UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS

Project Implementation Report

(01 July 2022 – 30 June 2023)

Project Title:	Strategic program to promote renewable energy and energy efficiency investments in the electricity sector of São Tomé and Príncipe
GEF ID:	9897
UNIDO ID:	150124
GEF Replenishment Cycle:	GEF-6
Country(ies):	Sao Tome and Principe
Region:	AFR – Africa
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs[1]:	Not applicable
Stand-alone / Child Project:	Stand-alone
Implementing Department/Division:	EAE/ENE/ESI
Co-Implementing Agency:	Not applicable
Executing Agency(ies):	Ministry of Infrastructure and Natural Resources (MIRNA) - former Ministry of Infrastructure, Natural Resources and Environment (MOPIRNA), ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) **Other Project Partners:** ALER (Lusophone Renewable Energy Association), EDP Renováveis, TESE (Association for Development), UNDP (United Nations Development Program), AfDB (African Development Bank)
Project Type:	Medium-Sized Project (MSP)
Project Duration:	48
Extension(s):	*No further extensions. An extension was already requested in PIR 2021 - 2022.*
GEF Project Financing:	USD 1,575,571
Agency Fee:	USD 149,679
Co-financing Amount:	USD 23,351,990

[1] Only for **GEF-6 projects**, if applicable

Date of CEO Endorsement/Approval:	03/04/2019
UNIDO Approval Date:	05/06/2019
Actual Implementation Start:	05/25/2019
Cumulative disbursement as of 30 June 2023:	1,526,923.72
Mid-term Review (MTR) Date:	12/02/2022
Original Project Completion Date:	05/25/2023
Project Completion Date as reported in FY22:	05/25/2024
Current SAP Completion Date:	05/25/2024
Expected Project Completion Date:	05/25/2024
Expected Terminal Evaluation (TE) Date:	12/25/2023
Expected Financial Closure Date:	12/01/2024
UNIDO Project Manager[2]:	Martin Lugmayr

I. Brief description of project and status overview

Project Objective

The project aims to enhance GHG emission reduction and local value creation by promoting the uptake of inclusive renewable energy and energy efficiency technology markets in Sao Tome and Principe. Through integrated interventions in the area of policy and regulation, qualification and certification, technology demonstration and investment facilitation the GEF support creates and enabling environment for large-scale market introduction of these technologies.

With the project, the GEF contributes to the Vision 2030 “São Tomé e Príncipe 2030: the country we need to build", which aims to transform the country into a climate-resilient and vibrant island hub for blue economy business, financial services, and tourism. The success of the Vision 2030 highly depends on a power sector reform and a transformational shift of the entire energy system from a nearly complete fossil fuel import dependency to renewable energy and energy efficiency. Such a transition will lead to a significant reduction of fossil fuel import spending and will free-up scarce hard currency resources for social and economic development (e.g. education, health care, transportation, export diversification, business development and climate change adaption). Moreover, it will assist key island industries (e.g. water supply, agriculture, food processing, tourism, fishery and the wider blue economy) to become more productive and competitive.

The project aims at the following Global Environmental Objectives (GEOs) and Development Objectives (DOs):

- Estimated 312,598 tCO_2e incremental direct GHG emissions reductions over the life-time of facilitated RE&EE projects and measures (tCO_2e)
- At least US$ 6.5 Billion of estimated revenues from fossil fuel savings and sustainable energy sales (products and services) over the life-time of facilitated RE&EE projects and measures
- At least USD 8 million of investment in RE and EE projects and business ideas are mobilized and under implementation
- Estimated 100 primary and secondary jobs created over the life-time of facilitated RE&EE investments in key economic areas
- At least 5 MW of additional RE capacity and avoided electricity capacity additions through peak demand reductions due to EE projects are identified, implemented and facilitated

[2] Person responsible for report content

- At least 14 000 MWh/year of expected renewable energy generation and energy savings achieved through the facilitated investment projects and measures

Based on this, the core indicators are established as follows:

Project Core Indicators		Expected at CEO Endorsement
6	**Greenhouse Gas Emissions Mitigated** (metric tons of CO2e)	*At least 1.83 million tons of CO_2e over projects lifetime:* • Direct: at least 312,598 metric tons of CO_2e • Indirect: at least 1,517,324 metric tons of CO_2e
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	At least 75 participants participate in the online training programme: 25 women/50 men At least 100 key stakeholders are trained on sustainable energy issues by qualified trainers: 30 women/70 men

Baseline

São Tomé and Príncipe (STP) is a small country in sub-Saharan Africa, which is part of the Small Island Developing States (SIDS) and, as such, faces specific challenges in relation to its size (1,001 km2, 219,161 inhabitants), remoteness from major markets, dependence on a small number of economic sectors, direct investment and remittance inflows, lack of resources and a significant trade deficit. The economic sector consists essentially of the production and export of cocoa, which accounts for about 90% of total export revenues.

The largely informal tertiary sector accounts for about 60% of Gross Domestic Product (GDP), employing 60% of the working population, while the primary and secondary sectors each contribute 20% of GDP (USD 418.6 million in 2019). With regard to agricultural production, STP imports about 15% of the food it needs. However, it faces a rural exodus, with the countryside being abandoned, while traditional and subsistence cultural practices prevail. In addition, key sectors of the economy are highly vulnerable to natural, climatic and external economic shocks.

Industry has a limited share in the national economy, contributing 13.3% to the country's GDP, of which 6.3% is attributed to the construction industry. There is no heavy industry in the country and its current capacity and technological development for transforming raw materials into manufactured goods is low, mainly due to the lack of know-how. The private sector is limited to a few small and medium enterprises (SMEs) in areas such as baking, brewing, distillation of spirits from local produce (rum), palm oil, natural juices from local fruits, mineral waters, paints, soap, coconut oil, manufacturing of building materials, bricks, metal locks, wood processing, shipbuilding, energy production, clothing and furniture production. However, despite the small size of local private industry, STP offers significant business potential in the agri-food

sector, both for processing and adding value to local products, and for meeting the needs of local consumption.

Currently, STP has one of the highest power generation costs in sub-Saharan Africa. The energy sector continues to be subsidized and tariffs are not cost reflective, so the national utility company, Empresa de Agua e Electricidade (EMAE), is unable to recover its costs and the country faces challenges resulting from an outdated transmission and distribution system, a power generation mix highly dependent on expensive diesel, and poor management. In addition, grid losses are worryingly high, being about 33% of power generated in 2019, according to EMAE. Losses are associated with inefficiencies in the transmission and distribution networks, accompanied by theft and fraud in the use of electricity.

STP does not yet produce fossil fuels and, therefore, all those consumed in the country are imported, making it dependent on imports and international price fluctuations. The electricity supply is characterized by frequent power cuts and load shedding, forcing businesses and providers of essential social services to run on diesel generators.

Access to electricity services has evolved positively and it is estimated that 84% of the population of São Tomé had access to electricity in 2019. STP's energy policy includes a target of achieving a 100% electrification rate by 2030, thereby ensuring that the entire population has access to reliable electricity services. In the case of grid-connected power generation, the installed generation capacity in 2019 was estimated at 29.7 MW, of which only 19.9 MW had guaranteed availability. Only 1.22 MW is hydropower, the remaining capacity being thermoelectric (fossil fuel). In addition to grid-connected generation, the island of São Tomé had three isolated (diesel) power plants in 2019, with a total installed capacity of 544 kW, of which only 178 kW had guaranteed availability. There are also a number of self-producers, not connected to the power grid, which generate locally for their own consumption, consisting mainly of hotels in the tourism sector.

The majority of the population does not have access to sustainable cooking services and relies significantly on traditional biomass (firewood) and charcoal. It is estimated that about 72% of the population uses solid fuels for cooking, with firewood used by 45.6% of households, followed by charcoal (26.5%) and oil (25.5%), with liquefied petroleum gas (LPG) used by only 1.5%. In addition to firewood, charcoal is also used for cooking and is produced locally. It is estimated that almost 75% of the wood consumed in the country is mostly illegally and irrationally exploited without any regulation or inspection.

There has been no significant measurable progress regarding the RE&EE (renewable energy and energy efficiency) integration over the past decade. The RE baseline remained limited to colonial run-off-river micro/small-hydro power stations, of which only one is partly functional, and small solar PV (photovoltaic) applications for rural households and productive uses (e.g. irrigation for agriculture, telecommunication and conservation of fish). Past support in the RE&EE sector in STP was rather fragmented and uncoordinated. These efforts have been focused solely on the electricity sector and existing barriers for RE&EE were not addressed in a coherent way and across sectors. The impact of these scattered interventions has been limited. The uptake of the RE&EE technology market is hindered by a broad range of demand-side and supply-side barriers, which need to be addressed simultaneously. These are related to institutional capacity, policy and regulation, knowledge management, qualification, entrepreneurship, as well as access to finance and technology. The market introduction of new RE&EE technology products, services and business models requires specific pull and push actions directed to overcome demand (consumers of products and services) and supply-side (suppliers of products and services) barriers.

This scenario has changed thanks to the GEF project implementation. Currently, the country counts on, for instance, a National Renewable Energy Action Plan (NREAP) and a National Energy Efficiency Action Plan (NEEAP) (in English and Portuguese). The NREAP and NEEAP provide the STP Government with practical guidance on how to make the energy transition a reality by 2030 and 2050, and propose a low-carbon scenario that will significantly reduce the country's energy costs and GHG emissions.

The main reference documents used in developing the NREAP and the NEEAP are: Vision 2030 "São Tomé and Príncipe 2030: the country we need to build", the Blue Economy Transition Strategy for São Tomé and Príncipe, Agenda 2030 and Agenda 2063: "The Africa We Want", the Nationally Determined Contributions (NDC, 2021), the Third National Communication (TNC) on Climate Change, the National Action Plan for Adaptation to Climate Change (NAPA) and ECCAS/CAEMC regional policies. Implementing the action plans will enable the country to achieve Sustainable Development Goal 7

(SDG-7), which aims for universal access to affordable, reliable, sustainable and modern energy services by 2030.

The NREAP and NEEAP propose a set of targets and measures to be implemented by 2030 and 2050. The well-integrated documents consider urban and rural contexts, electricity and heat aspects, and important cross-sectoral policies (e.g. climate mitigation/adaptation, trade, education, research, buildings, transport, tourism, health, agriculture, fisheries and other sectors of the economy). The NREAP targets complement the targets established in the NEEAP, while also complementing those for reduction of GHG emissions and for universal energy access. The NREAP and NEEAP are tightly interconnected and mutually reinforcing. For example, introducing EE standards and the related reductions in energy demand will have a positive impact on RE penetration in the grid. Both energy plans were submitted to the current Ministry authorities for submission to the Council of Ministers.

The NEEAP is supported by a series of Minimum Energy Performance Standards (MEPS) to transform the way energy is consumed and make the process more efficient. These are MEPS on air conditioning, refrigeration, and lighting that also integrate their respective labels. There are available draft regulations to make the MPES of mandatory compliance. In terms of renewable energy projects as part of the NREAP action lines, 1.5 MW of a floating OTEC platform is under development with SIDS DOCK and Global OTEC. A PV system of 2.2 MWp in Sao Tome is being implemented and the GEF project is supporting the repowering of the switching station to allow the connection of the PV generators to the grid. Furthermore, there are available studies on the electric power grid of Principe that include the evaluation of connection hydro and PV projects to be implemented by the government.

Furthermore, the National Sustainable Energy Platform (NSEP) has been established. It provides a space for regular cross-sectoral coordination and harmonization of donor activities. On the other hand, a SEforALL campaign to raise national and international awareness about STP as an interesting place to invest in sustainable energy already taken place. STP has become part of the Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC) (Luanda, Angola) under the GNSEC approach which a regional perspective for cooperation. Similarly, MIRNA has reinforced its partnerships with national and international, public and private institutions for implementation of the above-mentioned initiatives and others. These partnerships include institutions like SIDSD DCOK, Global OTEC, UNDP, AFAB, CERMI, CIEMAT, AERE, ALER, EDPR, EFACEC, Cunha Soares. These partnerships are also being reinforced through the GCF project with organizations like Universidad Politécnica de Madrid, AQUALOGUS Engenharia e Ambiente, etc. Complementarity with the GCF project tackles clean cooking, solar thermal, commercial losses, and distributed generation, among other areas.

The online knowledge portal of DGRNE/MOPIRNA was developed (Home Dgrne | DGRNE website) and an energy database platform is available https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe (open access) to the government, developers, financers, etc., in order to ensure access to key information from the energy sector and cross cutting areas.

Finally, human capacities have been created and reinforced in areas such as solar PV, sustainable energy for islands, MEPS, GIS and energy data bases, gender, sustainable energy entrepreneurs and start-ups, energy planning, etc. Around 300 people have participated in training sessions. Other topics will cover clean cooking, solar thermal, project management, distributed generation, grid losses due to the support provided by the GCF project.

Please refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY23. Please also provide a short justification for the selected ratings for FY23.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management[3], Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments

[3] Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY22, in the last column.

Overall Ratings[4]	**FY23**	**FY22**
Global Environmental Objectives **(GEOs)** / Development Objectives **(DOs)** Rating	*Highly Satisfactory (HS)*	*Highly Satisfactory (HS)*
The project has shown major progress during the last year The GEF project is recognized as a key contribution to the national energy transition, considering the importance of making it inclusive by equal gender participation in planned activities. In February 2022, the MTR was published. It indicated 70% of the activities started and that among the main challenges was the COVID-19 pandemic. Up to now, most of the activities have been finalized. There are only two outstanding tasks, finalization of the repowering of the PC5 switching station and the assessment of the local capabilities of national banks to invest in the energy sector. Further actions are part of the GCF project to complement GEF initiatives. The project could be presented as a good practice once the terminal evaluation is ready to showcase the results. For instance, only in terms of capacity building, the GEF project has allowed approximately 300 people to be capacitated in key energy issues to provide support for the implementation of the national policy guidelines at institutional and technical levels. Furthermore, as the GEF Project is being complemented by a GCF initiative, the results will be reinforced by the implementation of activities of other areas already included in the national energy plans (NREAP and NEEAP). This project will also serve as a reference for the CEREEAC operationalization when it comes to national and regional new initiatives.		
Implementation Progress **(IP)** Rating	*Satisfactory (S)*	*Moderately Satisfactory (MS)*
The project has reflected great progress during the last year across all outcomes and outputs. Some examples include (i) the publication of the National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) (in English and Portuguese) which are the key policy elements for guiding energy planning in the country. Both action plans were submitted to the new Minister, to then be submitted to the Council of Ministers to get the respective approval for its officialization and mandatory compliance in the country (June 2023). (ii) It was completed the development of Minimum Energy Performance Standards (MEPS) together with its implementation and compliance framework. All documents will be submitted to the new Minister to follow similar process as the energy plans. (iii) Furthermore, there is available an energy database platform to gather strategic information for decision making and to allow the proposal of further project investments. Added to that, the investment projects are progressing, such as the cooperation for installing 1.5. MW of OTEC technology, while studies for grid stability of Principe were finalized. Delays were presented in the implementation of the PC5 linked to the Santo Amaro PV system in Sao Tomé, due to updates on the electrical system planning of STP. However, the PV system (first phase) was connected by a provisional electrical measure until PCR is ready. On the other hand, several trainings, webinars and workshops took place within different activities of the project, as well as the implementation of the		

[4] Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

Women Sustainable Energy Program. All this was only possible with the set up of strategic partnerships with, such as UNDP, AFAB, SIDS DOCK, and Global OTEC, ALER, CIEMAT, CERMI, AERE, ITP, etc.

A MTR was conducted that demonstrated that 70% of activities were initiated. The indicators will be updated once the terminal evaluation documents is ready. Finally, the Government continues to commit to supporting ongoing activities, recognizing positive the impact the GEF project is making in the country and at the international level, for instance, during the African Energy Forum, and the UN Ocean Conference in June 2022 and the African Energy Forum in June 2023. Furthermore, in July 2022, the 1st International Sustainable Energy Conference of Sao Tomé and Príncipe took place in Sao Tomé island to promote the national objectives and opportunities for investment. This event gathered the national government, representatives of the public and private sectors of Portugal and other international donors.

An important achievement in 2021/22 was the approval of the UNIDO led GCF Readiness project "Building institutional capacity for a renewable energy and energy efficiency investment programme for Sao Tome and Principe", which has a budget of around USD 1 million and is under implementation to support the sustainability and up-scaling the GEF project activities. The joint GCF/GEF Project Management Unit (PMU) was established, the national UNIDO Program Coordinator located in DGRNE/MIRNA coordinates the GCF and GEF project implementation in close partnership with the UNIDO Project Manager and his team in UNIDO Headquarters. The Nation PMU has been also strengthened with contracting energy and climate junior experts, who are working together to the technical and administrative assistants.

A first joint GEF/GCF Project Steering Committee was held on 23 November 2021 in Sao Tome. During the event the new GCF funded project was presented and the draft work plan discussed. It was decided to have joint annual work plans for both projects in future. Therefore, the 2nd joint PSC took place in May, 2023. The GEF Focal Point, the GCF NDA, national authorities and relevant partners participated in the meeting.

To address some of the delays by COVID and to create synergies with the GCF project, UNIDO requests a non-cost project extension of one year in 2023. Successful progress has been achieved.

Further details are provided in section II.

Overall **Risk** Rating	*Low Risk (L)*	*Low Risk (L)*

There are changes in risk rating, from moderating to low. In terms of project implementation, major progress has been achieved from 2022, which is explained throughout the document. STP has made substantial progress in recovering from COVID 19 crisis, GDP increased by 2% from 2022 to 2023[5], although the inflation rate is about 20%.

Furthermore, it is important to highlight that the war in Ukraine made it difficult to access raw materials for manufacturing electric components, such as medium voltage cells for the PC5. However, the contractor (EFACEC) is about to deliver the MV cells to the country in order to initiate electrical works of the PC5. Furthermore, UNIDO HQ and PMU at MIRNA have close coordination with the contractor, UNDP, AFAB, and the national counterpart for the implementation of the PC5 and the commissioning of the Santo Amaro PV system for Q4 2023, considering EMAE will cofund the PC5 to increase the switching station capacity. This outstanding task is to be finished this year as part of the GEF project, along with the ongoing assessment of the local capabilities of national banks to invest in the energy sector. Further actions are part of the GCF project to complement GEF initiatives. Moreover, the GEF project has reinforced current partnerships and established new ones, being complemented by the GCF project.

[5] https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/STP?year=2023

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Progress to-date:

Development Impact (ultimate outcome)	KPIs/Indicators	Tracking indicators	Baseline	Targets	Report to date (2019-2023)
Enhanced GHG emission reduction and domestic value creation through the uptake of inclusive renewable energy and energy efficiency technology markets	• Estimated incremental direct emissions reductions (in tCO_2e) over the life-time of facilitated RE&EE projects and measures calculated through the Climate Change Mitigation Tracking Tool; • Estimated revenues from fossil fuel savings and sustainable energy sales (products and services) over the life-time of facilitated RE&EE projects and measures in USD	•	• Although there have been some improvements in providing electricity to the population, in 2018, still a quarter of STP population remains without energy access although STP electrification rate in recent years has increased from 57.9% in 2012 to 74.5% in 2018; • Frequent power cuts and extensive outages; • Old transmission and distribution network poorly maintained (Technical and non-technical losses represent around 40% of electricity production in 2016); • Increasing diesel-	• Estimated 312,598 tCO_2e incremental direct GHG emissions reductions over the life-time of facilitated RE&EE projects and measures (tCO_2e) • At least US$ 6.5 Billion of estimated revenues from fossil fuel savings and sustainable energy sales (products and services) over the life-time of facilitated RE&EE projects and measures • At least USD 8 million of investment in RE and EE projects and business ideas are mobilized and under implementation • Estimated 100 primary and secondary jobs created over the life-time of	Indicators at impact level would be reported with the final evaluation of the GEF project. According to the mid term review (February 2022): "70% of the GEF project activities were initiated, presenting valuable progress per outcome". From there, the implementation has continued with successful results. Some insights from the In February 2022, the MTR indicate: "The project's progress is affected by the pandemic situation caused by COVID 19. Many activities where it was necessary to have a group of people gathered had to be postponed or adapted to online meetings. However, a large number of activities have been started since 2019 to date. With the information available in the GEF endorsement document of the project, approximately 30 activities were recognized with some sub-activities to be developed in the four years of the project. With the documents provided for this assessment and the information communicated by the PMU, it was possible to verify that 70% of these activities had been initiated to date. Component 1 has 67% of activities started, component 2 with 57%, component 3 with 100% and component 4 with 50%. The quality of the results obtained to date are satisfactory. There is good collaboration between the partners to control that activities are carried out in a reasonable manner and there are no negative comments on the project. The consultants had the opportunity to participate in the second meeting of the Project Steering Committee and the comments were positive and encouraging. Public national institutions were involved in the recognition of training needs and actively participated in the trainings. The training provided was rated as very good by the participants. The MTR also pointed out that the project has developed activities complementary to those foreseen in the project's GEF endorsement document, such as: multiple meetings of the Technical Committee to evaluate the NREAP and NEEAP; raising a confound of 1 million EUR with a new GCF project, among other aspects". The MTR also highlighted that "GEF Project has not yet reached the proposed objectives of female participation in the activities", by considering MTR recommendations the PMU has applied measures in order to ensure gender balance, for instance, by nominating women participants to trainings. This is for instance reflected in the MEPS development

	• Estimated number of primary and secondary jobs created over the life-time of facilitated RE&EE investments in key economic areas • Mobilized investment in RE and EE projects and business ideas under implementation (in USD) • MW of electric capacity of renewable energy investment projects in urban and rural areas developed to financial close and that commenced implementation • Estimated MW of avoided electric generation capacity addition through peak load reduction by implementing standards for efficient appliances as		based decentralized systems to face lengthy blackouts; • Dependence on fuel imports for thermal power grid-connected production (fossil fuel is responsible for more than 90% of the energy mix in 2016) • Small share of RE in the grid-connected energy mix compared to the potential (5,5% hydropower energy from Contador plant). No concrete EE programs under consideration. • STP total RE available capacity (grid connected and off-grid) is 5.16%. • Increasing CO_2e emissions due to dependence on thermal fossil-fuel generation.	facilitated RE&EE investments in key economic areas • At least 5 MW of additional RE capacity and avoided electricity capacity additions through peak demand reductions due to EE projects are identified, implemented and facilitated • At least 14 000 MWh/year of expected renewable energy generation and energy savings achieved through the facilitated investment projects and measures	process, counting on a women participation of 39% from 147 participants, apart from implementing a Women Sustainable Energy Platform with successful reception in the country, the energy sector and society. Further details on the progress achieved are described below in each component.

	well as other EE measures • MWh/year of renewable energy generation and MWh/year of energy savings achieved through the facilitated investment projects and measures				
***Outcomes**:*	**Indicators**		**Baseline**	**Targets**	
Outcome 1: Accelerated RE&EE market development through improved policy and regulatory framework and effective public-private coordination	Estimated % increase of the demand and supply of sustainable energy products and services in key economic sectors (e.g. power generation and distribution, construction, fisheries and agri-processing, tourism, transport, waste management and water and sanitation) following the introduction of policy changes (baseline 2017) by the end of the GEF project and 10-years post-project period % increase of turn-over of domestic sustainable		• The policy and regulatory framework is insufficient to stimulate the uptake of demand and supply in key technology areas; low satisfaction of the private sector with the current policy, regulatory and incentive framework; • Currently, the capacities of the Government to steer and coordinate the sustainable energy sector are limited. As there is no prioritisation from public side, international private sector actors with the intention to	• Estimated 20% increase of the demand and supply of sustainable energy products and services in key economic sectors (e.g. power generation and distribution, construction, fisheries and agro-processing, tourism, transport, waste management and water and sanitation) following the introduction of policy changes (baseline 2017) and by the GEF project end and a 10-years post-project period • 20% increase of turn-over of domestic	Major progress has been achieved in this outcome. This outcome is now being complemented by the GCF project implementation. The National Sustainable Energy Platform (NSEP) was established, and 5 coordination meetings have been held in order to discuss developments of the GEF project, energy plans and other energy issues. In the same lime, the GEF project is closely aligned with the cross-sectoral coordination activities of the NDC Partnership and the Green Climate Fund (GCF). UNIDO mobilized USD 1 million co-funding from GCF resources to upgrade the policy component of the GEF project. The GEF project supported STP in the preparation of an offer to host the new Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC). The online knowledge portal of DGRNE/MOPIRNA was developed (Home Dgrne | DGRNE website). Moreover, the Energy Policy and Data Gap Analysis and the Renewable Energy and Energy Efficiency in Sao Tomé and Principe – National Status Reports are available. Both documents have paved the way to outline the key strategic plans for the country: the National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) were published in February 2022. The NREAP and NEEAP were submitted to the new Minister (MIRNA) to then, be sent to the Council of Ministers to get the respective approval for its officialization and mandatory compliance in the country. **Updates from 2022:** • Furthermore, the development of the Minimum Energy Performance Standards was finalized. There are available:

	energy product and service providers after the introduction of policies and incentives (baseline 2017) % increase of satisfaction of sustainable energy businesses with the adapted policy, regulatory and incentive framework after GEF project closure (baseline 2017);		invest are not well coordinated.	sustainable energy product and service providers after the introduction of policies and incentives (baseline 2017) by the GEF project end and a 10-years post-project period • 30 % increase of satisfaction of sustainable energy businesses with the adapted policy, regulatory and incentive framework after GEF project closure (baseline 2017);	- 1 Baseline assessment of the market conditions; - 1 Implementation and 1 compliance framework (two independent documents); - 3 Minimum Energy Performance Standards (MEPS): air conditioning, refrigeration, lighting - 3 labels; - 3 regulations on equipment and 1 on importation prohibition. This work was accompanied by 3 workshops, with participation of 147 technicians, having 36% women participation. • The CEREEAC (Angola) is under operation and its manager has been appointed in May 2023. • The government of STP has been present in high level events like the African Energy Forum in 2022 and 2023. • An energy database platform is available https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe. (open access) to the government, developers, financers, etc., in order to ensure access to key information from the energy sector and cross cutting areas. • The GCF project is supporting the GEF activities through the development of other regulations on commercial energy losses, distributed generation, transport, etc. A solar thermal competitive process will be launched soon.
Outputs:	**Indicators**		**Baseline**	**Targets**	
Output 1.1: Coherent national sustainable energy policies with RE&EE targets established and under implementation	Number of NSEP and MOPIRNA/ DGRNE Websites established and operational in STP Number of meetings conducted by the NSEP Number and percentage of women participating in the NSEP meetings Number of reports on the policy,	• 1 NSEP and 1 MIRN/DGRNE Website • 5 meetings of the NSEP conducted • 2ND project STC meeting counted on 26% women participation. • 3rd PSC meeting: 16 male, 6 female (37.5%) • 1 energy data platform, 1 handkbook. • 1 training on GIS, 10 participants, 40% women participation.	• There are no coherent RE&EE policies in place and established targets, if available, are not based on technical assessments. Moreover, there is a need to increase communication and cooperation amongst all stakeholders involved in the energy sector, including private	• 1 NSEP and 1 MOPIRNA/DGRNE Website created and operational • 8 meetings (2 meeting per year) of the NSEP conducted • 1 Report on Legal and Regulatory Framework Gaps and Opportunities is developed	• **National Sustainable Energy Platform (NSEP)** The National Sustainable Energy Platform (NSEP) has been established. It provides a space for regular cross-sectoral coordination and harmonization of donor activities. The first meeting was held on 17 June 2019 in Sao Tome. The second meeting was held by online means in June 2020 due to the COVID-19 crisis. Under the platform, technical committees for RE&EE were established. They review technical documents and regulations and build cross-sectoral synergies. Also, in 2021, the Coordination Committee for the Electricity Sector Transformation Program (CC-PTSE) was established under the leadership of the Prime Minister's Office. Moreover, several sub-committees were created to review documents. 4 (four) meetings of NSEP took place to discuss the advances on the energy plans. There is a regular schedule led by the Government. 1st SC meeting took place in parallel to the NSEP meeting in June 2019; and, having overcome COVID 19 limitations, in November 2021, the 2nd Steering Committee Meeting took place in Sao Tomé.

	legal and regulatory framework gaps and opportunities Number of legal and regulatory workshops carried out Number and percentage of women participating in the workshops Number of sustainable energy plans developed Number of Energy Sector Databases	• 1 training on energy data platform, 13 participants, 60% women participation. • 1 Report on Legal and Regulatory Framework Gaps, 1 GHG emissions study, 1 report on Renewable Energy and Energy Efficiency in STP – National Report and 1 report on CEREAC status • 1 NREAP and 1 NEEAP are available • 7 NREAP and NEEAP validation workshops within the NSEP: (i) 18 February 2021; (ii) 18 March 2021 (2nd meeting): (iii) 22 April 2021 (3rd meeting); and, (iv) 22 July 2021 (4th meeting). 3 validation workshop on MEPS; and, 1 workshop for promotion of the energy plans • 147 technicians have the opportunity to contribute to MEPS elaboration/ workshops participation: 56 women and 91 men, having 38% of women participation.	sector ones. • There is no Energy Sector Database in STP, and in fact, information on the energy sector is scarce and spread across the sectors. MOPIRNA /DGRNE has no website. • There is no NEEAP and SEforAll AA developed for STP	• 2 Sustainable Energy Plans are developed: the NEEAP and SEforAll AA. • At least 4 workshops will be carried out on legal and regulatory issues (1 Gap Analysis and Recommendations Workshop; 1 Validation Workshop for the NEEAP and SEforAll AA, 1 Validation Workshop for the Incentive Package and EE standards; and 1 Workshop on the progress of the implementation of the NEEAP, SEforAll AA, incentive package, EE standards and Strategic Plan for the Development of RE in STP) • Women are encouraged to participate in the NSEP and in the Workshops. At least 40% of the participants on the	UNIDO mobilized USD 1 million co-funding from GCF resources to upgrade the policy component of the GEF project. The GCF Readiness proposal "Building institutional capacity for a renewable energy and energy efficiency investment programme for Sao Tome and Principe" that is under implementation. It was agreed with managing the GEF and GCF project through one common work plan and Project Steering Committee (PSC), during the 2nd SC meeting in November 2021. Furthermore, there is included a specific output in the GCF project to link its implementation to the results of this GEF project. The 3rd PSC meeting (May, 2023) reported the progress on both projects. **Updates from 2022:** 3rd PSC meeting took place on 26 May, 2023 to evaluate the progress of the project and approve the respective work plan 2023-2024. This was also combined with an online meeting to allow the participation of international stakeholders. Recommendations were mainly done to ensure major involvement of the community of Principe. Thanks to the co-financing of the GCF project, a consultancy will be carried out in order to better define the stakeholder's participation and their responsibilities within the investment platform in terms of sustainability and long term operation. The NSEP is expected to ensure regular participation of DGRNE/MIRN, DGA/MIRN, AGER, EMAE, AFAP, UNDP, ADB, INPIEG (National Institute for the Promotion of Gender Equality and Equity), ALER, representatives of NGOs and civil society organizations, among others. In this line, a fiduciary and climate expert will be hired to provide assistance to MIRNA/DGRNE. The vacancy has been published in the UNIDOs portal: https://unfccc.int/sites/default/files/NDC/2022-06/CDN1%20Actualizada%20Rep%C3%BAblica%20de%20Panam%C3%A1.pdf • **Website and Energy Sector Database** The GEF project supported the Ministry to improve its knowledge management and communication within the energy sector in general and particularly with regard to RE&EE. The online website DGRNE/MOPIRNA was developed (Home Dgrne | DGRNE website). All project activities are being disseminated through the portal. This also includes information on all other GEF/GCF-funded projects. Three engineers from DGRNE were training on the use of software and management of the website. **Updates from 2022:** Attached to this effort, a consultant (GIS and IT consultant) was hired to set up the Energy System Database Platform based on GIS and open tools. The assignment included the implementation of a GIS based Energy System Database Platform: the data collection, analysis (data treatment and interpretation), design and set up of the platform, including data homogenization, data model design, system architecture design and system development and deployment complete organization and structuring of the existing data.

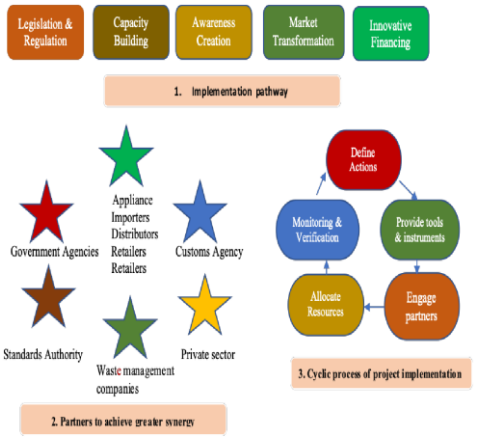
		• There are available on MEPS: an inception report, 1 baseline assessment, 1 implementation and compliance framework, 3 MEPs and lables for refrigeration, air conditioning and lighting, 4 regulations drafted, including 1 on prohibition of manufacture sale or importation.		NSEP and on workshops should be women. • 1 Energy Sector Database is created and available for public consultation	The system complies with open data standards. The energy data platform is available here: https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe. The assignment also included training provisions for technicians of DGRNE, EMAE, and other key stakeholders of the GEF project. In this line, ten (10) technicians (40% women participation) from different national institutions - INA-Instituto Nacional de Água, DGRNE-DGA- were trained on GIS and data collection by georeferencing, apart from that, DGRNE was equipped with three GPSs to continue nurturing the database. A second training was organized on the energy data platform as its manual with 13 participants, 60% women participation. • **Policy, legal and regulatory framework for RE and EE** • **Gap analysis and recommendations** First, a consultant was hired to develop a GHG emission study on the energy sector 2010 - 2019. The final document is available from June 2021. The GHG inventory quantifies the amount of GHG emissions in the energy sector to determine mitigation measures and track the progress. The GHG emission study was developed based on the IPCC guidelines and the Guide to Good Practices (GBP). It serves as reference to better assess the GHG emission reduction of the GEF project and contributes to the reliability of the established national GHG emission inventory. According to this study, in 2019, the energy sector emitted 163,03 Gg CO2 eq, -0.35% compared to the previous year. In order to disseminate the results of the document, a webinar was carried out in December 2021. The webinar was organised by ALER, in partnership with MIRNA, DGRNE and UNIDO. The event had a total of 44 attendees (58% of the total registers), including 3 speakers. The official Programme, the webinar banner, dedicated newsletter, information about the speakers, their presentations and a full recording of the event are available at the event's webpage here. Second, the Energy Policy and Data Gap Analysis report was undertaken and is available. Aligned to it, four terms of reference (as draft versions) were prepared: - "São Tomé & Príncipe Electrical Network Code"; - "Technical Regulation on the Quality of Electrical Materials Intended for Use in Low Voltage, Medium Voltage and High Voltage Electrical Installations" - "Regulation for Low Voltage Electrical Installations in São Tomé & Príncipe"; and, - "Development and enforcement of Minimum Energy Performance Standards (MEPS) for lighting and appliances in São Tomé and Príncipe". These TORs were readjusted by the UNIDO team. AERE (Alternatives pur L'energie, les Énergies Renouvelables et L'environnement) was hired to work on MEPS, further information to be provided later in the document.

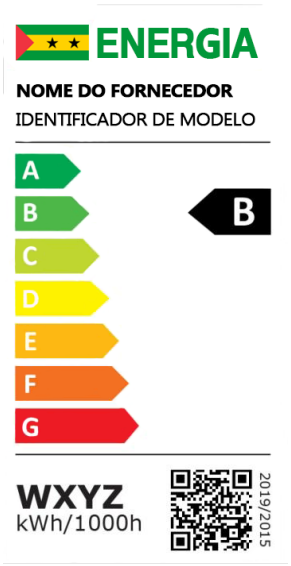
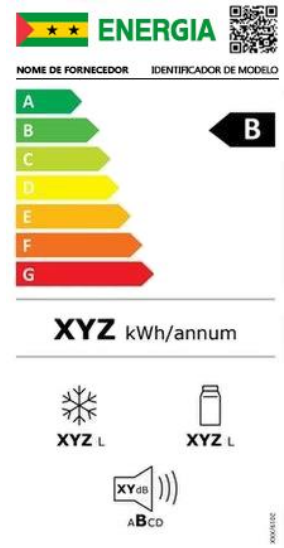
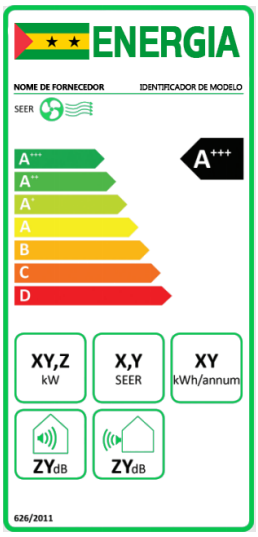
					Apart from that, a report on Renewable Energy and Energy Efficiency in Sao Tomé and Principe – National Status Report is available. This document was prepared by ALER, together with DGRNE, MIRNA, UNIDO, and CAMOES (Institute of the National Language of STP). **<u>Updates from 2022:</u>** Finally, the CEREEAC baseline assessment report, including STP was completed and the Centre is currently operational. • **National RE and EE policy** The National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) are also available. A consultancy consortium (ITP Energised + ecosphere + SEI Stockholm Environment Institute) was contracted to develop the NREAP and NEEAP through the process: Renewable Energy and Energy Efficiency Action Plans to support the National Vision "São Tomé e Príncipe 2030: the country we need to build". The NREAP and the NEEAP complement the Least Cost Power Development Plan. Both documents seek to combine efforts with regional initiatives and standards, including the: - ECOWAS Centre for Renewable Energy Efficiency (ECREEE) through the Global Network of Regional Sustainable Energy Centres (GN-SEC), - Centre for Renewable Energy and Industrial Maintenance of Cabo Verde (CERMI) in terms of Capacity Building actions in the renewable energy and energy efficiency fields, - Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC), that will implement a set of regional programmes and initiatives aiming to develop sustainable energy across the region. Moreover, UNIDO has supported the feasibility study and project document development for the creation of the CEREEAC. The NREAP and NEEAP include targets for 2030 and 2050 as well as scenarios developed and defined together with the DGRNE. In light of this, two respective sub-committees were established within the NSEP. Based on the NREAP, the country will have achieved 72% of RE penetration by 2030, to be maintained until 2050 thanks to the new additions of RE capacities (69 MW until 2050). While NEEAP envisages a demand reduction of 8.7% by 2030 and of 12.9% by 2050 due to reduction in grid losses, the introduction of efficient electric equipment in all consumer sectors, and clean cooking and green transport initiatives. Within this work, an Energy Policy and Data Gap Analysis Report and 4 (four) ToRs were prepared. Also, the consultants carried out a capacity-building workshop and participated in a dissemination webinar on the developed plans (the latter organized by ALER, further information provided later in the document). The training on LEAP was conducted during the week of November 1st to November 5th, 2021. It

					was delivered by SEI, who are the LEAP software developers. The training mainly involved sessions introducing basic concepts about modelling and LEAP as well as practical exercises for the attendees to conduct themselves. In the last session, the model developed for STP NREAP and NEEAP was explained to the attendees. The training provided respective materials and back-to-back assistance on the software use. A total of 28 attendees were present, including mainly people from the DGRNE/MIRN of STP, but also people from UNIDO, UNDP, DGA, INPIEG, EMAE, AGER, DP, Cámara Distrital de Caué, and RAP. Also a few attendees from Cabo Verde were present. From STP there were 19 people, 9 men and 10 women (52%). **Updates from 2022:** Finally, the NREAP and NEEAP were submitted to the new Minister/MIRNA to then, be sent to the Council of Ministers to get the respective approval for their officialization and mandatory compliance in the country. It is planned to do similar submissions for the MEPS information. • **Legal and Regulatory Framework Workshops** - Validation workshop for the NREAP and NEEAP: Validation meetings took place with the NSEP and DGRNE: (i) 18 February 2021; (ii) 18 March 2021 (2nd meeting): (iii) 22 April 2021 (3rd meeting); and, (iv) 22 July 2021 (4th meeting). - Validation workshop for the incentive package and EE standards: **Updates from 2022:** Under the contract with AERE on energy efficiency standards, several validation workshops took place: 1 on implementation and compliance frameworks for lighting, air conditioning, and refrigerators; 2 workshops on harmonized Minimum Energy Performance Standards (MEPs) and the labelling program. From these validation workshops, 147 technicians had the opportunity to contribute: 56 women and 91 men, having 38% of women's participation. AERE has finalized its work. Currently, there are available: an inception report, baseline assessment, an implementation and compliance framework, MEPs and lables for refrigeration, air conditioning and lighting, 4 regulations drafted, including one on prohibition of manufacture sale or importation. - Workshop on the progress of the implementation of the: NEEAP, NREAP: ALER organized a workshop and debate on the NREAP and NEEAP in April 2022. They established objectives, strategies, and solutions to make the country's energy transition a reality by 2030 and 2050. ALER created the event's webpage here.

					Updates from 2022: PMU at DRGNE, MIRNA is following up and motivating the sectors to comply with the energy plans, already submitted to the new Minister to make it mandatory from the Council of Ministers.
Output 1.2: Proposals for sustainable energy legislation, standards and a package of incentives developed, and their implementation facilitated	Number of studies to identify priority changes in energy and non-energy legislation, standards and incentives Number of proposals for new legislation, standards and incentives developed Percentage % of the proposals that are adopted and commence implementation Number of qualification and certification standards for products and services in priority areas established and under implementation	• 1 drafted baseline assessment on commercial losses and distributed generation • 3 regulations on efficient equipment (lighting, air conditioning, refrigeration) • 1 regulation on prohibition of importation of inefficient equipment to the country • 3 MEPS	<u>Baseline:</u> There is no mechanism to support the development of sustainable energy.	• 1 study to identify priority changes in energy and non-energy legislation and incentives • At least four (4) proposals for new legislation and incentives are developed • At least 50% of the proposals are adopted and commence implementation • At least two (2) standards for qualification and certification in priority technology areas are established and under implementation (e.g. PV, hydro, solar-thermal, EE in appliances);	• **Development of the package of incentives, secondary legislation and standards** A RE&EE Policy and Data Gap Analysis was undertaken and is available. The NREAP and NEEAP are available and was submitted to the new Minister to then, be sent to the Council of Ministers to make it official through a national regulation/law. Both documents include recommendations for energy sector development in terms of improvements to secondary legislation, standards and incentives for renewable energy. These activities are being complemented by the GCF Readiness support. It is focused on the formulation and enforcement of specific regulations, incentives and practical procedures, which aim to reduce risks for private participation (e.g. IPPs, PPPs, auto-producers), project finance (equity, concessional and non-concessional finance) and FDI. The implementation of the GCF project started in April 2022. The support includes the following: ○ Technical assistance for the practical application of the RE legislation regarding the pipeline of utility-scale IPP projects in the area of solar PV and SHP; ○ Strengthening of the technical capacities of the utility on smart grid, storage and SHP management; ○ A net-metering regulation, practical guidelines and model templates for small-scale renewable energy auto-producers in urban and rural contexts (e.g. SHS, prosumers, mini-grids); ○ A regulation and practical guidelines for the introduction of solar-thermal applications in key industries. **Updates from 2022:** At this stage, there is available in PT, the UNIDO Small Hydro Power Guidelines and Mini-Grid Toolkit into Portuguese to be utilized by MIRNA, EMAE and other key organizations at local level. Furthermore, there is ongoing the commercial energy losses and distributed energy assignment through the consultancy support of MRC Consultants. There is available a baseline assessment (first draft). There are under evaluation technical offers on transport standards. There was signed a contract on an ocean energy assessment at social and environmental levels; and, there is a first draft version of TORs on solar thermal. On the other hand, there is an open vacancy to contract and Fiduciary and climate expert (Fiduciary Standard Expert for Climate Finance (unido.org)) Finally, as explained above, there are 3 regulations on efficient equipment and one regulation on the

					prohibition of importation of inefficient equipment to the country, work carried out by AERE.
Output 1.3: EE standards for electric appliances are developed and their implementation facilitated	Number of baseline studies undertaken Number of EE standards developed Estimated avoided electric generation capacity addition through peak load reduction by implementing standards for efficient appliances over a period of ten (10) years	• 1 general baseline assessment on the residential sector is available; 1 general baseline assessment on the commercial sector is available; 1 detailed baseline assessment on market conditions is available (lighting, air conditions and refrigators). • 1 implementation and 1 compliance framework reports. • 3 MEPS • 3 regulations on MEPS and 1 on prohibition of importation • 3 labels	• There are no specific targets or standards for EE in place in STP. Currently, no other international partner is working on that.	• One baseline study on EE appliances undertaken • At least one EE standard for appliances developed and its implementation facilitated • Estimated 1 MW of avoided electric generation capacity addition through peak load reduction by implementing standards for efficient appliances over a period of ten (10) years	• **Development of EE standards for electric appliances** • **Monitoring of the implementation of the EE standards for electric appliances** The PMU team at MIRNA conducted a general baseline identification of the market conditions in the commercial and residential sectors. Both reports are available (June, 2021) and the focus is on refrigerators, lighting and air conditioning. As indicated above, in October 2021, AERE was hired to provide services related to the development and enforcement of Minimum Energy Performance Standards (MEPS) for lighting and appliances (air conditioning and refrigerators) in São Tomé and Príncipe. **<u>Updates from 2022:</u>** The following documents are available: - Baseline assessment of the market conditions; - Implementation and compliance framework (two independent documents); - 3 Minimum Energy Performance Standards (MEPS): air conditioning, refrigeration, lighthing - 3 labels; - 3 regulations on equipment and 1 on importation prohibition; This work was accompanied by 3 workshops, with participation of 147 technicians, having 36% women participation. The **baseline assessment** is available and among the barriers identified are: i) Absence of specific regulations on the application of the RJSE rules. Lack of a specific political and regulatory framework for sustainable energy projects; ii) Weak coordination among the entities directly involved in the sector; iii) High customs duties associated with the import of goods; The lack of a standard Power Purchase Agreement (PPA) and a transparent tariff regime for production activities in general and renewable energy in particular, leads to uncertainty in guaranteeing investments and cost recovery. Tariffs are set at the discretion of the government since AGER is not yet acting in accordance with the regulations of the electricity sector, etc. An **implementation framework** for energy-efficient appliances is critical to support the implementation and monitoring of national initiatives on energy efficiency in STP, and to drive the STP market transformation through the promotion of efficient use of energy in lighting, refrigerators and air conditioners. This implementation framework seeks to facilitate harmonization and clear alignment with MEPS, in the ECCAS region through adequate harmonized energy efficiency policies, which will enhance

					cross-border trade of efficient products, adoption of the best practices, and technological comparisons, and thereby accelerate energy savings and reduction of carbon emissions through the use of efficient appliances in STP. The major underlying factors of the implementation framework include the specific socio-economic and cultural island context of STP, so as to ensure long-term sustainability and inclusiveness of the framework. It was elaborated under the three pillars as depicted below:  The implementation of the Compliance Framework will: - support and guide the implementation of harmonized MEPS and the labeling program, as well as the establishment of national compliance programs, through a Monitoring, Verification and Enforcement (MV&E) Framework. The MV&E Framework includes a compliance certification reporting for importers, distributors and retailers of LRACs as well as market surveillance and enforcement procedures for regulators, customs agency and standards agency; - evaluate and adapt global best practice MV&E structures and mechanisms for application in STP. The prohibition of importation regulation refers to inefficient air conditioning, refrigeration and lighting. Finally, labels produced are shown below:

					 ENERGIA NOME DO FORNECEDOR IDENTIFICADOR DE MODELO A B C D E F G B WXYZ kWh/1000h 2019/2015  ENERGIA NOME DE FORNECEDOR IDENTIFICADOR DE MODELO A B C D E F G B XYZ kWh/annum XYZ L XYZ L XYdB ABCD  ENERGIA NOME DE FORNECEDOR IDENTIFICADOR DE MODELO SEER A+++ A++ A+ A B C D A+++ XY,Z kW X,Y SEER XY kWh/annum ZYdB ZYdB 626/2011

					The GEF funded EE activities are being also benefited from the mobilised GCF Readiness support. An electric mobility expert was hired to support the GEF project. The EE work is covering regulation development to reduce commercial electricity losses and regulations for vehicle emission standards and vehicle imports. The first already ongoing, while the latter is under evaluation of the offers received by a competitive process. Furthermore, the lighting standard focus is closely aligned with and ensures the sustainability of a World Bank (WB) funded light bulb exchange emergency program, to generate short-term impacts. WB and the AFAP (Agência Fiduciária e Administração de Projetos) cofinanced the GEF project to cover the installation of 246,500 through the Power Sector Recovery Project led by the WB. This output has already been completed and further inputs coming from the GCF project will be provided by the end of the year.
Output 1.4: Strengthening STP and raising awareness to become a hub for sustainable energy and island technology demonstration	Number of conducted assessments and potential offers to host the Central African Centre for Renewable Energy and Energy Efficiency (CACREEE) in STP; Number of SEforAll campaigns to increase international awareness on STP as interesting place to invest in sustainable energy (RE and EE) Number of investment workshops and international sustainable energy conferences and expos organized Number of requests to test sustainable energy island	• 1 assessment conducted on CEREEAC • 3 webinars on GHGs emissions study, energy plans and energy case studies • 17 sessions/workshops within the WSEP • 2 requests on sustainable energy solutions: 1 on PV and 1 on OTEC • 2 Participation at high level events at AEF (2022 and 2023)	• Internationally, the investment opportunities of STP are not well known. STP is not considered as a place to test sustainable energy island solutions. • The efforts to increase tourism are not well coordinated with the sustainable energy efforts (e.g. eco-tourism). • STP does not host any relevant international (energy) organisation.	• Assessment and potential offer to host the Central African Centre for Renewable Energy and Energy Efficiency (CACREEE) in STP; • SEforALL campaign increases domestic and international awareness on STP as interesting place to invest in sustainable energy (to be organized in conjunction with activity 2.2.2) • Investment workshop in Lisbon and international sustainable energy conference and expo organized	• **Establishment and facilitation of the implementation of the awareness raising campaign "SEforAll for STP"** **a) CEREEAC** The GEF-project supported STP to prepare an offer to host the newly established Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC). The process was spearheaded by UNIDO under the Global Network of Regional Sustainable Energy Centres (GN-SEC) program. On 3 June 2021, in Brazzaville, the Republic of Congo, the eleven Ministers of Energy of the Economic Community of Central African States (ECCAS) approved a Renewable Energy Roadmap and the creation of the Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC) as a specialized institution. During the meeting, it was agreed on hosting the center in Luanda, Angola. STP participated in all CEREEAC meetings. The CEREEAC is operating under the ECCAS umbrella and advise Angola, Burundi, Cameroon, Chad, Central African Republic, Democratic Republic of Congo, the Republic of Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe on critical issues of the energy and climate transition. **<u>Updates from 2022:</u>** In May 2023, Mr. Jean-Pierre Ndoutoum was appointed as the Head of the Start-Up Unit of the new Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC) by the President of the Economic Community of Central African States (ECCAS). During the next months, he will take leadership in the full operationalization of the centre. The centre works towards the creation of a common sustainable energy product and service market within ECCAS by promoting economies of scales, equal progress, joint learning and spill-over effects between countries. Through cross-border approaches and methodologies, the centres will

	solutions in STP			(to be organized in conjunction with activity 2.2.2) • At least two (2) requests to test sustainable energy island solutions in STP	complement and accelerate national efforts in the areas of policy, regulation, quality infrastructure, qualification, knowledge and facilitation of investment and entrepreneurship. It will serve as a central hub for knowledge, advice, as well as international and local partnerships. Further information: https://www.gn-sec.net/news/central-african-centre-renewable-energy-and-energy-efficiency-cereeac-takes-shape-luanda-angola Project document of CEREAC: https://open.unido.org/projects/M2/projects/200138 **b) SEforALL** For the implementation of a SEforALL campaign, a strategic partnership with ALER (Lusophone Renewable Energy Association) was established. The partnership included the publishing of regular articles on the STP energy transition and investment opportunities, the organisation of three (3) webinars, the implementation of a women sustainable energy program, the organisation of an RE&EE investment workshop and conference, capacity building and mentoring program for local renewable energy associations, a business training for sustainable energy entrepreneurs in STP. Under this partnership, the three webinars took place: - Webinar "Greenhouse Gas Emissions Inventory in the Energy Sector in São Tomé and Príncipe" on December 14th 2021. The event had a total of 44 attendees (58% of the total registers), including 3 speakers; - Webinar "Reference Case Studies in Renewable Energies in São Tomé and Príncipe, Guinea-Bissau and Cape Verde" on March 9th 2022. The webinar was organized based on the "Series of case studies on sustainable energy projects in São Tomé and Príncipe, Cape Verde and Guinea Bissau report". The event had a total of 68 attendees (58% of the total registers) including 9 speakers; - Webinar "National Renewable Energy and Energy Efficiency Action Plans for São Tomé and Príncipe" on April 21st 2022. Moreover, the "Women Sustainable Energy Program - WSEP" aimed to empower women in order to promote gender equality and equity in the development of the energy sector, in accordance with the Gender and Energy Compact promoted by UNIDO, GWNET and ENERGIA. The WSEP was designed to be 100% online, with nationalities from São Tomé and Principe, Cape Verde and Guinea Bissau. The target participants were women over 18 with an entrepreneurial profile and a project idea related to Sustainable Energy. The activities included webinars and workshops, talks with inspiring women, as well as mentoring and networking sessions for the development of skills. The program involved 17 online sessions: six sessions on women empowerment, four on capacitation on renewable energy, one on entrepreneurship and a startups Workshop, followed by six weeks with local mentors and support sessions from ALER and other partners, dedicated to the development of the project

					business plans. The WSEP finalized in July 2022 and an award session for the best business idea took place at the conference in STP. There was an award to recognize best business option, being the implementation of clean energy technologies in tourism, the winner business plan. **<u>Updates from 2022:</u>** Apart from that, STP participated in the following events, the Africa Energy Forum 2022 from 21-24 of June 2022; and, in July 2022, the 1st Sustainable Energy Conference is taking place in Sao Tomé for higher dissemination of investment opportunities. Furthermore, in June 2023, STP (Executive Director of AGER and Energy Director DGRNE) also participated on the African Energy Forum that took place in Nairobi to showcase the energy plans and the advancements in terms or regulations and projects implementation to generate partnerships and attract potential further investments. **c) OTEC** UNIDO, SIDS DOCK and a private developer continue the cooperation for the development of a utility-scale Ocean Thermal Energy Conversion Plant (OTEC). The first floating OTEC Platform (1.5 MW) is being developed in partnership with the United Kingdom (UK) company Global OTEC and is expected to be deployed in 2024, helping to unburden the people of Sao Tome and Principe from importing expensive and dirty fossil fuels, and provide a demonstration for scaling up across small islands, coastal cities and Least Developed Countries (LDCs). The activity is being implemented under the umbrella of Ocean Energy Industry Platform currently established by UNIDO in partnership with SIDS DOCK. In April 2022, a workshop took place in Sao Tomé, gathering the key stakeholders of the initiative (Global OTEC, SIDS DOCK) together with the government (MIRN, Ministry of Education) and national universities to define the ocean energy roadmap. **<u>Updates from 2022:</u>** By the end of June 2022, at the UN Ocean 2022 Side Event, an agreement was signed to develop a PPA for the development and deployment of 1.5 MW of floating OTEC on Sao Tomé island. https://www.un.org/en/conferences/ocean2022 There is already a project document on the Establishment of the Global Ocean Energy Alliance. Further information here: Projects in Global 230058 (unido.org) Furthermore, with support of the GCF project, there is a contract for an environmental and social impact assessment (ESIA) on the OTEC technology (signed in July 2023), with the Lisbon-based engineering consultancy AQUALOGUS Engenharia e Ambiente. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. Further information: https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/

Outcomes:	Indicators		Baseline	Targets	
Outcome 2: Increased investments in sustainable energy infrastructure and businesses	Mobilized investment in RE and EE projects and business ideas that commence implementation by the end of the GEF project duration (in USD) Estimated % increase of sustainable energy investments in projects and business ideas by the GEF project end and a 10-years post-project period (baseline 2017)	• Approximately, USD 40 million mobilised	Baseline: Very low investments in RE&EE since many years. Investments were limited to small-scale solar home systems and bioenergy systems. RE penetration decreased over the years due to the lack of maintenance of hydro power stations. Moreover, domestic sustainable energy technology suppliers and service providers are nearly inexistent.	Targets: At least USD 8 million of investment in RE and EE projects and business ideas are mobilized and commence implementation by the end of the GEF project duration Estimated % increase of sustainable energy investments in projects and business ideas by the GEF project end and a 10-years post-project period (baseline 2017)	This component has almost met its objectives. Currently, the GEF project is supporting the development and implementation of several utility-scale projects in partnership with EMAE, private investors and international partners. This includes a PV system of 2.2 MWp in Sao Tome by the recondition of a switching station. The total estimated investment is of USD 8 million. For it, a partnership with UNDP, AfDB, EMAE, MIRN and EFACEC was established. 1.5 MW of a floating OTEC platform is under development with SIDS DOCK and Global OTEC. The investment volume is around USD 30 million and first funding was mobilised from private risk capitalists. Studies are currently undertaken. The second phase of the project considers a capacity of 8.5 MW. The project was promoted during the UN Ocean Conference (June 2022) where an agreement was signed for the deployment of the abovementioned capacity through a PPA. There is an ongoing GCF readiness project (USD 1 million) that is complementing the implementation of activities of the GEF project, through the design and implementation of a National Sustainable Investment Plan, introduction on new standards on commercial grid losses, distributed generation, transport, and develop new project opportunities on clean cooking to raise funds. In the same line, there is a contract for an environmental and social impact assessment (ESIA) on the OTEC technology (signed in July 2023), with the Lisbon-based engineering consultancy AQUALOGUS Engenharia e Ambiente. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. Further information: https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/ Apart from that, in partnership with ALER, the Women Sustainable Energy Program -WSEP and an entrepreneurship program were implemented to develop business ideas on energy; and 5 cases studies on successful energy initiatives were developed and promoted within the country and internationally to highlight lessons learned and attract the interest of further investments. **Updates from 2022:** Among other initiatives are the finalization of studies for the reinforcement of the electric power grid of Principe through a partnership with EDPR. It also includes the evaluation of connection hydro and PV projects to be implemented by the government. Apart from that, the country was showcased in the Africa Energy Forum (June 2022, Brussels), as well as in the UN Ocean Conference (29 June, 2022), and AEF in July 2023. Furthermore, the 1st International Sustainable Energy Conference of Sao Tomé and Príncipe took place in July 2022 in Sao Tomé island. It counted on the participation of international private investors, representatives of the government of STP and Portugal, international cooperation agencies (e.g. UNIDO, UNDP) and multilateral organizations (e.g. AFDB). Furthermore, the energy data platform is available here: https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe

					Finally, CEREEAC is operational and its manager has been appointed. STP is part of the centre and the GEF and GCF projects results will contribute to the roadmap of the centre. Detailed information of the achieved results is shown below.
Outputs:	**Indicators**		**Baseline**	**Targets**	
Output 2.1. The STP RE and EE Status Report and the GIS-based National RE Resource Mapping identifying high-impact priority sites are developed and disseminated	Number of STP RE and EE Status Reports developed and disseminated Number of GIS-based National RE Resource Maps developed and disseminated	• 1 STP RE and EE report available • 1 NREAP and 1 NEEAP available and disseminated • 1 energy data platform available • 1 CEREEAC project document	Baseline: There are no STP RE and EE Status Reports and GIS-based National RE Resource Map developed for STP.	Target: One (1) STP RE and EE Status Report developed and disseminated One (1) technical GIS-based National RE Resource Map developed and disseminated in engaging in RE and EE project development	- **A Status Report of RE and EE in STP and the GIS-based National RE Resource Mapping identifying high-impact priority sites are developed and disseminated** The Renewable Energy and Energy Efficiency in São Tomé and Príncipe - National Status Report was published in November 2020. This publication was led by ALER – Lusophone Renewable Energy Association and supported by UNIDO and the Institute for Cooperation and Language and sponsored by EDP Renováveis. A baseline chapter on STP was also developed in the context of the consultative preparatory process of the Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC). The baseline report and the project document are available: https://www.aler-renovaveis.org/en/activities/publications/national-reports/sao-tome-and-principe-renewable-energy-and-energy-efficiency-status-report/ https://open.unido.org/projects/M2/projects/200138 Further information on the CEREEAC: www.cereeac.org **Updates from 2022:** Apart from that, as indicated before, a consultant (on GIS and IT) was hired to set up an Energy Data Based Platform based on GIS means that will be incorporated into the DGNRE website, making data available for the government and national and international stakeholders. The energy data platform is available here: https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe
Output 2.2. A National Sustainable Energy Investment Plan (NSEIP) is developed and presented to investors and financiers in at least two (2) investment forums	Number of NSEIP developed Amount of investments in priority sustainable energy projects identified and promoted by the NSEIP (in USD) Number of investment forums carried out	• USD 40 million mobilized	Baseline: There is no NSEIP in place in STP. So far, no investment forums on sustainable energy (RE/EE) have been organised.	Target: One (1) NSEIP with and investment volume of at least US$30 million developed and publicly available on the MIRN/DGRNE website NSEIP presented to at least 50 financiers and investors in key events (in conjunction	- **Development of the National Sustainable Energy Investment Plan (NSEIP)** - **Presentation of the NSEIP to potential investors and financers in at least two (2) investment forums** The STP Minister of Energy was invited to participate and speak at the high-level launch event “Mission Transforming Island Lives! The Network of Regional Sustainable Energy Centres for Small Island Developing States”, which was organized under the umbrella of the Global Network of Regional Sustainable Energy Centres (GN-SEC), by UNIDO, SIDS DOCK and UN-OHRLLS. The event took place on the margins of the High-Level SAMOA Pathway Midterm Review on 27 September 2019 at United Nations Headquarters. During the event, ECREEE and UNIDO presented an elevator pitch on a “South-South Sustainable Energy Investment Program for the Lusophone SIDS Cabo Verde, Guinea-Bissau and São Tomé & Príncipe” to the participating Ministers from SIDS and development partners. **Updates from 2022:**

				with output 1.4)	Under the strategic partnership with ALER, both key events were organized to showcase investment opportunities in STP: the Africa Energy Forum - AEF 2022 from 21-24 of June 2022; and, in July 2022, the 1ST Sustainable Energy Conference of the country took place in Sao Tomé. During the AEF, STP promoted the National Action Plan for Renewable Energies (NREAP) and the National Action Plan for Energy Efficiency (NEEAP) as key strategical policies for São Tomé and Príncipe and promoted the different initiatives and projects foreseen until 2030. There were 20 minutes of Country Focus sessions for São Tomé and Príncipe. Furthermore, ALER's Executive Director attended the Conference alongside the São Tomé and Príncipe representatives, co-organizing the Country Focus session, and facilitating high-level meetings and contacts during the Conference. Furthermore, the STP team also participated of the African Energy Forum (June 2023) to showcase the advancements of the country in terms of the energy plans, standardization to build market confidence, projects implementation to attract further investments through new partnerships. In the same line, a meeting to present the GEF project progress and opportunities is being organized in Principe from 20-23 July, 2023 with local authorities and stakeholders of the project. A concept note is available. Moreover, within the GCF project planning, it is envisaged the development of the National Sustainable Investment Plan based on a real project and feasibility data to be presented to developers, financiers and investors, among them the GCF project preparation facility or another financing window. It will bundle RE&EE investment opportunities for concessional finance and build a bridge to foreign direct investors and existing international/regional risk mitigation instruments. A fiduciary and climate expert is being hired (Fiduciary Standard Expert for Climate Finance (unido.org)) Finally, 1.5 MW of a floating OTEC platform is under development with SIDS DOCK and Global OTEC. The investment volume is around USD 30 million and first funding was mobilised from private risk capitalists.
Output 2.3. Demonstrated viability and feasibility of innovative renewable energy and energy efficiency investment projects	Installed capacity (in MW) of renewable energy investment projects in urban and rural areas developed to financial closure and their implementation facilitated. MWh/year of expected renewable energy generation and energy savings achieved		Baseline: Currently there is only one grid-connected small hydro project in operation in STP (1.92 MW of installed capacity of which 1.5 MW is operational); the Contador hydropower plant. In rural areas there are	Target: Renewable energy investment projects in urban and rural areas with a capacity of 5 MW or more are developed to financial closure and their implementation is facilitated. At least 14 000 MWh/year of expected renewable energy generation	- **Innovative RE and EE projects (small hydro, solar, wind and/or bioenergy) with a total installed capacity of at least 5 MW are developed to financial closure and their implementation is facilitated** **a) Hydropower plant** A consultant was hired to study the situation of Diogo Vaz, a hydro power plant located in Sao Tomé. A concept note was developed for the rehabilitation of an SHPP (small hydro power plant) (April 2021). The initial analysis involves the installation of a water intake on Rio Anambo and two turbines to operate a capacity of about 100 kW and generate approximately 0.8 GWh annually. **b) Preparation of case studies and dissemination** Under the partnership with ALER, the following case studies were developed and promoted through a webinar in March 2022: - (Solar photovoltaic (PV) system in the DGRNE building in São Tomé and Príncipe;

	through the facilitated investment projects % of implemented renewable energy investment projects generating sufficient revenues to meet the operational expenses and financial obligations		either only diesel based mini-grids or solar home systems solutions. Around 40% of the generated electricity is lost through grid losses (technical and commercial) and there are no projects in place to reduce them. There is an opportunity to reduce peak demand through the development of EE projects and implementation of behavioural-change actions.	and energy savings achieved through the facilitated investment projects	- Solar photovoltaic (PV) system in a fisherman's cooperative in São Tomé and Príncipe; - Planalto Norte Min-Grid in Cape Verde; - Power Plant in Porto Novo's Desalination Plant in Cape Verde; - Bambandinca Mini-Grid in Guinea Bissau; - Solar Home Systems for rural development in Guinea-Bissau. All case studies can be downloaded from: - PV System of the General Directorate of Natural Resources and Energy in São Tomé; - PV System of the Messias Alves Beach Fishermen and Palaiês Association, São Tomé and Príncipe; - Planalto Norte Mini-grid, Cape Verde; - Renewable Energy in Porto Novo's Desalination Plant, Cape Verde; - Community Energy Service - a mini-grid in Bambadinca, Guinea-Bissau; - Solar Home Systems for rural development of Guinea-Bissau. **c) 4 MW PV system** UNIDO, EDP Renováveis and GETInvest partnered to facilitate the implementation of 4 MWp of a modular PV power plant in Principe, where UNIDO committed to the reinforcement of the electrical grid. A contract between UNIDO and EDPR was signed on June 10, 2020. However, there was disagreement on the tariff conditions between EDPR and the Government. **Updates from 2022:** In this regard, EDPR conducted technical studies on the grid conditions and adaptation required STP. Analyses include the reinforcement of coupling stations of RE systems (PV systems, Papagaigo hydro power plant) and the diesel power plant; grid reinforcement, SCADA system, communications network, among others. **d) 2.2 MW PV system** UNIDO has established a partnership with UNDP and AfDB to support the implementation of the Santo Amaro PV power plant of 2.2 MWp in two phases: i) a first phase comprises the installation of 550 kWp by UNDP; and, (ii) the second phase considers the installation of 1,640 kWp by AfDB. Both systems will be connected to a power coupling station named PC5. The GEF project is supporting the expansion and reconditioning of the PC5 to allow both PV systems to be connected to the grid. The GEF project support involves civil work for the expansion of the PC5, acquisition of new MV (medium voltage) cells, electrical connections, and configuration of the SCADA system. In this line, EFACEC has been contracted to conduct the reconditioning of the PC5 switching station to allow the interconnection and the power injection of the 2-phase construction of the envisaged 2.2 MW Solar PV plant. **Updates from 2022:** New government has requested to plan the expansion of PC5 to a bigger implementation of renewables. In this regard, the contract with EFACEC was amended and the budget increased

					(February 2023). The remaining of the increased amount of the implementation (100K) will be covered by EMAE (national utility) as indicated by an official letter of 03 July, 2023. Civil and electrical works will initiate on last week of July, 2023. The equipment and medium voltage cells are almost ready to be delivered in the country. The commissioning of this project is planned to November 2023. This project is closely coordinated with UNDP and AfDB, EMAE and DGRNE/MIRNA. **e) OTEC system** Finally, 1.5 MW of a floating OTEC platform is under development with SIDS DOCK and Global OTEC. The investment volume is around USD 30 million and first funding was mobilised from private risk capitalists. Studies are currently undertaken. The second phase of the project considers a capacity of 8.5 MW. **Updates from 2022:** This initiative was promoted by UNIDO during the Global Ocean Energy Alliance (GLOEA) at the UN Ocean Conference (June 29th, 2022), where an agreement was signed for the development of a PPA: Launching the Global Ocean Energy Alliance (GLOEA) at the UN Ocean Conference, 29 June 2022 | Global Network of Regional Sustainable Energy Centers (GN-SEC) Currently, with support of the GCF project, there is a contract for an environmental and social impact assessment (ESIA) on the OTEC technology (signed in July 2023), with the Lisbon-based engineering consultancy AQUALOGUS Engenharia e Ambiente. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. Further information: https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/
Output 2.4. Based on existing instruments, a Financing Facility is established and supports priority sustainable energy projects and business ideas	Number of Sustainable Energy Financial Facilities in place in STP (STP-SEFF) Number of calls for proposals of the STP-SEFF Number of sustainable energy investment projects or business ideas that receive support from the STP-SEFF.	• 1 call for proposals were carried out by the WSEP • 22 women participated in the WSEP, three from Guine-Bissau, eleven from Cape Verde and eight from São Tomé and Príncipe.	Baseline: There are no financial mechanisms or dedicated financial schemes in place in STP for sustainable energy project development, investment and entrepreneurship. Due to the limited market and the lack of support for SMEs, there are hardly domestic businesse	Target: One (1) STP-SEFF is established and operation in STP At least two (2) calls for proposals are carried out by the STP-SEFF At least five (5) sustainable energy investment projects or business ideas receive support from the STP-SEFF.	- **Creation of a Financing Facility for Sustainable Energy Projects and business ideas, and facilitation of calls for proposals under the facility** The project manager in STP has held several meetings with local commercial banks to discuss investment opportunities in energy sector. **Updates from 2022 and planning:** The National Sustainable Investment Plan will be developed through the new GCF readiness project to approach developers, financers and other potential donors (even within the GCF schemes, e.g. Project preparation facility or Simplified Approval Process). For supporting this work, a fiduciary and climate expert will be hired. Under the umbrella of the GCF project, among potential investment opportunities would be on distributed generation in different formats, self consumption, collective/community self-consumption, agrivoltaics, mini-grids, among others. This is under the contract with MRC. In the same line, other possibilities would tackle transport or solar thermal. Moreover, there is under contractual signature a new project on clean cooking with the Universidad Politécnica de Madrid, one of the deliverables will be the development of a concept note for funds raising. The assignment will also provide with an implementation and action plan to approach potential donors.

		• 1 contract on OTEC for environmental and social impact	s operating in the sustainable energy sector.		Furthermore, there is a contract for an environmental and social impact assessment (ESIA) on the OTEC technology (signed in July 2023), with the Lisbon-based engineering consultancy AQUALOGUS Engenharia e Ambiente. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. Further information: https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/ Apart from that and under the contract with ALER, the Women Sustainable Energy Program -WSEP was developed and implemented. The "Women Sustainable Energy Program" aimed to empower women in order to promote gender equality and equity in the development of the energy sector, in accordance with the Gender and Energy Compact promoted by UNIDO, ENERGIA and GWNET. This involved activities, such as, webinars and workshops, talks with inspiring women, as well as mentoring and networking sessions that allowed skills to be developed. This program started in February and finalized in July 2022, with weekly sessions led by ALER with the support of other partners, such as Territórios Criativos and the Association of Mozambican Women in Energy (MWE). 22 women participated in the program, three from Guine-Bissau, eleven from Cape Verde and eight from São Tomé and Príncipe. During the WSEP implementation, project ideas were developed by the candidates, covering the following areas: - PV for pumping water - PV for tourism business - PV for public lighting - PV for ice production and fish preservation - PV and energy efficiency in market and restaurant - Energy of waves - Biogas - Batteries to complement wind production - Refrigerated electric transport - Energy for communities - Training and employment - Awareness These project ideas came with business models to support the participants to continue with their implementation beyond the WSEP and pointed out the participation of women in the energy sector. The award session for the best business idea took place at the 1ST Sustainable Energy Conference in Sao Tomé and Príncipe in July 2022.
Outcomes:	**Indicators**		**Baseline**	**Targets**	
Outcome 3: Enhanced domestic public and private sector capacities to plan, implement, operate and innovate sustainable	% increase of qualified (and % of certified) domestic experts working in the national sustainable energy sector in line with established standards (with indication of female %	• 1 capacity building assessment report is available • 1 capacity building plan is available • 13 instituti	Baseline: Limited capacity of key stakeholders (e.g. project developers, policy makers, utility, finance institutions, academia)	Target: 20% increase of qualified (ideally certified) domestic experts working in the national sustainable energy sector (40% female envisaged)	The objective has been surpassed within this outcome. MTR identify that Component 3 was the most affected in the development of activities by the pandemic COVID 19. However, although most of the activities were initiated. It also considered feasible to complete the activities in the second half of the project without major complications. Confirming this, all capacity building programs have been implemented successfully and others will take place thanks to the complementarity of the GCF project. As part of the STP RE&EE Status Report, the CEREEAC Baseline and Needs Assessment, and other conducted analyses, priority qualification and certification gaps were identified.

energy products and services in island contexts	percentage) % increase of qualified (and % of certified) experts working in relevant energy institutions (with indication of female % percentage) in line with established standards % increase of qualified (and % of certified) experts working in public or private R&D activities (with indication of female % percentage) in line with established standards % increase in the use of domestic contractors and services throughout the value chain of RE&EE investments		ons were trained: DGRNE, AGER – General Regulatory Authority-, DGA – Directorate General for the Environment-, EMAE, DP – Planning Department, SRADS/RAP– Regional Secretary for Environment and Social Development-), National Renewable Energy Associations (NREA), AENER - Santomean Renewable Energy Association and APERAS,, UNIDO, UNDP, INPIEG, Cámara Distrital de Caué, and RAP. • 39 technicians trained with CERMI; 22	No training programs on the planning, installation, operation and maintenance of RE systems tailored to practitioners needs No certified domestic experts in STP working in the national sustainable energy sector and or relevant energy institutions. No qualification, certification and accreditation standards for RE&EE products and services Low involvement of the domestic private sector in sustainable energy activities (mainly imported)	20% increase of qualified (ideally certified) experts working in relevant energy institutions (40% female envisaged) 10% increase of qualified (ideally certified) experts working in public or private R&D activities (40% female envisaged) 20% increase in the use of domestic contractors, services and content throughout the value chain of RE&EE investments	A cooperation with the Center for Renewable Energies and Industrial Maintenance (CERMI) was established. CERMI developed an assessment of capacity building needs. Based on it, UNDP in cooperation with DGRNE and PMU STP developed the national capacity building plan, which is also taken as reference to provide trainings and organize capacity building workshops through the GEF project. Several partnerships have been established in order to conduct trainings as planned, among key stakeholders are ALER, CIEMAT, AERE, CERMI, ITP Energised, Stockholm Environment Institute, EFACEC, Cunha Soares. Several local institutions have been trained. The Women Sustainable Energy Program and a capacity-building program for local associations were implemented together with ALER. CIEMAT provided trainings based on the online tool for sustainable energy on islands, as well as trainings were provided on the DGRNE/MIRNA website and energy data platform. Further trainings will cover topics on clean cooking, transport, OTEC, commercial energy losses, distributed generation, among others thanks to the complementarity of the GCF project of USD 1 million funding.

		women into the WSEP, 2 representatives from local associations. Into the LEAP training: 29 participants, of which 10 were women. 10 technicians were trained in GPS and ggeoreferencing 3 engineers trained in manathe gement of the DGRNE website. • 10 technicians were trained in GPS and georeferencing. 3 engineers trained in manathe gement of the DGRNE website. • 28 people trained by CIEMAT and CERMI on the building program on sustain			

		able energy and PV systems. • 147 people benefited from AERE workshops on MEPS to raise awareness about efficient use of energy and quality equipment. 38% women participation. • 12 institutions participate of the train of trainers workshop with CIEMAT, among them: EMAE, DGRNE/MIRNA, ATEFER, University of STP, ET Service, CF Brasil, CPFSTP; 25 technicians were certified, 8% women participation.			
Outputs:	**Indicators**		**Baseline and Targets**	**Risks and assumptions**	

Output 3.1. Improved qualification, certification and accreditation framework on sustainable energy	Needs assessment conducted to identify priority qualification, certification and accreditation gaps to be addressed for products and services Monitoring plan and implementation methodology established (considering gender disaggregated objectives); Implemented Qualification, Certification and Accreditation Frameworks on Sustainable Energy	• CEREEAC Baseline and Needs Assessment available • 1 needs assessment report on capacity building is available • 1 national capacity building plan available	Baseline: In STP there are no qualification, certification and accreditation framework and standards for sustainable energy products and services established. Currently, no organisation offers certified trainings in technology areas with growth potential (e.g. PV, hydro, solar-thermal, EE in appliances);	Target: Needs assessment to identify priority qualification, certification and accreditation gaps to be addressed for products and services; Monitoring plan and implementation methodology established (considering gender disaggregated objectives); At least one (1) Qualification, Certification and Accreditation Framework on Sustainable Energy is implemented	- **Capacity and training needs assessment** As part of the STP RE&EE Status Report, the CEREEAC Baseline and Needs Assessment and other conducted analysis priority qualification and certification gaps were identified. A cooperation with the Center for Renewable Energies and Industrial Maintenance (CERMI) in Praia, Cape Verde, was established. As part of the partnership, CERMI developed a report with recommendations for the strengthening of the qualification and certification framework in STP. Together with UNDP, the DGRNE and STP PMU are MIRN developed the capacity building plan for the country.
Output 3.2. Enhanced qualification and innovation capacities of public institutions in sustainable energy priority areas	Training needs assessment for MIRN/DGRNE, EMAE, AGER and other authorities undertaken Number of institutions and % respective staff trained in RE priority areas (e.g. hydro power, grid-connected PV) Number of institutions and % of	• 1 capacity building assessment available • 1 capacity building plan available • 13 institutions were trained: DGRNE, AGER – General Regulatory Authority-, DGA	Baseline: There are no special training programmes on on-grid/off-grid RE systems and to enforce, monitor, and verify standards on efficient electric appliances. There is urgent need for increased knowledge in growth areas such as hydro, PV	Target: At least one training needs assessment for MOPIRNA/ DGRNE, EMAE, AGER and other authorities undertaken At least 20% of MOPIRNA/ DGRNE, EMAE, AGER staff is trained on RE priority areas trained (e.g. hydro power, grid-	- **Develop and facilitate the implementation of a special capacity building programme for MIRNA/DGRNE, EMAE, AGER and other authorities on integration and management of on-grid/off-grid RE systems and enforcement, monitoring, and verification of standards on efficient electric appliances** There is available a Capacity Building Plan for Energy Transition for the country that was developed by UNDP together with DGNRE based also on the needs assessment on capacity building developed by CERMI. Through the coordination with PMU STP and in partnership with UNDP, trainings provided under the GEF project are aligned to the mentioned plan. Under the same partnership with CERMI, between November and December 2020, 5 trainings were carried out. The activity was co-funded by UNDP. The trainings were held in STP and covered different topics: 15 technicians trained in Technical and Economic Feasibility Analysis of Projects with a duration of 32 hours; ii) 4 technicians trained in Energy Audits with a duration of 32 hours: iii) 5 technicians trained in Power management with a duration of 40 hours; iv) 6 trained people in Hygiene, Safety and Health at Work with a duration of 28 hours; v) 10 technicians trained in Geographic Information Systems and Spatial Analysis with a duration of 80 hours. 39 technicians from different institutions were trained (DGRNE, AGER –General Regulatory Authority-, DGA – Directorate

	staff trained on EE priority areas (e.g. monitoring and verification of standards for appliances) Number of gender-awareness trainings for MOPIRNA/ DGRNE, EMAE, AGER.	– Directorate General for the Environment-, EMAE, DP – Planning Department, SRADS/RAP– Regional Secretary for Environment and Social Development-), National Renewable Energy Associations (NREA), AENER - Santomean Renewable Energy Association and APERAS,UNIDO, UNDP, INPIEG, Cámara Distrital de Caué, and RAP. • 39 technicians trained with CERMI; 22 women into the WSEP, 2 representatives from local associations. Into the LEAP	and solar-thermal;	connected PV) At least 20% of MOPIRNA/ DGRNE, EMAE, AGER staff on EE priority areas trained (e.g. monitoring of standards for appliances) At least one (1) gender-awareness trainings for MOPIRNA/ DGRNE, EMAE, AGER.	General for the Environment-, EMAE, DP – Planning Department, SRADS/RAP–Regional Secretary for Environment and Social Development-). With ALER, other trainings were conducted: - Mentoring and training Programme for RE Associations (described in detail in output 3.4.) - Online training for sustainable energy entrepreneurs and start-ups within the WSEP This latter training implied the organization of an online business training for sustainable energy entrepreneurs and start-ups to reach at least 30 entrepreneurs, ensuring a strong women participation. The workshop took place from 26 to 27 of April, 2022. The Workshop had 30 participants: the candidates from the Women's Energy Program and two representatives of the National Associations of RE, and the remaining spots were occupied by entrepreneurs that applied to the training program. The Entrepreneurship and Startups Workshop (WESUP) had an intensive training program, using the Startup Academy Plan methodology, a tool that offers the entrepreneur a global view of his business model (planning, implementation and evaluation of projects at all stages of development). In the same line and under the development of the NREAP and NEEAP, a LEAP training was delivered by the Stockholm Environment Institute together with ITP Energised. The training took plan in November 2021. A total of 28 attendees were present, including mainly people from the DGRNE/MIRN of STP, but also people from UNIDO, UNDP, DGA, INPIEG, EMAE, AGER, DP, Cámara Distrital de Caué, and RAP. Also a few attendees from Cabo Verde were present. From STP there were 19 people, 9 men and 10 women. **<u>Updates from 2022 and planning:</u>** CIEMAT together with CERMI provided a face to face training on PV systems. The training took place in parallel to the 1st International Sustainable Energy Conference in STP (July, 2022). 25 trainees, technicians from various public and private institutions, mainly in the energy sector, participated in the training action were selected. Even though PMU nominated directly women participation from national institutions, there was only possible to have 2 women on board. Furthermore, the CIEMAT's call incentivized women participation. Family duties could not allow women to take active part of the training, manifested women. The CIEMAT and CERMI training participants received practical training on PV installations by visiting and analyzing the DGRNE/MIRNA PV facilities. A key component of the assignment was the implementation of a training program and the development and facilitation of a Framework for Qualification, Certification and Accreditation for Sustainable Energy. This training was designed in line with the Module "Grid-Connected and Decentralized Photovoltaic Systems" contained in the Online Capacity Building Programme on Sustainable Energy Solutions for Islands. The contents were adapted for the delivery in face-to-face modality. Based on an online training tool developed by CIEMAT (Online Capacity Building Program on Sustainable Energy for Islands), described in the next output, a train of trainers workshop took place in September 2022. The workshop allowed 25 participants to gain expertise in delivering e-learning courses and in LMS Moodle Management. Both trainings ensured the sustainability of the online training/tool based on replication. Training materials are available, like study guide, syllabus, moodle user guide.

		training: 29 participants, from which 10 were women. • 10 technicians were trained in GPS and georeferencing. 3 engineers trained in manathe gement of the DGRNE website. • 28 people trained by CIEMAT and CERMI on the building program on sustainable energy and PV systems. • 147 people benefited from AERE workshops on MEPS to raise awareness about efficient use of energy and quality equipment. 38% women participation.			Under the contract with EFACEC is envisaged to train 10 technicians from EMAE and MIRNA for the connection of the new PV system to the grid. The training will involve the operation and configuration of the new installed equipment, including dependencies on the operation of the PV and the possibility of doing further changes to the configuration. On the other hand, within the website assignment: 10 technicians were training, from which 40% represented women. A second training was organized on the energy data platform as its manual with 13 participants, 60% women participation. Moreover, within the MEPS work with AERE, three workshops took place that allows to raise awareness on energy efficiency and the importance of labelled equipment selection in the market for family economy. 147 people were benefited of these workshops (from Sao Tomé and Príncipe Islands), from which 38% were represented by women. UNIDO developed comprehensive quality guidelines for the planning, installation and operation of SHP systems. With support of the GEF project, the guidelines were translated into Portuguese. A training will be conducted in October 2023 with the support of the GCF project. Moreover, in partnership with the Alliance for Rural Electrification (ARE), UNIDO developed the Clean Energy Mini-Grid Policy Development Guide, including practical annexes. The guide was translated into Portuguese and is available to STP key stakeholders to conduct further trainings. Finally, it is envisaged to train experts from DGRNE/MIRNA on project management in order to reinforce their skills in project administration, execution and monitoring. The training will take place by the end of the year in Lisbon (in person training).

Output 3.3. On-line training program on sustainable energy solutions for islands is developed in Portuguese and applied by capacity building institutions and experts in São Tomé and Príncipe, Cabo Verde and Guinea-Bissau	Number of on-line training programmes developed and under implementation Number of institutions including the tool in the curricula Number of participants undertaking the online training programme % of women attending the online training course Number of Best Practice Guides for the development of Sustainable Energy Solutions in Islands available in Portuguese	• One online tool available • Two trainings provided: 1 on e-learning course + moodle platform course; 1 on soalr PV. 25 participants. Only 8% women participation.	<u>Baseline:</u> There is no online training programme on sustainable energy solutions for islands in Portuguese available. There is no Best Practice Guide for the development of Sustainable Energy Solutions in Islands available in Portuguese.	<u>Target:</u> At least one (1) online training programme on sustainable energy solutions for islands in Portuguese is developed and under implementation At least five (5) training institutions or trainers include the tool in the curricula At least one (1) Best Practice Guide for the development of Sustainable Energy Solutions in Islands is developed in Portuguese At least 75 participants participate in the online training programme At least 40% of the target stakeholders are women	• **Develop and implement a special on-line training programme in sustainable energy solutions** The Online Capacity Building Program on Sustainable Energy for Islands has been developed by UNIDO and SIDS DOCK in partnership with the CIEMAT (Spanish Centre for Research in Energy, Environment and Technology). The program was translated into Portuguese and was introduced in STP. The program has been developed by fulfilling CIEMAT's quality criteria in terms of scientific and technical expertise, Information and Communication Technologies (ICT) tools, and methodological and pedagogical resources. The program includes nine online modules, which describe and analyze the following technologies and energy issues: Solar Photovoltaics, Solar Thermal and Ocean Energy technologies, Bioenergy, Energy Efficiency and Thermal Optimization in buildings, Mini-grids and Energy Storage in Insular Power Systems, E-mobility and an overview on Energy, Climate Change Mitigation and Resilience in island regions. All modules are available online in Portuguese and are free of charge (https://training.gn-sec.net/course/index.php?categoryid=1). It was also showcased during the International Vienna Energy and Climate Forum in July 2021, having within the panel the Spanish embassy. Further information is here: https://www.youtube.com/watch?v=CRtYXurjSF8&ab_channel=InternationalViennaEnergyandClimateForum **<u>Updates from 2022:</u>** Furthermore, CIEMAT provided one train of trainers workshop (e-learning course + moodle platform course) in September 2022 with 25 participants from STP. This has allowed national curricula to be reinforced since several participants came from the academia. Also, a face-to-face training on PV systems for 25 people took place in July 2022 in parallel to the 1st International Sustainable Energy Conference of STP.
Output 3.4: Capacity support is provided for the operationalization of the National RE Associations	Business plan for the national RE associations; Number of registered members of the associations; Percentage of the	• 1 capacity building program implemented with RE associations. • 1 representative per association	<u>Baseline:</u> There is a need for the National RE Associations to build their capacities on the field and on their activities.	<u>Target:</u> One (1) Business plan for the national RE associations; At least 15 registered members in each of the associations after five (5) years of operation;	• **Develop and implement a capacity building training programme to enhance the capacity of the National RE Associations** São Tomé and Príncipe has two National Renewable Energy Associations (NREA), AENER - Santomean Renewable Energy Association and APERAS - Association for the Promotion of Renewable Energy and Sustainable Environment of São Tomé and Príncipe. Both were created a few years ago, but still have few members and are not fully established. Under the contract with ALER, both organizations participated in a mentoring and training programme. The Capacity Building Programme was tailored to the Santomean NREA, to support them in assessing their status and set up an activity plan to increase their management capacity and be fully operational.

	administrative and operational costs of the associations covered by the generated revenues by end of the GEF project duration;	participated on the face-to-face training.		Revenues cover 100% the administrative and operational costs of the associations by end of the GEF project duration	The training took place between 31st January and the 4th of February 2022 in Lisbon. The Training Programme was designed to provide comprehensive guidance and practical sessions to help strengthen both NREA organization and activity. It included services, membership, good governance, and the definition of measures and plans to assure their sustainability over the long term. Associations also participated in the "Online training for sustainable energy entrepreneurs and start-ups" organized by ALER (April, 2022).
Output 3.5. At least five (5) capacity building institutions and fifteen (15) certified trainers engage in capacity building courses on RE and EE issues	Number of trained institutions Number of certified trainers participating in training workshops	• 12 institutions participate of the train of trainers workshop, among them: EMAE, DGRNE/MIRNA, ATEFER, University of STP, ET Service, CF Brasil, CPFSTP. • 25 technicians were certified, 8% women participation.	<u>Baseline:</u> There is no train-the-trainer programme on sustainable energy solutions in place in STP. No certified domestic experts in STP working in the national sustainable energy sector and or relevant energy institutions	<u>Target:</u> One Train-the-trainers programme developed and implemented at CERMI facility At least five (5) capacity building institutions are trained At least fifteen (15) certified trainers are trained	• **Train-the-trainers on the modules developed** The Online Capacity Building Program on Sustainable Energy for Islands was developed and published. The program was translated into Portuguese and was introduced in STP. The program has been developed by fulfilling CIEMAT's quality criteria in terms of scientific and technical expertise, Information and Communication Technologies (ICT) tools, and methodological and pedagogical resources. **<u>Updates from 2022:</u>** CIEMAT provided one train of trainers workshop (e-learning course + moodle platform course) in September 2022 with 25 participants from STP. This has allowed national curricula to be reinfored since several participats came from the academia. Also, a face-to-face training on PV systems for 25 people will took place in July 2022 in parallel to the 1st International Sustainable Energy Conference of STP.
Output 3.6. Improved capacities of key stakeholders through national and sub-regional trainings, by train-the trainer approaches and training missions	Number of key stakeholders trained on sustainable energy issues by qualified trainers Number of domestic sustainable energy companies and start-ups that receive business training;	• 13 institutions were trained: DGRNE, AGER – General Regulatory Authority-, DGA – Directorate General for the Environment-, EMAE, DP –	<u>Baseline:</u> Limited capacity of key stakeholders (e.g. project developers, policy makers, utility, finance institutions, academia, business men or business women, professionals, etc.)	<u>Target:</u> At least one hundred (100) key stakeholders are trained on sustainable energy issues by qualified trainers At least thirty (30) domestic sustainable energy companies and start-ups receive	• **Train 100 national stakeholders on sustainable energy issues** - With CERMI: between November and December 2020, 5 trainings were carried out in areas linked to energy power systems and maintenance. - With ALER, other trainings were conducted: i) Mentoring and training Programme for RE Associations (described in detail in output 3.4.); and, ii) Online training for sustainable energy entrepreneurs and start-ups. - With ITP Energised and Stockholm Environment Institute together: LEAP training in November 2021. **<u>Updates from 2022 and planning:</u>** - CIEMAT provided one train of trainers workshop (e-learning course + moodle platform course) in September 2022 with 25 participants from STP. Also, a face-to-face training on PV systems for 25 people will took place in July

	% of women participating in the training sessions	Planning Department, SRADS/RAP– Regional Secretary for Environment and Social Development-), National Renewable Energy Associations (NREA), AENER - Santomean Renewable Energy Association and APERAS,, UNIDO, UNDP, INPIEG, Cámara Distrital de Caué, and RAP. • 39 technicians trained with CERMI; 22 women into the WSEP, 2 representatives from local associations. Into the LEAP training: 29 participants, from which 10 were women.		business training; At least 40% of the trained stakeholders are women	2022 in parallel to the 1st International Sustainable Energy Conference of STP. - Under the contract with AERE on energy efficiency standards, several validation workshops took place: 1 on implementation and compliance frameworks for lighting, air conditioning, and refrigerators; 2 workshops on harmonized Minimum Energy Performance Standards (MEPs) and 2 on a labelling program. From these validation workshops, 147 technicians have the opportunity to contribute: 56 women and 91 men, having 38% of women participation. In these workshops, there was opportunity to raise awareness on the efficient use of energy and quality equipment that complies with international standards to improve family economy when it comes to electricity consumption. - Within the website assignment: 10 technicians were training, from which 40% represented women. A second training was organized on the energy data platform as its manual with 13 participants, 60% women participation. Other further trainings are envisaged with EFACEC on commissioning a PV systems. Other trainings are planned on hydro power guidelines and the Clean Energy Mini-Grid Policy Development Guide developed by UNIDO, clean cooking, transport and OTEC with support of the GCF project.

		• 10 technicians were trained in GPS and georeferencing. 3 engineers trained in manathe gement of the DGRNE website. • 28 people trained by CIEMAT and CERMI on the building program on sustainable energy and PV systems. • 147 people benefited from AERE workshops on MEPS to raise awareness about efficient use of energy and quality equipment. 38% women participation.			
Outcomes:	**Indicators**		**Baseline**	**Targets**	
Outcome 4: Continuous monitoring and evaluation	Number of project activities implemented according to work plan	• 70% of activities were initiated at February 2022.	Baseline: The project is developed in a challenging context.	Target: One (1) M&E methodology and plan is established	The MTR of the GEF project was conducted and is available from February 2022, the document was submitted to the donor. The TORs for the final evaluation are available and the procurement process is planned for November 2023. About 70% of the activities foreseen at project endorsement have been initiated at February 2022. Several activities were affected by the COVID 19 pandemic.

(M&E) of the implementation of the GEF project conducted in accordance with established GEF and UNIDO procedures and guidelines	Number of expected results achieved Number of M&E methodologies and plan developed and implemented		There is a need to continuously track progress of project implementation, to ensure that the project is on track and achieves its final results.	and used throughout the project implementation At least 4 Annual Project Implementation Reports are compiled and delivered to UNIDO's project manager during the course of the project by the PMU At least 60% of the activities are implemented according to the Workplan at the mid of the project 100% of the expected results are achieved at the end of the project	Activities are coordinated by UNIDO HQ together with PMU STP at MIRNA, three PSC meetings were held. The team has implemented measures to improve the monitoring of the project. Quarterly monthly technical and financial reports are available and the work plan 2023-2024 was approved during the 3rd SC meeting in May 2023. Currently and as reported in the present PIR, most of activities have been completed, overcoming project constraints and considering MTR recommendations.
Outputs:	**Indicators**		**Baseline**	**Targets**	
Output 4.1. Mid-term review and terminal evaluation executed	Number of project's mid-term reviews and terminal evaluations executed Number of project activities implemented according to work plan Number of expected results achieved	• 1 MTR availabl e • 70% of activitie s were initiated .	<u>Baseline:</u> There is a need to track progress of project implementation to ensure that the project is on-track to meet its main outcomes and outputs. There is a need to evaluate at the end if the project was successful in yielding the expected results	<u>Target:</u> At least 60% of the activities are implemented according to the Workplan at the mid of the project 100% of the expected main results are achieved at the end of the project;	• **Mid-term review** • **Terminal evaluation** MHYD was hired to develop the MTR of the GEF project. The document is available from February 2022 and was submitted to GEF. The same company also developed the TORs for final evaluation, the procurement process will be launched by November 2023. According to the MTR, about 70% of the activities foreseen at project endorsement have been initiated at Feb 2022. Several activities were affected by the COVID 19 pandemic. It also contains recommendations for monitoring and project management, which are described in section VIII, "Implementation Progress". **Planning:** Terminal evaluation will provide further evidence and insights of the adoption of MTR recommendations and progress achieved.

			and impacts		
Output 4.2. Project's progress monitored, documented and recommended actions formulated	Number of M&E methodologies and plan developed and implemented	• Two technical and financial reports available. • Three work plans, current one from 2023 – 2024. • 4 PIRs available. The fourth to report the progress of the project until June 2023.	<u>Baseline:</u> There is a need to track progress of project implementation to ensure that the project is on-track to meet its main outcomes and outputs. There is a need to evaluate at the end if the project was successful in yielding the expected results and impacts	<u>Target:</u> One (1) M&E methodology and plan is established and used throughout the project implementation At least 4 Annual Project Implementation Reports are compiled and delivered to UNIDO's project manager during the course of the project by the PMU	• **M&E Framework design** • **M&E Framework implementation** UNIDO and MIRN have formalized a contract for the Project Management Unit to function within the DGRNE. The DGRNE has to coordinate, with the PMU at the headquarters (Vienna), the activities as well as the follow up for the implementation of the recommendations of the GEF Steering Committee. There is a National Project Coordinator who has been managing the first three components of the project with an annual schedule and budget. The national team is composed of a national junior energy expert, a national junior climate expert, a technical assistant, and a administrative assistant. The PMU coordinates on the GEF and GCF projects by following the recommendations of the PSC. The first SC meeting was held on 17 June 2019 in Sao Tome. Furthermore, under the NSEP platform, technical committees for RE&EE were established. They review technical documents and regulations and build cross-sectoral synergies. Also, in 2021, the Coordination Committee for the Electricity Sector Transformation Program (CC-PTSE) was established under the leadership of the Prime Minister's Office. Moreover, several sub-committees were created to review documents. 5 (five) meetings of NSEP took place already to discuss the advances in the energy plans. There is a regular schedule led by the Government. Having overcome COVID 19 limitations, in November 2021, the 2nd Steering Committee Meeting took place in Sao Tomé to evaluate the progress of the project and approve the respective work plan. This was also combined with an online meeting to allow the participation of international stakeholders. The PSC oversees both, GEF and GCF projects, counting on the participation of their respective focal points in the country in order to clearly confirm the synergies between both UNIDO projects.. Progress reports from PMU STP to UNIDO HQ are according to the agreement between MIRNA and UNIDO, and considers recommendations from the MTR: It is important to highlight that MTR contains relevant recommendations for project monitoring: *"The project is progressing in line with its objectives steadily but monitoring and evaluation activities need reinforcement. The large number of activities and the dispersion of information complicate the monitoring of project progress and can result in communication problems with stakeholders. Processes need to be structured to enhance efficiency in activities. There are annual reports and work schedules that are carried out by the PMU and use standardized UNIDO templates. However, the urgent adoption and implementation of a quality management system and a Project schedule with monthly updates is recommended".* PSC meeting took place on 26 May, 2023. Main recommendations were led to ensure major involvement of Principe community and ensure participation of more national institutions in capacity building programs within both, GEF and GCF projects.The national PMU is submitting progress reports every four months. There has been implemented an Excel tool to follow up the progress of pending activities in every coordination meeting happening every two weeks from July 2023. Weekly meetings were held between PMU STP and UNIDO HQ for coordination and monitoring, and from July 2023, they have been switched to biweekly meetings to

					oversee this project since there are a few pending activities to monitor. Finally, four Project Implementation Reports have been prepared and submitted to the donor.

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress to-date. Please expand the table as needed.

	(i) Risks	(i) Risk level FY 22	(i) Risk level FY 23	(i) Mitigation measures	(ii) Progress to-date	New defined risk[6]
1	**Institutional and Political Risks**: Political instability can drive the project off-track	Moderate	Moderate	Although in the last couple of years STP has known political stability (STP has had a stable Government since 2014 up until today), before that there has been some political instability (between 1991 and 2014 STP has had 17 prime-ministers always supported by weak party coalitions). If political instability returns, there is a risk that it will impact the GEF/UNIDO project development and implementation. Nevertheless, the impact on the project should not be high as most of the activities are not expected to be impacted. The development of larger infrastructure investments may be affected due to the needed trust from investors. *Probability: Low* *Mitigation Measures:* • The GEF/UNIDO project was established in close partnership with the Government but also the utility and regulator from the very beginning. • The GEF/UNIDO project will be implemented in cooperation with international partners with influence (e.g. WB, EIB, AfDB). • The GEF/UNIDO project builds on SIDS-SIDS cooperation between Cabo Verde, STP and Guinea-Bissau. Larger infrastructure investment projects will be developed in close cooperation with known international partners/organisations and investors (e.g. EDP Renováveis).	Currently, the project does not face major political challenges. It has full buy-in and the Government appreciates the "twinning" execution approach which delegates increasingly funding and technical operations to the PMU in the Ministry. UNIDO and MIRNA secured additional funds to upscale the impact of the GEF project through GCF Readiness project. The implementation of the GCF project is running adequately. MIRNA, through the DGRNE, is providing support to the establishment of additional partnerships in the framework of the GEF project (e.g. UNDP, AfDB).	☐
2	**Institutional and Political Risks**: Lack of Government commitment towards RE and EE can drive the project off-track	Moderate	Moderate	The commitment of the Government of STP to RE and EE might change, and this can hinder the project implementation. Moreover, there may be some reluctance from the Government and stakeholder's (e.g. utility) in integrating and articulating the project findings into national policy as well as to implement the established policies, regulations and investment and capacity building frameworks. *Probability: Moderate - Low*	There is a new Minister of Energy. The national PMU team is closely coordinating with the new authorities to ensure there are no impacts on the project implementation. There has been a request to increase	☐

[6] New risk added in reporting period. Check only if applicable.

				Mitigation Measures: • The GEF/UNIDO project has been developed based on the request from the Government of STP which has expressed its willingness and aim to develop and deploy sustainable energy (RE/EE) technologies in its energy sector. • Under PC1, the project will establish the NSEP to continuously discuss and guide the sustainable energy development in the country as well as to promote cooperation among projects in the area. As such, the recommended strategy derived from these discussions will have a high level of ownership and therefore is expected to be articulated within the national political framework. • In addition, in PC1 an Energy Sector Database and Website will be developed to inform interested energy sector stakeholders as well as the public in general about the energy sector, including sustainable energy development and relevance, as well as to inform on the activities and progress achieved by the different GEF/UNIDO project components. • The GEF/UNIDO project under its PC3 includes capacity building and awareness raising activities for stakeholders to get more involved in sustainable energy development.	the extension capacity of the PC5 that would allow the PV system of 2.2 MWp and other generation projects to be connected. For that purpose, the GEF project has done an amendment with the contractor (EFACEC) to increase the funds, and EMAE has committed to co-fund the PC5 extension, emitting an official letter. Among other envisaged initiatives, several have been completed: MEPS with AERE; visibility, trainings and webinars with ALER, grid studies with EDPR for Principe. Furthermore, several trainings took place on LEAP and energy plans with ITP, Sustainable energy platform and PV systems with CIEMAT, energy data platform with an IT and GIS specialist, and others will take place by the complementary support of the GCF project. For all those activities, the government and national authorities have been involved and participated.	
3	**Involvement Risk:** Sector stakeholders do not participate/engage actively in the project	Low	Low	Due to the lack of information and awareness in sustainable energy technologies, there is a risk that there will be no active participation from stakeholders. However, the project aims at addressing this barrier. In addition, the very high cost of traditional energy (fossil fuel based) in the country means that organizations are looking for and considering new alternatives such as RE to reduce the dependence on fossil fuels. The level of interest and collaboration shown by enterprises during the PPG phase leads to legitimately expect strong participation. *Probability*: very low. During the PPG stage, energy sector stakeholders as well as stakeholders from other sectors were contacted and involved in the definition of the GEF/UNIDO project. The general response	Up to now no such problems were faced. Key stakeholders are committed to participating in different activities of the GEF-project. In addition, they have been providing support to the GCF project implementation.	☐

				was of strong support and interest to participate in the project. *Mitigation Measures:* A well-structured national dissemination/awareness raising campaign demonstrating the viability of the investment projects and outlining the opportunities during project implementation combined with an active dialogue and involvement of associations at the national and local level during the whole project duration (e.g. through the NSEP) will ensure the desired stakeholder response and involvement in the project.		
4	**Technical Risks:** Delay in the development of investment projects can hinder the availability of results	Moderate	Moderate	The sustainable energy systems are not technically viable in the areas where they are installed, and the business models proposed do not allow beneficiaries to invest in the technology. *Probability*: *Low*. *Mitigation Measures:* The GEF/UNIDO project was designed to facilitate knowledge exchange/ cooperation with Cabo Verde and Guinea Bissau where already similar projects where implemented. In addition, the capacity-building programmes proposed involve the delivery of information and training specifically addressing and with the aim of clarifying these types of risks.	1) UNIDO, EDP Renováveis and GETInvest have partnered to facilitate the implementation of 4 MWp of a modular PV power plant in Principe, where UNIDO was committed to the reinforcement of the electrical grid. A contract between UNIDO and EDPR was signed on June 10, 2020. However, there was disagreement on the tariff conditions between EDPR and the Government. EDPR has complied with evaluations on the electrical grid within the contract with UNIDO. In order to complement this assignment and replace activities linked to the construction of a PV system, initially envisaged, there was integrated the assessment of the connection of the hydro power plan named “Parrot” of 1 MW and a PV system to be implemented by the government (between 2 – 4.7 MWp).	☐

					2) Referred to the PV system of 2.2 MWp of Sao Tomé, several technical meetings took place among UNDP, AfDB, EFACEC (contracted by UNIDO and responsible for reconditioning the switching station), and JGH Group (contracted by UNDP for the installation of the PV generator), UNIDO, EMAE, DGRNE/MIRNA and PMU STP at MIRNA to ensure the coordination of activities. The commissioning of this system is envisaged for November 2023. The government has updated its energy planning and the PC5 should increase its capacity. The additional funds are coming from an amendment of the contract between UNIDO and EFACEC and with cofunding from EMAE.	
5	**Financial Risk:** Incentive and financial support systems are insufficient.	Moderate	Moderate	There is a technical risk associated with the development of the investment projects due to reduced experience in the country in its development and implementation projects. There are no noteworthy technical risks associated to the policy measures and capacity building activities proposed by the GEF/UNIDO project. All of them are well proven interventions, tested by national experiences and in many other countries. *Probability: Low.* *Mitigation Measures:* • Execution of activities to be implemented under PC2 will be carried out with the support from international experts/companies with demonstrated and successful	Up to now, no such problems were faced. UNIDO is working closely with UNDP and AfDB and private project promoters on the investment projects. Among examples is the implementation of the Santo Amaro PV plant of 2.2 MWp. This PV system will hybridize the current diesel generation power plant.	☐

				past experience (e.g. EDP Renováveis). • Only mature and proven small to medium scale RE technologies are being proposed to be installed as investment projects. • Capacity building and enabling activities will pay special attention to further defining the existing baseline in order to develop effective tailored and well-targeted training programmes and curricula. • The status of projects will be regularly reviewed, and any necessary corrective actions will be promptly taken. Investment project results and lessons learnt will be widely disseminated.	In addition to that, EDP Renováveis finalized its work on electrical grid reinforcement, including the integration of a PV system and the Parrot hydropower plant. Furthermore, the GEF project is being complemented by the implementation of the GCF project to cover other areas like transport, clean cooking, solar thermal and carry out a complete package of trainings on sustainable energy.	
6	**Socio-economic and environmental risks** Some of the sustainable energy investment projects might have some socio-economic and environmental impacts	Low	Low	Private financiers do not partner in business initiatives (incl. supporting the mechanisms package, co-finance of investment projects etc.) for beneficiaries' access to financing. In addition, the ability of companies to invest in sustainable energy projects will impact the replication of the investment projects and the long-term market for sustainable energy solutions in STP. Access to finance in STP is possible but at very high interest rates. Also, there is no experience in STP on the involvement of the local finance sector in providing financing for this type of projects. *Probability: Low to moderate.* *Mitigation Measures:* • Early dialogue with grant providers was initiated during the PPG stage and will continue throughout the GEF/UNIDO project implementation stage. • During the GEF/UNIDO project, the STP-SEFF will be established to support the development of sustainable energy projects. This will be designed and implemented with support from ECREEE that has supported the development of similar financial facilities in Cabo Verde and in Guinea-Bissau and that manages and operates its own financial facility for the ECOWAS region (EREF) • One of the key advantages to invest in sustainable energy is the offset of either grid electricity or diesel fuel – both of which are very expensive and dependent on third parties in STP. As part of the training in PC3 life cycle analysis will be taught to show the lifetime benefits of sustainable energy projects, particularly in a volatile fossil fuel market. Demonstrating these benefits is expected to lead to further investment in sustainable energy projects. • For scaling up/replicating investment projects additional technical assistance will be provided.	Up to now, no such problems were faced. There have been established several partnerships to support the energy sector. Among remarkable alliances are the ones established with: UNDP, AfDB, EMAE, and DGRNE/MIRNA; SIDS DOCK, OTEC, and DGRNE/MIRNA; ALER; CIEMAT, CERM, DGRNE/MIRNA, Global Ocean Energy Alliance. Partnerships go from capacity-building activities to the implementation of renewable energy projects to mitigate socio-economic and environmental risks of the country through the implementation of clean technology and knowledge sharing. Others are coming under the GCF project, e.g. Universidad Politécnica de Madrid on clean cooking.	

				Training will also be provided to local financial institutions so that they fully understand the risks and benefits of sustainable energy projects and provide appropriate financial mechanism.		
7	**Climate Change Risk:** Negative impacts of climate change	Low	Low	Some of the envisaged sustainable energy investment projects might have some limited negative social, economic and environmental impacts for a limited number of stakeholders. *Probability: Low.* During the PPG phase, an Environmental and Social Management Plan (ESMP) (Annex N) was developed to guarantee that environmental and social elements are integrated into the project design and their impacts monitored. This Plan was 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. *Mitigation Measures:* • ESMP developed. This plan will be implemented throughout the implementation of the GEF/UNIDO project. • In all investment projects to be implemented under PC2 the environmental and social impacts will be identified and corrective/mitigation measures adopted if necessary. The investment projects that will be supported under the hydro power sector, are run-off-river projects with a small impact on the environment. No big dams will be supported through this project.	So far no major challenges have occurred. The initial analyses for a hydro power system (Diego Vaz) implementation considered innovative technology and engineering designs to avoid environmental impacts on the selected area. Its implementation would reduce diesel consumption for electricity generation. Projects linked to construction, e.g. PV system of 2.2 MWp, do not generate any related impact since they will be located close to the current facilities of the counterpart (.e.g.to the diesel general plant of Sao Tomé). Furthermore, the overall environmental benefit of implementing the NREAP and NEEAP is to significantly reduce GHG emissions in the power sector and to achieve the target of 27% emission reduction by 2030 set in the NDC (2021). Moreover, thanks to the complementarity of the GCF project several actions will take place on, e.g., transport, clean cooking, solar thermal, among others. Transport especially tackles efficient use of energy and standardization of fuels for sustainable market development.	☐
8	**Oil Market Prices Risk:**	Moderate	Moderate	To support the Government on increasing sustainable energy production and supply (low carbon development pathway), the	The macroeconomy is uncertain since prices are being	☐

	Low prices of oil / continued low prices of oil make RE projects and business not viable			GEF/UNIDO project will identify and support the development of RE and EE investment projects. The availability of water resources, which are potential resources for RE investment projects, could be affected by climate variability. *Probability: Low to Moderate* *Mitigation measures:* • Feasibility studies will address the potential impact of climate change on the life-cycle of the identified sustainable energy projects. There is a need to estimate the changes in the river flows regarding hydropower development. In general, the increased use of RE will have positive impacts and increase the ability of the domestic population to adapt to climate change. • The sustainable energy investment projects will also integrate an impact mitigation strategy to address any potential impacts identified during the project feasibility analysis. An organised schedule and project monitoring will assist in the identification of delays and reprogramming of activities execution.	impacted by rising fuel levels and food product prices in the international market due to the war in Ukraine and its shocks in food supply chain[7]. To alleviate the country to address its energy and economic vulnerability, the GEF project established several partnerships to fund sustainable energy initiatives as explained before, which are complemented by the implementation of the GCF project.	
9	**Impact of COVID-19 crisis** Project delays due to supply-chain interruptions, economic downturn and lock-downs	Moderate	Moderate	STP has been significantly impacted by supply-chain interruptions, the touristic downturn and partial lock-downs. Currently, no travels to STP are possible. Long-term economic impacts due to the reduced touristic revenues can be expected. There might be also impacts on investment projects, due to the reduce ability of private promoters to provide equity to RE investment projects. The pandemic has already caused some delays in the execution of meetings and consultancy assignments. *Mitigation measures:* • The "twinning" approach puts emphasis on local execution and a strong Project Management Unit (PMU) in MOPIRNA. This allows continuity of all project activities. • The project switched mainly to online meetings. Major deliverables, which require stakeholder consultations, will be finalised in 2021. It can be expected that the pandemic will have lost its impact by then. • Procurement of consultancies will put major emphasis on mixed international and local project teams.	*"São Tomé and Príncipe has faced many challenges including the impact of the COVID-19 pandemic, the war in Ukraine, and the floods at end-2021".* Even though these challenges, *"…the authorities' swift actions and timely international financial support have been helping address the socio-economic challenges of the country".*[8] The MTR confirmed: "*The delays experienced so far can mainly be attributed to the pandemic situation of COVID 19, which affected several activities that had to be rescheduled and/or cancelled".* However, from second half of 2021 the GEF project implementation was accelerated. Currently, its	☒

[7] 2021 UN Annual Results Report: Sao tomé and Príncipe.
[8] https://www.imf.org/en/News/Articles/2022/08/31/pr22298-imf-executive-board-completes-review-under-extended-credit-facility-sao-tome-and-principe

					implementation is under control and has achieved greater progress 2022-2023 with the majority of activities already finalized, and thanks also to a project extension until 05.2024. Furthermore, the GCF project is now complementing the goals of the GEF initiative.	

2. If the project received a sub-optimal risk rating (H, S) in the previous reporting period, please state the actions taken since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

Not applicable

3. Please indicate any implication of the **COVID-19** pandemic on the progress of the project.

The COVID-19 crisis impacted the project implementation moderately (see added risk above). For better explanation, because of the COVID19 crisis, the country faced strict preventive measures, which made it necessary to postpone/cancel envisaged field works by international consultants and even by locals. It affected the collection of reliable data to develop, for instance, the energy plans (NREAP and NEEAP). Mitigation measures were taken to carry out several activities through online meetings or reduced field visits. It is also worth indicating that the COVID19 caused energy and telecommunications crisis because of the higher demand for services and lack of quality facilities and infrastructures, making it difficult to ensure reliable communications with local and international stakeholders, especially during the first half of 2021. This added to the war in Ukraine that affect the availability of material to manufacture electrical components.

Under the above-described scenario and the possible economic long-term impacts on potential RE investment projects, since private promoters could have issues to provide equity as planned, in the PIR 2021, it was requested a project extension until May 2024.

From the second half of 2021, activities started to come back to normality. For instance, in November 2021, the 2nd SC meeting of the project was held in person with the participation of some international stakeholders by online means. In 2023, the 3rd PSC also took place in person with some participants connected online.

Apart from that, consultants organized field missions, e.g. to gather data and provide trainings on GIS under the setting up of the Energy Database platform; a training on PV systems in July 2022 in Sao Tomé with CIEMAT and CERMI; the 1ST International Sustainable Energy Conference in STP for RE investments in July 2022 in Sao Tomé, and, several consultations were held in person by AERE to gather key data under the MEPS assignment. Furthermore, the complementary of the GCF project has also implied field work that is being carried out by consultants with normality. To summarize, from the second half of 2021 until now, no more COVID impacts have been faced. The medium voltage cells for the PC5 capacity reinforcement are about to be delivered to the country.

4. Please clarify if the project is facing delays and is expected to request an **extension**.

There is no envisaged a new project extension request. It was already done in PIR 2022 due to COVID 19 and the Ukraine war impacts on project implementation. Currently, most of activities have been finalized under satisfaction with few pending issues to be covered.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

The Mid Term Review of the project is available and the following aspects were highlighted (Feb, 2022):

- **Relevance:** The project was designed in a consistent manner with the objectives of the Government of São Tomé and Príncipe. The Government of STP aims to reach a percentage of renewable energy of 50% in the year 2030 and reduce GHG emissions for the same period. The components of this project aim to strengthen the country's resilience and help the Government achieve its objectives. The needs of São Tomé and Príncipe were transcribed in the Project through the diversification of the proposed activities, as well as in the variety of participating counterparts.

- **Design:** The project design is in line with the country's development needs, considering the low percentage of renewable energy production in the country compared to the existing potential and the need for investments in improving energy efficiency.

- **Effectiveness:** In terms of budget expenditures, the Project has 73% of the budget disbursed but that is still not in the same percentage of goals achieved. The activities started represent 70% of the total foreseen in the design of the project. There are other complementary activities that have been carried out and that reinforce the strategies to achieve the objectives.

- **Sustainability:** There is a strong commitment on the part of the Government, evidenced by the ambitious target of 50% of renewable energies by the year 2030. On the other hand, energy efficiency goals are also on the Government's agenda and will be clearly promoted. for the activities foreseen in this project.

Moreover, the MTR contains relevant recommendations for project monitoring: *"The project is progressing in line with its objectives steadily but monitoring and evaluation activities need reinforcement. The large number of activities and the dispersion of information complicate the monitoring of project progress and can result in communication problems with stakeholders. Processes need to be structured to enhance efficiency in activities. There are annual reports and work schedules that are carried out by the PMU and use standardized UNIDO templates. However, the urgent adoption and implementation of a quality management system and a Project schedule with monthly updates is recommended".*

Therefore and to address this, the national PMU is submitting progress reports every four months. There has been implemented an Excel tool to follow up the progress of pending activities in every coordination meeting. Weekly meetings were held between PMU STP and UNIDO HQ for coordination and monitoring, and from July 2023, they have been switched to biweekly meetings to oversee this project since most of the activities have been already finalized and there are few pending issues to monitor and plan. Progress has surpassed evaluation results and implementation indicators of the MTR from 2022, new insights will be presented through the terminal evaluation.

IV. Environmental and Social Safeguards (ESS)

1. As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

☐ Category A project

☒ Category B project

☐ Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	Impact of RE installations (solar PV plant at airport, small hydropower systems) on visual aesthetics (if any)	Assessment of visibility of RE installations from different ground locations to ensure minimal visibility and blockage of natural views and access points (beach, roads etc), if any	So far no major challenges occurred. In partnership with UNDP and AfDB, the implementation of a solar PV project of 2.2 MWp is being facilitated. The GEF project is covering the expansion and reconditioning of a coupling station to connect the PV system (500 kWp + 1,640 kWp). The implementation of this project will initiate the works in July 2023 and will follow constructive and environmental standards in order to prevent any negative impact. This project will be implemented in current facilities of the diesel power plant that reduces risks.
	Impact on water uses and access from the different communities surrounding the small hydropower plants to be rehabilitated or constructed	Thorough assessment of water flows and availability (offer) versus water demand from the community (domestic uses, agricultural use)	There is a concept note for the implementation of a small hydro power plant, Diogo Vaz, located in Sao Tomé. Innovative technology has been considered to avoid negative impacts on the environment and communities. The initial analysis involved the installation of a water intake in Rio Anambo and two turbines to operate a capacity of about 100 kW and generate approximately 0.8 GWh annually. The feasibility study was postponed since the envisaged area to construct a hydropower system is under concession to a private party dedicated to cacao production. No further progress is reported on it. However, within the EDPR contract, it was included the integration of the hydropower plant “Parrot” into the electric power system of Principe. This evaluation is out of causing any environmental damage.
	The construction of RE installations affect the wildlife habitat, flora and fauna (tropical forest fauna, river aquatic fauna and fish populations, etc.)	Assessment of the project’s impact on wildlife habitat, flora and fauna will be considered as part of the detailed feasibility studies.	RE investment projects were initiated. The reconditioning of the PC5, part of the implementation of a PV system of 2.2 MWp, has been updated in terms of civil and electrical designs to corresponds to the updated energy planning of the new Minister. The project will follow constructive and environmental standards in order to prevent any negative impact. There is close coordination with the national counterpart for supervision (DGRNE/MIRNA and EMAE).

	Personnel is not acquainted with the operation and maintenance of new equipment	All staff involved will receive training on the operation and maintenance (O&M) of the RE / EE systems installed	39 technicians were trained in topics such as power management, hygiene safety and health at work, and GIS and spatial analysis by CERMI. With EFACEC, it is envisaged to train 10 technicians from EMAE and MIRN for the connection of the new PV system to the grid. CIEMAT and CERMI provided trainings on PV systems for grid and off-grid connected configurations, including also topics on technical quality and operation and maintenance under IEC standards (IEC-62446 e IEC TS 62257-9-5:2018). 25 attendees. An IT and GIS expert trained national technicians on operation and maintenance of the energy data platform. 13 participants.
	The construction and operation of RE installations impact on human quality of life due to e.g. noise or vibrations	Assessment of the project's impact on human quality of life will be conducted and considered.	To be reported once the PC5 project has been implemented.
	Low participation rates of women during project implementation	Project activities include tailored actions to encourage women participation and involvement	Special efforts to include women groups in technical review meetings were undertaken. The GEF project is in charge of ensuring their participation. Additionally, the GEF project has hired a woman as Renewable Project Expert with a background in electrical engineering and PhD in Photovoltaic Solar Energy to support project implementation. Women have 20% of representation in the Technical Committee of the GEF project. Moreover, the "Women Sustainable Energy Program - WSEP" was implemented to empower women in order to promote gender equality and equity in the development of the energy sector, in accordance with the Gender and Energy Compact promoted by UNIDO, GWNET and ENERGIA. 22 women participated in the program, three from Guine-Bissau, eleven from Cape Verde and eight from São Tomé and Príncipe. They also joined the training on entrepreneurship and startups. Both activities organized together with ALER. Other activities like training on GIS and energy data platform with 10 and 13 participants, ensured 40% and 60% women participation respectively. Within the MEPS assignment, 147 technicians had the opportunity to contribute to MEPS elaboration/workshops participation: 56

			women and 91 men, having 38% of women representation. Challenges were faced during the CIEMAT and CERMI PV training that from 25 participants, only 8% of women participation was achieved. Although the national PMU implemented a direct measure to nominate women participants, they manifested that family duties impeded them to commit their participation and implication to the training, althouth trainings were organized in core working hours. However, the overall results in terms of women participation of this project has been satisfactory despite challenges with the PV training. On the complementary activities of the GCF project, women participation measures will be reinforced.

V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes** regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

The National Sustainable Energy Platform (NSEP) was established, which provides a space for regular cross-sectoral coordination and harmonization of donor activities. The first meeting was held on 17 June 2019 in Sao Tome. The second meeting was held online means in June 2020 due to the COVID-19 crisis. Under the platform, technical committees for RE&EE were established. They review technical documents and regulations and build cross-sectoral synergies. Also, in 2021, the Coordination Committee for the Electricity Sector Transformation Program (CC-PTSE) was established under the leadership of the Prime Minister's Office. Moreover, several sub-committees were created to review documents. 5 (five) meetings of NSEP took place already to discuss the advances in the energy plans. The National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) are available from February 2022 and has been submitted to the new Minister, to then be sent to the Council of Ministers for the emission of a respective regulation for their compliance.

UNIDO is also facilitating international partnerships. The GEF project activities were included in the work program of the NDC Partnership. UNIDO has facilitated the accession of STP to the Small Island Sustainable Energy and Climate Resilience Initiative (SIDS DOCK). The agreement was signed in September 2019. UNIDO is also facilitating south-south cooperation with Cape Verde on RE&EE issues. Close cooperation with the UNIDO-GEF energy expert in Praia was established. STP is also benefiting from a strategic partnership with CERMI in Cape Verde.

In September 2019, the Minister of Energy was invited to participate and speak at the high-level launching event "Mission Transforming Island Lives! The Network of Regional Sustainable Energy Centres for Small Island Developing States", which was organized under the umbrella of the Global Network of Regional Sustainable Energy Centres (GN-SEC), by UNIDO, SIDS DOCK and UN-OHRLLS. The event took place on the margins of the High-Level SAMOA Pathway Midterm Review at United Nations Headquarters. During the event, ECREEE and UNIDO presented an elevator pitch on a "South-South Sustainable Energy Investment Program for the Lusophone SIDS Cabo Verde, Guinea-Bissau and São Tomé & Príncipe" to the

participating Ministers from SIDS and development partners.[9]

The GEF project also contributes to better integration of STP into the regional energy cooperation of the Economic Community of Central African States (CEMAC). UNIDO has supported CEMAC in the development of the Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC) as a specialized institution. The GEF project supported STP in the preparation of an offer to host the centre. In June 2021, in Brazzaville, the Republic of Congo, the eleven Ministers of Energy of the Economic Community of Central African States (ECCAS) approved a Renewable Energy Roadmap. During the meeting, it was agreed on hosting the center in Luanda, Angola. The CEREEAC is operating under the ECCAS umbrella and advise Angola, Burundi, Cameroon, Chad, Central African Republic, Democratic Republic of Congo, the Republic of Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe on critical issues of the energy and climate transition. In May 2023, Mr. Jean-Pierre Ndoutoum was appointed as the Head of the Start-Up Unit of the new Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC) by the President of the Economic Community of Central African States (ECCAS). During the next months, he will take leadership in the full operationalisation of the centre.

The centre works towards the creation of a common sustainable energy product and service market within ECCAS by promoting economies of scales, equal progress, joint learning and spill-over effects between countries. Through cross-border approaches and methodologies, the centres will complement and accelerate national efforts in the areas of policy, regulation, quality infrastructure, qualification, knowledge and facilitation of investment and entrepreneurship. It will serve as a central hub for knowledge, advice, as well as international and local partnerships. Further information: https://www.gn-sec.net/news/central-african-centre-renewable-energy-and-energy-efficiency-cereeac-takes-shape-luanda-angola. Project document of CEREAC: https://open.unido.org/projects/M2/projects/200138

Between April 9th and 15th, 2022, São Tomé and Príncipe hosted the SIDS DOCK delegation to start taking action on ocean energy, in order to strengthen the global response to the threat of climate change. This initiative is being supported by SIDS DOCK, the international organization for Sustainable Energy and Climate Resilience of Small Island Developing States, UNIDO and the Global OTEC. The project was promoted during the UN Ocean Conference where an agreement for a PPA was signed (June 2022). Furthermore, there is already a project document on the establishment of the Global Ocean Energy Alliance. Further information here: https://open.unido.org/projects/M2/projects/200138. The GLOEA intends to build a bridge between applied research, the emerging ocean energy industry, which needs to test new solutions in various climates and contexts and SIDS and coastal LDCs, which have the interest to get access to technology and expertise. The industry platform will provide support in the areas of policy advisory, knowledge management, quality infrastructure and standards, qualification and training, as well as investment and business promotion. A major focus of the GLOEA will lie on the development and implementation of a pipeline of bankable ocean energy lighthouse projects in the Pacific, Caribbean and Indian Ocean and Africa.

On the other hand, a SEforALL campaign to raise national and international awareness about STP as an interesting place to invest in sustainable energy already taken place. An investment seminar and an international conference on sustainable energy were organized under the partnership with ALER: i) The Africa Energy Forum 2022 held on 21 - 24 June in Brussels under the theme 'Africa for Africa: Building Energy for the Just Transition". In this event, STP promoted the National Action Plan for Renewable Energies (NREAP) and the National Action Plan for Energy Efficiency (NEEAP) as key strategic policies for the country, as well as the different initiatives and projects foreseen until 2030. The H.E. Honourable Osvaldo D'Abreu Minister of MIRN attended this event together with the Project Coordination of STP and other authorities. ii) In July 2022, the 1st International Sustainable Energy Conference of STP took place in Sao Tomé for higher dissemination of investment opportunities. ALER's associates, international institutions and Portugal's DGEG are invited to attend the forum. In June 2023, DGRNE/MIRNA and AGER participated o the African Energy Forum with the intention to reinforce the promotion of energy plans and current energy

[9] https://www.gn-sec.net/event/samoa-pathway-high-level-luncheon-mission-transforming-island-lives-network-regional

initiatives, together with ongoing actions, within the complementary project of the GCF, on transport, clean cooking, solar thermal.

Within the same partnership, the Women Sustainable Energy Program - WSEP" was implemented to empower women in order to promote gender equality and equity in the development of the energy sector, in accordance with the Gender and Energy Compact promoted by UNIDO, GWNET and ENERGIA. ALER has also implemented trainings on entrepreneurship and start ups with the WSEP, local associations and entrepreneurs.

Apart from that, partnerships have been established with UNDP, AfDB, EFACEC for the implementation of a PV power plant of Santo Amaro of 2.2 MWp. The joint efforts are making progress and the commissioning of this PV system is planned for November 2023. Another partnership was established with EDP Renováveis and TESE for grid reinforcement in Principe, including analysis to connect new renewable energy power (hydro and PV).

Other alliances were established. For instance, with CIEMAT and CERMI for capacity building on i) e-learning and Moodle platform based on the online tool on sustainable energy for islands and ii) photovoltaic technology; with AERE for developing MEPS on high impact demand products, that also involved training sessions on their implementation and compliance.

Furthermore, with support of the GCF project, it was established a partnership with AQUALOGUS Engenharia e Ambiente on the assessment (ESIA) on the OTEC technology. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. Further information: https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/. Moreover, a partnership is being established with Universidad Politécnica de Madrid to work on clean cooking and develop a concept note proposal and strategy plan to help the country to raise funds on this area. Further partnerships, in the short term, will cover transport and solar thermal.

2. Please provide any feedback submitted by national counterparts, GEF OFP, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

So far, the project has received good feedback from local counterparts and international partners. The local PMU in DGRNE/MIRNA has a strong role to coordinate the entire RE&EE sector and creates synergies between the various donor activities (e.g. particularly AfDB, WB, UNDP and UNIDO), NGOs, research centres (e.g. CIEMAT, CERMI), academia (e.g. Universidad Politécnica de Madrid), public sector, local associations (AENER, APERAS), and private parties (AERE, ALER, EDPR, EFACEC, Cunha Soares). Together with UNIDO, the Government submitted a GCF Readiness proposal. The GCF project in under implementation and is contributing to improve the impact of the GEF project.

In addition, during the 2nd SC meeting, several national and international organizations provided positive feedback on the GEF project activities, like those provided by AGER, recognizing the valuable work on training local technicians, and by UNDP: “remarking the synergies established between the GEF project and other energy initiatives being implemented in the country, e.g. Promotion of Environmentally Sustainable and Climate Resilient Hydroelectric Electricity and Integrated Approach in Sao Tomé and Príncipe, GEF project”, among others. Further details can be found in the 2nd SC meeting minutes.

In the same line, during the 3rd PSC meeting, representatives from AfDB, and Principe, among others congratulated the results of the project and also gave recommendations on reinforcing participation of RAP in the implementation process, officialization of regulations, and the strengthening of the National Sustainable Energy Platform. On the first point, the PMU is organizing in July 2023, an informative meeting in Principe in other to present project progress and improve the involvement of authorities.

3. Please provide any **relevant stakeholder consultation** documents

Please list here the documents which will be submitted in addition to the report, e.g.:

- The online knowledge portal of DGRNE/MIRNA is available at: Home Dgrne | DGRNE website. All project activities are disseminated through the portal.
- Energy data platform: https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe
- 9897_Energy data platform manual
- The Online Capacity Building Program on Sustainable Energy for Islands is available at: https://training.gn-sec.net/course/index.php?categoryid=6 in Portuguese and free of charge.
- 9897_ Renewable Energy and Energy Efficiency in São Tomé and Príncipe - National Status Report https://www.aler-renovaveis.org/en/activities/publications/national-reports/sao-tome-and-principe-renewable-energy-and-energy-efficiency-status-report/
- 9897_Energy Policy and Data Gap Analysis
- 9897_Inventatory of GHG emissions in Energy Sector 2010-2019
- 9897_Evaluation of AENER (Santomean Renewable Energy Association)
- 9897_Evaluation of APERAS (Association for the Promotion of Renewable Energy and Sustainable Environment of São Tomé and Príncipe)
- 9897_Mid Term Review (February, 2022)
- 9897_WSEP Women Sustainable Energy Platform concept note
- 9897_WESUP Workshop on Entrepreneurship and Startups programme – concept note
- 9897_STP Case studies:
    - Solar photovoltaic (PV) system in the DGRNE building in São Tomé and Príncipe; PV System of the General Directorate of Natural Resources and Energy in São Tomé;
    - Solar photovoltaic (PV) system in a fisherman's cooperative in São Tomé and Príncipe; PV System of the Messias Alves Beach Fishermen and Palaiês Association, São Tomé and Príncipe;
    - Planalto Norte Min-Grid in Cape Verde; Planalto Norte Mini-grid, Cape Verde;
    - Power Plant in Porto Novo's Desalination Plant in Cape Verde; Renewable Energy in Porto Novo's Desalination Plant, Cape Verde;
    - Bambandinca Mini-Grid in Guinea Bissau; Community Energy Service - a mini-grid in Bambadinca, Guinea-Bissau;
    - Solar Home Systems for rural development in Guinea-Bissau; Solar Home Systems for rural development of Guinea-Bissau.
- 9897_Didactic guide delivering Elearning courses
- 9897_Didactic guide LMS Moodle Management
- 9897_CIEMAT training report
- 9897_Report on Capacity Building Renewable Energy and Energy Efficiency
- 9897_EFACEC PC5 progress reports
- 9897_EDPR grid study-Principe_deliverables
- 9897_Elevator Pitch Investment Program for Sao Tome and Principe
- 9897_Clean Energy Mini-Grid Policy Development Guide available in Portuguese https://www.gn-sec.net/news/clean-energy-mini-grid-policy-development-guide-available-portuguese

- 9897_National Renewable Energy Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe-portuguese
- 9897_National Energy Efficiency Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe
- 9897_National Renewable Energy Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe
- 9897_National Energy Efficiency Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe-portuguese
- 9897_MEPS information https://www.gn-sec.net/content/minimum-energy-performance-standards-meps-lighting-refrigeration-and-air-conditioning-sao:
- 9897_Baseline assessment of the market conditions - MEPS;
- 9897_AERE- MEPS deliverables
- 9897_EDPR grid study-deliverables Principe
- 9897_ CEREEAC project document: https://open.unido.org/projects/M2/projects/200138
- 9897_Work plan 2023-2024 GEF-GCF projects
- 9897_1ST PSC meeting minutes
- 9897_2nd PSC meeting minutes
- 9897_Draft 3rd PSC meeting minutes
- 9897_Co-financing letter _OTEC
- 9897_Co-financing letter_EMAE

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the **progress** achieved **on implementing gender-responsive measures** and **using gender-sensitive indicators,** as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent),.

"During the development of the project, some challenges were encountered in achieving the set gender targets. Corrective measures were implemented by the Project Management Unit. Additionally, joint work was initiated with INPAIG - NATIONAL INSTITUTE OF GENDER EQUALITY of STP in order to improve the project".

The UNIDOs gender mainstreaming strategy is under implementation. In all relevant procurements and studies, the gender dimension is considered as an important aspect (e.g. NREAP, NEEAP, MEPS and labeling program).

The Sustainable Energy Status Report for Sao Tome and Principe (November 2020) includes a chapter on gender. Aligned to this, the elaboration of the NREAP and NEEAP has been counting on the participation of INPAIG of STP. The participation of this Institute has been defined in the Energy Policy and Data Gap Analysis (March 2021).

As part of the strategic partnership with ALER, the Women Sustainable Energy Program was implemented in order to promote gender equality and equity in the development of the energy sector, in accordance with the Gender and Energy Compact promoted by UNIDO, GWNET, and ENERGIA. The program involved 17 online sessions: six sessions on women empowerment, four on capacitation on renewable energy, and one on entrepreneurship and startups, followed by six weeks with local mentors and support sessions from ALER and other partners, dedicated to the development of the project business plans. Under this program, participants were also able to develop further project ideas with their respective business models. The best project proposal was awarded publicly. Further information is available here: https://www.aler-renovaveis.org/en/activities/projects/sustainable-energy-programme-for-women/

Moreover, under the development of the Energy and Database Platform, it was achieved participation of 40% of women (10 participants) in a training on GIS and georeferencing; while in the of operations of the platform, with 13 participants, it was achieved a participation of 60% of women. In the same line, during the development of the MEPS and workshops implemented, with 147 participants, it was achieved 36% women participation.

However, it is important to highlight that during the training with CIEMAT and CERMI on photovoltaics, it was only possible to ensure 8% women participation against the target of at least 40%. Even though PMU implemented a strategy to ensure women participation by delegating directly representatives from national institutions, women manifested that family duties impeded them to be enrolled into the training program, despite it was organized during core working hours and by a training call incentivizing women participation. Nevertheless, lessons learned are taken into account to also reinforce the implementation of the GCF readiness project, through the assignments and trainings.

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any **knowledge management activities / products**, as documented at CEO Endorsement / Approval.

The project has put a strong emphasis on strengthening sustainable energy knowledge management within the sector and particularly DGRNE/MIRNA. A Sustainable Energy Status Report and the Energy Policy and Data Gap Analysis on Sao Tome and Principe, and the GHG emissions study are available.

UNIDO supported DGRNE/MIRNA to implement its energy information system, as well as the update of its energy balance by the application of the LEAP tool for energy planning. The NREAP and the NEEAP were published in February 2022. The energy plans involve mitigation and adaptation measures based on national policies and initiatives promoted by UNIDO and other cooperation organizations in the country. All results are based on the LEAP analysis.

Similarly, 6 cases studies were published to promote and highlight successful RE initiatives in the country: Solar photovoltaic (PV) system in the DGRNE building in São Tomé and Príncipe; Solar photovoltaic (PV) system in a fisherman's cooperative in São Tomé and Príncipe; Planalto Norte Min-Grid in Cape Verde; Power Plant in Porto Novo's Desalination Plant in Cape Verde; Bambandinca Mini-Grid in Guinea Bissau; and, Solar Home Systems for rural development in Guinea-Bissau. Moreover, under the elaboration of the MEPS, there are available: a Baseline assessment of the market conditions; an Implementation and compliance framework (two independent documents); 3 Minimum Energy Performance Standards (MEPS): air conditioning, refrigeration, lighting; 3 labels; 3 regulations on equipment and 1 on importation prohibition. These documents will be submitted to the new Minister to then, be submitted to the Council of Ministers for mandatory application as done for the energy plans. Furthermore, there are available the online knowledge portal of DGRNE/MOPIRNA was developed (Home Dgrne | DGRNE website) and an energy database platform with its respective manual https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe (open access) to the government, developers, financers, etc. to ensure access to key information from the energy sector and cross-cutting areas.

Grid stability studies are available by individual analyses on component to grid reinforcement, including the

connection of a hydro and PV systems.

The Online Capacity Building Program on Sustainable Energy for Islands was developed by CIEMAT (Spanish Centre for Research in Energy, Environment and Technology) in partnership with UNIDO and SIDS DOCK. The program was developed by fulfilling CIEMAT's quality criteria in terms of scientific and technical expertise, Information and Communication Technologies (ICT) tools, and methodological and pedagogical resources. The development of the program was co-funded by the Spanish Agency for International Development (AECID), the Norwegian Government and the Austrian Development Agency (ADA). The program includes nine online modules, which describe and analyze the following technologies and energy issues: Solar Photovoltaics, Solar Thermal and Ocean Energy technologies, Bioenergy, Energy Efficiency and Thermal Optimization in buildings, Mini-grids and Energy Storage in Insular Power Systems, E-mobility and an overview on Energy, Climate Change Mitigation and Resilience in island regions. All modules are available online in the Portuguese language and are free of charge (https://training.gn-sec.net/course/index.php?categoryid=1). Furthermore, there are study guides and training materials under the umbrella of the program that was utilized for a training program for the country, together with training materials on PV. 25 technicians were trained in July and September 2022 under this program.

Furthermore, among the provided training the following areas were: i) Technical and Economic Feasibility Analysis of Projects; ii) Energy Audits: iii) Power management; iv) Hygiene, Safety and Health at Work; v) Geographic Information Systems and Spatial Analysis. 39 technicians from different institutions were trained (DGRNE, AGER –General Regulatory Authority-, DGA – Directorate General for the Environment-, EMAE, DP – Planning Department, SRADS/RAP–Regional Secretary for Environment and Social Development-).

10 technicians from EMAE and MIRNA were trained in GIS and georeferencing, achieving participation of 30% of women; and 13 people were trained on the energy data platform and its manual with 60% women participation. With the support of ALER, it was implemented the WSEP (22 women trained in empowerment, renewable energy, entrepreneurship and startups) and the training program with national associations. There are available: the WSEP concept note, the Workshop on Entrepreneurship and startups (WESUP) concept note, and evaluations of APERAS and AENER (local associations).

Apart from that, there are envisaged trainings with EFACEC on power systems and SCADA. Similarly, there are available the following documents in Portuguese for the country: the hydro power guidelines and the Clean Energy Mini-Grid Policy Development Guide developed by UNIDO.

With the complementarity of the GCF project, there is a draft baseline assessment on commercial grids losses and distributed generation, and further knowledge products will be available on clean cooking, transport, OTEC, solar thermal and trainings on renewables and energy efficiency.

2. Please list any **relevant knowledge management mechanisms / tools** that the project has generated.

- The online knowledge portal of DGRNE/MIRNA is available at: Home Dgrne | DGRNE website. All project activities are disseminated through the portal.
- Energy data platform: https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe
- 9897_Energy data platform manual
- The Online Capacity Building Program on Sustainable Energy for Islands is available at: https://training.gn-sec.net/course/index.php?categoryid=6 in Portuguese and free of charge.
- 9897_ Renewable Energy and Energy Efficiency in São Tomé and Príncipe - National Status Report https://www.aler-renovaveis.org/en/activities/publications/national-reports/sao-tome-and-principe-renewable-energy-and-energy-efficiency-status-report/
- 9897_Energy Policy and Data Gap Analysis
- 9897_Inventatory of GHG emissions in Energy Sector 2010-2019
- 9897_Evaluation of AENER (Santomean Renewable Energy Association)
- 9897_Evaluation of APERAS (Association for the Promotion of Renewable Energy and Sustainable

Environment of São Tomé and Príncipe)

- 9897_Mid Term Review (February, 2022)
- 9897_WSEP Women Sustainable Energy Platform concept note
- 9897_WESUP Workshop on Entrepreneurship and Startups programme – concept note
- 9897_STP Case studies:
    - Solar photovoltaic (PV) system in the DGRNE building in São Tomé and Príncipe; PV System of the General Directorate of Natural Resources and Energy in São Tomé;
    - Solar photovoltaic (PV) system in a fisherman's cooperative in São Tomé and Príncipe; PV System of the Messias Alves Beach Fishermen and Palaiês Association, São Tomé and Príncipe;
    - Planalto Norte Min-Grid in Cape Verde; Planalto Norte Mini-grid, Cape Verde;
    - Power Plant in Porto Novo's Desalination Plant in Cape Verde; Renewable Energy in Porto Novo's Desalination Plant, Cape Verde;
    - Bambandinca Mini-Grid in Guinea Bissau; Community Energy Service - a mini-grid in Bambadinca, Guinea-Bissau;
    - Solar Home Systems for rural development in Guinea-Bissau; Solar Home Systems for rural development of Guinea-Bissau.

- 9897_Didactic guide delivering Elearning courses
- 9897_Didactic guide LMS Moodle Management
- 9897_CIEMAT training report
- 9897_Report on Capacity Building Renewable Energy and Energy Efficiency
- 9897_EFACEC PC5 progress reports
- 9897_EDPR grid study-Principe_deliverables
- 9897_Elevator Pitch Investment Program for Sao Tome and Principe
- 9897_Clean Energy Mini-Grid Policy Development Guide available in Portuguese https://www.gn-sec.net/news/clean-energy-mini-grid-policy-development-guide-available-portuguese
- 9897_National Renewable Energy Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe-portuguese
- 9897_National Energy Efficiency Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe
- 9897_National Renewable Energy Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe
- 9897_National Energy Efficiency Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe-portuguese
- 9897_MEPS information https://www.gn-sec.net/content/minimum-energy-performance-standards-meps-lighting-refrigeration-and-air-conditioning-sao:
- 9897_Baseline assessment of the market conditions - MEPS;
- 9897_AERE- MEPS deliverables
- 9897_EDPR grid study-deliverables Principe
- 9897_ CEREEAC project document: https://open.unido.org/projects/M2/projects/200138

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes achieved/observed** with regards to project implementation.

a. Achievements:

The Project Management Unit (PMU) was established in the General Directorate for Natural Resources and Energy (DGRNE)[10] of the Ministry of Infrastructure, Natural Resources and Environment (MIRNA)[11] and the local project team comprising a Project Coordinator, Technical Assistant and Administrative Assistant was recruited. MIRNA/DGRNE has provided the office facilities as committed. A project kick-off meeting was held in 2019. The 2023-2024 annual project work plan and budget is under implementation. Furthermore, the national team was strengthened by the incorporation of a junior energy expert and a climate energy expert thanks to the complementarity of the GCF. The latter working at the NDA to GCF.

So far, the applied "twinning"[12] execution modality of UNIDO has worked well. The strong ownership-oriented approach, transferring gradually more and more administrative, financial and technical responsibilities to the DGRNE/MIRNA. At the beginning of the project, the limited fiduciary and technical capacities of DGRNE have not allow immediate full transfer of funding and technical work. To address these gaps, UNIDO undertook an institutional capacity assessment (executed by KPMG) of the Ministry. Technical duties are regularly transferred to the local PMU.

A cooperation with the Center for Renewable Energies and Industrial Maintenance (CERMI) in Praia, Cape Verde, was established. As part of the partnership, CERMI developed a short paper with recommendations for the strengthening of the qualification and certification framework in STP. Under the same partnership, between November and December 2020, 5 trainings were carried out: i) Technical and Economic Feasibility Analysis of Projects; ii) Energy Audits: iii) Power management; iv) Hygiene, Safety and Health at Work; v) Geographic Information Systems and Spatial Analysis. 39 technicians from different institutions were trained (DGRNE, AGER –General Regulatory Authority-, DGA – Directorate General for the Environment-, EMAE, DP – Planning Department, SRADS/RAP–Regional Secretary for Environment and Social Development-). The approach is based on the principles of genuine partnership, shared responsibilities and execution, flexibility, institution-to-institution peer learning and mentoring.

Moreover, in partnership with the Alliance for Rural Electrification (ARE), UNIDO developed the Clean Energy Mini-Grid Policy Development Guide, including practical annexes. With support of the GEF project the guide was translated into Portuguese and was made available to STP key stakeholders. UNIDO also translated the International Guidelines for the development and operation of small hydropower plants in Portuguese. A training will be provided on these guidelines through the GCF project.

Furthermore, for the implementation of a SEforALL campaign, a strategic partnership with ALER (Lusophone Renewable Energy Association) was established. The partnership included the publishing of regular articles on the STP energy transition and investment opportunities, the organisation of three (3) webinars, the implementation of a women sustainable energy program with 22 participants, the organisation of a RE&EE investment workshop and conference – African Energy Forum- (July, 2022), capacity building and mentoring program for local renewable energy associations, a business training for sustainable energy entrepreneurs in STP. The GEF project has been working on keep increasing the interest and participation of women in related energy initiatives in the framework of the nexus of the SDG7 and the SDG5, and the Gender and Energy Compact promoted by UNIDO, GWNET and ENERGIA. In the same line, DGRNE/MIRNA participated in the African Energy Forum 2023 (July,2023) to promote the advancements of the country in terms of energy plans implementations and current investment opportunities within the GEF and new ones on the GCF project.

[10] Direção Geral dos Recursos Naturais e Energia (DGRNE)
[11] Ministério das Obras Públicas, Infraestruturas, Recursos Naturais e Ambiente (MOPIRNA)
[12] Defined as institutional peer to peer learning

Furthermore, UNIDO, SIDS DOCK and a private developer continue the cooperation for the development of a utility-scale Ocean Thermal Energy Conversion Plant (OTEC). The first floating OTEC Platform (1.5 MW) is being developed in partnership with the United Kingdom (UK) company Global OTEC and is expected to be deployed in 2024, helping to unburden the people of Sao Tome and Principe from importing expensive and dirty fossil fuels, and provide a demonstration for scaling up across small islands, coastal cities and Least Developed Countries (LDCs). The activity is being implemented under the umbrella of Ocean Energy Industry Platform currently established by UNIDO in partnership with SIDS DOCK. In April 2022, a workshop took place in Sao Tomé, gathering the key stakeholders of the initiative (Global OTEC, SIDS DOCK) together with the government (MIRN, Ministry of Education) and national universities to define the ocean energy roadmap. By the end of June 2022, at the UN Ocean 2022 Side Event, an agreement was signed to develop a PPA for the development and deployment of 1.5 MW of floating OTEC on Sao Tomé island. https://www.un.org/en/conferences/ocean2022. Furthermore, there is already a project document on the establishment of the Global Ocean Energy Alliance. The GLOEA intends to build a bridge between applied research, the emerging ocean energy industry, which needs to test new solutions in various climates and contexts and SIDS and coastal LDCs, which have the interest to get access to technology and expertise. The industry platform will provide support in the areas of policy advisory, knowledge management, quality infrastructure and standards, qualification and training, as well as investment and business promotion. A major focus of the GLOEA will lie on the development and implementation of a pipeline of bankable ocean energy lighthouse projects in the Pacific, Caribbean and Indian Ocean and Africa. There is already a project document on the Establishment of the Global Ocean Energy Alliance. Further information here: open.unido.org/projects/M0/projects/230058

Furthermore, the Online Capacity Building Program on Sustainable Energy for Islands is available in Portuguese and free of charge (https://www.gn-sec.net/content/online-capacity-building-program-sustainable-energy-islands). The GEF-project strengthened the financial, administrative, and technical capacities and skills of DGRNE/MIRNA. Therefore, with CIEMAT, training were provided on PV technology together with CERMI – in person (July 2022) and the train of trainer's course based on the online capacity-building tool (September 2022). 25 participants attended the training, from which 8% were women. Even though the DGRNE nominated women from national institutions to participate within the core working hours, they manifested family duties imped them to be enrolled in the trainings.

The implementation of RE projects has been possible thanks to partnerships with UNDP, AfDB, EMAE, DGRNE/MIRNA, as well as EDPR and EFACEC. With UNDP, AfDb, EMAE, DGRNE/MIRNA, it is envisaged the deployment of 2.2. MWp (550 kWp + 1,640 kWp), and through the GEF project, the power coupling station will be reconditioned to connect the PV generator to the grid. Due to the updates on the energy planning of the country by the new Minister, the PC5 design was increased in terms of capacity, affecting the budget. Therefore, the contract with EFACEC was amended and EMAE will cover the additional required investment. Civil and electrical works will start by the end of July, 2023. The system will be operational in November 2023. On the other hand, with EDPR, the GEF project contributed to develop studies on the grid reinforcement, including the evaluation of connecting other additional RE projects (e.g. hydro power and PV system) to the power system of Principe. In the same line, a consultant was hired to study the situation of Diogo Vaz, a hydro power plant located in Sao Tomé. The analysis involved the installation of a water intake on Rio Anambo and two turbines to operate a capacity of about 100 kW and generate approximately 0.8 GWh annually.

A Sustainable Energy Status Report and the Energy Policy and Data Gap Analysis on Sao Tome and Principe, and the GHG emissions study are available. The NREAP and NEEAP are available, as well as 6 cases studies: Solar photovoltaic (PV) system in the DGRNE building in São Tomé and Príncipe; Solar photovoltaic (PV) system in a fisherman's cooperative in São Tomé and Príncipe; Planalto Norte Min-Grid in Cape Verde; Power Plant in Porto Novo's Desalination Plant in Cape Verde; Bambandinca Mini-Grid in Guinea Bissau; and, Solar Home Systems for rural development in Guinea-Bissau.

On the other hand, the lighting standard component is ongoing and closely aligned with and ensures the sustainability of a World Bank (WB) funded light bulb exchange emergency program, which will generate short-term impacts. It is part of a complete program on MEPS developed by the GEF project. Currently, there are available: a Baseline assessment of the market conditions; an Implementation and compliance framework (two independent documents); 3 Minimum Energy Performance Standards (MEPS): air conditioning, refrigeration, lighting; 3 labels; 3 regulations on equipment and 1 on importation prohibition. This work was accompanied by 3 workshops, with the participation of 147 technicians, having 36% women participation.

The online knowledge portal of DGRNE/MIRNA was developed (Home Dgrne | DGRNE website) and an energy database platform (including manual) are available https://dgrne.org/pt-pt/sistema-de-dados-de-energia-e-ambiente-de-sao-tome-e-principe (open access) to the government, developers, financers, etc. Under this framework, two trainings were organized: 1 training on GIS, 10 participants, 40% women participation; 1 training on energy data platform, 13 participants, 60% women participation.

An important achievement in 2021/22 was the approval of the UNIDO led GCF Readiness project "Building institutional capacity for a renewable energy and energy efficiency investment programme for Sao Tome and Principe", which has a budget of around USD 1 million and is supporting to ensure the sustainability and up-scaling of activities of the GEF project. A The joint GCF/GEF Project Management Unit (PMU) was established and a national UNIDO Program Coordinator located in DGRNE/MIRNA coordinates both projects in close partnership with the UNIDO Project Manager and his team in UNIDO Headquarters. The national team is composed of a project coordinator, a technical assistant, a administrative assistant, a junior energy expert and a junior climate expert. The latter, working at the NDA to GCF.

A first joint GEF/GCF Project Steering Committee was held on 23 November 2021 in Sao Tome (2nd PSC meeting for the GEF). During the event the new GCF funded project was presented and the draft work plan discussed. It was decided to have joint annual work plans for both projects in future. The GEF Focal Point and the GCF NDA participated in the meeting. By pooling funds and human resources with the GEF project, the Readiness support can be delivered more effectively and with higher impact for the benefit of the country. While 2nd joint GEF/GCF PSC meeting took place on 26 May, 2023 in Sao Tomé (3RD PSC meeting for the GEF).

The GCF project is supporting the GEF activities through the development of other regulations on commercial energy losses, distributed generation, transport. It is envisaged to launch another process in solar thermal.

Furthermore, the Mid Term Review of the project is available (from Feb. 2022) and the following aspects are highlighted:

- **Relevance:** The project was designed in a consistent manner with the objectives of the Government of São Tomé and Príncipe. The Government of STP aims to reach a percentage of renewable energy of 50% in the year 2030 and reduce GHG emissions for the same period. The components of this project aim to strengthen the country's resilience and help the Government achieve its objectives. The needs of São Tomé and Príncipe were transcribed in the Project through the diversification of the proposed activities, as well as in the variety of participating counterparts.
- **Design:** The project design is in line with the country's development needs, considering the low percentage of renewable energy production in the country compared to the existing potential and the need for investments in improving energy efficiency.
- **Effectiveness:** In terms of budget expenditures, the Project has 73% of the budget disbursed but that is still not in the same percentage of goals achieved. The activities started represent 70% of the total foreseen in the design of the project. There are other complementary activities that have been carried out and that reinforce the strategies to achieve the objectives.
- **Sustainability:** There is a strong commitment on the part of the Government, evidenced by the ambitious target of 50% of renewable energies by the year 2030. On the other hand, energy efficiency goals are also on the Government's agenda and will be clearly promoted. for the activities foreseen in this project.

The indicators will be updated by the terminal evaluation envisaged to the end of 2023 since most of the GEF activities have been completed.

b. Bottlenecks:

In 2020, the implementation of the project slowed down due to the severe impact of the global COVID-19

outbreak. The economy of Sao Tome and Principe has been highly impacted by supply-chain interruptions, touristic downturn and temporary lock-downs. Envisaged project meetings could not be held, and many of them were undertaken by online means. The first Project Steering Committee (PSC) could not be held as planned and was shifted to a later stage in close consultation with the GEF OFP. Therefore, the 1ST SC meeting took place in June 2019. From the second half of 2021, activities started to come back to normality. For instance, in November 2021, the 2nd SC meeting of the project was held in person with the participation of some international stakeholders by online means. In 2023, the 3rd PSC also took place in person with some participants connected online.

Apart from that, consultants organized field missions, e.g. to gather data and provide trainings on GIS under the setting up of the Energy Database platform; a training on PV systems in July 2022 in Sao Tomé with CIEMAT and CERMI; the 1ST International Sustainable Energy Conference in STP for RE investments will took place in July 2022 in Sao Tomé, and, several consultations were held in person by AERE to gather key data under the MEPS assignment. Furthermore, the complementary of the GCF project has also implied field work that is being carried out by consultants with normality. To summarize, from the second half of 2021 until now, no more COVID impacts have been faced.

Furthermore, the MTR confirms the following: "*due to the delays accumulated in the implementation of the Project over time, it is recommended a review of its structure and planning. The delays experienced so far can mainly be attributed to the pandemic situation of COVID 19, which affected several activities that had to be rescheduled and/or cancelled*". The MTR also concluded that "*the Project is ambitious in its strategy in wanting to move forward at the same time with all three components in parallel (regulation, investment and capacity building). It is considered audacious to want to promote investment in sustainable energy at the same time as preparing the national plan for renewable energy and energy efficiency and training national technicians in these activities. Nonetheless, the project was designed in conjunction with other investment projects in STP (e.g. GEF-UNDP; WB; AfDB) and some activities are reinforced and carried out jointly, which facilitates the progress of the projects*".

Apart from that, the war in Ukraine affected the production of electronic equipment, and in turn, the manufacture of medium voltage cells for the reconditioning of the PC5 to connect the PV system of Santo Amaro to the grid. However, the MV cells are about to be delivered to the country to initiated the electrical works.

2. Please briefly elaborate on any **minor amendments**[13] to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.

☐	Results Framework	NA
☐	Components and Cost	NA
☐	Institutional and Implementation Arrangements	NA
☐	Financial Management	NA
☐	Implementation Schedule	It was to request a project extension of one additional year in 2022, as agreed during the 2nd SC meeting in November 2021. (Project completion in 05/25/2024).

[13] As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

☐	Executing Entity	NA
☐	Executing Entity Category	NA
☐	Minor Project Objective Change	NA
☐	Safeguards	NA
☐	Risk Analysis	NA
☐	Increase of GEF Project Financing Up to 5%	NA
☐	Co-Financing	NA
☐	Location of Project Activities	NA
☐	Others	GEF project is being benefited from the implementation of the readiness GCF project, in order to reinforce its results and achievements.

3. Please provide progress related to the **financial implementation** of the project.

The project expenditures (excl. PPG grant) amount to USD 1,514,304.79. A first execution agreement with DGRNE/MIRNA to cover the operational PMU costs and first local technical activities was signed, then it was extended. There was a contract with EDP Renováveis for grid studies of Principe. A consultancy contract with ITP on the development of the NREAP and NEEAP. A senior SHP expert was contracted to evaluate several SHP project. Contracts with ALER and CERMI for capacity building. A consultant was contracted to develop the website of DGRNE/MIRNA and a concept for the STP information system.

Moreover, a contract with AERE for the elaboration of MEPS. A contract with an ISA consultant was signed for the development of the Energy Database Platform, and a contract with an e-mobility expert. A contract with EFACEC was signed and amended for the reconditioning of a coupling station (PC5). There was a contract with CIEMAT for capacity building based on the sustainable energy online tool for e-learning and moodle modules and PV system topics.

PROJECT DELIVERY REPORT

		Project:	150124 - STRATEGIC PROGRAM TO PROMOTE RENEWABLE ENERGY AND ENERGY EFFICIENCY INVESTMENTS IN THE ELECTRICITY SECTOR OF SAO TOME AND PRINCIPE	**Project Manager:**	Martin Lugmayr	**Project Validity:** **Status:**	21.12.2017 - 25.05.2024 Implement
Reporting Period:	**21.12.2017 - 17.07.2023**	**Project Theme:**	Energy and Environment	**Country:**	S.Tome&Principe	**Region**	Africa

Sponsor Nr.	**Sponsor**	**Grant**	**Grant Description**	**Fund**	**Currency**	**Grant Status**	**Grant Validity**
400150	GEF - Global Environment Facility	2000003777	SAO TOME-PRINCIPE	GF	USD	Closed	21.12.2017 - 21.12.2018
400150	GEF - Global Environment Facility	2000004152	SAO TOME_ELECTRICITY	GF	USD	Authority to implement	25.05.2019 - 25.05.2024

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
2000003777											
150124-0-01-01	**Project design adopted by the Government**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	8,635.66	8,635.66	8,635.66	0.00	0.00	8,635.66
1500	Local Travel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2100	Contractual Services	0.00	0.00	0.00	0.00	40,637.77	40,637.77	40,637.77	0.00	0.00	40,637.77
5100	Other Direct Costs	0.00	0.00	0.00	0.00	(37.77)	(37.77)	(37.77)	0.00	0.00	(37.77)
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,750.00	4,750.00
150124-0-01-01	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**49,235.66**	**49,235.66**	**49,235.66**	**0.00**	**4,750.00**	**53,985.66**
2000003777	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**49,235.66**	**49,235.66**	**49,235.66**	**0.00**	**4,750.00**	**53,985.66**
2000004152											
150124-1-01-01	**1.1. Improved policy framework**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	13,786.34	0.00	0.00	0.00	30,481.37	30,481.37	16,695.03	13,786.34	0.00	16,695.03
1500	Local Travel	300.70	82.92	6,872.22	6,955.14	18,886.87	18,886.87	25,541.31	(6,654.44)	0.00	25,541.31
1700	Nat.Consult./Staff	11,919.29	12,693.08	11,405.19	24,098.27	36,399.71	36,399.71	43,578.69	(7,178.98)	0.00	43,578.69
2100	Contractual Services	47,399.94	22,954.59	7,578.11	30,532.70	236,039.70	236,039.70	219,172.46	16,867.24	0.00	219,172.46
5100	Other Direct Costs	(1,631.50)	0.00	211.44	211.44	2,304.33	2,304.33	4,147.27	(1,842.94)	0.00	4,147.27
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29,370.65	29,370.65
150124-1-01-01	**Total**	**71,774.77**	**35,730.59**	**26,066.96**	**61,797.55**	**324,111.98**	**324,111.98**	**309,134.76**	**14,977.22**	**29,370.65**	**338,505.41**
150124-1-01-02	**1.2 Promoting investments**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	19,968.44	7,812.32	8,772.26	16,584.58	31,740.88	31,740.88	23,357.02	8,383.86	0.00	23,357.02
1700	Nat.Consult./Staff	6,672.59	8,738.08	6,642.34	15,380.42	13,396.10	13,396.10	22,103.93	(8,707.83)	0.00	22,103.93
2100	Contractual Services	34,855.20	(26,548.91)	43,106.17	16,557.26	567,373.98	567,373.98	549,076.04	18,297.94	0.00	549,076.04
3500	International Meetings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4300	Premises	448.37	(146,944.32)	146,811.52	(132.80)	224,793.39	224,793.39	224,212.22	581.17	0.00	224,212.22
5100	Other Direct Costs	804.37	0.00	463.97	463.97	1,478.59	1,478.59	1,138.19	340.40	0.00	1,138.19
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,671.92	76,671.92
150124-1-01-02	**Total**	**62,748.97**	**(156,942.83)**	**205,796.26**	**48,853.43**	**838,782.94**	**838,782.94**	**819,887.40**	**18,895.54**	**76,671.92**	**896,559.32**
150124-1-01-03	**1.3 Strengthening RE&EE capacities**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	10,005.60	(8,510.00)	8,595.10	85.10	65,359.72	65,359.72	55,439.22	9,920.50	0.00	55,439.22
1500	Local Travel	122.97	0.00	0.00	0.00	9,389.03	9,389.03	9,266.06	122.97	0.00	9,266.06
1700	Nat.Consult./Staff	4,835.46	3,882.84	3,859.01	7,741.85	25,765.43	25,765.43	28,671.82	(2,906.39)	0.00	28,671.82
2100	Contractual Services	143.72	(7,656.03)	7,040.91	(615.12)	58,701.95	58,701.95	57,943.11	758.84	0.00	57,943.11
3000	Train/Fellowship/Study	500.00	0.00	0.00	0.00	46,043.85	46,043.85	45,543.85	500.00	0.00	45,543.85
3500	International Meetings	0.00	0.00	0.00	0.00	2,231.19	2,231.19	2,231.19	0.00	0.00	2,231.19
5100	Other Direct Costs	429.54	0.00	40.73	40.73	7,190.91	7,190.91	6,802.10	388.81	0.00	6,802.10
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19,560.37	19,560.37
150124-1-01-03	**Total**	**16,037.29**	**(12,283.19)**	**19,535.75**	**7,252.56**	**214,682.08**	**214,682.08**	**205,897.35**	**8,784.73**	**19,560.37**	**225,457.72**
150124-1-51-01	**2. Project Management and Monitoring**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	392.66	0.02	4,165.75	4,165.77	22,963.95	22,963.95	26,737.06	(3,773.11)	0.00	26,737.06
1500	Local Travel	0.00	0.00	0.00	0.00	2,525.74	2,525.74	2,525.74	0.00	0.00	2,525.74
1700	Nat.Consult./Staff	3,922.01	0.00	1,039.12	1,039.12	99,554.80	99,554.80	96,671.91	2,882.89	0.00	96,671.91
2100	Contractual Services	1,992.13	0.00	0.00	0.00	16,991.55	16,991.55	14,999.42	1,992.13	0.00	14,999.42
5100	Other Direct Costs	(144.35)	0.00	222.90	222.90	3,038.22	3,038.22	3,405.47	(367.25)	0.00	3,405.47
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13,712.43	13,712.43
150124-1-51-01	**Total**	**6,162.45**	**0.02**	**5,427.77**	**5,427.79**	**145,074.26**	**145,074.26**	**144,339.60**	**734.66**	**13,712.43**	**158,052.03**
150124-1-53-01	**3. Evaluation**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**	**USD**
1100	Staff & Intern Consultants	5,000.00	0.00	0.00	0.00	5,000.00	5,000.00	0.00	5,000.00	0.00	0.00
1500	Local Travel	280.55	0.00	0.00	0.00	1,500.00	1,500.00	1,219.45	280.55	0.00	1,219.45
2100	Contractual Services	904.38	0.00	0.00	0.00	45,919.74	45,919.74	45,015.36	904.38	0.00	45,015.36
5100	Other Direct Costs	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,392.29	4,392.29
150124-1-53-01	**Total**	**6,684.93**	**0.00**	**0.00**	**0.00**	**52,919.74**	**52,919.74**	**46,234.81**	**6,684.93**	**4,392.29**	**50,627.10**
2000004152	**Total**	**163,408.41**	**(133,495.41)**	**256,826.74**	**123,331.33**	**1,575,571.00**	**1,575,571.00**	**1,525,493.92**	**50,077.08**	**143,707.66**	**1,669,201.58**
150124	**USD Total**	**163,408.41**	**(133,495.41)**	**256,826.74**	**123,331.33**	**1,624,806.66**	**1,624,806.66**	**1,574,729.58**	**50,077.08**	**148,457.66**	**1,723,187.24**

*** Does not include Unapproved Obligations**

IX. Work Plan and Budget

1. Please provide **an updated project work plan and budget** for <u>the remaining duration of the project</u>, as per last approved project extension. Please expand/modify the table as needed.

Please fill in the below table or make a reference to the file, in case it is submitted as an annex to the report.

Expected Outputs	Time-Frame																				GEF Budget USD
	2019/2020				2020/2021				2021/2022				2022/2023				2023/2024 (ongoing)				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Project Component 1 (PC1): Policy, legal and regulatory framework for sustainable energy																					**14,977.22**
Outcome 1: Accelerated RE&EE market development through improved policy and regulatory framework and effective public-private coordination																					
Output 1.1. Coherent national sustainable energy policies with RE&EE targets established and under implementation																					
Output 1.2. Proposals for sustainable energy legislation, standards and a package of incentives developed, and their implementation facilitated																					
Output 1.3. EE standards for electric appliances are developed and their implementation facilitated																					
Output 1.4. Strengthening STP and raising awareness to become a hub for sustainable energy and island technology demonstration																					
Project Component 2 (PC2): Sustainable energy investment promotion																					**18,895.54**
Outcome 2. Increased investments in sustainable energy infrastructure and businesses																					
Output 2.1: The STP RE and EE Status Report and the GIS-based National RE Resource Mapping identifying high-impact priority sites are developed and disseminated																					
Output 2.2: A National Sustainable Energy Investment Plan (NSEIP) is developed and presented to investors and financiers in at least two (2) investment forums																					
Output 2.3: Demonstrated viability and feasibility of innovative renewable energy and energy efficiency investment projects																					
Output 2.4: Based on existing instruments, a Financing Facility is established and supports priority sustainable energy projects and business ideas																					
Project Component 3 (PC3): Qualification and certification framework for sustainable energy																					**8,784.73**
Outcome 3. Enhanced domestic public and private sector capacities to plan, implement, operate and innovate sustainable energy products and services in island contexts																					
Output 3.1. Improved qualification, certification and accreditation framework on sustainable energy																					
Output 3.2: Enhanced qualification and innovation capacities of public institutions in sustainable energy priority areas																					

Output 3.3: On-line training program on sustainable energy solutions for islands is developed in Portuguese and applied by capacity building institutions and experts in Sao Tome and Principe, Cabo Verde and Guinea-Bissau																							
Output 3.4. Capacity support is provided for the operationalization of the National RE Associations																							
Output 3.5: At least five (5) capacity building institutions and fifteen (15) certified trainers engage in capacity building courses on renewable energy and energy efficiency issues																							
Output 3.6: Improved capacities of key stakeholders through national and sub-regional trainings, by train-the trainer approaches and training missions																							
Project Component 4 (PC4): Project monitoring and evaluation																							**7,419.59***
	Outcome 4. Project's progress towards objectives continuously monitored and evaluated.																						
Output 4.1. Mid-term review and terminal evaluation executed																							
Output 4.2. Project's progress monitored, documented and recommended actions formulated																							

* It includes Project Management and Monitoring (734.66 USD) and Evaluation (6.684,93 USD).

X. Synergies

1. **Synergies** achieved:

As envisaged, south-south cooperation with the UNIDO-GEF Projects in Cabo Verde and Guinea Bissau has been established. All three countries share the Portuguese language and are Small Island Developing States (SIDS). For example, the NREAP/NEEAP process in STP is benefiting from the experiences in Guinea Bissau and Cabo Verde. A GEF-5 project has supported the development of the NREAP/NEEAP in Guinea Bissau. The GEF-6 coordinator in Cabo Verde has regular exchanges with the coordinator in STP. There is a lot to learn from the energy efficiency standard work already implemented with GEF support in Cabo Verde (GEF-5 UNDP project).

The EE standard activities in STP benefited from the experiences and templates of the Energy Efficient Lighting and Appliances (EELA) project implemented by UNIDO in partnership with SACREEE and EACREEE.[14] Moreover, close coordination with ECREEE and CERMI in Cabo Verde has been established. ECREEE has been supported by UNIDO since the very beginning. The definition of MEPS and a labeling program were outlined based on the experiences of the EELA project and the Cabo Verde experience with UNDP thanks to a partnership with AERE. a Baseline assessment of the market conditions; an Implementation and compliance framework (two independent documents); 3 Minimum Energy Performance Standards (MEPS): air conditioning, refrigeration, lighting; 3 labels; 3 regulations on equipment and 1 on importation prohibition.

[14] https://www.gn-sec.net/content/energy-efficient-lighting-and-appliances-eela-project

The GEF-project supported STP to prepare an offer to host the newly established Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC). The process was spearheaded by UNIDO under the Global Network of Regional Sustainable Energy Centres (GN-SEC) program. On 3 June 2021, in Brazzaville, the Republic of Congo, the eleven Ministers of Energy of the Economic Community of Central African States (ECCAS) approved a Renewable Energy Roadmap and the creation of the Centre for Renewable Energy and Energy Efficiency for Central Africa (CEREEAC) as a specialized institution. During the meeting, it was agreed on hosting the center in Luanda, Angola. STP participated in all CEREEAC meetings.

The CEREEAC is operating under the ECCAS umbrella and advise Angola, Burundi, Cameroon, Chad, Central African Republic, Democratic Republic of Congo, the Republic of Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe on critical issues of the energy and climate transition. In May 2023, Mr. Jean-Pierre Ndoutoum was appointed as the Head of the Start-Up Unit of the new Central African Centre for Renewable Energy and Energy Efficiency (CEREEAC) by the President of the Economic Community of Central African States (ECCAS). During the next months, he will take leadership in the full operationalisation of the centre. The centre works towards the creation of a common sustainable energy product and service market within ECCAS by promoting economies of scales, equal progress, joint learning and spill-over effects between countries. Through cross-border approaches and methodologies, the centres will complement and accelerate national efforts in the areas of policy, regulation, quality infrastructure, qualification, knowledge and facilitation of investment and entrepreneurship. It will serve as a central hub for knowledge, advice, as well as international and local partnerships.

Further information: https://www.gn-sec.net/news/central-african-centre-renewable-energy-and-energy-efficiency-cereeac-takes-shape-luanda-angola

Project document of CEREAC: https://open.unido.org/projects/M2/projects/200138

UNIDO, SIDS DOCK and the Global OTEC partnered to develop a utility-scale Ocean Thermal Energy Conversion Plant (OTEC). A mission was carried out in April 2022 to initiate the promotion of the project with national contacts and promote dialogues on ocean energy in an Energy vision for STP. There is available an agreement an agreement to develop a PPA for the development and deployment of 1.5 MW of floating OTEC on Sao Tomé island. https://www.un.org/en/conferences/ocean2022 . Furthermore, there is already a project document on the Establishment of the Global Ocean Energy Alliance. Further information here: https://open.unido.org/projects/M2/projects/200138. The GLOEA intends to build a bridge between applied research, the emerging ocean energy industry, which needs to test new solutions in various climates and contexts and SIDS and coastal LDCs, which have the interest to get access to technology and expertise. The industry platform will provide support in the areas of policy advisory, knowledge management, quality infrastructure and standards, qualification and training, as well as investment and business promotion. A major focus of the GLOEA will lie on the development and implementation of a pipeline of bankable ocean energy lighthouse projects in the Pacific, Caribbean and Indian Ocean and Africa.

As indicated above, under the scope of a SEforALL campaign, it was established a partnership with ALER to implement trainings, the WSEP, and international events to promote renewable energy and energy efficiency investments in the country through the Africa Energy Forum (June 2022) in Brussels and the 1st International Sustainable Energy Conference in STP (July 2022). In the latter, there was participation of the public and private representatives of Portugal in order to work together for maximizing the visibility of energy islands initiatives and discuss investment opportunities. In the same line, DGRNE/MIRNA and AGER participated in the African Energy Forum 2023 (July,2023) to promote the advancements of the country in terms of energy plans implementations and current investment opportunities within the GEF and new ones on the GCF project.

Apart from that, partnerships have been established with UNDP, AfDB, EFACEC, Cunha Soares, EMAE for the implementation of a PV power plant of Santo Amaro of 2.2 MWp. The linkage was established with another GEF project implemented by UNDP: “Promotion of Environmentally Sustainable and Climate Resilient Hydroelectric Electricity and Integrated Approach in Sao Tomé and Príncipe”.

Another partnership was established with EDP Renováveis and TESE for grid update and expansion in Principe, this involved the analysis of connecting new renewable energy power (hydro and PV).

There were other partnerships with CIEMAT and CERMI for capacity building on i) e-learning and moodle platform based on the online tool on sustainable energy for islands and ii) photovoltaic technology.

Finally, the GEF project has been impacted successfully through the implementation of the Readiness GCF project, where knowledge creation and investment plans are taking place as key activities, as indicated before, on transport, clean cooking, ocean energy, and others are planned on solar thermal, trainings, etc.

3. Stories to be shared (Optional)

- SAMOA Pathway High-Level Luncheon "Mission Transforming Island Lives! The Network of Regional Sustainable Energy Centres for Small Island Developing States" on 27 September 2019 in New York at UN Headquarters: *https://www.gn-sec.net/event/samoa-pathway-high-level-luncheon-mission-transforming-island-lives-network-regional*
- São Tomé and Príncipe becomes 17th Member of SIDS DOCK: *https://www.gn-sec.net/news/sao-tome-and-principe-becomes-17th-member-sids-dock*
- Renewable Energy and Energy Efficiency Action Plans in support of the National Vision "São Tomé e Príncipe 2030: the country we need to build": *https://www.gn-sec.net/procurement/renewable-energy-and-energy-efficiency-action-plans-support-national-vision-sao-tome-e*
- *ECCAS Centre for Sustainable Energy:* https://www.gn-sec.net/content/eccas-centre-sustainable-energy
- Meeting of CEEAC-ECCAS Energy Ministers for the promotion of Renewable Energy and Energy Efficiency: https://irena.org/events/2021/Apr/Ministerial-Validation-of-the-Central-Africa-Renewable-Energy-Roadmap
- Central African Ministers pave the way for a regional sustainable energy centre in Angola: *https://www.gn-sec.net/news/central-african-ministers-pave-way-regional-sustainable-energy-centre-angola*
- Women Sustainable Energy Program: *https://www.aler-renovaveis.org/en/activities/projects/sustainable-energy-programme-for-women/*
- *São Tomé and Príncipe Report From OTEC Consultation With Global OTEC and SIDS DOCK: https://www.youtube.com/watch?v=KMhj2GO0CUw&ab_channel=GlobalOTEC*
- List of articles published by the partnership with ALER:

Month	Articles
March 2021	○ Green Talk & EU-Africa São Tomé and Príncipe Investment Forum;
April 2021	○ ALER signs new agreement with UNIDO; ○ EU-Africa Green Investment Forum;
May 2021	○ Application to host the renewable energy and renewable efficiency center in STP
June 2021	○ Installation Project of a PV System at Santo Amaro Power Plant
July 2021	○ Central African Ministers pave the way for a regional sustainable energy center in Angola – Driving the energy transition from the region for the region ○ Online Sustainable Energy Capacity Building Program for Islands

	○ Sao Tome and Principe: Small island state in energy transition
August 2021	○ Tender: Provision of services related to development and enforcement of Minimum Energy Performance Standards (MEPS) for lighting and appliances in São Tomé and Príncipe
September 2021	○ You can now consult the Energy Greenhouse Gas Report for 2010 - 2019 - São Tomé and Príncipe
October 2021	○ UNIDO collaboration made it possible to turn São Tomé and Príncipe the first beneficiary of the OTEC Program
November 2021	○ ALER participates in the COP26 side-event organized by UNIDO, ENERGIA and GWNET ○ SAVE THE DATE: Don't miss the webinar for São Tomé and Príncipe on December 14th
December 2021	○ Webinar "Inventário de Emissões de Gases de Efeito de Estufa no Sector da Energia em São Tomé e Príncipe"
January 2022	○ São Tomé and Príncipe holds the first workshop on energy labelling for lighting and electrical appliances
February 2022	○ Government of São Tomé and Príncipe approved NREAP and NEEAP ○ ALER held a training for Renewable Energy Associations of São Tomé and Príncipe ○ Applications for the Women Sustainable Energy Program has ended ○ Registrations are open– April 26th and 27th – Entrepreneurship Workshop and Startups of Sustainable Energy
April 2022	○ https://www.aler-renovaveis.org/pt/comunicacao/noticias/dialogo-sobre-a-energia-oceanica-chega-a-sao-tome-e-principe/

- Development and enforcement of Minimum Energy Performance Standards (MEPS) for lighting, refrigeration and air conditioning in Sao Tome and Principe (Jan 2023) https://www.gn-sec.net/content/development-and-enforcement-minimum-energy-performance-standards-meps-lighting-refrigeration

- Minimum Energy Performance Standards (MEPS) on lighting, refrigeration and air conditioning for Sao Tome and Principe in English and Portuguese https://www.gn-sec.net/content/minimum-energy-performance-standards-meps-lighting-refrigeration-and-air-conditioning-sao

- Clean Energy Mini-Grid Policy Development Guide available in Portuguese https://www.gn-sec.net/news/clean-energy-mini-grid-policy-development-guide-available-portuguese

- First OTEC project in São Tomé and Príncipe moves forward https://www.offshore-energy.biz/first-otec-project-in-sao-tome-and-principe-moves-forward/

- National Renewable Energy Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe-portuguese

- National Energy Efficiency Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe

- National Renewable Energy Action Plan for São Tomé e Príncipe: https://www.gn-sec.net/content/national-renewable-energy-action-plan-sao-tome-e-principe

- National Energy Efficiency Action Plan for São Tomé e Príncipe in Portuguese: https://www.gn-sec.net/content/national-energy-efficiency-action-plan-sao-tome-e-principe-portuguese

- 3rd PSC meetings: https://dgrne.org/pt-pt/3a-reuniao-do-comite-de-pilotagem-dos-projectos-unido-gef-gcf

- Sessão de Formação “Gestão de informação geográfica – Gestão de bases de dados” https://dgrne.org/pt-pt/sessao-de-formacao-gestao-de-informacao-geografica-gestao-de-bases-de-dados

XI. GEO LOCATION INFORMATION

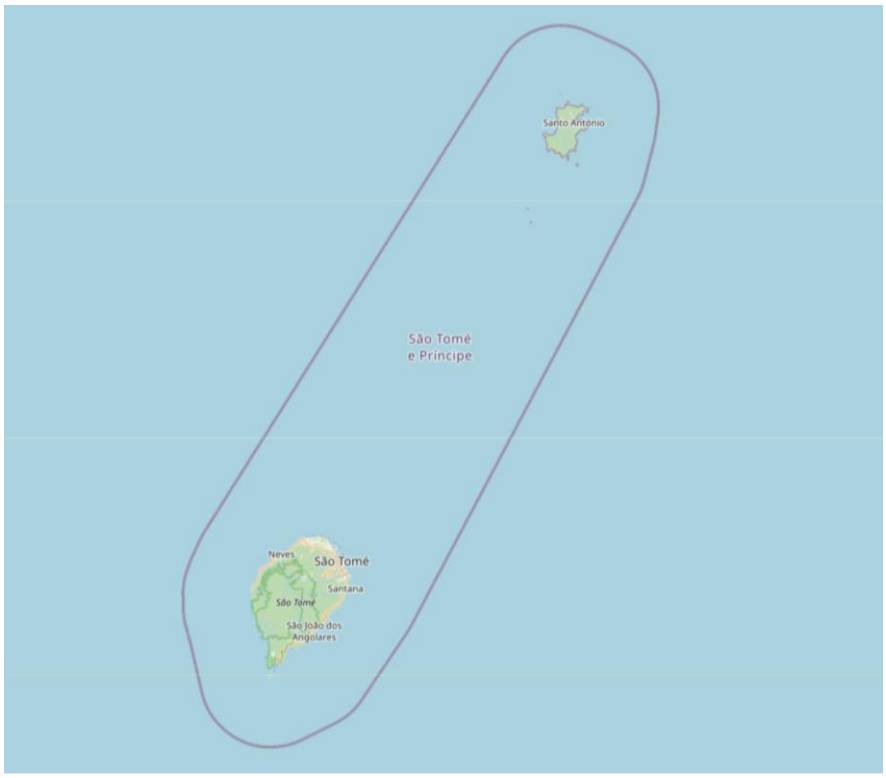
The Location Name, Latitude and Longitude are required fields insofar as an Agency chooses to enter a project location under the set format. The Geo Name ID is required in instances where the location is not exact, such as in the case of a city, as opposed to the exact site of a physical infrastructure. The Location & Activity Description fields are optional. Project longitude and latitude must follow the Decimal Degrees WGS84 format and Agencies are encouraged to use at least four decimal points for greater accuracy. Users may add as many locations as appropriate.

Web mapping applications such as OpenStreetMap or GeoNames use this format. Consider using a conversion tool as needed, such as: https://coordinates-converter.com

Please see the Geocoding User Guide by clicking here

Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
Sao Tomé, Sao Tomé and Príncipe	*0.5321*	*6.7873*	2410758	

Please provide any further geo-referenced information and map where the project interventions is taking place as appropriate.


Santo Antônio
São Tomé
e Príncipe
Neves
São Tomé
Santana
São Tomé
São João dos
Angolares

EXPLANATORY NOTE

1. **Timing & duration:** Each report covers a twelve-month period, i.e. 1 July 2022 – 30 June 2023.

2. **Responsibility:** The responsibility for preparing the report lies with the project manager in consultation with the Division Chief and Director.

3. **Evaluation:** For the report to be used effectively as a tool for annual self-evaluation, project counterparts need to be fully involved. The (main) counterpart can provide any additional information considered essential, including a simple rating of project progress.

4. **Results-based management**: The annual project/programme progress reports are required by the RBM programme component focal points to obtain information on outcomes observed.

Global Environmental Objectives (GEOs) / Development Objectives (DOs) ratings	
Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yields satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modes overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environmental benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve some of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.
Unsatisfactory (U)	Project is expected not to achieve most of its major global environmental objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environmental objectives with no worthwhile benefits.

Implementation Progress (IP)	
Highly Satisfactory (HS)	Implementation of all components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as "good practice".
Satisfactory (S)	Implementation of most components is in substantial compliance with the original/formally revised plan except for only few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of some components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Moderately Unsatisfactory (MU)	Implementation of some components is not in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of most components in not in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of none of the components is in substantial compliance with the original/formally revised plan.

Risk ratings	
Risk ratings will access the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risk of projects should be rated on the following scale:	
High Risk (H)	There is a probability of greater than **75%** that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between **51%** and **75%** that assumptions may fail to hold or materialize, and/or the project may face substantial risks.
Moderate Risk (M)	There is a probability of between **26%** and **50%** that assumptions may fail to hold or materialize, and/or the project may face only moderate risk.
Low Risk (L)	There is a probability of up to **25%** that assumptions may fail to hold or materialize, and/or the project may face only low risks.