 2013-2015. Based on the government's investment plan for the outer islands and the characteristics of the electricity systems, a sector project approach is considered best suited to support the transition of the islands that meet the eligibility criteria⁴.

B. Impact and Outcome

5. The impact of the project will be a more sustainable energy sector based on renewable resources, to be achieved by 2022. The outcome will be a shift towards clean and cost-effective energy sources by 2019.⁵

C. Project outputs

6. The project outputs are;

- (i) Output 1: renewable-energy-ready grid systems developed for outer islands and greater Male region; and
- (ii) Output 2: enhanced capacity of MEE, STELCO, and FENAKA to implement renewable energy grid interventions.

7. Output 1 includes detailed design and installation of equipment for solar diesel hybrid grids for about 160 outer islands and greater Male region. It will commence in the second half of 2014 with investments on 5 sample sub-projects and a control center to be scaled up to other islands using an eligibility criteria. Capacity building under output 2 would include procurement; project management, technical; financial management; gender and safeguard support and training that would commence in 2014 for the duration of the project.

⁴ Identified in the Project Administration Manual

⁵ Diesel reduction will be achieved by replacing inefficient diesel generators, upgrading distribution systems, and gradually replacing diesel generation with renewable energy and storage solutions.

II. IMPLEMENTATION PLANS

8. The Grant will be implemented over 5 years starting from June 2014. The physical completion is expected by June 2019. Details on the implementation arrangements are shown in the table below.

Implementation Arrangements

Aspects	Arrangements		
Implementation period	June 2014–December 2019		
Estimated completion date	31 December 2019		
Management			
(i) Oversight body	Project steering committee comprising state ministers (finance and treasury, environment and energy, economic development) of the Government of the Maldives, Head of Maldives Energy Authority; and Managing Directors of FENAKA and STELCO		
(ii) Executing agency	Ministry of Finance and Treasury, Government of the Maldives		
(iii) Key implementing agencies	MEE, FENAKA, and STELCO		
(iv) Implementation unit	Project management unit located at MEE, seven staff proposed; project implementation units at STELCO and FENAKA		
Procurement	International competitive bidding	Six contracts (under ADB) EIB and IDB to follow own procurement guidelines	\$44 million
	National competitive bidding	none	
Consulting services	QCBS	Firm-based contract	\$3 million
Retroactive financing and/or advance contracting	Retroactive financing to be requested for eligible expenditure on equipment, civil works, and implementation services, not exceeding the amount of 20% of the estimates, incurred before grant effectiveness but not earlier than 12 months before the signing of the grant agreement. Advance contracting		
Disbursement	The grant proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, EIB = European Investment Bank, FENAKA = FENAKA Corporation Limited, IDB = Islamic Development Bank, MEE = Ministry of Environment and Energy, QCBS = quality- and cost-based selection, STELCO = State Electricity Company.

Source: Asian Development Bank estimates.

A. Project Readiness Activities

	2014							2015						Responsibility
	Month							Month						
Indicative Activities	6	7	8	9	10	11	12	1	2	3	4	5	6	
Advance contracting actions		x												MEE/FENAKA/STELCO /ADB
Retroactive financing actions			x											MEE/FENAKA/STELCO /ADB
ADB Board Approval				x										ADB
Implementing Agencies Board Approval of the Project			x											FENAKA/STELCO
Grant signing with GoM and Subsidiary Loan Agreement						x								GoM/ADB
Government legal opinion provided							x							GoM
Government budget inclusion							x							MEE
Loan effectiveness							x							ADB
Establish Project implementation arrangements (including staff from utilities)				x										ADB/MEE/FENAKA / STELCO
Obtain local clearances and permits						x								MEE/FENAKA/STELCO

ADB = Asian Development Bank.

GOM = Government of Maldives

Source: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Stakeholders – Roles and Responsibilities

Project organizations	Management Roles and Responsibilities
Project Steering Committee (PSC)	The PSC will have the following members; Chair: State Minister, Ministry of Environment and Energy (MEE), Members-State Minister, Ministry of Finance, State Minister, Ministry of Economic Development and Managing Directors from FENAKA and STELCO. The PSC will oversee project implementation and progress. It will rectify issues hindering the project progress, guide PMU and implementing agencies. The PSC shall meet at least once in every quarter.
MOFT, the Executing Agency	Responsible for timely execution of the Project. Receive and review fund withdrawal applications from the Project Management Unit (PMU) and submit to ADB. Review financial reports (including the annual audit report and financial statements) and project progress report from the PMU and submit to ADB.
MEE/FENAKA/STELCO, the Implementing Agencies	Will review and the activities carried out by the Project Department. Will be responsible for signing contracts and providing required counterpart budget
PMU	Will conduct O&M for all the project facilities from the point of commissioning.
	Composed of suitable representative from MEE, Head of Project Department of STELCO and Head of Project Department of FENAKA supported by consultants. PMU will be headed by a Project Manager hired on a fulltime basis for the Project and financed from the grant. He/she will report to relevant Project Director of MEE. The PMU will also include senior technical staff two each from STELCO and FENAKA on a fulltime basis.
	PMU will be responsible for the approval of technical designs for the project and procurement on behalf of STELCO and FENAKA.
	It will support MEE/FENAKA/STELCO in taking decisions related to project design and implementation and prepare fund withdrawal applications. It will also support inter-agency coordination. It will be assisted by international and national consultants. ADB will help in the selection process of the consultants who would support the development of (i) technical specifications & designs; (ii) tender documents (iii) procurement plan, including all project goods, works and services for project development and implementation and (iv) project management.

The PMU will also review the implementation of safeguard and gender action related activities.

Project Implementation Unit (PIU)

The existing Project Departments of FENAKA and STELCO will be responsible for project implementation, overall intra-agency and intra-department coordination.

It will provide project implementation support to contractors and will liaise with the islands where project is to be implemented. It will also be responsible for organizing training programs for building institutional capacity of FENAKA and STELCO. It will be assisted by PMU and external experts selected by ADB.

ADB

Assist the selection of external experts to be recruited under POISED to provide support to PMU. To review and approve bidding documents and evaluation reports.

ADB = Asian Development Bank. Source: Asian Development Bank estimates.

B. Key Persons Involved in Implementation

Executing Agency	Ministry of Finance and Treasury
	Officer's Name: Position: Telephone: Email address:
Implementing Agency	Officer's Name: Ajwad Mustapha Position: Permanent Secretary Telephone: Email address:
Implementing Agency	Officer's Name: Position: Telephone: Email address:
Implementing Agency	Officer's Name: Position: Telephone: Email address:
Mission Leader/Co-Mission Leader	Staff Name: Priyantha Wijayatunga Position: Principal Energy Specialist Telephone No.: (632) 632-1739 Email address: pwijayatunga@adb.org
	Staff Name: Len V. George Position: Energy Specialist Telephone No.: (632) 632-6633 Email address: lgeorge@adb.org

C. Project Organization Structure

9. The Republic of Maldives will be the grant recipient. MOFT will be the Executing Agency for the Project and will oversee the project implementation with the support of a Project Management Unit (PMU). The PMU will consist of staff drawn from MEE, STELCO and FENAKA. The staff of PMU preferably will have experience in implementing similar project and will have competencies in the areas of financial management, procurement, power systems, legal issues and regulation. The PMU in consultation with MoFT, MEE and ADB may decide on the number, required skill sets, roles and responsibilities of its staff. The PMU will be responsible for guiding the two Project Implementation Units (PIUs) i.e. the project departments of STELCO and FENAKA. The PMU's responsibilities will include (i) overall coordination, macro level project management and monitoring; (ii) annual budget preparation and monitoring utilization of grant proceeds; (iii) progress reporting, including reports on cost and time management and project impact; and (iv) ensuring compliance with grant covenants. The PMU will also be responsible for administration, and financial and technical supervision of the subprojects, including procurement of goods and services, engagement of consultants, engineering and construction by contractors, and monitoring subproject operation performance. It will also assist FENAKA and STELCO through in training and developing institutional capacity in the technical aspects of the project related to O&M of solar plants including storage batteries and grid integration.

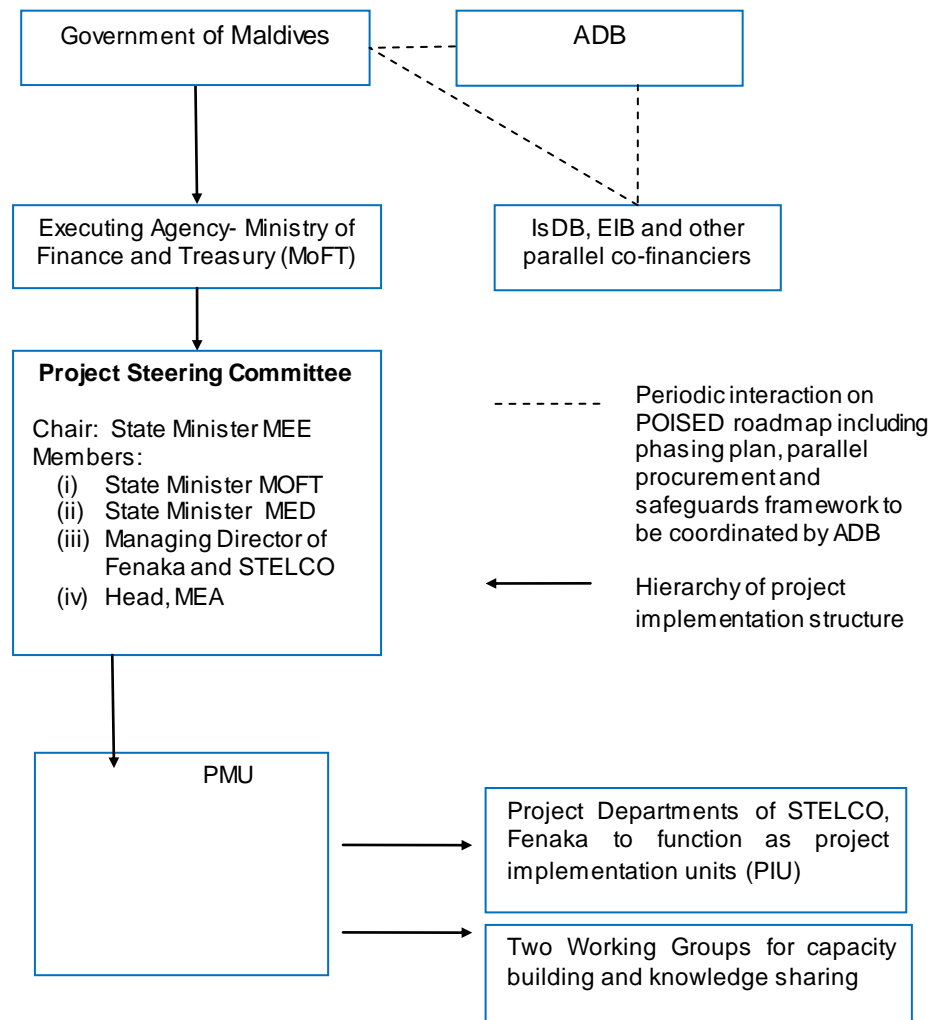
10. The implementing agencies for the project will be MEE, FENAKA and STELCO and all procurement related activities will be undertaken by the PMU. FENAKA and STELCO would be required to mobilize the Project Departments (acting as PIUs) within their organizations to implement the project at the corporate and island levels. The PIU would also be responsible for (i) interacting with the PMU (ii) internal coordination with procurement, finance, project and technical service departments, respective selected islands and external coordination with organizations such as MEE, MEA etc (iii) manage the implementation of the Project (iv) monitor the performance of the contractor(s) and the project (v) ensuring compliance to the contract conditions and (vi) supporting measures for institutional capacity building such as developing training material, organizing workshops etc. The PIU will be led by the Head of Projects of FENAKA and STELCO respectively. FENAKA. The PIU will regularly interact with the PMU where the Head of Projects will be members. PIUs handles all issues related to the project implementation and will ensure the implementation of the decisions taken by the PMU. During project implement if there are contractual and other issues which require resolution it will raise all such issues before the PMU for its decision.

11. The PMU will be responsible for developing the design and approval of final technical design, conduct bid process and oversee the project implementation on behalf of STELCO and FENAKA. The social and environmental safeguards will be conducted by FENAKA/STELCO, assisted by the PMU and periodically reviewed by ADB. An EPC contractor will undertake the construction, assisted by FENAKA/STELCO and the External Experts, and periodically reviewed by the PMU and ADB. FENAKA/STELCO will own the project assets and the project cost will be recovered through retail tariffs as allowed by MEA. Currently while FENAKA and STELCO have the capability to install, manage, operate diesel generators and distribution grids, their experience with renewable energy and renewable integration in island grids as well as expertise on international procurement and financial management is limited. To address this issue the POISED project will finance the recruitment of experts to the PMU which will in turn drive the implementation process under the guidance of Project Steering Committee. The PIUs within FENAKA and STELCO will work closely with the PMU in the final implementation of the

respective subprojects under their institutions. This arrangement is expected to provide on-the-job training to the staff involved leading to gradual improvement of the implementation capacity of these institutions. In addition, a working group comprising finance and accounting professionals in both utilities will be formed to periodically review the financial management issues being faced by FENAKA in their Finance function with regard to data collection, reporting, finalization of accounts in a timely manner, roll out and implementation of financial accounting software as well as best practices in finance and accounting in both utilities. This Financial Management Working Group (FMWG) shall comprise of two senior professionals from the Finance function in STELCO including the CFO/Finance Controller, two senior professionals from FENAKA's HO Finance function including the Director (Finance) and one finance professional from the island or atoll offices. FMWG will be supported by an international financial management specialist recruited to the PMU who will anchor the agenda of the FMWG and support in developing and implementation of the roadmap for internal reforms of the Finance and Accounts function within FENAKA. This will include addressing transition period issues of FENAKA in moving towards compliance with auditing requirements as well as providing training to staff for the Finance function. .

12. ADB will also help FENAKA/STELCO through PMU in selecting the external team of international and national experts for support to various stakeholders for achieving the project objectives and outcomes. FENAKAA working group comprising power engineering specialists in both utilities will be formed to develop a core specialist team to look at all technical issues i.e. design, engineering, commissioning and O&M. This core team should be competent to debottleneck erection, commissioning and operational issues, remain updated on technology changes, help in upgrades, oversee integration of each new implementation and work on further cost reductions in the operating phase. The technical experts within PMU will assume a more active role after the implementation phase focused on O&M since they have all the knowledge of engineering, procurement and commissioning. This Power Engineering Working Group (PEWG) shall comprise of two senior specialists from FENAKA and STELCO including the technical directors and one power engineering professional from the island or atoll offices. PEWG will be supported by an international power engineering specialist (with experience in solar and battery storage) recruited to the PMU who will anchor the agenda of the PEWG and support in developing and implementation of best practices of O&M in minigrids with high penetration of solar PV and battery storage support. This will enable FENAKA/STELCO to roll out similar projects to other Islands. The PMU within MEE will oversee the project, support sustainability, and ensure effective assistance to all project stakeholders and beneficiaries.

13. The indicative administrative structure of the project is described in Graph 1

Graph 1: Project Organization Structure

ADB = Asian Development Bank; MED = ministry of economic development; EIB = European Investment Bank; IsDB = Islamic Development Bank; MEE= Ministry of Environment and Energy; MOFT = Ministry of Finance and Treasury; PIU = project implementation unit; PMU = project management unit;

D. Eligibility and Selection of Subprojects

1. Appraisal Reports

14. Under the sector approach, the Project Management Unit with the assistance of the implementation consultant team FENAKA and STELCO will prepare sub-projects to be taken up under the POISED sector project. These proposals will be in the form of appraisal reports. The PMU will submit the appraisal reports to Asian Development Bank. The appraisal report will include the following:

- (i) Information on existing demand in the sub-project area, expected load growth over the next 5 years (based on historical load growth, estimates of future growth and other relevant factors);

- (ii) Information on the characteristics of the current generators, power houses and the distribution grid (including efficiency levels, loading levels, losses, reliability, vintage, expected annual repair and maintenance costs);
- (iii) Recommended optimal design of the generator set, control systems, distribution grid, energy storage devices and renewable energy generation to meet demand over the next 5 years incorporating aspects of the themes of energy efficiency, loss reduction and renewable energy following the methodology used for the design of the sample sub-projects prepared under the project preparatory technical assistance during 2013 and 2014;
- (iv) Detailed cost estimates including requirement for counterpart funding and support;
- (v) tendering packages;
- (vi) Implementation schedule and implementation arrangements;
- (vii) Information on diesel generator set efficiency, distribution losses, O&M costs, tariffs and subsidies;
- (viii) Economic and financial analysis for the project including analysis of diesel savings before and after the project for different scenarios including only replacement of gensets and grid, incorporation of varying levels of renewable energy with and without energy storage;
- (ix) Initial Environmental Examination (IEE);
- (x) Socio-economic surveys including population, household income distribution, electricity usage;
- (xi) Electrical drawings of the distribution grid (where available) or a suitable representation;
- (xii) If land or rooftop allocation is required for the sub-project – proof that the appropriate authorities have approved the allocation of land and that there is no resettlement of people or impact on livelihood;
- (xiii) Identify the scope for support to demand side management and gender action plan activities in the sub-project; and
- (xiv) The availability of staff from the sub-project area for training on technical aspects, customer service operations, financial reporting etc. Where there is a shortage of staff, the utility should identify (and where required recruit) staff to be trained on technical aspects, customer operations, financial reporting to improve the sustainability of the new system.

2. Eligibility

15. The subprojects need to fulfil the following conditions for them to be eligible for selection.
- (i) Economic Internal Rate of Return (EIRR) is not less than 12%;
 - (ii) Financial Internal Rate of Return (FIRR) is not less than 2%
 - (iii) Subproject resettlement category is B or C
 - (iv) Subproject environmental category is B or C

3. Selection

16. The PMU will be responsible for appraising and prioritizing projects that will be prepared with support of PIUs from FENAKA and STELCO. ADB will review to ensure that these sub-

projects are adequately formulated and that the agreed assumptions, criteria and procedures have been applied. Sub-projects are to be taken up for implementation in a phased manner organized on an atoll basis (See Figure 1) . Sub-projects would be rated on their readiness criteria to be implemented. The sub-projects would be ranked in descending order of the reduction in diesel consumption (expected over a 12 month period) by comparing the current annual diesel consumption for the sub-project as submitted periodically by FENAKA and STELCO to MEA with the expected diesel consumption after implementation of the sub-project. The sub-projects would be taken up for investments based on the descending order of this shortlist and availability of funds from the POISED project for investment in each phase.

17. This shortlist would be updated periodically based on any other investments being undertaken by FENAKA and STELCO and periodic updates submitted to MEE. The PMU may also discuss with ADB to include nearby atolls in the same package if such atolls were in the same geographic area of coverage of the distribution utility (as the sub-project atoll) between 2009 and 2012. The PMU would need to demonstrate that such selection would result in efficient procurement for FENAKA and STELCO.

IV. COSTS AND FINANCING

18. The project cost is estimated at \$ 124 million. While import duties are 15% in the Maldives, these have been exempted for renewable energy projects by the government. Based on the confirmation from the Government, project investments and implementation for renewable energy mini-grid development are considered exempt from import duties. The goods and service tax levied on project components would be borne by the Government.

Project Financing Plan

Source	Amount (\$ million)	Share of Total
Asian Development Bank	38.00	31%
Strategic Climate Fund ^a	12.00	10%
Islamic Development Bank ^b	10.00	8%
European Investment Bank ^c	50.00	40%
Government of Maldives	14.00	11%
Total	124.00	100%

^a Under the Scaling up Renewable Energy Program for low income countries financed by the Strategic Climate Fund administered by Asian Development Bank.

^b Parallel financing for future sub-projects starting 2015.

^c Financing expected to be routed through Bank of Maldives to sub-projects starting 2015.

Source: Fact Finding Mission in April 2014, communication between Ministry of Finance and financiers and staff review meeting in May 2014

19. The cost tables are provided below.

A. Detailed Cost Estimates by Expenditure Category

	Total Cost (\$ million)	% Total Base Cost
A. Investment Costs		
1. Renewable Energy grid package (ADB)	16.0	15%
2. Renewable Energy grid package (parallel financed)	43.4	39%
3. Energy Efficiency =grid package (ADB)	25.3	23%
4. Energy Efficiency grid package (parallel financed)	9.9	9%
5. Energy Efficiency grid package (government)	11.1	10%
6. Environment and Social Mitigation Cost	0.9	1%
7. Project Management	3.6	3%
Subtotal A	110.2	100%
Total Base Cost	110.2	100%
B. Contingencies		
1. Physical	8.8	8%
2. Price	3.2	3%
Subtotal B	12.0	11%
C. Financing Charges Implementation		
1. Interest during construction	1.8	2%
Subtotal C	1.76	2%
Total Project Cost (A+B+C)	124.0	113%

B. Allocation and Withdrawal of Grant Proceeds

20. The Allocation and Withdrawal of Grant Proceeds Table are provided below for both the ADF and ADB SCF

Number	ADB ADF	Total Amount allocated for ADB Financing (\$) category	Basis for withdrawal from Grant Account
	Item		
1	Renewable Energy grid package (ADB)	5120000	32% of eligible expenditure claimed
2	Energy Efficiency grid package (ADB)	25300000	100% of eligible expenditure claimed
3	Consulting Services	3100000	100% of eligible expenditure claimed
4	Unallocated	4480000	
	TOTAL	38000000	

Number	ADB SCF	Total Amount allocated for ADB Financing (\$) category	Basis for withdrawal from Grant Account
	Item		
1	Renewable Energy grid package (ADB)	10880000	68% of eligible expenditure claimed
2	Consulting Services		
3	Unallocated	1120000	
		12000000	

C. Detailed Cost Estimates by Financier

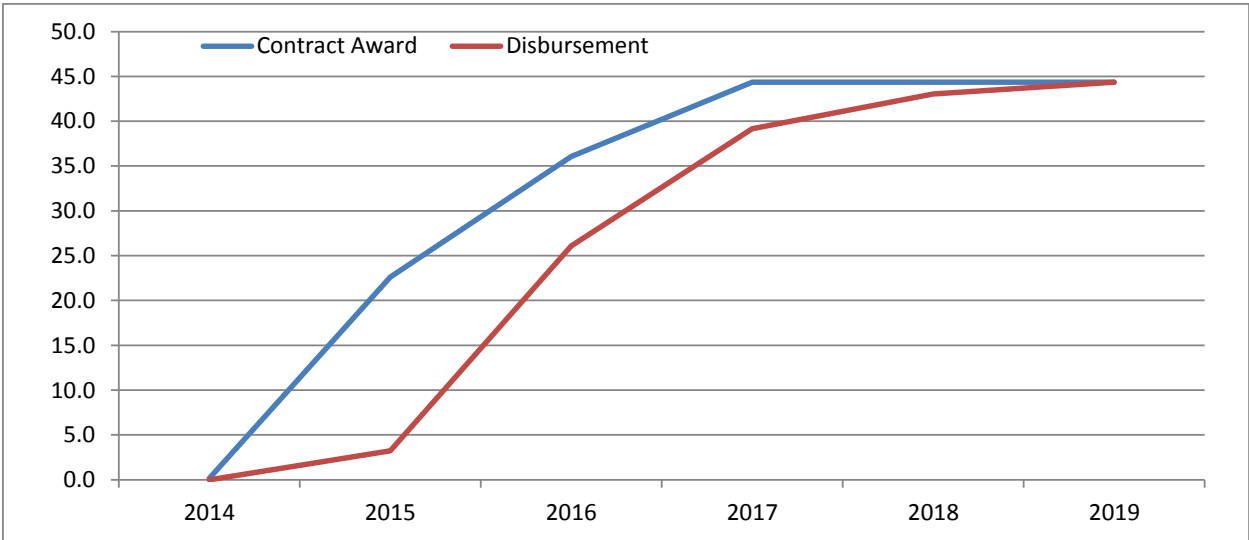
21. The cost estimates by financier are provided below

	ADB Grant	Local Financing	SREP	ISDB	EIB	Total
A. Investment Costs						
1. Renewable Energy grid package (ADB)	5.1	-	10.9	-	-	16.0
2. Renewable Energy grid package (parallel financed)	-	-		5.4	38.0	43.4
3. Energy Efficiency grid package (ADB)	25.3					25.3
4. Energy Efficiency grid package (parallel financed)				3.5	6.4	9.9
5. Energy Efficiency grid package (government)	-	11.1	-	-	-	11.1
6. Environment and Social Mitigation Cost	-	0.9	-	-	-	0.9
7. Project Management	3.1	0.4	-	-	-	3.6
Subtotal A	33.5	12.4	10.9	8.9	44.5	110.2
Total Base Cost	33.5	12.4	10.9	8.9	44.5	110.2
B. Contingencies						
1. Physical	2.8	1.1	0.8	0.7	3.5	8.8
2. Price	1.1	0.5	0.3	0.3	1.2	3.2
Subtotal B	3.9	1.6	1.1	1.0	4.6	12.0
C. Financing Charges Implementation						
1. Interest during construction	0.7			0.2	0.9	1.8
Subtotal C	0.7	-	-	0.2	0.9	1.8
Total Project Cost (A+B+C)	38.0	14.0	12.0	10.0	50.0	124.0

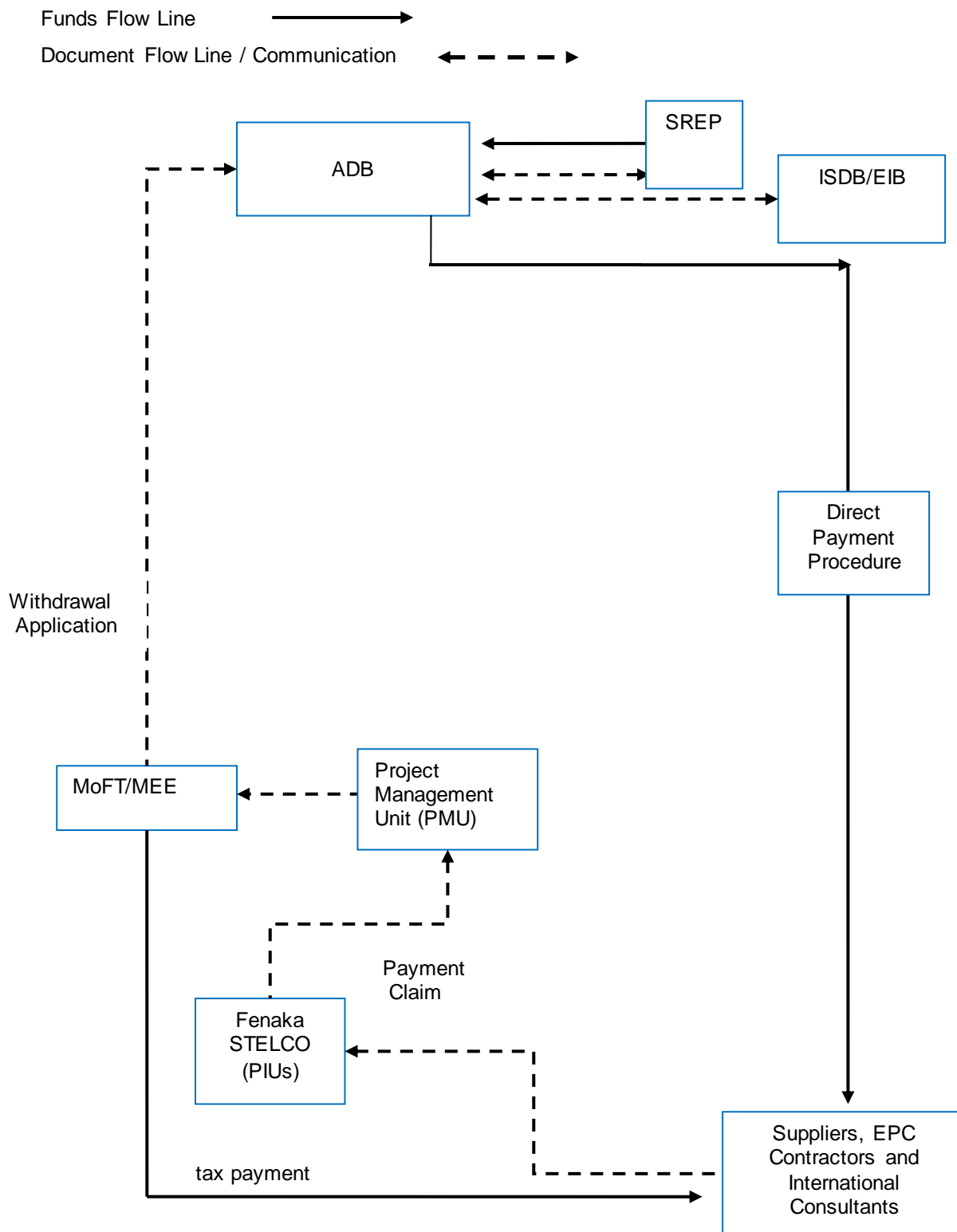
D. Detailed Cost Estimates by Year

	Year 1 (\$ million)	Year 2 (\$ million)	Year 3 (\$ million)	Year 4 (\$ million)	Year 5 (\$ million)	Year 6 (\$ million)	Total
A. Investment Costs							
1. Renewable Energy grid package (ADB)	-	1.6	4.1	3.4	3.0	3.9	16.0
2. Renewable Energy grid package (parallel financed)	-	-	3.2	13.4	18.3	8.5	43.4
3. Energy Efficiency grid package (ADB)							25.3
4. Energy Efficiency grid package (parallel financed)		5.6	12.4	7.0	0.3		
5. Energy Efficiency grid package (government)		-	3.4	5.0	1.5	-	9.9
6. Environment and Social Mitigation Cost	-	-	5.2	5.6	0.3		11.1
7. Project Management	-	0.1	0.2	0.2	0.2	0.3	0.9
7. Project Management	0.1	0.4	0.7	1.1	1.1	0.3	3.6
Subtotal A	0.1	7.7	29.2	35.5	24.7	12.9	110.2
Total Base Cost	0.1	7.7	29.2	35.5	24.7	12.9	110.2
B. Contingencies							
1. Physical	0.0	0.6	2.3	2.8	2.0	1.0	8.8
2. Price	0.0	0.0	0.7	1.1	0.9	0.4	3.2
Subtotal B	0.0	0.6	3.1	4.0	2.9	1.4	12.0
C. Financing Charges Implementation							
1. Interest during construction	0.0	0.1	0.5	0.6	0.4	0.2	1.8
Subtotal C	0.0	0.1	0.5	0.6	0.4	0.2	1.8
Total Project Cost (A+B+C)	0.1	8.5	32.8	40.1	28.0	14.5	124.0

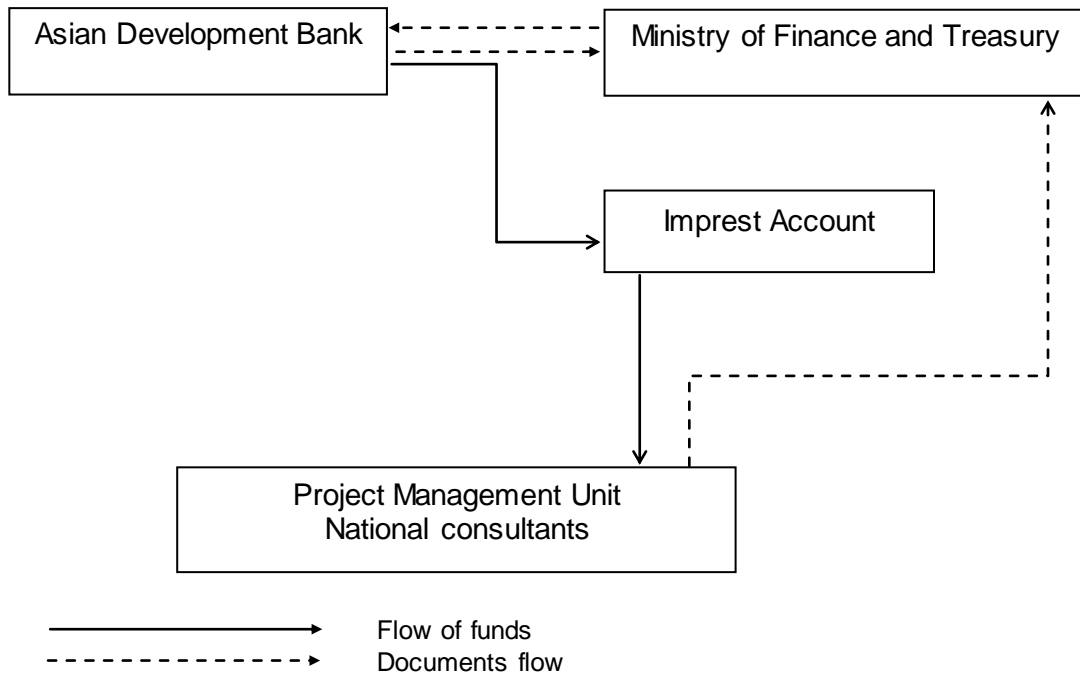
E. Contract and Disbursement S-curve for ADB administered funds



F. FUND FLOW ARRANGEMENTS



FUND FLOW FOR IMPREST ACCOUNT



V. FINANCIAL MANAGEMENT

22. A financial management assessment (FMA)⁶ was carried out for FENAKA and STELCO, the key implementing agencies in accordance with ADB's *Financial Management and Analysis of Projects Guidelines (2005)*. The assessment consisted of reviewing existing documents relating to the country and entity public financial management arrangements⁷, completed the FMA Questionnaire and conducted interviews with key IA officials. The FM assessment focused evaluating IA's FM personnel, accounting policies and procedures, internal controls internal and external audit, and information systems for financial reporting and monitoring.

23. STELCO was formed in 1997 as the main electricity utility company for Male and Greater Male Region, whereas FENAKA was formed in 2012 by aggregation of regional power utilities in the remaining Outer Islands. FENAKA was formed with an objective of strengthen management capacity, improve governance and bring economies of scale in the erstwhile outer island utility companies. This is a transition from the mid 2000's when each island was managed by its own electricity cooperative meeting the needs of 100-200 households to the present industry structure. Till 2012, the electricity structure in Maldives was operated mainly by STELCO (Male and Greater Male region), 6 Corporate Utilities for Outer island (Upper Northern Utility, Northern Utility, Upper South Utility, Southern Utility, Central Utility, South Central Utility) and Island communities. In January 2013, 6 outer islands were merged in to FENAKA through a tri-partite memorandum of agreement between Government of Maldives represented by Ministry of Finance and Treasury, FENAKA and the Individual Utility.

A. Financial Management Assessment for FENAKA and STELCO

24. STELCO has been in operation since 1997 and the FM processes and systems are fairly robust and streamlined and finance and accounting staff are well versed in implementing donor funded projects. Financial Statements are prepared in accordance with International Financial Reporting Standards and accounts are maintained using a computerized accounting system on an accrual basis of accounting; annual financial statements are prepared within 12 months and are audited by a Big four audit firm appointed by the Auditor General. Audit Reports have not highlighted many significant issues. Adequate internal control procedures exist, including an internal audit department staffed by qualified chartered accountants. FENAKA on the other hand was set up in 2012 and is still in the process of integration of the operations of its 6 parent utilities. The billing system of FENAKA is evolving and is being based on software used for STELCO. FENAKA presently uses standard software for accounting purposes but in some cases, in-house software developed by FENAKA is used to record financial transactions. Both the utilities are planning to upgrade financial management and accounting system. Though FENAKA has not implemented any ADB projects, many of the staff are from STELCO who have ADB project experience. The external audit of FENAKA has however, identified a number of issues. Due of several changes in the company structure from island council to utility and then merger to FENAKA, FENAKA will need to address legacy issues associated with the consolidation of fixed assets particularly for islands that were initially being operated by island communities and later integrated into FENAKA. These are in the process of being streamlined and as part of FM Action Plan, ADB shall require that FENAKA's Board of Directors to initiate a one-time valuation exercise and reconciliation of fixed assets, spares and inventory and issue the RFP for this engagement prior to grant disbursement. The engagement is expected to be completed by the end of 2015.

⁶ Available upon request

⁷ IMF. 2009. Maldives. Public Financial Management – Performance Report

25. FENAKA and STELCO follow financial accounting on accrual basis as per provisions of its governing statutes and IFRS. The companies are subject to audit under the Companies Act and are carried out by Auditor General through internationally reputed accounting firms. The companies have a chart of accounts to enable proper recording of financial transactions. The chart of accounts can be scientifically designed to link accounts, cost, budgets and MIS.

26. Both the companies have defined policies and procedures in place for accounting, budgeting, internal controls, internal and external auditing activities. The utilities lack accounting manuals. Both the utilities maintain records of fixed assets with physical inspections, including for inventory. Given that FENAKA auditors had in the past commented on the fixed asset issues, the F&A team of FENAKA has started to prepare the fixed asset register. Both the companies have adequate internal controls, including internal audit and risk committee. The existing organization structure of the Finance and Accounts Department responsible for financial management is adequate, although shortage in trained staff in ADB methodology especially for FENAKA is observed for the proposed project. A summary of the Financial Management Assessment is described below:

Table 1: Summary of Financial Management Assessment

Particulars	Conclusion
A. Funds Flow Arrangement	Funds flow arrangements are reliable, predictable and secure. FENAKA and STELCO have capability to work under the proposed investment program through the PMU.
B. Staffing	Staff from FENAKA and STELCO will be involved on project implementation. External experts will assist the PMU and provide support on financial management aspects. STELCO staff have prior experience with ADB projects. Key FENAKA staff have been recruited from STELCO. However due to staff shortages and lack of trained staff for the PMU, there is a requirement of further recruitment and capacity building.
C. Accounting Policies and Procedures	The accounting policy is based on the International Financial Reporting Standards (IFRS) for both the utilities
D. Internal and External Audits	There are internal audit committee both within the FENAKA and STELCO. FENAKA outsources internal audit to different auditing firms depending on scope and expertise. STELCO has its own department and staff reporting to Board. Both the utilities are audited by independent external auditor of international repute and coordinated by Auditor General.
E. Reporting and Monitoring	Financial statements are prepared for the entity based on in accordance with IFRS and Company Act.
F. Information systems	The financial management system is partly computerized, combination of spreadsheet and home grown software. Finance and account packages to be implemented under the project.

27. Actions required to be taken by the FENAKA and STELCO are given below, based on which the FM arrangements are considered adequate:

- i. Financial staff to undertake training on ADB financial management procedures to strengthen financial management capacity.
- ii. FENAKA and STELCO staff to form a Financial Management Working Group (FMWG) to share implement and support best practices. The FMWG will be supported by a full time International Financial Management Specialist and other staff recruited to the PMU
- iii. FENAKA's Board of Directors to issue an RFP to conduct a one-time valuation exercise and reconciliation of fixed assets, spares and inventory prior to grant disbursement.

- iv. FENAKA would need to strengthen its Financial & Accounting systems and move from manual accounting systems to computerized MIS and accounting systems. This will strengthen project construction management, accounting, and reporting procedures, as well as improve overall corporate accounting and financial reporting. In addition it will provide the basis for accurate and timely accounting and reporting procedures for ADB loan financed projects.
- v. Statement of Audit Needs shall be provided to ensure that audited project financial statements are submitted within 6 months of the end of the fiscal year, and prepared in accordance with international accounting standards and audited by an acceptable and independent auditor.

28. Financial management arrangements would need to be considered and updated throughout the life of the investment program.

B. Disbursement

29. The grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time), and detailed arrangements agreed upon between the Government and ADB.

30. To facilitate cash flow during project implementation, the executing agency, the MoFT, will approve withdrawal applications coming from the PMU, and submit them to ADB for direct payment for goods, works and consultancy services of the project. PMU will also be responsible for preparing disbursement projection on a quarterly basis. Disbursements of grant funds under the project will be to procure goods, works, and related services. The borrower will use direct payment for disbursements related to the project.

31. For the purpose of payment to the national consultants in the PMU, imprest account procedure will be used. A signed Withdrawal application for replenishment of imprest account will be submitted to ADB, together with supporting documents by MoFT. An imprest account will be opened at Maldives Monetary Authority for depositing advances and for the exclusive use of the project. The imprest account will be opened in the name of MEE..

32. MEE shall be accountable and responsible for proper use of advances to the imprest account, including advances to the sub-accounts, if any.

33. The total outstanding advances should not exceed the 10% of the grant amount or estimated six months expenditures, whichever is lower. The MoFT must obtain prior ADB approval for any upward changes in the approved ceiling MoFT may request initial and additional advances from ADB based on its projection of ADB's share of eligible project expenditures for the forthcoming 6 months which are to be paid through the imprest account. The total outstanding advance, in any event, should not exceed the approved ceiling. All advances are deposited into the imprest account. After eligible expenditures are incurred and paid from the imprest account, the MoFT will requests liquidation and replenishment of the imprest account by submitting a Withdrawal application and summary sheet.

34. Before the submission of the first withdrawal application, the executing agency should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the executing agency, together with the authenticated specimen

signatures of each authorized person. Withdrawal applications and supporting documents will demonstrate, among other things that goods, works, and/or services are eligible for ADB financing.

35. All disbursements under government financing will be carried out in accordance with regulations of the Government and prevailing ADB guidelines. No withdrawals can be approved from the grant Accounts in respect of goods, and works until the experts have been engaged.

C. Accounting

36. The Executing Agency assisted by the PMU will maintain or cause to be maintained separate books and records to identify the: (i) goods and services financed from grant proceeds; (ii) financing resources received; (iii) expenditures incurred on the components of each project component; and (iv) counterpart and co-financer funds received and expended. Project financial statements shall be prepared on an accrual basis of accounting in accordance with the same accounting standards applied by FENAKA and STELCO. EIB loan and IsDB loan will be disbursed in accordance with their procedures. ADB will not administer disbursement of EIB loan and IsDB loan.

D. Auditing

37. FENAKA and STELCO are subject to audit by the Auditor General Office (AGO), the supreme audit institution in the Maldives. AGO maintains a roster of chartered accounting firms and appoints one or more firms to carry out the external audit. In 2012, STELCO is being audited by PricewaterhouseCoopers and FENAKA by Ernst and Young. Under the Project, MOFT will cause the detailed project financial statements to be audited in accordance with international standards on auditing and in accordance with the OAG's audit regulations by an auditor whose qualifications, experience and terms of reference are acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency.

38. MOFT will also cause the entity-level financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations 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.

39. The annual audit report for the project financial statements will include 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 grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) use of the imprest fund procedure; and (v) proper use of the imprest procedures in accordance with ADB's Loan Disbursement Handbook and the project documents. A management letter shall also be provided, unless already provided with the entity-level financial statements.

40. 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.

41. The Government, FENAKA and STELCO 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.⁸ 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.

42. 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).⁹ 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 management letter and entity level financial statements will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Procurement of Goods, Works and Consulting Services

43. For all procurement processes the government has requested ADB to assist in procuring all project goods, works and services, and to recruit related project management consultancy services. The procurement capacity assessment of FENAKA/STELCO indicates they need help in procuring goods, works and consulting services required for developing and managing the project. Procurement of goods, works and related services under the project will be processed through PMU FENAKA with approval by ADB. The procurement will be carried out in accordance with ADB's *Procurement Guidelines* (April 2013, as amended from time to time). For this purpose, FENAKA PMU supported by External Experts and supervised by ADB, will prepare technical specifications, and bidding documents according to ADB's approved format, and prepare bidding evaluation forms. FENAKA The PMU will conduct the bidding process, supervised by both External Experts and ADB. ADB will recruit the External Experts using Quality and Cost based selection (QCBS) with a 90:10 selection criteria. Consultancy services will be procured in accordance with ADB's *Guidelines on the Use of Consultants* (April 2013, as amended from time to time). Advance contracting will be undertaken in conformity with ADB's Procurement Guidelines. Minor goods and services, up to \$100,000 equivalent, will be procured by PMU FENAKA using shopping procedures, and using direct payment method.

⁸ 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 new replenishment of imprest accounts, 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 new replenishment of imprest accounts, 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.

⁹ Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

44. An estimated 76 person-months of international and 200 person-months of national consulting services to be allocated as part of the project support are required to (i) facilitate project management and implementation; and (ii) strengthen the operational capacity of FENAKA, STELCO, PMU and other beneficiaries, and provide knowledge transfer. Consultants will be engaged using QCBS. A summary of the effort estimate is presented below.

45. All advance contracting will be undertaken in conformity with ADB's Procurement Guidelines and Guidelines on the Use of Consultants except the packages to be funded by Islamic Development Bank (ISDB) and European Investment Bank (EIB). Such packages will be procured in accordance with the respective co-financier's procurement guidelines. The issuance of invitations to bid under advance contracting will be subject to ADB approval.

International Specialists	Person-months
Solar Power Engineering Specialist	36
Power planning and field engineer	12
Procurement Specialist	12
Financial Management Specialist	08
IT-ERP and Fixed Asset Expert	08
Total	76
National Experts	
Social and gender	60
Environment	40
Technical	30
Finance	10
Project Manager	60
Total	200

Source: ADB estimates

B. PROCUREMENT PLAN

Basic Data

Project Name: Preparing Outer Islands for Sustainable Energy Development	
Project Number: 46122	Approval Number:
Country: MALDIVES	Executing Agency: Ministry of Finance and Treasury (MOFT)
Project Financing Amount: \$124.0 million ADB Financing: \$ 50.0 million (including ADB administered funds) Non-ADB Financing: \$ 74.0 million	Implementing Agency: STELCO, FENAKA, Ministry of Environment and Energy (MEE)
Date of First Procurement Plan	Date of this Procurement Plan: 06 August 2014

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$2,000,000	
International Competitive Bidding for Goods	\$1,000,000	
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	
Shopping for Works	Below \$100,000	
Shopping for Goods	Below \$100,000	

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	90:10

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Pack. No.	General Description	Estimated Value (mill. USD)	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
1	Phase 1 renewable energy project	8.2	ICB	Prior	1S2E	Q3 2014	Plant
2	Phase 1 energy efficiency project	11.3	ICB	Prior	1S2E	Q3 2014	Plant
3	Phase 2 energy efficiency project	13.4	ICB	Prior	1S2E	Q2 2015	Plant

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Pack. No.	General Description	Est. Value (mill. USD)	Recruit. Method	Review	Advert. Date (Q/year)	Type	Comments
1	Project implementation consultant	2.8	QCBS	Prior	Q3/2014	FTP	International 90:10
2	Project manager	0.3	Individual	Prior	Q3/2014		

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Pack. No.	General Description	Estimated Value	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
1	Phase 3 renewable energy project	4.7	ICB	Prior	2S	Q2 2016	Plant
2	Phase 3 energy efficiency project	0.5	ICB	Prior	1S2E	Q 2 2016	Plant
3	Phase 4 renewable energy project	3.1	ICB	Prior	2S	2017	Plant

C. Non-ADB Financing

The following table provides a lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Pack. No.	General Description	Estimated Value	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
1	Phase 1 energy efficiency project (Government financed)	11.1	ICB	Prior	1S2E	Q2 2014	Plant
2	Phase 2 renewable energy project	16.1	ICB	Prior	2S	Q2 2015	Plant

Pack. No.	General Description	Estimated Value	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
3	Phase 2 energy efficiency project	6.9	ICB	Prior	1S2E	Q2 2015	Plant
4	Phase 3 renewable energy project	26.8	ICB	Prior	2S	Q2 2016	Plant
5	Phase 3 energy efficiency project	3.0	ICB	Prior	1S2E	Q2 2016	Plant
6	Phase 4 renewable energy project	0.6	ICB	Prior	2S	Q2 2017	Plant

C. Consultant's Terms of Reference (summary)

46. **Solar Power Engineering Specialist**, as International Consultant for 36 person months intermittently over a period of 60 months. The Consultant will demonstrate substantial experience in developing hybrid diesel-solar power projects including associated grid systems in remote areas. The Consultant will have experience for solar PV power plants, Battery Energy Storage Systems and electric power engineering with the design, specification and implementation of middle and low voltage systems, control, protection and monitoring. Knowledge of international technical standards (IEC, UL, IEEE, NEMA) is preferred. The consultant should have demonstrated skills in detailed analysis of Solar PV & Battery storage projects, the preparation of tenders for installation of Solar PV project and in training relatively unskilled / semi-skilled persons in the proper installation and maintenance of Solar PV projects,

The activities to be undertaken will include but not be limited to assisting the PMU and utilities for the following:

- (i) Create a technical project handbook, which will be used as a technical guideline during project implementation.
- (ii) Approval of the grid design proposed by the Contractor and to oversee the installation of equipment according to contracted lots.
- (iii) Prepare technical schedules (lots; list of parts and pieces) and ensure whole project implementation (to be undertaken on turn-key basis by the Contractor), according to ADB guidelines and International best practices.
- (iv) Prepare and assess complete logistic chain, from ex-works shipment to on-site delivery for all goods and services to be procured and installed under the project.
- (v) The acceptance process when the shipment arrives, ensuring compliance with specifications and quantities.
- (vi) Develop Solar PV & Battery Storage plant and mini-grid design (to be made a part of the bid documents) and support in technical evaluation of the bids.
- (vii) Approve the Solar PV & Battery Storage plant and mini-grid design of the contractor.
- (viii) Supervise implementation of project (to be done on turnkey basis) until commissioning of the project ensuring that the international best practices are followed in implementing the project.
- (ix) During project implementation, work closely with Contractors and FENAKA/STELCO and PMU.
- (x) Monitor the performance of the Contractor and the Project. Evaluate and recommend any changes that may be required in the scope of work as per the Contract Agreement.
- (xi) Design and draft project manual, training materials and program for O&M of the Solar PV & Battery Storage project and mini-grid. The training should include theory and practical sections, electrical design, protection, monitoring, control, testing, measuring and working safety and electrical hazards.

47. **Power planning and field engineer**, as International Consultant for 12 person months intermittent over 60 months. The Consultant will demonstrate substantial experience of developing power projects (grid systems), in remote areas and will have experience of power electric engineering with the design, specification and implementation of middle and low voltage systems in the international context and knowledge of international technical standards related with distribution networks for grids. Skills must include the detailed analysis of distribution networks, preparation of tenders for purchase of the necessary works and goods, training and

supervision of relatively unskilled / semi-skilled persons. The activities to be undertaken will include but not be limited to assisting the PMU and the utilities on the following:

- (i) Manage interconnection of solar power and battery storage into the mini-grid, grid stability factors, including control, protection and monitoring, and design of grids and switchgear.
- (ii) Develop grid design and technical specifications of goods and services required according to site conditions to be made a part of the bidding documents. Also support in technical evaluation of the bids.
- (iii) Approval of the grid design proposed by the Contractor and to oversee the installation of equipment according to contracted lots.
- (iv) Assist in the acceptance of materials as they are received, ensuring that they are the correct materials and show no shipping damage.
- (v) Supervise implementation of grid until its commissioning ensuring that the implementation is as per the international best practices.
- (vi) Review of operational acceptance tests of the systems and work with the installing contractor to solve problems as they arise. During project implementation work closely with Contractors and FENAKA /STELCO and PMU.
- (vii) Monitoring the performance of the Contractor and the Project. Evaluate and recommend any changes that may be required in the scope of work as per the Contract Agreement.
- (viii) Deliver capacity building and O&M programs for a period of at least two years as defined in the design and monitoring framework of this project.

48. **Procurement Specialist**, as International Consultant for 12 person months. The Consultant will have substantial and demonstrated experience working in international procurement, and contract administration of infrastructure projects. The activities to be undertaken will include but not be limited to the following:

- (i) Assess complete logistic chain, from ex-works shipment to on-site delivery for all goods and services to be procured and installed under the project.
- (ii) Assist FENAKA/STELCO and PMU develop bid documents, manage procurement process, bid evaluation, approvals, facilitate communications and processes between ADB, Government and beneficiaries.
- (iii) Assist FENAKA/STELCO and PMU preparing techno-financial reporting and evaluation during project implementation and operation.

49. **Financial Management Expert** as international, 8 person-months over 24 months. The Consultant will have minimum 8 years of substantial and demonstrated experience in Financial Management Capacity building in utilities in the region and should have a Chartered Accountant qualification. The activities to be undertaken will include but not be limited to the following:

- (i) Review FENAKA's existing financial and Accounting system to identify transition period issues pertaining to record keeping, reporting, consolidation and audits.
- (ii) Review the audited financial statement for FENAKA and STELCO and propose areas to carry out Balance Sheet cleaning process.
- (iii) Assist FENAKA and STELCO in preparing the Balance Sheet restructuring proposal to be approved by the Government. Assist in liaison with Public Enterprises Management Board and MoFT in finalizing and implementing the restructuring proposal.
- (iv) Coordinate with FMVG and facilitate implementation of the roadmap by arranging meetings, resolving issues, coordinating experience sharing sessions, training and capacity building
- (v) Support FENAKA in reviewing the policy and manuals for managerial accounting, cost accounting, budgeting, asset management, risk management, Chart of accounts, and

auditing of FENAKA based on the regulatory reporting requirements and applicable Accounting standards.

- (vi) Review the requirement for an information management system with linkage with accounts, budget, costing data as per requirement of MEA, best practices applicable for the Maldives.
- (vii) Review organizational structure, Job allocation in the Finance and accounting department both at head office and islands and suggest appropriate roadmap for staffing and skillsets at FENAKA.
- (viii) Assist in setting up a treasury function and a financial risk management mechanism.
- (ix) Provide support as required by OAG, MEE, FENAKA, STELCO for implementing the roadmap.

50. **IT - ERP System and Fixed asset Expert**, international, 8 person-months over 24 months. The Consultant will have 20 years of experience in area of Financial Management, IT and ERP system advisory and implementation and Fixed asset verification and accounting services. He should have a Chartered Accountant qualification. The activities to be undertaken will include but not be limited to the following:

- (i) Review the existing process and IT system presently used by FENAKA and STELCO and recommend IT roadmap
- (ii) Collaborate with the FMWG in determining the guidelines for financial management of FENAKA and STELCO and defining functional requirements for custom / package software
- (iii) Design Integrated Accounting Business Processes, including General Ledger, Account Payable, Account Receivable, Payroll responding to the already-defined employee performance evaluation scheme, Project and CWIP (Capital Work in Process) Accounting, Fixed Asset, Treasury and cash, Consolidation / Finalization and Budgeting / Costing. This Business Process shall be designed in light of IT-enabled Accounting system to be implemented in FENAKA and STELCO.
- (iv) Assist FENAKA and STELCO in preparing the Request for proposal for selection of IT package
- (v) Assist FENAKA and STELCO in the bid process management for selection of IT package and IT vendor
- (vi) Handhold FENAKA and STELCO in the implementation of IT package
- (vii) Assist in setting up arrangements within FENAKA to carry out Physical verification and historical cost determination of major Fixed Assets including store and inventory of all islands and provide advisory services.
- (viii) Define requirements, systems and processes to update the fixed asset register including affixing of codes of each asset on the assets

51. **Financial expert**, 10 man month over 36 months, as national expert: He/she will have a degree in accounting, finance or equivalent, having at least 5 years' experience in the field of accounting and financial management. Experience of working with ADB/ MDB financed projects would be preferred. A Chartered Accountant or a Certified Public Accountant with membership in a professional accounting body is preferable. He/she should have a strong working knowledge of ADB disbursement and procurement guidelines as well as knowledge in the accounting procedures of the Government including appropriate accounting software. The National Specialist will support and coordinate the activities of the International Financial Management Expert and IT - ERP System and Fixed asset Expert. The activities to be undertaken will include but not be limited to the following:

- (i) Provide support to establish a project financial management system including budgeting, accounting, reporting, audit, and internal controls satisfactory to ADB.
- (ii) Assist the Project Management Unit in developing standard accounting policies and ensure that accounting methods and procedures are used in accordance with the FENAKA/STELCO/MEE policies.
- (iii) Assist in the implementation of the accounting software.
- (iv) Assist in the implementation of the Financial Management Action Plan, including capacity development plans, trainings for accounting or internal audit staff.
- (v) Organise training on the ADB FM and disbursement policies and procedures for other PMU FM staff in consultation with the international experts.
- (vi) Assist in data collecting for the Fixed asset verification and valuation.
- (vii) Perform such other assignments, as required by International Financial Management Expert and IT - ERP System and Fixed asset Expert.

52. **Social expert (gender and community development)**, as National Consultant for 60 person months, The expert will have substantial and demonstrated experience working in developing countries environments, with a degree in social science and relevant experience ideally in projects funded by the international development community. He/she would support on GAP implementation. The activities to be undertaken will include but not be limited to the following:

- (i) Review existing ADB documentation relating to the project and other documents. Through desk study and site visits identify gender, social, land acquisition and resettlement issues identified during PPTA, and update relevant data and reports. Conduct necessary consultations and meetings with affected persons (APs) and stakeholders. Categorize each of the subproject based on IR Screening. Prepare, update or revise resettlement plans if necessary based on the resettlement framework and provide guidance and assistance in implementation. Prepare any corrective action plans.
- (ii) Prepare detailed implementation activities and related training, by targeting women participation in the project activities.
- (iii) Assist the IA in preparing phase specific Gender Action Plans and their implementation.
- (iv) Prepare and integrate in the PPMS, indicators related to gender equality, social inclusion and poverty based on gender plan.
- (v) Assist and guide, through PMU, the PIUs, including the Construction Supervision Consultant (CSCs) and to: (a) advocate for compliance with labor laws by all contractors, esp, as this pertains to child labor and the payment of equal wage for work of equal value; (b) ensure effective and timely implementation of the GESI-targets by the PMU throughout project implementation;
- (vi) Support the PMU and PIUs to prepare and maintain a gender and disaggregated database able to track women, poor and disadvantaged groups' participation in all, training, skills development and awareness activities carried out under the Project;
- (vii) Finalize identified training activities and ensure accomplishment of gender targets for project communities.
- (viii) Prepare a training plan, design training modules with clearly defined target knowledge, skills, and attitude (KSA) from training, carry out training activities of target men and women trainees.
- (ix) Facilitate disclosure of relevant information to APs and local stakeholders on entitlement, grievance redress mechanism. Conduct regular meaningful and gender sensitive consultation throughout the project cycle.

- (x) Assist the government in addressing effectively any grievances of persons affected by the project.
- (xi) Recommend necessary inputs, if needed, to other project implementation documents (e.g. bidding documents) on resettlement aspects.

53. **Environmental Safeguards expert**, as National Consultant for 40 person months, The expert should (i) have a postgraduate degree in environmental science, environmental engineering, environmental management, or in any relevant field; (ii) have at least 10 years of working experience; (iii) have experience in energy sector including renewable energy projects; and (iv) be fluent in English. The expert with experience in the region and or in Maldives will be an advantage. The activities to be undertaken will include but not be limited to the following:

- (i) Review all document relevant to the proposed project, including relevant national laws and regulations and a national EIA report.
- (ii) Conduct site visit and primary data collection, if necessary, to evaluate environmental impacts of the proposed project.
- (iii) Assist the IAs in project categorization by preparing rapid environmental assessment (REA) checklist for the selected project sites
- (iv) Submit REA to ADB, incorporate all the comments from ADB, revise and resubmit the REA for ADB approval
- (v) Prepare an initial environmental examination (IEE) report of the proposed project and ensure the report meets ADB's Safeguard Policy Statement (2009) requirements.
- (vi) Assess the capacity of the executing agency and implementing agency on environmental assessment, management, and monitoring; and recommend required measures for capacity building.
- (vii) Identify areas for improvement and training needs with respect to the environmental safeguards under the project and based on this, prepare and submit training materials and conduct the training workshop to the staff of the executing agency, implementing agency and other stakeholders on environmental management and safeguard compliance.
- (viii) Identify environmental risks and propose a set of mitigating measures during the project construction and operation.
- (ix) Assist the executing and implementing agencies in preparing a sound environment management plan (EMP), appropriate monitoring requirements to assess the environmental and social impact of the project construction and operation, and establish a grievance redress mechanism.
- (x) Review cost implications of the proposed environmental mitigation measures and implementation of the EMP.
- (xi) Prepare a list of activities and budget requirements for EMP monitoring during project implementation.
- (xii) Assist the executing agency and implementing agency in stakeholders participation and consultation during IEE preparation and disclosure of relevant information.
- (xiii) Establish environmental baseline indicators and performance targets.
- (xiv) Submit the English IEE report to ADB and incorporate ADB's comments on the IEE report, revise, update and/or refine the IEE, if required.
- (xv) Prepare and submit a template of EMP monitoring report both in English and Dhivehi.
- (xvi) Provide a clear guidance on how to prepare environmental monitoring (EMP monitoring) reports to the executing agency and implementing agency, so that they are comfortable to diligently fulfill the monitoring requirement throughout the project implementation.
- (xvii) Monitor the implementation of EMP during construction and operation of the project.

- (xviii) Carry out environmental monitoring for the project, including sampling, spot checks, and regular inspection.
- (xix) Prepare, submit environmental monitoring (EMP monitoring) reports to the executing agency of the project and ADB, and incorporate all the comments from ADB. Liaise with the PMU and ADB and facilitate communications between them.
- (xx) Plan, organize, and conduct environmental training to the PMU and the executing agency on the ADB's SPS requirements; EMP, EMoP, and environmental management of the project.

54. **Technical expert**, as national consultant for 30 person months intermittently over a period of 5 years, with a background of electrical engineering and work experience of at-least 10. The expert should (i) have a graduate degree in electrical engineering or in any relevant field; (ii) have at least 10 years of working experience years in grid and diesel generator installations in the Maldives; (iii) have experience in energy sector including renewable energy projects; and (iv) be fluent in English. He will support the International Consultants, Solar Electric Power Engineer and Power Planning & Field Engineer in discharge of their responsibilities. The activities to be undertaken will include but not be limited to the following:

- (i) Undertake a physical survey of each island and carry out the following.
 - a. Study the grid status and determine the necessary improvements with respect to components or control technology to accommodate a hybrid operation mode.
 - b. Obtain and review the site related data (with the international experts), for the final project design
 - c. Visit the proposed locations for PV power plants (roof top and ground) and confirm the estimated kWp of solar that can be installed on each acceptable location.
- (ii) Assist the International Consultants in preparing the bidding documents and evaluating the bids received in accordance with the approved guidelines.
- (iii) Assist in the preparation of documents requesting clearance from the respective government, if needed, to erect the systems.
- (iv) Supervise the construction of project facilities and provide guidance to the contractors so as to conform to the specifications.
- (v) Assist in the acceptance of materials as they are received, ensuring that they are the correct materials and show no shipping damage.
- (vi) Witness commissioning, start-up and operational acceptance tests of the systems under varying conditions and utility load conditions and work with the installing contractor to solve problems as they arise.
- (vii) Review and compile "as-built" drawings and assist the International Consultants in the preparation of the Operation and Maintenance manual and supervise its implementation.
- (viii) Assist the International Consultant in coordinating capacity building for minigrid operators.

55. **Project Manager**, 60 man months, with engineering and/or procurement background and at-least with 10 years of experience of project management. The coordinator will be involved in day to day coordination work at the PMU and with the Executing and Implementing Agencies. He, will coordinate with all the international and national consultants, and will ensure

that project is being implemented as planned. He will lead the preparation of islands for future phases of the project. As a coordinator, he will also prepare periodic reports for the steering group, MEE and ADB on the project status and troubleshooting.

VII. SAFEGUARDS

56. Environment: An Environmental Assessment and Review Framework (EARF) has been prepared for entire Project to provide environmental assessment procedures for the implementation of the roadmap in the future. The EARF discusses the legal requirements and institutional setup required for the environmental management of the Project. It also presents a broad overview of the environmental impacts and mitigation measures that will typically result from solar-diesel hybrid energy system design and implementation. The EARF mainly sets forth the environmental criteria for sub-project selection, which are necessary tools for the selection and then categorization of future sub-projects included in the Roadmap. The IA will be responsible for preparing IEE of future sub projects in accordance with this EARF.

57. The overall project has been classified as Category B for environment. An initial environmental examination has been prepared for the Project with focus on demonstration sub-projects in five outer islands of Maldives. The activities proposed under the Project will result in limited environmental impacts, restricted mostly to the construction and operation phase. The main potential impacts identified include (i) noise from the DG sets, (ii) impacts on vegetation during construction activities of the solar plant installations, and (iii) impacts due to handling and disposal of used batteries. Adequate mitigation measures have been incorporated into the environmental management plan (EMP), which will form part of the construction contracts for all elements of the Project. A climate change adaptation risk evaluation was conducted and considered in infrastructure design. The estimated cost of management of environmental impacts includes (i) recruitment of a national environmental consultant to support the project management unit, and (iii) environmental mitigation measures, as outlined in the EMP, which will be included (and costed) for implementation through the contractors construction contracts. Public consultations were undertaken as part of IEE preparation and IEE with GRM are disclosed to the public. IEE for the subsequent subprojects will also be disclosed to the public as per SPS disclosure requirements.

(A) Involuntary Resettlement and Indigenous Peoples

58. The project is classified as category B for involuntary resettlement and C for indigenous peoples. Due diligence conducted on sample subprojects brought out no resettlement impacts and no adverse impacts on indigenous groups. The required land and space for installation of the solar panels for the sample subprojects will be provided by the Island Councils (ICs) and City Councils (CCs). A resettlement framework has been prepared for the project. For all the subsequent subprojects that have resettlement impacts, resettlement plans will be prepared in accordance with the safeguard provisions in the resettlement framework. The RPs will be reviewed and approved by ADB prior to awarding of civil works contract. No economic or physical displacement should occur before a resettlement plan is prepared by the EA/IA and approved by ADB. The social and environmental safeguards will be conducted by FENAKA/STELCO, assisted by the PMU. Capacity building support will be provided by the social safeguard consultant.

The resettlement framework and the resettlement plans, if any (for non -sample subprojects) will be made available in local language at accessible locations to APs. The draft and final RF and RPs will also be disclosed on ADB's and EA/ IAs website. Information dissemination and

meaningful consultations will continue throughout the project cycle. A grievance redress mechanism (GRM) will be established to receive and facilitate the resolution of APs' concerns, complaints, and grievances on negotiated/voluntary land donation or involuntary land acquisition, relocation, income restoration, environmental management and other construction and operation related issues. The EA will prepare semi-annual monitoring reports and submit to ADB.

59. There are no indigenous people in Maldives and Indigenous People Framework is not necessary. Therefore, there will be no requirement of conducting monitoring and evaluation on indigenous people under the project.

(B) Gender and Social Dimensions

60. The project has been classified as an Effective Gender Mainstreamed project (EGM, Category 2). A Gender Action Plan has been prepared for the project, to be developed and integrated into the project phases. FENAKA/Project Division will be the gender focal point in the PMU to coordinate the implementation of the Gender Action Plan. A social development and gender specialist services of approximately [60] person months will be recruited to support FENAKA implement the Framework.

Implementation Arrangements (GAP)

Gender Action Planⁱ

Activities	Indicators and Targets	Responsibility	Time Frame
Output 2: Enhanced capacity of PMU and FENAKA to implement RE grid			
(i) Gender inclusive public consultations conducted during project design and implementation	<ul style="list-style-type: none"> • Include the Island Women's Development Committees (IWDC)ⁱⁱ [approximately 162] and its members in the public consultation processes • Ensure women's participation either through women-only consultations and/or mixed groups [Target: at least 33% women participation is in mixed groups], with IWDC support to mobilize women. 	PMU and utilities	Year 1 onwards
(ii) Employment generated, with a focus on local labor and women's employment during project construction	<ol style="list-style-type: none"> a. IWDC members consulted and included in all awareness raising activities. b. Contractors' agreements to include: equal pay for work of equal value, gender-inclusive core labor standards, special facilities for women workers (which include separate toilets) and gender-inclusive awareness raising for risk mitigation. 	PMU and utilities	Year 1 onwards
(iii) Technical and skills training and/or retraining for women for employment in island-level 'last mile' duties and customer services ⁱⁱⁱ	<ol style="list-style-type: none"> a. Women trained/retrained and employed in technical maintenance and power plant duty^{iv} [Target: in at least 2 of the 5 pilot islands in phase 1, women are trained and employed as technicians]^v. b. Women trained/retrained and employed as customer service officers for grid systems [Target: at least 33% women in phases 1,2, 3 and 4]. 		
(iv) Corporate Social Responsibility/ community outreach program for household demand-side-management, to raise awareness on energy efficiency among women household consumers in the 162 project islands.	<ol style="list-style-type: none"> a. FENAKA's Corporate Social Responsibility/community outreach program rolled out with a focus on^{vi}: <ul style="list-style-type: none"> • Household demand side management to promote energy efficiency <ul style="list-style-type: none"> ▪ use of energy saving/LED^{vii} light bulbs ▪ changing consumer behavior patterns in energy consumption/saving; and • Benefits of renewable energy^{viii} and opportunities for productive energy use. • IWDC trainers will conduct user-education sessions in the 162 project islands b. LED bulbs distributed to cover the households in the five pilot islands and targets set for islands in preceding phases. c. At least 4 (and up to 12) Training of Trainers (ToT) sessions^{ix}, with participation to include: FENAKA staff head office (2-3)/regional (2-3)/power station (2-3) and IWDC members(1-2 per project island) [Target: at least 50% women's participation]. d. IWDC island-based training will be conducted house-to-house or as one training session, depending on number of households. 	FENAKA PMU, Social/gender specialist DSM specialist	
(v) CSR/community outreach program targeting students in Grades 11, 12 implemented, with a focus on female students	<ol style="list-style-type: none"> a. Promote awareness on: renewable energy benefits; energy efficiency/saving behavior patterns using gender inclusive IEC material and tools. b. Promote female students to take up technical/engineering vocations/studies c. Promote female students to take up internship programs with FENAKA in island project sites. d. [Target: Schools providing Higher Secondary School (Grade 11, 12) education in project islands]^x 		
(vi) Enabling environment created for	<ol style="list-style-type: none"> a. Reduced off-peak and/or shoulder rate tariffs provided for women-led micro and 	FENAKA	

Activities	Indicators and Targets	Responsibility	Time Frame
productive energy use based on women's microenterprise development. ^x	small enterprises (MSME). ^{xii} b. Opportunities identified and explored for innovative microenterprise development projects in the 5 pilot islands	PMU, Social/gender specialist	
(vii) Roadmap for outer island transition to renewable energy developed.	a. Reflect in the roadmap: the gender equality interventions in the GOM's Strategic Action Plan ^{xiii} , and; <i>FENAKA</i> 's CSR program	<i>FENAKA</i> PMU	Year 1 onwards
(viii) <i>FENAKA</i> Corporation staff trained to implement the Roadmap	a. <i>FENAKA</i> staff (up to 60) [Target: at least 25% women] trained to implement the roadmap for renewable energy mini-grid systems and scale up proven solutions.		
(ix) <i>FENAKA</i> , PMU staff trained in gender-inclusive community outreach	a. At least 2 training sessions per project phase.	<i>FENAKA</i> , PMU, Social/gender specialist	Year 1 onwards
Implementation Arrangements:			
A gender mainstreamed project PPMS system, to include key gender targets/indicators, designed and implemented. Social development/gender and development specialist services will be recruited for approximately [60] person-months across phases 1, 2, 3 and 4. A gender focal point from the <i>FENAKA</i> Projects Division will be located in the PMU to coordinate the implementation of the Gender Action Plan across the 4 phases.			

VIII. GENDER AND SOCIAL DIMENSIONS

Poverty and Social

61. Poverty reduction and social issues were reviewed for sub-projects during the PPTA. The project will ensure several direct benefits to communities, which are as follows (i) support to use renewable energy sources available in outer islands; (ii) support sustainable energy and economic development; (iii) energy supply to homes and for productive energy use; (iv) livelihood development through poverty reduction and improvement in the quality of life; (v) capacity development opportunities for women groups.

Gender issues and opportunities for mainstreaming were also considered in the preparation of the project. The project has been designed to be classified as effective gender mainstreaming. A Gender Action Framework, which integrates indicators and targets in the project design and monitoring framework, has been prepared. A Gender Action Plan includes the following key outputs: (i) household demand-side-management program to improve energy efficiency, targeting women household consumers, which will link up with and further develop FENAKA's CSR-community outreach program; (ii) creating an enabling environment for women's microenterprise development, (iii) promoting women's employment and training during project construction and subsequent systems operation and maintenance in the outer islands, (iv) training for FENAKA staff in gender inclusive community outreach approaches, and (iv) a gender mainstreamed PPMS system to be designed and implemented. The Island Women's Development Committees will be mobilized for community outreach and awareness raising activities. Social specialist (gender and community development) will be recruited for to support FENAKA implement the Gender Action Plan. The project will promote and advocate for a socially inclusive, gender equitable and non-discriminatory work environment and practices. Practices will be consistent with core labor standards. The project will minimize the risk of HIV/AIDS through information dissemination campaigns at project areas.

HIV /AIDS. Based on the poverty and social assessment, there is no risk that the project will increase HIV/AIDS incidence. However contractors will carry out HIV/AIDS awareness for their laborers at work sites, which will be monitored by the construction supervision consultants. The EAs with the help of civil society organizations and public health agencies will carry out the awareness amongst the communities in the project influence area.

62. **Health.** The EAs/IAs will ensure that contractors provide adequately for the health and safety of the construction workers and further ensure that bidding documents include measures on how contractors will address this, including an information and awareness raising campaign for construction workers on sexually transmitted diseases, including HIV/AIDS and human trafficking.

63. **Labor.** The EAs will ensure that civil works contractors comply with all applicable labor laws and regulations do not employ child labor for construction and maintenance activities, provide appropriate facilities for women and children in construction campsites; and do not differentiate wages between men and women for work of equal value. The EA will ensure that specific clauses ensuring these will be included in bidding documents.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>Impact More sustainable energy sector based on renewable resources.</p>	<p>By 2022: Increase contribution of renewable energy in the supply mix of the Maldives to 25% (2009 baseline: less than 1%)</p> <p>All islands initiate electricity sector de-carbonization and the reduction of CO₂ emissions to 0.6 kg of CO₂/kWh (2009 baseline: 0.9 kg of CO₂/kWh).^a</p>	<p>Ministry of Energy and Environment annual report</p> <p>Ministry of Energy and Environment annual report</p>	<p>Assumption The project can be replicated on other islands (including resort islands) on a commercial basis, based on trends in renewable energy costs.</p> <p>Risks Sudden unexpected changes to world oil prices</p> <p>Electricity demand growing beyond forecast, leading to increased diesel-based generation beyond expected levels</p>
<p>Outcome Shift towards clean and cost-effective energy sources.</p>	<p>By 2019: Gradual reduction in diesel consumption to 0.1–0.3 liters/kWh on outer islands (2012 baseline: 0.45–0.70 liters/kWh consumed on outer islands)</p> <p>Electricity tariffs on average improve to cover closer to 100% of costs (2011 baseline: present retail tariffs on average cover less than 50% of costs)^b</p> <p>CO₂ emissions reduced by 40,000 tons in the power sector (2019 baseline forecast: 400,000 tons)</p>	<p>Ministry of Energy and Environment annual report</p> <p>Maldives Energy Authority annual report</p> <p>Ministry of Energy and Environment annual report</p>	<p>Assumptions Private sector partial risk guarantee from the World Bank introduced in a timely manner to facilitate private renewable energy investments in the islands</p> <p>Electricity grid and diesel generator sets with necessary control systems prepared adequately to facilitate timely private sector investment in solar photovoltaic systems</p> <p>Risk Tariffs, guarantees not adequate for private sector investor interest</p>
<p>Outputs Renewable-energy-ready grid systems</p>	<p>By 2019: 21 MW of solar photovoltaic, 7 MWh of</p>	<p>FENAKA and STELCO annual reports</p>	<p>Assumption Cofinancing from the Islamic Development</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
developed for islands	energy storage designed and installed; 20 MW of diesel generator sets replaced; and the distribution grids upgraded in 160 islands		<p>Bank and the European Investment Bank approved in time</p> <p>Risks Delays or changes in island selection by the government</p> <p>Unexpectedly significant increase in price of raw materials and power plant components</p>
Capacity of MEE, STELCO, and FENAKA to implement renewable energy grid interventions	<p>By 2019 Road map for transition to renewable energy including procurement, project management, technical and financial management and safeguard support implemented</p> <p>Up to 60 FENAKA and STELCO staff (target includes at least 25% women) trained to implement the road map for renewable energy systems and to scale up proven solutions</p> <p>A gender-inclusive community outreach program implemented to raise awareness on renewable energy and household demand-side management, targeting island women's development committees and women household consumers in the outer islands covered under the project</p> <p>Target: at least 50% of participation in all community outreach activities are women</p> <p>Reduced off-peak and/or shoulder rate tariffs provided for women-led</p>	<p>MEE annual report</p> <p>FENAKA and STELCO annual reports</p> <p>FENAKA and STELCO annual reports</p> <p>FENAKA and STELCO annual reports</p>	<p>Assumptions Timely nomination of staff for capacity-building activities in FENAKA, STELCO, and PMU</p> <p>Selection criteria for islands under the project are well designed and factor in community support for such investments.</p> <p>Risk Rapid turnover in PMU staff</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	micro- and small enterprises Target: At least two training and information sessions per project phase		
Activities with Milestones 1. Renewable-energy-ready grid systems developed for islands 1.1 Issue bidding documents for phase 1, contract awards for grid systems (30 Jun 2014–1 Sep 2015) 1.2 Commission phase 1 (1 Sept 2015–1 Feb 2016) 1.3 Issue bidding documents for phase 2 and award contracts for grid systems (1 Mar 2015–1 May 2016) 1.4 Commission phase 2 (1 May 2016–1 Nov 2016) 1.5 Issue bidding documents for phase 3 and award contracts for grid systems (1 Jan 2016–1 Mar 2017) 1.6 Commission phase 3 (1 Mar 2017–1 Sep 2017) 1.7 Issue bidding documents for phase 4 and award contracts for grid systems (1 Oct 2016 –1 Dec 2017) 1.8 Commission phase 4 (1 Dec 2017 –1 Jun 2018) 2. Capacity of MEE, STELCO, and FENAKA to implement renewable energy grids strengthened 2.1 Procure consulting services to support PMU, FENAKA, and STELCO on design, implementation, and project management (30 Jun 2014–1 Mar 2015) 2.2 Bid support for phase 1 (1 Mar 2015 –1 Sep 2015) 2.3 Review selected design, prepare safeguards and other island-specific information for phase 2 (1 Dec 2014 –31 Mar 2015) 2.4 Review selected design, prepare safeguards and other island-specific information for phase 3 (1 Sep 2015–31 Dec 2015) 2.5 Review selected design, prepare safeguards and other island-specific information for phase 4 (1 Jun 2016 –30 Sep 2016) 2.3 Review implementation progress of the four phases periodically including implementation of roadmap (1 Jan 2015–31 Dec 2019) 2.5 Implement training program for capacity development for PMU, STELCO, and FENAKA (1 Apr 2015–31 Dec 2017) 2.6 Prepare quarterly progress reports and meet other reporting requirements (1 Jan 2015–31 Dec 2019) 2.7 Implement the gender action plan (31 Mar 2015–31 Dec 2019)		Inputs Grant ADB: \$38.0 million ADB Strategic Climate Fund: \$12.0 million Loan Islamic Development Bank: \$10.0 million European Investment Bank: \$50.0 million Government: \$14.0 million	

ADB = Asian Development Bank, CO₂ = carbon dioxide, kg = kilogram, FENAKA = FENAKA Corporation Limited, kWh = kilowatt-hour, MEE = Ministry of Environment and Energy, MW = megawatt, MWh = megawatt-hour, PMU = project management unit, STELCO = State Electricity Company.

^a Through energy efficiency and renewable energy.

^b Tariffs are about 45% of cost coverage for domestic consumers (Scaling Up Renewable Energy Project Investment Plan, 2012).

B. Monitoring

Project performance monitoring

64. PMU assisted by FENAKA and External Experts will prepare quarterly monitoring reports, including disaggregated baseline data for output and outcome indicators. The quarterly reports will provide information necessary to update ADB's project performance reporting system. The biannual loan reviews and the quarterly monitoring reports will include environmental and social safeguard monitoring reports.

Compliance monitoring:

65. In addition to the standard assurances, compliance with the specific assurances will be monitored. Implementation of covenants will be (i) summarized in the quarterly progress reports, (ii) discussed during PMU meetings, and (iii) reviewed during biannual grant review missions. The executing and implementing agencies will cause the detailed consolidated project financial accounts to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The Government has been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. 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. For revenue generating projects only, ADB requires audited financial statements (AFS) for each Executing Agency and Implementing Agency associated with the project.

Safeguards monitoring:

Environmental Safeguards

66. The EA will monitor, audit, and report to ADB on the implementation of the EMP for each subproject semiannually during construction and annually during operation. The corrective actions will be implemented if compliance issues are identified as a result of monitoring work. The contractor(s) shall prepare and submit the semi-annual progress reports in conformance with the EMP to the EA and shall indicate when, how and at what cost the contractors plan to satisfy the requirements as per detailed design. From these progress reports, the EA will prepare an environmental monitoring report and submit to ADB semi-annually during construction and annually during operation. The environmental monitoring report will be publicly disclosed to ADB website as required by SPS 2009 and Public Communications Policy 2011.

Involuntary Resettlement

67. The EA will prepare semi-annual monitoring reports and submit to ADB. These reports will describe the progress of the implementation of resettlement activities and compliance issues, if any, and corrective actions taken to address them.

Gender and social dimensions monitoring

68. A gender mainstreamed PPMS system, which includes the key targets and indicators of the Gender Action Plan, will be developed and implemented. Semi-annual progress reports will be presented.

C. Evaluation

69. ADB and the MEE assisted by PMU will conduct twice annual reviews throughout the implementation of the project as well as a mid-term grant review for project. The review will monitor (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. Within 3 months of physical completion of the Project, the Executing Agency will submit a project completion report to ADB.¹⁰

D. Reporting

70. The MEE will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) 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 next 12 months; and (iii) a project completion report within 3 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project financial accounts and the executing agency AFSs, together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

71. MEE will prepare a stakeholder communication strategy and submit to ADB for review by the end of Month 3 after Loan effectiveness. All communication will be in language suitable for the specific audience and will follow the ADB Public Communication Policy. The stakeholder strategy will incorporate the following components:

- (i) Compilation of stakeholder communication activities already undertaken;
- (ii) Public communication plan for disseminating information regarding project development to the public who may be impacted by the proposed projects; and
- (iii) Consultations and disclosure during preparation of future sub project IEE.

¹⁰ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

X. ANTICORRUPTION POLICY

72. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.¹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency 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.²

73. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the Project. The government will (a) comply with ADB's Anticorruption Policy (1998, as amended to date), and cooperate fully with any investigation by ADB and extend all necessary assistance, including providing access to all relevant books and records for the satisfactory completion of such investigation; (b) ensure that relevant staff are trained in ADB's Anticorruption Policy; (c) ensure that the audited annual project financial accounts under the project, project progress, and procurement activities are disclosed on relevant government entities; and (d) allow and facilitate ADB's representatives to conduct spot and random checks on (i) flow of funds, and their use for the projects in accordance with the legal agreements; (ii) work-in-progress; and (iii) project implementation under the project.

XI. ACCOUNTABILITY MECHANISM

74. 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.³

¹ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

² ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

³ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

XII. RECORD OF PAM CHANGES

To be inserted as and when any changes are necessary and agreed by both sides.

SIGNED IN MALE, MALDIVES ON _____

On behalf of MOFT

On behalf of Asian Development Bank

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- ⁱ The Gender Action Plan has been developed to cover the 4 phases of project implementation, over 5 years, from 31 May 2014 to 31 March 2019. Phase-specific Gender Action Plans (GAPs) will be developed, based on the Framework, by the PMU (see section on Implementation Arrangement below).
- ⁱⁱ The 2010 *Act on Decentralization of the Administrative Divisions of the Maldives* mandates the establishment of an Island Women's Development Committee (IWDC) under each Island Council (IC). IWDC perform advisory functions to Island Councils (ICs) on women's development concerns.
- ⁱⁱⁱ These targets are for island-level, 'last-mile' operations.
- ^{iv} Fenaka could not provide a current recruitment plan. Fenaka's national staff consist of one female engineer and no female technician. In the Fenaka administrative regions 13% of employees are women. In the five pilot island sites percentage of women employed varies widely: Lh. Kurendhoo (14%), B. Goidhoo (40%), Th. Buruni (33%), Ga. Villingili (3%) and S. Addu (10%). In the head-office in Male 42% of employees are women. In the Fenaka regions: Technical Maintenance Power Plant duty, 1% are women (no technicians); and in Billing Sales Collection and Credit, 25% are women. (HR data)
- ^v HR baseline data of existing vacancies for the five pilot islands estimate 4 vacancies in Technical Maintenance Power Plant (TMPP) duty section (Lh. Kurendhoo, B. Goidhoo, and Ga. Villingilli) and 8 vacancies in Billing Sales Collection and Credit control (BSCC) sections (Lh. Kurendhoo, B. Goidhoo, Ga. Villingilli and S. Addu City). Baseline vacancy data will be collected for the remaining islands in each phase.
- ^{vi} Fenaka is developing a Corporate Social Responsibility/community outreach program targeting women HH consumers and students.
- ^{vii} The Ministry of Environment and Energy (MEE) is currently distributing LED light bulbs free of charge, to consumers, as a part of its energy savings program. This output will help raise awareness about the MEE, LED distribution program and assist in the distribution of LED light bulbs.
- ^{viii} Benefits highlighted will include savings in HH expenditure, livelihood opportunities, environmental sustainability and technical and skills training and employment opportunities for women.
- ^{ix} The trainings will be based on each of the 4 project phases and/or the respective Fenaka administrative regions covering the project sites in each phase. It will be determined by whichever is cost effective in any particular phase.
- ^x According to the most recent Ministry of Education data (2009) a total of 38 schools provide Higher Secondary (Grades 11 and 12) education nationwide: 4 in Male and 34 in the Atolls.
- ^{xi} Excess power will be available from the RE-hybrid plants, opening up opportunities for productive energy use. This output will also explore linkages with MSME programs, under the Ministry of Economic Development.
- ^{xii} These will be for non-residential based enterprises.
- ^{xiii} The GOM Strategic Action Plan includes a commitment to "review gender-sensitive impact on women and men in addressing energy related matters", Republic of Maldives, 2009, *The Strategic Action Plan: National Framework for Development 2009-2013* p. 429. The Strategic Action Plan 2009-2013 Policy 2 has a commitment to "... Empower women to facilitate their equal access to available opportunities with equal outcomes/results" or the most updated version available during project implementation will be reflected in the Roadmap.