



GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Medium-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Sustainable energy access to manage water resources: Addressing the energy-water nexus		
Country(ies):	Cabo Verde	GEF Project ID: ¹	9812
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	170001
Other Executing Partner(s):	Ministry of Economy and Employment-Direction of Energy; Ministry of Agriculture and Environment ² ; ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE); Centre for Renewable Energy and Industrial Maintenance (CERMI), National Agency for Water and Sanitation (ANAS)	Submission Date:	04/03/2017
		Resubmission Date:	02/06/2017
GEF Focal Area(s):	Climate Change	Project Duration (Months)	36
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP	<input type="checkbox"/>
Name of parent program:	[if applicable]	Agency Fee (\$)	169,241

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES³

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
CCM-1 Program 1	GEFTF	1,781,484	6,000,000
Total Project Cost		1,781,484	6,000,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To catalyze market-based integration of renewable energy and energy efficiency (sustainable energy) technologies in water resource management						
Project Components	Financing Type ⁴	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
Policy and institutional framework conducive to the promotion of energy-water nexus approach	TA	1.1 Energy-water nexus and Energy Services Companies (ESCOs) approach integrated in relevant national policies and regulations	1.1.1 National platform to discuss synergies between sustainable energy systems and water resources management established 1.1.2 Recommendations on how to integrate the gender dimension into energy-water initiatives prepared and presented to decision makers 1.1.3 Recommendations on how to improve policy and	GEFTF	54,049	300,000

¹ Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

² The Ministry of Agriculture and Environment is the former Ministry of Rural Development.

³ When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETF, LDCF and SCCF](#) and [CBIT guidelines](#).

⁴ Financing type can be either investment or technical assistance.

			regulatory environment to promote ESCOs approach in sustainable energy-water resource management projects developed and presented to decision makers			
2. Building capacity to support the integration of renewable energy and energy efficiency technologies in water resources management	TA	2.1 Local capacity on energy-water nexus and ESCOs approach enhanced	<p>2.1.1 Technical training material on how to integrate RE and EE technologies in desalination plants and water pumping systems developed</p> <p>2.1.2 Training material on the development and management of ESCOs produced</p> <p>2.1.3 CERMI's staff trained using modules produced from 2.1.1 and 2.1.2 on a train-the-trainer basis</p> <p>2.1.4 10 training sessions (5 for each of module) are conducted by CERMI's staff</p>	GEFTF	122,174	400,000
3. Demonstration and scaling up investment in projects focused on the use of renewable energy and energy efficiency in water resource management	Inv	3.1 Private investments in projects addressing the energy-water nexus increased	<p>3.1.1 ESCOs approach and tailored financial mechanism developed and used to support demonstration projects integrating RE and EE in water pumping and desalination systems to achieve around 1.6 MW of installed capacity</p> <p>3.1.2 Investment projects using ESCOs approach and tailored financial mechanism implemented to reach about 2 MW of installed capacity</p> <p>3.1.3 Workshops, seminars and exposure visits organized to show-case demonstration projects</p>	GEFTF	1,383,308	4,850,000
4. Monitoring and evaluation	TA	4.1 Project progress continuously monitored and evaluated	4.1.1 Project progress monitored and evaluated in timely manner	GEFTF	60,000	200,000

	Subtotal		1,619,531	5,750,000
	Project Management Cost (PMC) ⁵	(select)	161,953	250,000
	Total Project Cost		1,781,484	6,000,000

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ()

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
GEF Agency	UNIDO	Grants	50,000
GEF Agency	UNIDO	In-kind	150,000
Recipient Government	Ministry of Agriculture and Environment	Grants	2,000,000
Recipient Government	Ministry of Economy and Employment	Guarantees	500,000
Private Sector	To be identified	Equity	2,800,000
Recipient Government	Sub-national governments	In-kind	500,000
Total Co-financing			6,000,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS ^{a)}

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
UNIDO	GEFTF	Cabo Verde	Climate Change		1,781,484	169,241	1,950,725
Total GEF Resources					1,781,484	169,241	1,950,725

a) Refer to the [Fee Policy for GEF Partner Agencies](#).

E. PROJECT PREPARATION GRANT (PPG)⁶

Is Project Preparation Grant requested? Yes No If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: \$45,000					PPG Agency Fee: 4,275		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee ⁷ (b)	Total c = a + b
UNIDO	GEF TF	Cabo Verde	Climate Change		45,000	4,275	49,275
Total PPG Amount					45,000	4,275	49,275

⁵ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

⁶ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$2m (for MSP); up to \$100k for PF up to \$3m; \$150k for PF up to \$6m; \$200k for PF up to \$10m; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁷ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁸

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>Hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>Hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	<i>Direct: At least 76,600 metric tons of CO_{2e} Indirect: At least 88,000 metric tons of CO_{2e}</i>
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

PART II: PROJECT JUSTIFICATION

1. Project Description

1.1 The global environmental and/or adaptation problems, root causes and barriers that need to be addressed

The supply of water and energy is interdependent. Water is used in all stages of energy production and electricity generation in the same way energy is required to extract, convey, deliver water of appropriate quality and to treat wastewaters. In developing countries, energy costs often accounts for more than half of the operating costs of water and sanitation service providers. Nevertheless historically, interactions between energy and water systems have been developed, managed, and regulated independently, in most cases. Current challenges, including climate change, rapid population growth and urbanization as well as the introduction of new technologies, have further highlighted the evident interconnection between water and energy systems.

By 2030, the demand for freshwater is expected to exceed renewable water supply by 40% and by 2035, the world will need to increase energy supply in more than a third to cover the water and energy requirements of the world

⁸ Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF, SCCF or CBIT.

population.⁹ Many forms of energy production generate significant amounts of greenhouse gas (GHG) emissions further contributing to climate change and aggravating shortages in water supply. As such, climate change will continue to put pressure on the limited natural resources available increasing human and ecosystems vulnerabilities. The increasing depletion of natural resources will only heighten the already keen competition between water and energy.

As such, the use of an integrated approach to address the opportunities and challenges of the energy-water nexus is essential. During the Bonn Nexus Conference in 2011, the need to devise a comprehensive and systemic approach that considers the interlinkages and possible synergies and trade-offs among water and energy was considered. Following this global trend, Cabo Verde aims to adopt the energy-water nexus approach in order to produce the greatest possible holistic development impact as stated in its Intended Nationally Determined Contribution (INDC).

Like other Small Islands Development States (SIDS), Cabo Verde is extremely vulnerable to climate change and faces severe adaptation challenges associated with water resources availability, energy security, and desertification processes. Due to its location in the Sahelian region, Cabo Verde only receives on average 260 mm of rain per year placing it in the semi desert category. In the recent past, the country has been experiencing extreme weather events with major frequency which are likely linked to climate change.

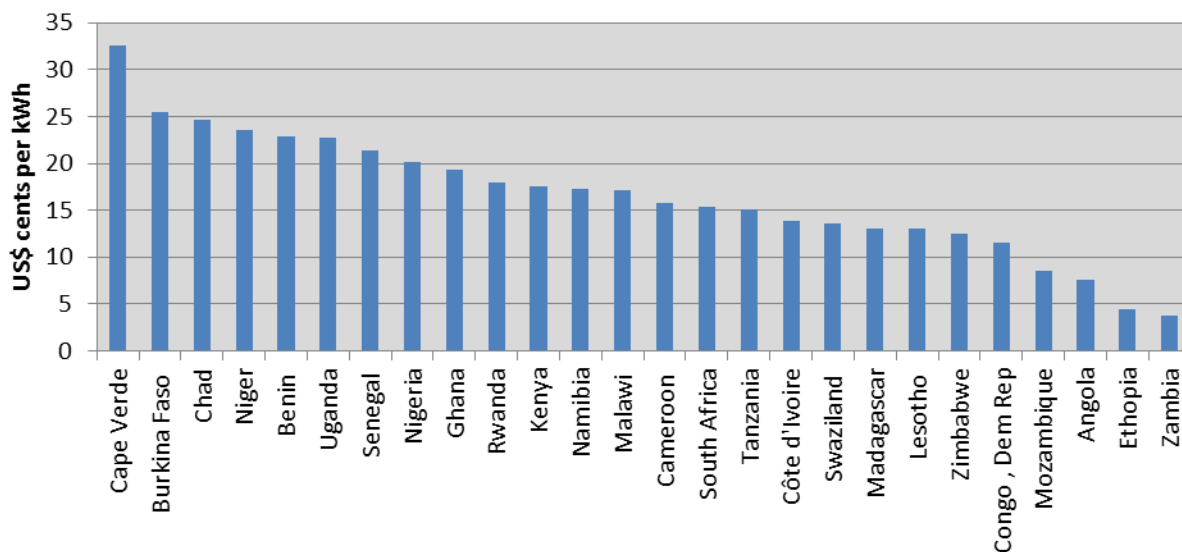
In 2014 and 2015, severe droughts caused over 300,000 Cabo Verdeans to depend on external food aid. The droughts' severe consequences can be partly explained by Cabo Verde's natural geography and climate which are not favorable for water storage. In fact, water availability in Cabo Verde is only 537 cu.m. per person per year; the second lowest of all countries in sub-Saharan Africa. In some localities, conditions are actually worse. For instance, the island of Sal presents mainly a desertic climate, with less than 200 mm of precipitation per year. As the country experiences a long dry season and short intense rainy periods, only 13% of the precipitation is able to recharge the soil, and the rest is lost to evaporation and the sea. The drinking water supply coverage has been growing but it is far from covering the increasing demand. Besides, access to piped water is still limited with low geographic coverage and significant discontinuities in service.

Therefore, water security is one of the government's major concerns. To overcome the low availability of fresh water, desalination plants in urban areas and underground boreholes in rural areas have been used to secure access to freshwater even though they require large amounts of energy to operate. In this regard, Cabo Verde is facing an increasing power deficit which is already hampering economic and social development. In 2014 after considerable investments, the total installed capacity reached 156 MW serving 95% of the population.¹⁰ Currently, the electricity production in the 9 inhabited islands relies heavily on imported fossil fuels although around 25% is produced from renewable energy resources. The current dependence on imported fossil fuels for power generation has resulted in electricity tariffs of US\$ 0.32/kWh which are the highest in the region as shown in the table below.

⁹ Austrian Development Cooperation (2015), *Focus: Water – Energy – Food Security Nexus* http://www.entwicklung.at/fileadmin/user_upload/Dokumente/Publikationen/Fokuspapiere/Englisch/Focus_Nexus.pdf (February, 2017).

¹⁰ SE4ALL (2015), *Action Agenda for the Sustainable Energy for All: Cabo Verde* http://www.se4all.org/sites/default/files/Cabo_Verde_AA_EN_Released.pdf (January, 2017).

Comparison of electricity tariffs across Africa



Source: Doing Business Database, World Bank (2017)

The high electricity costs associated with water pumping and desalination plants have been one of the main deterrents to advance water access in the country. Thus to improve water access, the production of affordable energy and its adequate use are of outmost importance. As stated in Cabo Verde's Energy Policy, renewable energy (RE) and energy efficiency (EE) have been regarded as strategic, environmental and cost-effective solutions to the challenges posed by the energy-water nexus.

However, the integration of RE and EE in water resources management in the country faces several barriers including:

- Lack of appropriate regulatory and institutional framework conducive to the integration of RE and EE systems in water resources management**

Efforts have been made to develop and operationalize a series of policies and strategies to expand the share of renewables in the national generation mix, to integrate EE practices and technologies in large consumers as well as to promote the construction of new desalination plants and water distribution infrastructure. Nevertheless as water and energy have been dealt with separately, a gap has been identified in the regulatory and institutional framework regarding the integration of RE and EE in water resources management. Therefore, a system comprising regulatory support, incentives, permits and guidelines is required to address energy-water nexus initiatives while enhancing the dialogue at the policy level between different Ministries and relevant stakeholders.
- Lack of awareness on the technical feasibility and commercial viability of the integration of RE and EE in water resources management**

There is an acute lack of technical and financial information on the commercial viability and technical feasibility of integrating RE and EE in water resources management. As such, increasing the interest and participation of the private sector and developing a RE and EE market for desalination and water pumping is essential to meet the country's energy and water targets.

- **Limited technical knowledge and capacity on how to install, operate, maintain and integrate EE practices on RE connected to water resources management**

In Cabo Verde most of the desalination plants and water pumping systems are either connected to the grid or powered by diesel generators. As such while the growing number of RE projects installed in the country has promoted awareness of utility-scale projects, the technical knowledge and experience on how to install, operate, maintain and integrate EE practices on RE powered desalination plants and water pumping systems are still very restricted.

- **Limited financial and market-based mechanisms to support the adoption of RE and EE in water management systems**

One of the major barriers to integrate RE and EE in water resources management are the inherent costs incurred during the identification, purchase and installation of the equipment. In this regard, the operationalization of energy-water nexus initiatives will require an important investment as RE and EE technologies are investment-intensive in the initial stages. Without financial support an innovative energy services business models involving the private and banking sector, the widespread adoption of RE and EE in water resources management will remain constrained as few stakeholders have the necessary financial means.

Considering the above mentioned barriers, the Government of Cabo Verde has recognized that a project promoting a market-based energy-water nexus approach in the country presents a cost-effective opportunity to lower energy imports, improve water access, reduce GHG emissions and involve the private sector. As such, the project will catalyze the commercial use of RE and EE technologies in water desalination and pumping systems. Besides, it will support the development of a comprehensive network of ESCOs in line with Cabo Verde's INDC.

1.2 The baseline scenario and baseline projects

Cabo Verde is an archipelago located in the Atlantic Ocean west of the westernmost point of Africa which has a total area of 4,033 square kilometers. It consists of 10 small islands and 13 islets from which 9 of the 10 islands are inhabited. In 2016, the population reached 527,000 from which nearly 65.5% was living in urban areas.¹¹ The island of Santiago, where the capital is located, concentrates nearly 55% of total population. It occupies the 133th position among 188 countries in the Human Development Index (HDI) having been listed in the medium human development category after graduating from the Least Developed Country (LDC) status in December 2007. In 2014, the Gross Domestic Product (GDP) per capita reached US\$ 3,609 well above the average for sub-Saharan Africa and that of the SIDSs.¹²

Cabo Verde islands have steep terrain and volcanic soil making the economy heavily dependent on Foreign Direct Investment (FDI) and tourism as it lacks the necessary natural resources and economies of scale to sustain a large industrial or agricultural base. In 2016, industry accounted for 16.4% of the GDP and the agricultural sector contributed to only 7.4%. In Cabo Verde, rain-fed agriculture is practiced either in lowlands or highlands and produces mainly maize, beans and groundnut while irrigated agriculture is practiced at the bottom of valleys and in the lower parts of the slopes and focuses on sugarcane, cassava and sweet potatoes. Even if just 10% of the land is considered arable, agriculture and agri-businesses generate around 45% of employment positioning the sector as a

¹¹ UN Data (2017), *Cabo Verde*, <http://data.un.org/CountryProfile.aspx?crName=Cabo%20Verde> (February, 2017).

¹² Trading Economics (2017), *Cabo Verde GDP Annual Growth Rate* <http://www.tradingeconomics.com/Cabo-verde/gdp-growth-annual> (January, 2017).

key priority to the sustainable development of Cabo Verde. In order to increase the viability of the sector, the installation of efficient technologies, such as drip irrigation, and RE for water mobilization have been considered.¹³

The remaining 76.2% of the GDP is concentrated in the well developed service sector. However, the service sector – specifically tourism– does not significantly contribute to job creation nor substantially support the expansion of other sectors. The exponential growth in tourism, which has doubled its contribution to the GDP in the last 10 years, and the population growth have considerably increased the national water and energy demands.

In this regard, Cabo Verde has managed to circumvent its lack of water resources through desalinating the abundant seawater that surrounds it. Nevertheless, the domestic water consumption in Cabo Verde, which is around 35 liters per capita per day, is still close to subsistence levels. In the early 70s, a desalination plant started supplying fresh water to the São Vicente Island. Today, 85% of the Cabo Verdean population, mostly living in urban areas, is supplied by several desalination plants.¹⁴ In some islands like São Vicente, Sal and most of Boavista, desalinated water is the only source of drinking and irrigation water due to the scarcity of fresh water resources. At present, the only desalination technology used in Cabo Verde is reverse osmosis which requires a great amount of energy for its operation; even though it is more energy efficient than other desalination techniques. In the main towns and cities, water is mostly produced and distributed by ELECTRA –the Cabo Verde utility– even though there are few other operators who provide desalinated water for the urban population and industry.¹⁵

In rural areas, water management and distribution varies depending on the water sources; namely if it is obtained from springs or pumped from boreholes. In the case of springs, the water resources are considered private property tied to the ownership of the land in accordance with the system inherited from colonial times. Spring water is mostly used for agricultural purposes and its distribution is carried out through informal arrangement between private individuals. As for boreholes, the government of Cabo Verde has taken policy measures to decentralize water management by giving greater responsibility to municipal authorities, by promoting partial privatization and by fostering the active engagement of local population through the development of community-type management structures. As such, underground boreholes are mostly managed by the municipalities through concessions to small private operators (i.e. private individuals, neighborhood committees, farmers’ associations, etc.).¹⁶

According to data collected from various ministries, there are 360 operational boreholes distributed across uneven terrain amid far-flung communities throughout the country. The boreholes intended to supply drinking water for the population are under the direct responsibility of municipalities while the ones intended for agricultural activities are under the responsibility of the Ministry of Agriculture and the Environment. From the 360 boreholes, about 90% of them are equipped with pumping systems connected to the grid or diesel generator, whereas only 10% have integrated solar systems. Boreholes operators have reported great difficulties in maintaining on-grid and diesel systems due to the prohibitive cost associated with energy supply. The high energy prices have greatly hindered the normal operation of the boreholes leading in many cases to their abandonment. Besides, the vague pricing policy has

¹³ Ministry of Rural Development (2013), *Cape Verde: Agriculture and Agribusiness opportunities*. https://build.export.gov/build/idcplg?IdcService=DOWNLOAD_PUBLIC_FILE&RevisionSelectionMethod=Latest&dDocName=eg_main_059583 (February, 2017).

¹⁴ Dias Fonseca, João (2014), *The Current Situation of RE- Status and Challenges* http://www.irena.org/documentdownloads/events/2014/september/ProjectNavigator/3.%20FONSECA_Status%20and%20Challenges%20of%20RE%20Deployment%20in%20Cabo%20Verde.pdf (January, 2017).

¹⁵ Suarez Bosa, Miguel (2015), *Water Institutions and Management in Cabo Verde* <http://www.mdpi.com/2073-4441/7/6/2641/pdf> (February, 2017).

¹⁶ *Ibid.*

allowed each municipality to approve water prices using unclear criteria which discourages private sector involvement.

Furthermore, the last part of water transportation in rural areas is done by women and children, who have to walk around 4 to 5 km of rugged and hilly terrain to the nearest water source to collect water.¹⁷ Water collection is the most gendered task with women and children putting much time and effort to complete the task given by their traditional gender role. Often, water collectors are at risk of head and spinal injuries from the strenuous task of carrying 20 liters or more of water on their heads at a time. Besides, by investing so much time on water collection, women have to relegate other competing needs such as health, education, income generating activities, etc.

The scarcity of water resources and the lack of capital for infrastructure investment together with the weak "affordability" by customers have affected both the service provision in terms of hours per day and the drinking water quality in terms of meeting World Health Organization (WHO) standards. In particular, the high electricity cost associated with water pumping systems and desalination plants has been one of the main deterrents to increase water access in urban and rural areas. In fact, ELECTRA has by far the most expensive water tariffs in Africa at around \$4/m³.¹⁸ ELECTRA, which has a minority private sector stake, provides not only water but energy services in Cabo Verde. The installed capacity has been growing at a rapid pace and reached 156.5 MW in 2014. The utility operates 9 independent electric systems and produces electricity through 3 diesel power plants (LFO and HFO), 6 diesel power plants (GO), 5 wind farms and 2 solar power plants.¹⁹ As electricity production is largely dependent on diesel plants, which rely on expensive fuel imports, the price of electricity is the highest for the region at around US\$ 0.32/kWh. Almost 50% of the electricity demand comes from the domestic sector; the commercial, industrial and agricultural sectors are responsible for about 38%; while ELECTRA's internal energy consumption which includes the energy intended for desalination plants represents about 18% of the total demand.²⁰

As the fuel and fuel transportation costs are expected to increase in the future, ELECTRA and the national government have been actively seeking to expand the share of renewables as well as to increase energy efficiency. In Cabo Verde, the integration of RE and EE technologies has been considered a top priority due to the positive externalities produced in other sectors. In the last years and as a result of the government's efforts, EE gains have been experienced, especially in the building and domestic appliances sector,²¹ while the percentage of RE in the energy mix increased from 1.2% in 2010 to around 25% in 2014.²²

For instance in Brava Island, electricity is currently provided by diesel generators at prices ranging from US\$ 0.25 to US\$ 0.32 kWh and water is supplied for US\$ 2.35 or US\$ 4.93/m³ depending on the quantity. By introducing a hybrid wind-diesel system and a desalination plant, it is possible to reduce the electricity costs from US\$ 0.15 to US\$ 0.21/kWh and to reduce water costs to only US\$ 1.53/m³.²³ Likewise under the UNIDO-GEF 4 project "Promotion of

¹⁷ *Ibid.*

¹⁸ Briceno-Garmendia, Cecilia (2011) *Cabo Verde's Infrastructure: A Continental Perspective* <http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5687> (February, 2017).

¹⁹ Dias Fonseca, João (2014), *The Current Situation of RE- Status and Challenges*.

²⁰ ECREEE/UNIDO, *Cabo Verde : Energy Analysis And Recommendation*, http://www.ecreee.org/sites/default/files/unido-ecreee_report_on_Cabo_verde.pdf (January, 2017).

²¹ UNDP-GEF Project (2015), *Cabo Verde Appliances & Building Energy-Efficiency Project (CABEEP)*, <https://info.undp.org/docs/pdc/Documents/CPV/PIMS%204996%20%20UNDP%20GEF%20Cape%20Verde%20Project%20Final.pdf> (May, 2017).

²² UNFCCC (2015), *Intended Nationally Determined Contribution Of Cabo Verde*, http://www4.unfccc.int/submissions/INDC/Published%20Documents/Cabo%20Verde/1/Cabo_Verde_INDC_.pdf (February, 2017).

²³ Bogнар, Kristina (2013), *Energy and water supply systems in remote regions considering renewable energies and seawater desalination*. http://www.reiner-lemoine-stiftung.de/pdf/dissertationen/dissertation_bognar.pdf (January, 2017).

Small-to-Medium scale RE projects in Cabo Verde,” a pilot in Praia Branca integrated an 11.5 kWp solar PV grid-connected system to a water pump for irrigation purposes. The operational results have demonstrated the positive impact of RE in the cost of water as the monthly bill of the local association responsible for the water pumping system decreased by 23%.

Taking into consideration the high unit cost of electricity and the heavy load that pumping systems and desalination plants place on the national grid, RE and EE are meant to play a decisive role in enhancing water accessibility in Cabo Verde. It is expected that cuts in energy costs and demand will have a direct impact on reducing the financial barriers to access drinking water and improving the sanitary conditions and comfort of the population.²⁴

Baseline policy

At the policy and regulatory level, Cabo Verde has developed an ambitious programme for increasing energy access tapping on the available renewable energy resources, mainly solar and wind. In 2008, the Government approved the National Energy Policy which seeks to build a secure, sustainable and independent energy sector. The policy is based on four key pillars: (1) Energy security and reduction of dependence to imported fossil fuels; (2) Investment in harnessing RE potential; (3) Sustainability; and (4) Energy Efficiency. In 2011, Decree-Law on the Promotion and Incentives for the Use of Renewable Energy (DLn.1/2011) introduced some of the support mechanisms recommended internationally such as allowing the private sector to operate through Independent Power Producers (IPPs), a licensing regime, a regulatory body (ARE) and clear responsibilities within the sector for energy policy, regulation and provision. This decree-law established a regulatory framework conducive to investment in small to medium scale RE projects. Furthermore, it developed a national roadmap to become 100% renewable for electricity generation in the National Renewable Energy Plan of 2015 as well as a national wide-ranging pathway to implement energy efficiency targets up to 2025 in the National Energy Efficiency Plan 2015. In the Plan for the IX legislature (2016-2021), the Government recognized that the potential of RE should be harnessed through investments in financially sustainable production projects.

Regarding water management policies and institutional structures, the Water Code (Law No. 41/II/84) established the legal regime of ownership, protection, conservation, development, management and use of water resources in Cabo Verde. In 1999, the Water Code was modified to include the principle of private domain of water resources and water-related works. The most significant bodies that have been set up under the National Water Council (CNAG) which plans, develops and protects water resources are:

- Economic Regulation Agency (ARE) which is an administrative institution with regulatory, oversight and sanctioning powers;
- National Water and Sanitation Agency (ANAS) which is responsible for implementing government policies and managing investments in the water and sanitation sector, planning strategies, distributing and commercializing water, and collecting and treating waste; and
- National Environment Directorate (DGA) which has transversal environmental regulation functions.²⁵

In 2015, the Strategic Water and Sanitation Plan (PLENAS) was approved to ensure the universal right to water and to improve the conditions in which it is supplied. It established a set of targets including the access to a minimum of

²⁴ SE4ALL (2015), *Action Agenda for the Sustainable Energy for All: Cabo Verde*.

²⁵ Suarez Bosa, Miguel (2015) *Water Institutions and Management in Cabo Verde*.

40 liters of water per person per day, less than 10 minutes travel from households without water hookups to boreholes, and water prices reduction to reach a level at which costs are no longer considered a limiting factor.²⁶

Baseline projects

Over the last years, a number of projects have been implemented by different stakeholders to encourage the adoption of RE and sustainable water management in Cabo Verde. Relevant baseline projects include but are not limited to:

- **ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) by UNIDO and the Austrian and Spanish Governments**

In 2010, the ECOWAS countries decided to establish ECREEE –a unique regional agency in sub-Saharan Africa– to improve the access to modern, reliable and affordable energy services and to accelerate the uptake of renewable and energy efficiency technologies. ECREEE's activities include policy development, capacity building, awareness raising, knowledge management as well as business and investment promotion. The project will build on ECREEE's regional expertise in capacity building and policy development to build national capacity for the integration of RE in water resources management.

- **ECOWAS Renewable Energy Facility (EREF) by UNIDO, GEF and the Austrian and Spanish Governments**

EREF is a multi-donor grant facility managed by the ECREEE Secretariat based in Praia, Cape Verde. It undertakes regular calls for proposals to provide grant co-funding for small to medium sized RE and EE projects and businesses in rural and peri-urban areas. The Facility is open to contributions from other donors to support calls for proposals. During its first phase of operation (2011 to 2016), EREF tested and perfected its funding policy to find its comparative advantage in the West African market. In the second phase (2016 to 2020), EREF will broaden its portfolio of financial instruments and support schemes (e.g. micro credits). The project will take into consideration EREF's co-funding policy in order to develop a national co-funding mechanism to support the widespread integration of renewables into water resources management. Furthermore, it will explore how Cape Verde can take advantage of EREF's financial support to advance energy-water initiatives.

- **Wind power project for Santiago, Sao Vicente, Sal and Boavista by Cabeolica**

Cabeolica S.A. is the first commercial-scale, privately financed, public-private partnership (PPP) wind farm in sub-Saharan Africa. The PPP is held between the Government of Cabo Verde, ELECTRA and InfraCo, a publicly financed privately managed project development company. In 2011, Cabeolica installed 25.5 MW of wind energy in the four main electrical grids (Santiago - 9.35 MW; Sao Vicente - 5.95 MW; Sal - 7.65 MW; Boavista - 2.55 MW) which collectively produce up to 100GWh/yr. The project will analyse this successful PPP and adapt it for the promotion of public private investment to accelerate the deployment of energy-water nexus initiatives.

- **Solar photovoltaic project for Santiago and Sal by the Government of Cabo Verde**

In 2010, the Government of Cabo Verde installed two solar PV plants. The first one occupies an area of 9.75 hectares and supplies 2.5 MW of peak power with a capacity of expansion up to 5MWp in the island of Sa. The second and biggest one occupies an area of 13 hectares and has 5 MW peak power in the island of Santiago. The two PV parks are now responsible for the production of 4% of the energy consumed in the country. Furthermore, they have reduced 13,000 tons of CO₂ emission per year and have saved at least 2.6 thousand tons of imported oil. The solar PV plants were financed through a Portuguese credit fund for RE to Cabo Verde in the total value

²⁶FAOLEX (2015), *National Strategy Plan for Water and Sanitation*.
<http://www.fao.org/faolex/results/details/es/c/LEX-FAOC148923/> (February, 2017).

of 100 million Euros. The project will analyze this funding mechanism which could potentially be used/adapted to accelerate the deployment of energy-water nexus initiatives.

- **ISLHÁGUA project by European Regional Development Fund (ERDF)**

From 2010 to 2016, the ISLHÁGUA project was financed and carried out by the ERDF, the Technological Institute of the Canary Islands (ITC), the Southeast Commonwealth of Gran Canaria, the National Municipality Associations, National Water Resource Management Institute and the Cabo Verde University. Its main objectives were to promote awareness on the sustainable use of drinking water, to reinforce the existing capacities on water quality and to encourage the use of renewable energy on waste water treatment and sea water desalination. As part of the project, a feasibility study was conducted at Espinho Branco in Santiago to install a solar PV desalination plant serving as an example for other localities with similar characteristics. This GEF project will consider the feasibility study conducted at Espinho Blanco as part of the overall scaling up efforts supporting the widespread integration of RE in water resources management.

Besides, an introductory online course was developed to train university students on the adoption of RE in water desalination plants which was completed by 50 students from Cabo Verde. This project will build on ISLHÁGUA's online course to develop a more institutionalized national capacity in the field of RE for water resources management.

- **Water, Sanitation, and Hygiene Project (WASH Project) by Millennium Challenge Corporation (MCC)**

In 2012, MCC and the Government of Cabo Verde started the WASH project which is expected to finish in the end of 2017. The project aims to establish a financially sound, transparent and accountable institutional basis for the delivery of water and sanitation services to Cabo Verdean households and businesses. WASH's approach to improving sector performance is based on a three-pronged strategy: reform national policy and utility regulators, transform inefficient utilities into independent corporate entities operating on a commercial basis, and improve the quality and reach of water and sanitation infrastructure. This project will consider the results obtained on the water national policy to develop sound recommendations on the integration of the energy-water nexus approach.

- **Centre of Renewable Energy and Industrial Maintenance (CERMI) by Lux-Development**

In 2015, CERMI was inaugurated to contribute to the improvement of educational provision in Cabo Verde with the specific objective of creating training that meet the needs of the labor market. In the energy sector, it builds capacity on EE as well as on different RE technologies such as solar thermal, photovoltaic, and wind. This project will take advantage of the state of the art training facilities to support the ongoing capacity building efforts by strengthening the technical knowledge of CERMI's trainers and expanding the offered curricula.

While numerous projects have provided financial and technical support to Cabo Verde in the fields of RE applications and water management, few have focused on addressing energy and water jointly. As such, this project aims to catalyze the commercial use of renewable energy technologies in water resource management taking special care to build on the previous projects findings and results to avoid duplication of efforts.

1.3 The proposed alternative scenario

Traditionally, energy and water systems have been developed, managed, and regulated mostly independently. Nevertheless, current challenges, including climate change, rapid population growth and urbanization as well as the introduction of new technologies have highlighted the benefits of managing water and energy systems together. Recently, a robust package of legislation and incentives for developing RE and EE projects in Cabo Verde was

developed. Yet, there have not been coordinated efforts to develop the RE and EE sector in conjunction with other sectors such as education, health, tourism, etc. even though such interventions would be appropriate and cost-effective.

In 2015, the UNIDO Office in Cabo Verde received a formal request from the Cabo Verde Ministry of Agriculture and Environment to support the efforts of installing water pumping systems. Annexed to the request a letter from the Municipality of Ribeira Grande mentioned the need to pump water at a cost lower than the current one. The high costs of water pumping are mainly explained by the high electricity tariffs offered by ELECTRA. The letter further explained that the high costs of water and electricity have had a negative impact in the attempts carried out to modernize agriculture and develop agribusiness which are regarded as priority sectors for sustainable development. In fact, the high electricity tariffs have not only affected rural areas but also urban centers as desalination plants – which need high energy inputs– are the major water source if not the only ones. Hence to improve water access at the national level, affordable and sustainable energy is required.

Considering the above, this project will promote the market-based integration of RE and EE technologies in water resources management systems by providing and facilitating the regulatory, institutional, social and financial support required. In particular, the project will promote the integration of RE and EE technologies in water pumping systems in rural areas and water desalination plants in urban centers throughout the country. In urban areas, it is expected that existing and planned desalination plants will integrate RE and EE to increase the availability and accessibility of water in tourism and industry as well as in the residential sector. As for rural areas, the project will integrate RE and EE to existing, abandoned and planned water pumping systems to augment the available drinking water for rural communities as well as irrigation water for agriculture and agri-businesses.

The project will bring about an alternative scenario that combines technical assistance for improving the existing regulatory and institutional framework and for building technical and managerial capacity in RE and EE systems for water pumping and desalination. Besides, the project will develop an energy service business model and financial mechanism to stimulate private sector involvement and investment in energy-water nexus initiatives and will raise awareness among relevant stakeholders on the technical and financial feasibility of such interventions to support the scaling up efforts,.

Even though wind and solar technologies have been regarded as having the highest impact while integrated into water pumping systems and desalination plants, the project will explore other RE technologies during the PPG phase. Besides, the project will define which EE measures could maximize the efficiency potential of desalination plants and water pumps including the installation of high-efficiency equipment and/or the integration of Energy Management Systems (EnMS). It is expected that the project will significantly increase the accessibility and affordability of drinking water for the general population; specifically rural women and children. Moreover, it will support the provision of better and more efficient water services at a lower cost contributing to the development and expansion of productive sectors including agriculture, agri-businesses, industry, tourism, etc. as well as social services like health and education. As such, the increased investment in RE and EE in water management will lead to local entrepreneurship and employment promoting economic urban and rural development.

Hence, the proposed project contributes to GEF Program 1 of the focal area CC1 -Promote Innovation, Technology Transfer, and Supportive Policies and Strategies- as it aims to integrate RE and EE technologies in water systems. Component 1 of the project will encourage the integration of the energy-water nexus approach in relevant policies, programs and projects within the country. As for Component 2, it will enhance the local technical and managerial expertise to sustainably pursue energy-water nexus initiatives; in particular the integration of RE and EE in desalination plants and water pumping systems. Finally, Component 3 will develop an energy service business model and tailored financial mechanism to catalyze the commercial use of RE and EE in water resources management

especially for productive uses including agriculture, agri-businesses, industry, etc. A detailed description of each project component is found below.

Component 1 - Policy and institutional framework conducive to the promotion of energy-water nexus approach

With the rising importance of energy in water production and distribution, there is a growing need for a cross-cutting approach to develop integrated policies. In Cabo Verde, the current energy and water decision-making landscape is complex, regionally fragmented and has been historically developed independently from one another using different approaches in policy frameworks and objectives. Therefore, the outcome of this component will be the continual dialogue among relevant stakeholders to promote market-based integration of the energy-water nexus approach in relevant national policies and regulations.

Output 1.1.1 National platform to discuss synergies between sustainable energy systems and water resources management established

This output will establish a national platform to discuss -on a regular basis- the energy-water nexus among key stakeholders including policy makers from different ministries, service providers and private and financial sector. The platform will promote a better coordination and a joint approach to overcome the challenges and take advantage of the synergies of the energy-water nexus. Furthermore, it will strengthen national ownership on the process of integrating the energy-water nexus into the policy and regulatory frameworks and will increase the sustainability of the nexus approach even after project completion through an energy service business model and financial mechanism. If deemed appropriate, the platform could be further expanded to integrate other cross-cutting sectors. For instance, if the water pumping systems are mainly used for agriculture and agribusinesses, then the nexus approach could be expanded to cover energy-water-food nexus. During the PPG phase, the specific role, set up and membership of the platform will be defined as well as its hosting national institution.

Output 1.1.2 Recommendations on how to integrate the gender dimension into energy-water initiatives prepared and presented to decision makers

This output will conduct an assessment on how RE and EE initiatives in water systems impact traditional gender roles in Cabo Verde. Traditionally, women have been responsible for the provision of water which is collected from boreholes far from their homes and transported on their heads risking health problems due to the heavy load. The integration of RE and EE solutions for water resources management will be taken as a case study to analyze how to better integrate gender dimensions into the planning and management of energy-water initiatives. By integrating gender dimensions into the management and planning of RE and EE from initial stages, the project can impact the traditional gender roles promoting women empowerment.

Output 1.1.3 Recommendations on how to improve policy and regulatory environment to promote ESCOs approach in sustainable energy-water resource management projects developed and presented to decision makers

This output will develop policy and institutional recommendations on how to integrate the energy-water nexus and ESCOs approach into existing legislation. The recommendations developed will be directly derived from the continuous discussions carried out under the platform established by Output 1.1.1. Therefore, the recommendations will have a high chance to be adopted due to the high level of ownership resulting from an effective collaboration and participatory approach fostered by the national platform established under Output 1.1.1.

Component 2 - Building capacity to support the integration of renewable energy and energy efficiency technologies in water resources management

Cabo Verde has extensive experience with desalination and pumping systems as well as with RE and EE technologies. Nevertheless, there is limited awareness and technical knowledge on how to integrate RE and EE technologies in water management systems. Besides, the ESCOs market in the country is almost non-existent partly due to the insufficient awareness and lack of knowledge on ESCOs operations and business development. Therefore, this component will build local technical capacity on how to design, operate, and maintain RE based desalination plants and pumping systems as well as on how to develop, manage and finance ESCOs. This component will be carried out in close cooperation with the Centre of Renewable Energy and Industrial Maintenance (CERMI) to build national capacity in Cabo Verde in view of becoming a regional knowledge hub in the RE and EE sectors.

Output 2.1.1 Technical training material on how to integrate RE and EE technologies in desalination plants and water pumping systems developed

This output will develop relevant training material that is not part of CERMI's present curricula. Thus, at least two technical manuals covering the design, operation and maintenance of water management systems integrating RE and EE technologies will be developed –one on RE based desalination plants and the other on RE based water pumping systems. The training material required as well as its scope, content, format, etc. will be defined during the PPG.

Output 2.1.2 Training material on the development and management of ESCOs produced

This output will develop training material to support the development of Energy Service Companies (ESCOs) including business development, financing and contracting models, risk management, etc.; particularly on RE and EE projects in water management systems. It is expected that the knowledge base created will contribute to the establishment of local energy companies specialized on the energy-water nexus approach. The training material required as well as its scope, content, format, etc. will be defined during the PPG.

Output 2.1.3 CERMI's staff trained using modules produced from 2.1.1 and 2.1.2 on a train-the-trainer basis

Two of the barriers identified for the market-based adoption of energy-water initiatives is the limited technical knowledge on the installation, operation and maintenance of combined systems as well as the constrained knowledge on ESCOs business models and operations. As such, this output will take advantage of CERMI's state of the art infrastructure to build extensive capacity among its staff through a train-the-trainers programme which will use the training material developed under Output 2.1.1 and 2.1.2. The exact number of trainings and targeted staff will be defined during the PPG phase.

2.1.4 10 training sessions (5 for each of module) are conducted by CERMI's staff

The local staff trained under Output 2.1.3 will conduct at least 10 training sessions (5 for each module) for end-users using the training material produced under Output 2.1.1 and 2.1.2. The exact number of trainings and targeted end-users will be defined during the PPG phase. Besides, the project will coordinate with ECREEE to scale up the specialized training to a regional level.

Component 3 – Demonstration and scaling up investment in projects focused on the use of renewable energy and energy efficiency in water resource management

Previously conducted feasibility studies and pilots have showed the solid potential and benefits of integrating RE and EE technologies in desalination plants and water pumping systems in Cabo Verde. Nevertheless, the majority of the pilots have been led by the public sector –mainly local municipalities. Therefore, this component will promote an environment conducive to the widespread market-based adoption of RE and EE technologies in desalination plants and water pumping systems. To do so, it will provide technical assistance to develop and use an appropriate energy service business model and a robust tailored financial mechanism supporting the scaling-up efforts. Furthermore, it

will promote the establishment of public private investment partnerships as a sustainable mechanism to accelerate the deployment of energy-water nexus initiatives.

Output 3.1.1 ESCOs approach and tailored financial mechanism developed and used to support demonstration projects integrating RE and EE in water pumping and desalination systems to achieve around 1.6 MW of installed capacity

RE and EE are key elements of energy and climate policies which have triggered the creation of a market for RE and EE services attracting private capital in several countries. In addition, rising energy prices and increased interest in energy management in public and private organisations have created a new demand for energy services. Nevertheless, ESCOs in African countries –with the exception of Tunisia and South Africa– are almost non-existent. Besides the absence of appropriate legislation, ESCO’s financing has been highlighted by experts as one of the main barriers constraining ESCOs’ development in Africa. In fact, most commercial banks still perceive financing of ESCOs’ interventions as a high risk investment and therefore they are reluctant to provide financing for energy services projects.

As such, this output will provide technical, business and financial support to develop an energy service business model and a tailored financial mechanism to jointly support ESCOs targeting the integration of RE and EE in water management systems. The business model and financial mechanism will be developed in close collaboration with relevant stakeholders including government authorities, private sector and financial institutions.

Once the ESCOs business model is developed and the financial mechanism operational, they will be used jointly to implement several demonstration projects to achieve a total installed capacity of around 1.6 MW. The demonstration projects will be closely supported and monitored to guarantee the appropriate use of the financial mechanism and ESCOs approach. The number of demonstration projects will depend on the energy needs of the selected projects; nevertheless, it is envisaged that the water pumping stations will range from 10 to 50 kW and the conventional desalination plants will integrate RE based systems of at least 100 kW. Under the GEF 4 project “Promoting Market Based Development of Small to Medium Scale Renewable Energy Systems in Cabo Verde,” a list of 25 potential water pumping stations was developed in collaboration with the Ministry of Energy (DGE) and the Ministry of Agriculture. The list is in line with the national priorities of increasing the RE in the energy mix, enhancing EE as well as expanding water accessibility and affordability. In this regard, the list could serve as the starting point for the implementation of investment projects. The complete list can be found under Annex 1.

As part of the financial mechanism, UNIDO could provide financial support directly to developers/investors/ESCOs of selected projects which have been already agreed upon with the relevant local authorities and have not been objected by the Project Steering Committee (PSC). The final number of demonstration projects, the selection criteria as well as the financing structure, decision making, disbursement and M&E mechanisms, etc. of the ESCOs business model and financial mechanism will be defined during the PPG phase.

Output 3.1.2 Investment projects using ESCOs approach and tailored financial mechanism implemented to reach about 2 MW of installed capacity

Once the financial mechanism and the ESCOs approach have been effectively demonstrated, this output will support the scaling up efforts through the implementation of investment projects to reach about 2 MW of installed capacity. As part of the financial mechanism, UNIDO could provide financial support to investment projects indirectly through financial institutions willing to participate in the project. To this end, the local capacity created through Outcome 2.1 as well as the financial mechanism and ESCOs business model developed and demonstrated under Output 3.1.1 will

be critical in the implementation of investment projects. The final number of investment projects, the selection criteria as well as the financing disbursement and M&E mechanisms, etc. will be defined during the PPG phase.

Output 3.1.3 Workshops, seminars and exposure visits organized to discuss and promote public private investment partnerships to accelerate the deployment of energy-water nexus initiatives

It is of utmost importance to integrate different market actors to achieve the greatest possible policy impacts and encourage innovative partnerships. As such, this output will raise awareness among government officials, investors, financial institutions and other relevant stakeholders on the successful implementation of investment projects under Output 3.1.2 through information workshops, seminars and exposure visits to the actual sites. The exact number and content of events as well as the participants will be determined during the PPG phase.

Besides, this output will promote the development of investment partnerships with and between government institutions, energy services providers, financial institutions and other relevant stakeholders such as the ECOWAS Renewable Energy Facility (EREF). The development of multi-stakeholder partnerships will be pivotal for the mobilization of financial resources as well as the political support required to upscale energy-water nexus interventions. During the PPG phase, an assessment of current PPPs in the country will be conducted to determine how to improve and adapt this model to energy-water nexus initiatives.

Component 4 – Monitoring and evaluation

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNIDO and GEF procedures.

Output 4.1.1 Project progress monitored and evaluated in timely manner

The project will go through a project preparatory phase, in which the detailed operational procedures and other implementation issues will be specified and prescribed. During the project implementation, the project will be continuously monitored to determine the progress being made toward the achievement of outcomes and will identify course correction if needed. Besides, an independent TE will take place three months prior to the end of the project in accordance with UNIDO and GEF guidance. The TE will focus on the delivery of the project's results as initially planned and on the impact and sustainability of results.

1.4 Incremental cost reasoning and expected contributions from the baseline with GETF and co-financing

Due to Cabo Verde's natural geography and desertic climate, water security has become one of the government's major concerns. Desalination plants in urban areas and underground boreholes in rural areas have been used to secure access to freshwater even though they require large amounts of energy to operate. The high electricity costs associated with water pumping and desalination plants have been regarded as one of the main deterrents to advance water access in the country.

Recently, the Government of Cabo Verde has been undertaking major efforts to increase the RE share in the energy mix and to promote EE practices in major consumers. Nevertheless, RE and EE have seldom being considered as key elements to improve water resources management. As imported fossil fuel prices remain high, the Government is slowly becoming aware that to improve the water production and distribution services, affordable energy as well as its optimal utilization are necessary. Consequently, it is expected that RE and EE will gradually be integrated in desalination plants and water pumping systems. Yet, the process is anticipated to be lengthy, costly, cumbersome and lead by the public sector as there are still major barriers that need to be addressed.

In order to facilitate and accelerate the market-based integration of RE and EE in water management systems, the proposed project will take a systematic approach combining technical and investment assistance to integrate RE and EE for water pumping systems in rural areas and desalination plants in urban areas overcoming current barriers through the coverage of the following incremental costs. For Component 1, GEF financing will support the integration of market-based energy-water nexus approach in relevant national policies and regulations and will create a national platform to promote a better coordination and a joint approach to overcome the challenges and take advantage of the opportunities of the energy-water nexus. The nexus approach is completely aligned with the country's ambitious targets in RE and EE penetration as well as water accessibility set by the Government of Cabo Verde. Furthermore, the GEF financing will also promote women empowerment by assessing how to better integrate gender dimensions in the implementation of energy-water nexus initiatives producing a direct impact in women's lives.

Presently, RE powered water pumping systems and desalination plants are few and technical knowledge for their management is restricted to few operators. Besides, the ESCOs market is still in the process of early development and establishment with very limited experience and expertise on how to identify, finance, implement and assess the risk of RE and EE projects related to water management. As such, Component 2 will use GEF funding to develop relevant training material and will provide extensive training to CERMI's trainers to ensure that the knowledge transferred is used to develop a sustainable and sound knowledge base in Cabo Verde. Under Component 3, GEF funding will enable the development of a business model and financial mechanism appropriate for the country's current situation and targeted technologies. In this regard, GEF funding will be used to implement demonstration projects utilizing the energy business model and tailored financial mechanism enabling a transformational change in the market of RE and EE in water resources management. Finally, the GEF funding will promote the development of public-private investment partnerships to mitigate financial and political risks related to the integration of RE and EE in water pumping systems and desalination plants. It is expected that the energy-water nexus approach will provide useful lessons to other SIDSs that face similar energy and water challenges.

The project will be co-financed by the Government of Cabo Verde through the Ministry of Agriculture and Environment, the Ministry of Economy and Employment, and the Municipalities. Besides, it is envisaged that private operators and financial institutions will also contribute financially to implement investment projects. In the absence of this project, the national market-based adoption of energy-water initiatives will not occur at the pace needed to overcome the current energy and water gap. Moreover, there is a risk of adopting inappropriate policies and disconnected approaches due to insufficient knowledge, competencies and cooperation on energy-water issues.

1.5 Global environmental benefits

As a SIDS, Cabo Verde can meet its climate change mitigation goals through ensuring a regular supply of sustainable energy and its efficient utilization. By integrating RE and EE technologies in desalination plants and water pumping systems, the project will reduce the dependency on the national grid and fossil fuels utilization enabling Cabo Verde to move closer to energy independence while providing regular water supply at more affordable prices. The global environmental benefits of the project include reduced GHG emissions, improved water and energy accessibility and affordability, dissemination of RE and EE technologies, and technical environmental education and awareness raising on RE and EE technologies. While the project activities were developed focusing on the duration of the project, all project components are expected to continue beyond project closure. The project addresses SDG5: Gender equality, SDG 6: Clean water and sanitation, SDG 7: Affordable and Clean Energy as well as SDG 9: Industry, innovation and infrastructure by targeting the root causes of the prohibitively high cost of water and its socioeconomic and environmental implications.

The GHG emission reductions will be realised directly through the implementation of demonstration projects integrating RE and EE technologies in water pumping systems and desalination plants to achieve around 1.6 MW of installed capacity during project duration; and indirectly through the development of a business model and financial mechanism that will support the scaling up efforts reaching around 2 MW of installed capacity. As the projects haven't been selected, it is difficult to estimate the GHG emission reductions. Consequently, the detailed direct, indirect and post-direct emission reductions will be accurately calculated during the PPG phase, once additional information on the selected projects is available.

Nevertheless, a rough estimate has been calculated considering the figures collected from 2 pilot projects under the GEF 4 project "Promotion of Small-to-Medium scale RE projects in Cabo Verde." According to the detailed feasibility study conducted in S. Vicente, the 1.4 MW wind turbines to be integrated to the desalination plant will produce 4,908,000 kWh per year. Taking into consideration the total annual energy production and using the emission factor of 0.7181 Kg/kWh, the pilot will reduce 3,524 tonnes of CO₂ per year by generating 90% of the total energy needs of the desalination plant. A second pilot was already implemented in Praia Branca S. Nicolau, which integrated an 11.5 kWp solar PV on-grid system to a water pump for irrigation purposes. Taking in consideration that the total annual energy production is 42,864 kWh and using the emission factor of 0.7181 Kg/kWh, the solar PV project is successfully reducing 15.4 tonnes of CO₂ per year. As such, the direct emissions will be achieved by implementing demonstration projects with similar characteristics like the pilot projects mentioned above. It is expected that the projects implemented under Output 3.1.1 could roughly save 3,832 tonnes of CO₂ per year by installing around 1.6 MW.

Besides, indirect emission reductions will be achieved by implementing investment projects reaching a total of about 2 MW of installed capacity through the utilization of the business model and financial mechanism. In this regard, another 4,448 tonnes of CO₂ per year can be reduced.

It has been anticipated that the direct and indirect emissions will go beyond the above mentioned numbers as EE technologies and practices have not yet been considered. As such, the integration of EE in desalination plants and water pumping systems could potentially reduce 30 to 50% the total energy consumption.

The project will achieve at least 76,600 metric tons of CO₂e direct emission reductions and 88,000 metric tons of CO₂e indirect emission reductions over the lifetime of the technologies (20 years).

1.6 Innovation, sustainability and potential for replication and scaling up

The project proves its innovativeness, sustainability and potential for scaling up through its strategic components:

- **Innovation:** The innovativeness of the project relies on its targeted technology as the integration of RE and EE in desalination plants and water pumping systems have been barely explored in the country. While the government of Cabo Verde is very proactive in the promotion of RE and EE, few efforts have been made to introduce RE and EE in the overall water resources management. Apart from targeting innovative technology, the project will analyze the current barriers which hinder the energy-water nexus initiatives. After the implementation of several pilot projects under the GEF 4 project "Promotion of Small-to-Medium scale RE projects in Cabo Verde," it has been acknowledged that the co-financing of a significant portion of the project (normally up to 70%) has represented a big challenge for most local investors. As such, this project will design an energy service business model and a tailored financial mechanism to further support the nascent ESCOs sector and maximize the active involvement of the private sector promoting the market-based adoption of RE and EE in water management systems. Besides by facilitating the development of

public-private investment partnerships, interested public and private stakeholders –that would have been otherwise discouraged to adopt RE and EE technologies in water resources management due to large up-front investments, regulatory and institutional ambiguity as well as limited technical and energy management expertise– will be able to implement investment projects providing water services at a lower cost in urban and rural areas.

- **Sustainability:** While the project outputs were developed focusing on the duration of the project, all project components are expected to continue beyond project closure ensuring their sustainability. For instance under Output 1.1.1, the project will establish a platform for different stakeholder to continually discuss issues related to the energy-water nexus while Output 1.1.3 will develop sound policy recommendations to be presented for formal adoption as national legislation. It is expected that once the project is completed, the established platform will keep promoting the continual discussion of energy-water nexus and will develop additional policy and institutional recommendations, whenever deemed necessary. Besides, after the implementation of capacity building activities under the GEF 4 project project “Promotion of Small-to-Medium scale RE projects in Cabo Verde,” it has been acknowledged that in order to guarantee the sustainability of the knowledge transferred a more institutionalized and systematic approach was necessary. As such, Output 1.2.2 will create sound expertise on renewable energy based water pumping and desalination plants as well as ESCOs’ operations and business model among CERMI’s staff through a train-the-trainers programme. In addition, Outputs 1.2.1 and 1.2.2 will develop the necessary training material to be used during the train-the-trainers as well as the trainings of direct beneficiaries. By enhancing CERMI’s expertise, the project ensures that the knowledge will be transferred continuously to beneficiaries, even after project completion.
- **Potential for scaling-up:** The project has a strong potential for scaling up as few desalination plants and only 10% of the water pumping systems have integrated RE technology and EE has been mainly being pursued in the building sector. Under the GEF 4 project “Promotion of Small-to-Medium scale RE projects in Cabo Verde,” the technical and financial feasibility of integrating RE in desalination plants and water pumping systems have been demonstrated through the implementation of pilot projects, some of which have already showed returns on the investment. Nevertheless, most pilots have been driven by public institutions. To fully achieve the high scaling-up potential, the active involvement of the private sector –business owners, commercial banks, ESCOs, pension funds, etc– is needed and can be leveraged by public contributions. As such, Output 1.1.1 and Output 1.1.3 will promote a policy and institutional framework conducive to the promotion of energy-water nexus approach as well as the private sector involvement. Besides Component 2, will create the required expertise and training material to train local energy entrepreneurs, financial institutions, business managers, etc developing the necessary set of skills needed to identify, finance, implement, manage risk, etc. of RE and EE projects in water management systems. The developed CERMI’s expertise on RE based water pumping systems and desalination plants could be adapted/used to build capacity at a regional level by specialized regional organizations (e.g. ECREEE). Finally, under Output 3.1.1, an energy service business model and a tailored financial mechanism will be developed to encourage the active involvement of the private sector and the ESCOs market. Moreover by supporting the scaling up efforts under Output 3.1.2 and by facilitating public private partnerships and awareness raising under Output 3.1.2, private investment in the energy-water initiatives is expected to increase significantly.

2. **Stakeholders.** Will project design include the participation of relevant stakeholders from [civil society organizations](#) (yes /no) and [indigenous peoples](#) (yes /no)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

The integration of RE in desalination plants in urban centers and water pumping systems in rural areas requires an effective collaboration and participatory approach with the beneficiaries as their needs and past experiences as well as their ability and willingness to pay have to be properly considered. As the GEF Implementing Agency, UNIDO will lead the process of project preparation and development with the participation of key stakeholders from the Government, private and financial sector and CSOs. The project execution will be undertaken through multiple contractual arrangements between UNIDO and national governmental entities and private operators. On request of the Government UNIDO will also provide targeted technical assistance and administrative execution support, which will be further discussed with national stakeholders during the PPG phase and elaborated in detail in the CEO Endorsement document.

An initial stakeholder's analysis was conducted by UNIDO which results are provided in the table below.

Stakeholder	Role
Ministry of Economy and Employment-Direction of Energy	The Ministry of Economy and Employment - Direction of Energy, among others responsibilities, designs and implements a dynamic and sustainable energy policy, aiming at synergies between renewable and conventional energy to reduce and optimize energy costs as an essential lever in improving the competitiveness of the national economy.
Ministry of Agriculture and Environment	The Ministry of Agriculture and Environment, among other responsibilities, promotes the sustainable use of natural resources by strengthening the infrastructure and capacity of communities and strengthens the provision of catered technical services through participatory research for the development and dissemination of appropriate technologies.
ELECTRA	ELECTRA, which has a minority private sector stake, is the water and energy utility in Cabo Verde. Its main responsibilities are: electricity transmission and distribution across the country, water transportation and distribution, electricity production nationwide, desalinated water production in S. Vicente, Sal and Praia as well as waste water collection and treatment in Praia.
Centre for Renewable Energy and Industrial Maintenance (CERMI)	CERMI was inaugurated under the cooperation framework between Cabo Verde and Luxembourg Cooperation (LC) in 2015. CERMI's objective is to build capacities on the installation, operation and maintenance of different RE technologies such as solar thermal, photovoltaic, wind, and also energy efficiency creating business opportunities for the private sector in the energy field. Nevertheless, RE based water systems and desalination plants are not part of the offered curricula. As such, the project will support CERMI to develop its human resources through a train-the-trainers programme as well as the corresponding training material. It is expected that once the internal capacity of CERMI is developed, it can be used to conduct other activities under the project.
National Agency for Water and Sanitation (ANAS)	ANAS is responsible to implement governmental policies and integrated investments policy in water and water sanitation sectors.
Economic Regulatory Agency (ARE)	ARE is an independent multi-sector agency, covering the water, wastewater, transport, electricity and fuel markets. Among its major functions are quality standards oversight, supervision of prices, and sanctioning the non-achievement of targets.
National Institute of Water	INGRH is a public institution with administrative and financial

Resources Management (INGRH)	autonomy headed by the Minister of Agriculture and Fisheries. INGRH's main responsibility is to plan and manage water resources and quality.
ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)	ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) aims to promote the provision of efficient, reliable and competitive energy sources to its member states primarily through RE and EE technologies. Furthermore, it manages the EREF which is a grant facility developed to support small and medium size RE/EE investment and business projects as well as ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX) which is a knowledge management tool in the ECOWAS region.
Cabo Verdean Institute for Gender Equality and Equity (ICIEG)	ICIEG is the most important governmental organ to promote women and their rights in the absence of a specific ministry. Under the Cabinet of the Prime Minister and the Administration of the State, ICIEG coordinates and complements its mandate with women's networks such as the Network of Women Parliamentarians, Network of Women Economists, Association of Women Lawyers as well as with international agencies (i.e. UN Women) and nongovernmental organizations.
Private sector companies	During the PPG phase, the project will identify private sector companies willing to develop energy-water nexus interventions through the utilization of the ESCOs business model and tailored financial mechanism.
Financial institutions	During the PPG phase, the project will consult with several financial institutions interested in co-financing energy-water nexus interventions.
Civil Society Organizations (CSOs)	During the PPG phase, the project will take a participatory approach to consult CSOs which are active in the energy, water, agriculture and environmental sectors. Relevant CSOs already identified include: Centro de Energia e Ambiente (CEA), Grupo de Estudos Planeamento e Monitoragem do Ambiente (GEPMA), Associação para a Protecção do Ambiente e Desenvolvimento (APAD), Água para Viver, and Associação de Agricultores e Criadores em Defesa da Biodiversidade, among others.

3. *Gender Equality and Women's Empowerment.* Are issues on [gender equality](#) and women's empowerment taken into account? (yes /no). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men.

Gender equality and the empowerment of women have a significant positive impact on sustained economic growth and inclusive development, which are key drivers of poverty alleviation and social progress. The commitment of UNIDO towards gender equality and women's empowerment is demonstrated in its policy on Gender Equality and the Empowerment of Women (2015), which provides overall guidelines for establishing a gender mainstreaming strategy. Moreover, UNIDO has developed an operational energy-gender guide to support gender mainstreaming of its sustainable energy initiatives. UNIDO recognizes that energy interventions are expected to have an impact on people and are, therefore, not gender-neutral. In fact, due to diverging needs and rights on energy consumption and production women and men are expected to be affected differently by the project.

In this regard, the Government of Cabo Verde is determined to reduce rural poverty levels by increasing employment opportunities in the rural areas and supporting the establishment of a stronger economic base to sustain rural livelihood systems with a focus on agriculture, agri-businesses, livestock and fisheries. To do so, the promotion of gender equality and mainstreaming are particularly relevant for rural areas in Cabo Verde. There is a manifest gender bias in the level of poverty (56% of poor households, mainly concentrated in rural areas, are headed by women), the level of education (68% of rural women are literate as opposed to 83% of rural men), and the traditional division of productive and reproductive work. In rural areas, women are responsible for provision of water for the family. As such, women and children have to walk long distances to fetch water from boreholes which are often dry or abandoned forcing them to walk further. Apart from the serious long term health impacts, this traditional role prohibits women to fully engage in other productive or educational activities. This situation has already had negative impacts in several sectors including agriculture, agri-business, sanitation, etc. perpetuating the current levels of rural poverty.

By integrating RE in desalination plants and water pumping systems, the project will reduce the production costs of water increasing its affordability in urban and rural areas, respectively. Besides by lowering the energy costs, new investments opportunities will derive to expand the water production base and therefore, its accessibility. The project will seek to integrate RE not only in operating water pumping systems but in abandoned or planned boreholes directly supporting the government target of reducing to less than 10 minutes the travel from household to boreholes. As such, water collectors will be able to reallocate their time and energy towards other productive activities enabling rural households to climb out of poverty through sustainable means.

The project has been categorized as “Significant Gender Mainstreaming” as one of the main beneficiaries will be women and children. Moreover, the project will set an example in mainstreaming gender aspects in energy-water nexus initiatives. To do so, Output 1.1.2 will conduct a comprehensive assessment on how to integrate the gender dimension in the energy-water initiatives and policies developed. By doing so, the project acknowledges gender differences in the provision of water and energy and the need to integrate women empowerment in climate friendly initiatives in line with GEF 6 Strategic programming. Finally, the project will ensure that both women and men are provided equal opportunities to access participate in and benefit from the project, without compromising the technical quality of the project results. In particular:

- Efforts will be made to promote participation of women in training activities, both at managerial and technical levels, as participants, trainers and facilitators;
- Gender-sensitive recruitment will be practiced at all levels where possible, especially in selection of project staff; and
- Sex-disaggregated data will be collected whenever data-collection or assessments are conducted as part of project implementation.

4. Risks

Risks	Rating	Mitigation measures
Institutional risk: Proposed strategy for addressing the energy-water nexus is not articulated to the national policy	Low	The project has been developed based on the request from the Government of Cabo Verde which has expressed its willingness to deliver an action plan for the deployment of RE technologies in water management infrastructure. Besides under Output 1.1.1, the project will establish a national platform to continuously discuss the energy-water nexus among key stakeholders. As such, the recommended strategy derived from these discussions will have a

Risks	Rating	Mitigation measures
		high level of ownership and therefore is expected to be articulated to the national policy.
Social and environmental risks: Negative impacts of project activities on local communities' e.g. decrease of revenues from sales of diesel intended for water pumping systems	Low	The interventions under this project will comply with the requisite national environmental safeguards that include the ESIA's. All impacts will be assessed and corrective measures taken whenever necessary. During the PPG phase, an Environmental and Social Management Plan (ESMP) will be developed to guarantee that environmental and social elements are integrated into the project design. This Plan will be carried out in close consultation with relevant stakeholders including governmental and civil society organizations as well as the private sector in line with GEF and UNIDO policy.
Financial risks: Finance institutions do not partner in business models developed for beneficiaries access to financing	Low	The project will start by prospecting the financial institutions represented in the country on their willingness to participate. Recently the number of those institutions has grown at both national and local levels. GEF grant will contribute to lower the risks foreseen by many finance institutions by providing a guarantee to the prospective loans. Furthermore, financial institutions will be encouraged to participate in the platform established under Output 1.1.1 and will be invited to attend specialized seminars and exposure visits under Output 3.1.3 to raise awareness on the technical and financial feasibility of RE in water management systems. As such, it is expected that with clear policy mechanisms as well as increased knowledge, the risk of investing in renewable energy projects will decrease.
Technical and market risks: RE systems are not technically viable in water management and the business model proposed does not allow beneficiaries to invest in the technology	Low	Markets of RE systems for power generation are mature enough that technology is almost standardized and prices are highly predictable. There are already experiences in the country in RE stand-alone systems and learning from their models will contribute to identify required technologies. The involvement of beneficiaries and financial institutions while developing the business model will ensure that their needs are fairly taken into account.
Climate change risks: Water supply especially ground water could be affected by climate variability	Medium	To support the government on increasing the water supply, the project will develop RE systems that can be used in desalination plants mitigating the negative effects of climate change in ground water reserves.
Low prices of oil: Continued low prices of oil make RE projects and business not viable	Medium	The market study to be carried out during the project preparation phase will factor in the most reliable forecasts in the oil market and will evaluate possible impact of a change in fuel cost on consumers' decision making.

5. Coordination

The project will be developed and implemented by the Ministry of Economy and Employment through the Direction of Energy as well as the Ministry of Agriculture and Environment in close collaboration with UNIDO. Other national partners are expected to be actively involved including the Centre for Renewable Energy and Industrial Maintenance (CERMI), National Agency for Water and Sanitation (ANAS) Economic Regulatory Agency (ARE), ELECTRA, etc. As for regional and international partners, the project will closely cooperate with ECREEE and will seek to foster synergies with the European Union, Luxembourg, Spain, Portugal and Austria as a Joint Declaration on

Reinforced Cooperation in the field of sustainable energy was signed in 2014. During the PPG phase, the project will particularly explore cooperation opportunities with Luxembourg under CERMI's umbrella to support and accelerate the capacity building efforts in the fields of RE for water resources management.

Besides, this project will coordinate and build on the GEF 4 project "Promotion of Small-to-Medium scale RE projects in Cabo Verde" currently implemented by UNIDO and expected to be completed by the end of 2017. The GEF 4 project has been addressing existent barriers to the deployment of small-to-medium scale renewable energy solutions through an integrated approach including the development of a conducive policy environment to support RE market and the implementation of pilot projects to showcase the technical feasibility and commercial viability of small-to-medium scale RE projects. In fact, the project has positive experiences with the usage of RE solutions for water mobilization as some pilot projects are using RE for water pumping and for a desalination plant. As such, this project will diligently consider the lessons learnt and knowledge acquired from the GEF 4 project and will take advantage of the strong partnerships forged under it to explore future collaboration in energy-water nexus initiatives.

6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes /no). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.

In the last decade, Cabo Verde has made significant progress in developing relevant national policy frameworks to support its ambitious energy and water goals. The policies adopted include: National Basic Sanitation Plan (2010), National Strategic Water and Sanitation Plan (2015), National Renewable Energy Plan (2015), National Energy Efficiency Plan (2015), SE4All Agenda for Action and the joint declaration between EU countries and Cabo Verde on reinforced cooperation in the field of sustainable energy.

Besides in 2015, Cabo Verde submitted its INDC making an unconditional commitment to achieve 30% RE penetration rate into the electric grid by 2025 as well as to reduce 10% of the overall energy demand by 2030. Nevertheless, if new sources of finance and enhanced international support are provided, the country could achieve 100% RE penetration rate by 2025 and 20% reduction on the overall energy demand by 2030. Regarding the water sector, Cape Verde committed to guarantee a stable and adequate water supply of at least 40l of potable water per day through the promotion of integrated water resources management.

In its INDC, Cape Verde proposed key measures to guide energy and water interventions supporting its commitments. As such, this project which objective is to catalyze the integration of RE and EE in water resources management– will directly support the relevant INDC proposed measures as well as the pertinent national strategies and priorities. Key measures include: integrating renewable micro-grids and decentralized RE solutions; improving EE of large consumers; promoting the built-up of a comprehensive network of energy services companies (ESCOs); promoting the use of smaller distributed energy solutions for water pumping; building several new desalination and water pumping units and promoting public-private partnerships.

In particular, the project will support Cape Verde to achieve energy and water-related goals which require substantial investment support and technical assistance by developing an energy services business model and tailored financial mechanism; building institutional and human capacity; and developing market-oriented policies and incentives for private sector engagement.

7. Knowledge Management

This project will build on the ongoing international efforts to integrate the energy-water nexus approach in the design and implementation of water and energy initiatives and policies as well as in the national efforts to improve the accessibility and affordability of energy and water services. During and after the project, the data and knowledge collected and developed will be constantly shared with a wide range of stakeholders to guarantee that specific activities can be sustained and scaled up including the policy recommendations on how to integrate the energy-water

nexus approach as well as the gender dimension, training material on RE in water desalination plants and pumping stations, investment portfolio of energy-water projects, among others. In fact, all the material developed will be shared with the national partners in order to guarantee a sound transition of activities and responsibilities after the project is completed.

In this regard, all the relevant project documents and reports will be available through the websites of the executing national counterparts; namely the Ministry of Economy and Employment as well as the Ministry of Agriculture and Environment. Besides, this project will feed into ongoing knowledge management efforts; for instance, the online registration platform for micro-generation systems in Cabo Verde developed by the GEF 4 project under the guidance of the Ministry of Energy or the current training curricula of CERMI.

Apart from using national communication channels and knowledge management tools, the relevant documentation will be made available under ECOWREX which aims at improving existing knowledge exchange and at mitigating information barriers in the ECOWAS region as well as UNIDO's Open Data Platform. Both will collect relevant documents to facilitate information exchange, partnerships creation and scaling up efforts. It has been envisaged that the training material developed under the project can be shared in a later stage with ECREEE in order to scale up the training to a regional level.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT²⁷ OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Alexandre Nevsky Rodrigues	GEF Operational Focal Point/Director National of Environment	MINISTRY OF AGRICULTURE AND ENVIRONMENT	08/30/2016

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies²⁸ and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Philippe R. Scholtès Managing Director, Programme Development and Technical Cooperation, UNIDO- GEF Focal Point		02/06/2017	Alois P. Mhlanga, Industrial  Development Officer, Department of Energy, UNIDO	(43-1) 26026- 5169	a.mhlanga@unido.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF

²⁷ For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

²⁸ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT

Annex 1: List of pumping water stations

	PUMPING STATION	PLACES	ISLANDS/DISTRICT
1	FA 123	Lombo de Santa	S. Antão-RG
2	FA 127	João Afonso	S. Antão-RG
3	FA 2	Rª de Crujinha	S. Antão-PN
4	FA 11	Rª chã de Donato	S. Antão-PN
5	FA 18	Rª Antónia Barros	S. Antão-PN
6	FA-98	Rª da Cruz	S. Antão-PN
7	FA-62	Jorge Luis	S. Antão-PN
8	FA-97	Chã de Mato / Ponte Sul	S. Antão-PN
9	FA-76	Rª de Lajedos	S. Antão-PN
10	FA-55	Rª Fria	S. Antão-PN
11	FA-53	Rª dos Bodes	S. Antão-PN
12	FA-51	Manuel Lopes	S. Antão-PN
13	FV 50	Curral de Tortolho	S. Vicente
14	FV 54	Água Parque	S. Vicente
15	FV 53	Fundo Mouco	S. Vicente
16	FV 58	Calhau/madeiral	S. Vicente
17	FN 62	Chã de Barrata	S. Nicolau-RB
18		Fajã	S. Nicolau-RB
19	FN91	Praia Branca	S. Nicolau-TA
20		Terra Boa	Sal
21	FST 947	Ponta Poilão	Santiago/Tarrafal
22	FST 953	Achada Boi	Santiago/Tarrafal
23	FST 834	Chã de Capela	Santiago/Tarrafal
24	FT 29	Lém Mendes – Chão Bom	Santiago/Tarrafal
25	FST 835	Canto Grande	Santiago/S.Miguel