

Social Monitoring Report

Semestral Report
January 2017

Maldives: Preparing Outer Islands for Sustainable Energy Development Project

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Social Safeguard Monitoring Report

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Sub-projects: Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant in 5 Pilot Islands (POISED 001) and Design, Supply, Installation & Maintenance of Generator & Grid Infrastructure in 5 Pilot Islands of Maldives (POISED 002)

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Contents

Executive Summary..... 3

1.0 Introduction 4

 1.1 Scope of the report: 4

 1.2 Brief Project Description 4

 1.3. Scope of the project..... 5

2.0 Project Status..... 8

 2.1 Status of Project Implementation..... 8

 2.2.1 Status of Subproject Implementation..... 10

 2.3 Status of Project Monitoring Activities 11

 2.4 Implementation Schedule..... 12

3.0 Performance Monitoring 13

 3.1 Compliance with Legal and Policy Requirements 13

 3.2 Compliance with Social Safeguard Covenants 13

 3.3 Compliance with Resettlement Plan Requirements 14

4.0 Implementation of the Grievance Redress Mechanism 15

 4.1 Grievance Redressal Mechanism - briefly define/explain the process..... 15

 4.2 Status of Implementation of the GRM..... 15

5.0 Stakeholder Engagement..... 16

 5.1 Stakeholder Engagement Process..... 16

Executive Summary

The investments under the Preparing outer islands for sustainable energy development (POISED) project are broadly in the areas of renewable energy based electricity generation and energy efficiency improvements at the generation and distribution of electricity. Hence, the project constructs and operates hybrid energy systems that include solar power generation units (on ground and roof-top) with a total capacity of 20888 kWp and 40170 kW diesel generations on about 168 islands. As proposed in the project document a phased out intervention strategy has been undertaken in the implementation of the project. In the first Phase five Outer Islands are selected as pilot islands namely: B. Goidhoo, Lh. Kurendhoo, Th. Buruni, Ga. Villingili and Hithadhoo of the Addu.

Overall implementation of the project activities (PV panels, DC cable and inverters and installation, DB and grid upgrade works, installing of diesel generator sets and synchronising and distribution panels) on all islands are nearly completed as of the 31st December 2016. However, Solar panel installation work on Lh. Kurendhoo has just started due issues aroused on land allocation. Installation of plant controls and energy management system in all islands is yet to start.

Performance monitoring has been made continuously in order to align implementation of subproject activities with the objectives of ADB's SPS 2009 and laws and regulations of Maldives and attended accordingly whenever and wherever complains and issues are raised. The main complains and concerns raised were water leakages from the roofs and issues on location of the sites and relocation of the sites. State owned land and buildings are utilised for solar panel installation, hence no adverse social impact was identified in any of the five islands of the subprojects. There were some young coconut trees and a minor vegetation which can be easily replanted elsewhere, if needed, hence, was not required a compensation.

1.0 Introduction

1.1 Scope of the report:

This report provides status of implementation of two subprojects of POISED in 5 pilot islands (B. Goidhoo, Lh. Kurendhoo, Th. Buruni, Ga. Villingili and Addu) and gives the processes involved to keep the project complying social safeguards during the implementation of two subprojects.

1.2 Brief Project Description

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 two third of the country's population lives on the outer islands. The Maldives has about 100 MW of installed diesel generation capacity on the inhabited islands and another 100 MW on the tourism islands. While the Maldives has the unique distinction of being the first country 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 mini 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 \$40 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.

The Maldives has significant renewable energy resources namely solar and in some pockets wind energy. Energy sector studies reveal that 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 position. The Government has initiated two programs – one for the Male region to replace base load generation with renewable energy

¹ The Maldives has 1192 islands of which 190 islands are inhabited.

² The Maldives is considered one of the most oil vulnerable countries with oil imports close to 31% of GDP in 2012.
References...

and the other on the Outer Islands to replace existing diesel based generation with renewable energy.

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 lending approach would support the transition of those islands that meet the investment criteria. The proposed project on the outer islands would transform the existing mini grids through physical investments in renewable energy, energy management and control systems, and energy storage and distribution networks. The private sector would have a role in supporting the renewable energy investments in identified outer islands. De-carbonization of the private tourist islands would be separately pursued by the Government through policy instruments.

The investments under the project are broadly in the areas of renewable energy based electricity generation and energy efficiency improvements at the generation and distribution of electricity. The executing agency will be the Ministry of Finance and Treasury (MOFT). A Project Management Unit (PMU) comprising the officials from Ministry of Environment and Energy (MEE), FENAKA and STELCO has been setup for coordination of activities under the project. The implementing agencies would include MEE, FENAKA and STELCO. Project agreements would be entered into with FENAKA and STELCO. The PMU will be strengthened with external experts in the areas of finance, procurement, and contract management. Project Implementation Units (PIU) will be established in FENAKA and STELCO to assist in preparing an overall implementation plan, contract packing and annual budgets.

1.3. Scope of the project

The project components and outputs will be: (i) development of renewable energy ready mini grid systems for outer islands, (ii) capacity enhancement of PMU, STELCO and FENAKA to implement renewable energy mini grid projects. Under the project, the plan is to cover 168 islands of FENAKA and 30 islands of STELCO. Of 168 islands, five islands are selected as sample subprojects which are now under progress. As mentioned earlier the five islands are, B. Goidhoo, Lh. Kurendhoo, Th. Buruni, GA. Villingili and S. Hithadhoo.

Table 1 gives summary of existing features and the interventions undertaken by the project on these 5 islands.

Table 1: Summary of Existing Features and Interventions undertaken by the project on 5 Islands

Feature	Target Island / Sub-project				
	Goidhoo	Kurendhoo	Buruni	Villingili	Addu City
Atoll /Locality	South Maalhosmadulu (B)	Faadhippolhu (Lh)	Kolhumadulu (Th)	Ga Atoll (Ga)	Addu Atoll (S)
Geographical Location	Latitude 4°53' north and Longitude 73°00' east	Latitude 5°20,06' north and Longitude 73°27,87' east	Latitude 2°33' north and Longitude 73°6' east	Latitude 0°45' north Longitude 73°26' east	Latitude 0°40' north and Longitude 73°08' east
Total Land Area (Ha.)	163.7	21.3	35.0	98.0	971.5
Population (2006)	503	1218	1130	1976	17862
Number of Households	77	235	182	346	>2200
Distance from Male (km)	96.2	129.0	184.9	580.0	533.7
Proposed Interventions	Hybrid Energy System consist of: <ul style="list-style-type: none"> • Diesel Generator: 160kW (New DG set 1x160 kW) • Ground-mounted PV: 200kW • Li-Ion based battery storage system: 84kWh and 223 kW • Refurbishment of mini-grid 	Hybrid Energy System consist of: <ul style="list-style-type: none"> • Diesel Generators: 254kW (existing 104 kW+ new 150 kW), • On ground PV: 300 kW and • Li-Ion based battery storage system: 84 kWh and 223 kW • Refurbishment of mini-grid 	Hybrid Energy System consist of: <ul style="list-style-type: none"> • Diesel Generator: 100kW (New DG set 1x100 kW) • Roof-top PV: 100kW • Li-Ion based battery storage system: 41kWh and 111 kW • Refurbishment of mini-grid 	Hybrid Energy System consist of: <ul style="list-style-type: none"> • Diesel Generators: 800kW (new 1x500kW + new 1x300kW) • Rooftop PV: 300kW • Li-Ion based battery storage system: 84kWh and 223 kW • Refurbishment of mini-grid 	Hybrid Energy System consist of: <ul style="list-style-type: none"> • Diesel Generators: 6,850 kW-7 existing DG sets (3x1000 kW + 3x750 kW + 1x1600 kW) • Distributed ground and roof mounted PV (1600 kW) without battery storage system • Refurbishment of mini-grid
Location of proposed sites for interventions	Plot located west of the school (G1) on Goidhoo Island.	Plot besides existing harbour (B2) on Kurendhoo Island	Roof-top of school building (B3, B4, B5) and ground space adjacent to school (B1 and B2) on Buruni Island.	Rooftop of Hospital and School Buildings on Villingili Island	Rooftop and ground installations. <ul style="list-style-type: none"> – 600kW at Convention Center (on roof) – 1000kW at Stadium area (on ground)

Feature	Target Island / Sub-project				
	Goidhoo	Kurendhoo	Buruni	Villingili	Addu City
Ownership of proposed land	Island Council / Government	Island Council / Government	Island Council / Government	Island Council / Government	Addu City Council / Government
Land requirement	3000 sq.m. (G1 – open area located west of the school)	4500 sq.m. (open ground next to harbor)	1500 sq.m. (roof-top of school buildings and open space)	4800 sq.m. (rooftop of school and hospital building)	24000 sq.m. (roof top of various buildings)

2.0 Project Status

2.1 Status of Project Implementation

Table 2 gives brief status of overall implementation of the POISED project as of 31st December 2016.

Table 2. Brief Status of Overall Implementation of the POISED Project (as of 31st Dec 2016)

Major components/activities	Status
PMU	Established (Hired Project Manager for POISED Project (POISED 001-OS), Technical Expert Local (POISED S-120330), Environment Specialist (POISED S-120769), Social Expert (Gender and Community Development) (POISED S-120329), Technical Consultancy Services Contract (POISED 001-TC), IT & Financing Consultant's Services (POISED 002-TC), Senior Advisor (JFJCM) (018303))
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant in 5 Pilot Islands (POISED 001)	Contract signed on 17th April 2016. Installation and construction work is in progress
Design, Supply, Installation & Maintenance of Generator & Grid Infrastructure in 5 Pilot Islands of Maldives (POISED 002)	Contract signed on 17th April 2016. Installation and construction work is in progress
Design, Supply and Installation of 8MW of Diesel Generator in Male' Capital City of Maldives (POISED 003)	Contract signed on 17th April 2016. Installation work is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in HDh Atoll	Field survey conducted in <ul style="list-style-type: none"> - Feasibility study done formulated report on 27th July 2016. - Preparation of tender document - Tendered published on 11th July 2016 - Pre-bid meeting held on 01st August 2016 - Bid submitted on 26th September 2016. 09 parties submitted bid documents. - Bid evaluation in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in HA Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document - Tendered published on 30th

	<p>August 2016</p> <ul style="list-style-type: none"> - Pre-bid meeting held on 19th September 2016 - bid submitted on 26th October 2016. - Bid evaluation in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in Sh Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in N Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 12th Aug 2016. - Preparation of tender document in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in Lh Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in R Atoll	<ul style="list-style-type: none"> - Feasibility studies conducted
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in K Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in AA Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in ADh Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in V Atoll	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016. - Preparation of tender document is in progress
Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant and Generator & Grid Infrastructure in GA and GDh Atolls	<ul style="list-style-type: none"> - Feasibility study conducted and formulated report on 01st March 2016.

2.2.1 Status of Subproject Implementation

Table 3 gives brief status of overall implementation of the subprojects of POISED as of 31st December 2016.

Table 3. Brief Status of Overall Implementation of Subprojects of POISED (as of 31st Dec 2016)

Description of work	Status				
	B. Goidhoo	Lh. Kurendhoo	Th. Buruni	GA. Villingili	Addu, Hithadhoo
Civil works of control rooms	100% completed	85% completed	100% completed	100% completed	100% completed
PV panels, DC cable and inverters installation	80% completed. (Installation work is completed in school and hospital) Total 798 Panels of 255Wp are installed to develop 203kWp solar power plant	Ground cleaning and leveling work are ongoing Total 1218 Panels of 255Wp to be installed to develop 310 kWp solar power plant	100% completed. 400 modules of 255Wp Total 400 Panels of 255Wp to be installed to develop 100 kWp solar power plant	100% completed. (Installation work is completed in school and hospital) Total 1180 Panels of 255Wp are installed to develop 300kWp solar power plant	94% completed. (Installation work is completed in convention centre and STO warehouse) Total 6269 Panels of 255Wp to be installed to develop 1.6MWp solar power plant
DB and grid upgrade works	100% completed	100% completed	100% completed	100% completed	100% completed
Plant controls and energy management system	0% of work is completed	0% of work is completed	0% of work is completed	0% of work is completed	15% of work is completed
2000kVA Transformer	NA	NA	NA	NA	Delivered to site
Generator sets	100% completed (100kW and 60kW)	100% completed (104kW and 150kW)	100% completed (50kW and 120kW)	Generators delivered to site. 500kW and 800kW Generator	NA
Generator set synchronizing and distribution panel	100% completed	100% completed	100% completed	Panels delivered to site	NA

2.3 Status of Project Monitoring Activities

Regular monitoring is made as subproject activities are being implemented by the PMU and PIU personals. Daily routine supervision and monitoring also made by the FENAKA staff from respective branch of the subproject sites. The main objective of this regular supervision and monitoring is to ensure that the project activities are carried out in line with the ADB's SPS and the country's safeguard system. The project implementation plan is being made to avoid or minimise and mitigate adverse impacts of projects on environment and the people living around the sites. Hence, project supervision and monitoring undertakes all required assurance.

3.0 Performance Monitoring

Utmost attention is given while conducting the performance monitoring as to achieve the objectives of ADB's SPS (2009) with regard to social safeguards and involuntary resettlement. Hence, monitoring is made to observe the subprojects compliance with legal and policy requirements, social safeguard covenants, resettlement plan requirements.

3.1 Compliance with Legal and Policy Requirements

The Social Safeguard parameters including Resettlement Framework (RF), land acquisition, eligibility and entitlements and compensations are set corresponding ADB's SPS and Maldives laws and regulations. The purpose of regular performance monitoring is to assess potential environmental, health, safety and social impacts of the subproject activities and any interventions undertaken under the POISED. This enables to enforce all elements of Social Safeguard parameters set in the project documents and ensures that they are conducted in compliance with the ADB's SPS 2009 and Maldives laws and regulations. It is observed that no stakeholders or anyone from any of these subproject islands have complained of any activity or any component implemented under the project being against or breached any law or regulation of the Maldives.

However, some very minor bushes and minor trees are cleared from the site allocated for PV installation in B. Goidhoo and according to the council there was no tree in the site which required a compensation. There were 16 young coconut trees owned by the council in one of the Lh.Kurendhoo sites which can be easily replanted in some other places. Therefore, the council only asked to replant them elsewhere if the site is going to be used for the PV installation.

3.2 Compliance with Social Safeguard Covenants

The project activities are carried out as they align with social safeguard covenants and complying with ADB's Social and environmental safeguards policy and the country's laws and regulations. Meaningful consultations, pre and during project implementation, are conducted with subproject communities including women and Women Development Committees (WDCs), NGOs and individuals or youth from women and Women

Development Committees and NGOs as appropriate. Provided them with opportunities to participate in information dissemination sessions. Particular attention was given to the needs of vulnerable groups and they will be provided with just and lawful compensation if they are affected from any of the project activities. Required information and documents are disclosed and additional consultations are conducted when needed.

3.3 Compliance with Resettlement Plan Requirements

State owned land and buildings are utilised for solar panel installation, hence, not required voluntary or involuntary resettlement process to be undertaken in any of the subproject sites. All Island Councils (ICs) and City Councils (CCs) and government agencies agreed to provide necessary land and building structures for the project. Pre-approvals were sought and obtained for utilisation of roofs and the land allocation was made in early consultation process. Therefore, was not aroused a land acquisition dispute in any of these five islands other than in Kurendhoo. It was not a dispute in Kurendhoo per se but it was a development priority issue as in their Island Development Plan due to the long time elapsed for the implementation of the project and materialisation the project outcome. The allocated site has been occupied for other ongoing development project. There are no indigenous people or communities identified in Maldives. However, the Resettlement Framework (RF) prepared for the project will guide the preparation of other phases of the project.

4.0 Implementation of the Grievance Redress Mechanism

4.1 Grievance Redress Mechanism

As per the project document, a grievance redresses mechanism was established and all complains and concerns raised by different stakeholders and members from communities of all five islands were attended in a timely manner. There were no concerns raised relating to resettlement and other social issues, however, complains were lodged regarding water leakages from the roofs where PV installations were made, trenching and laying of underground cable and replacing of designated plots to elsewhere on the islands.

4.2 Status of Implementation of the GRM

Table 4 gives the details of complains and concerns raised during the implementation of the subprojects

Table 4. Details of Complains and Concerns raised during the implementation of the Subprojects (as of the reporting date)

	Sites/ islands	Complains raised	Raised by	Status	Period resolved
1	Hithadhoo School, S. Hithadhoo (Addu)	Leakage from the roof	S. Hithadhoo School & Min. of Education (June 2016)	Leakage problem was resolved and the ceiling was repaired	August 2016
2	GA. Villingili	Leakage from the roofs Laying of underground cables	Villingili School & Min. of Education and Min. of Home Affairs (November 2016)	Leakage and trenching issue was solved	December 2016
3	Th. Buruni	Replacing of the old roof of one of the buildings in Buruni School	Island Council and the School (May 2016)	Replaced the old roof	June 2016
4	B. Goidhoo	No issue was raised	-	-	
5	Lh. Kurendhoo	Replacing of the designated land for the ground mounting of the PVs	Island Council	Negotiated with the council and finally settled land issue having two plots in two different locations of the island	October 2016
6	Sharafuddeen School, S. Hithadhoo (Addu)	Leakage from the roof	Sharafuddeen School & Min. of Education (June 2016)	Leakage problem was resolved and the ceiling was replaced	August 2016

5.0 Stakeholder Engagement

5.1 Stakeholder Engagement Process

All key stakeholders are engaged during the feasibility studies were carried out in all 5 islands. In order to engage and increase stakeholder participation, the following key activities were conducted in all sites of the subprojects:

- 1) Introduction of the POISED project to FENAKA branches, island councils, women and the community, students, teachers and parents;
- 2) Awareness sessions for women, students and parents on economising the electricity and energy efficiency, and importance of renewable energy and career guidance for the students;
- 3) Social Impact Assessment Survey: The household survey was carried out by a trained team from the respective island, including staff from FENAKA, Council, and staff from other government agencies covering two focus group discussions, including women and disadvantaged households.

The consultation process has been maintained as an on-going dialogue with stakeholders such as councils, women, line ministries and agencies, FENAKA and STELCO. Key stakeholders dialogue has been maintained through regular technical and steering committee meetings. However, the PMU, PIU and contractor conduct issue based meetings when needed.

5.2 Consultations

The Table 5 gives consultations and meetings are conducted during the reporting period

Table 5. Consultations and Meetings Conducted during the period of Reporting

	Consultations/ meetings conducted	Issues	Status
1	Ministry of Education	Obtaining school roofs	School roofs are approved
2	Ministry of Health	Obtaining health Centres' roofs	Health centres' roofs are approved
3	Sharafuddeen School, Addu	Leakage issue	Replaced the leakage areas form the roof and ceiling

4	Lh. Kurendhoo Council	Land issue	Land allocation was made in two designated areas form the island and demarcation was made
5	Villingili School	Leakage issue	Leakage problem was attended and replaced some broken equipment
6	Villingili council	Trenching of the paved road	Settled the problem in collaboration with Ministry of Housing/ agreed to bear trenching and repaving cost
7	Hithadhoo School	Leakage issue	Replaced the roof
8	Buruni School	Roof issue	Replaced the roof
	Goidhoo council	Public vegetation	Compensation was provided and the site was cleared

6.0 Conclusion

The monitoring report confirms that the subprojects of Design, Supply, Installation & Maintenance of grid-tied solar PV-diesel hybrid power generation plant in 5 Pilot Islands (POISED 001) and Design, Supply, Installation & Maintenance of Generator & Grid Infrastructure in 5 Pilot Islands of Maldives (POISED 002), have so far caused no negative social impacts. Implementation of activities are undertaken considering all the ADB's Social Safeguard policies and in line with Maldives laws and regulations and attended accordingly whenever and wherever complains and issues are raised. Hence, attention is given to the possible extent towards the implementation of socio-environmental safeguards and all subprojects' activities are implemented in compliance with laws and regulations of the country and social covenants of Loan Agreement.