INDEPENDENT EVALUATION DIVISION
OFFICE OF EVALUATION AND INTERNAL OVERSIGHT

INDEPENDENT TERMINAL EVALUATION

GUINEA-BISSAU

PROMOTING INVESTMENTS IN SMALL TO MEDIUM-SCALE RENEWABLE ENERGY TECHNOLOGIES IN THE ELECTRICITY SECTOR

UNIDO PROJECT ID: 130012
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Acronyms and Abbreviations

Abbreviation	Meaning
AA	Action Agenda
AfDB	African Development Bank
ALER	Associação Lusófona de Energias Renováveis (Lusophone Association for Renewable Energies)
AWP	Annual Work Plan
BAT	Best Available Techniques
BEP	Best Environmental Practices
CESP	Comité de Estado do Sector de Pitche (Pitche State Committee)
CO_2	Carbon Dioxide
CTCN	Climate Technology Center & Network
DGE	Directorate General of Energy
EA	Enabling Activities
ECOWAS	Economic Commission of West African States
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
EE	Energy Efficiency
EIO/IED	UNIDO Office of Evaluation and Internal Oversight – Independent Evaluation Division
EREF	ECOWAS Renewable Energy Facility
EU	European Union
FP	Focal Point
GB	Guinea-Bissau
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GNI	Gross National Income
GoGB	Government of Guinea-Bissau
HDI	Human Development Index
HHP	Hydropower Plant
IA	Implementing Agency
IEE	Industrial Energy Efficiency
IFC	International Finance Corporation

Abbreviation	Meaning
IP	Investment Prospectus
IPP	Independent Power Producers
ISID	Inclusive and Sustainable Industrial Development
kW	Kilowatt
kWh	Kilowatt hour
M&E	Monitoring and Evaluation
MBO	Management by Objectives
MIPR	Mid-term Implementation Progress Review
MoP	Meeting of the Parties
MoU	Memorandum of Understanding
MRV	Monitoring, Reporting and Verification
MWh	Megawatt hour
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contributions
NEEAP	National Energy Efficiency Action Plan
NGO	Non-Governmental Organization
NIPRE	National Investment Plan on Renewable Energy
NPM	National Project Manager
NREAP	National Renewable Energy Action Plan
NREIP	National Renewable Energy Investment Plan
NREP	National Renewable Energy Policy
OECD/DAC	Organization for Economic Cooperation and Development/Development Assistance Committee
OeEB	Development Bank of Austria
OHADA	Organization for the Harmonization of Business Law in Africa
OMVG	Organization de Mise in Valeur du Fleuve Gambie (Gambia River Development Organization)
PC	Project Component
ProDoc	Project Document
PIF	Project Identification Form
PIR	Project Implementation Report
PM	Project Manager
PMIS	GEF Project Management Information System
PMU	Project Management Unit
PPA	Power Purchasing Agreement

Abbreviation	Meaning
PPG	Project Preparation Grant
PPP	Private Public Partnership
PSC	Project Steering Committee
PV	Photovoltaic
RBM	Results-based Management
RCE	Request for CEO Endorsement
RE	Renewable Energy

Glossary of evaluation-related terms

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Lesson Learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations.
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results-based management) principles.
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.
Outputs	The products, capital goods and services that result from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

Executive summary

Background

The project '*Promoting investments in small to medium scale renewable energy technologies in the electricity sector in Guinea-Bissau'* is a full-sized project funded by the Global Environment Facility (GEF) and implemented from October 2014 to October 2019 by the United Nations Industrial Development Organization (UNIDO), and the Unit of Renewable Energy of the line Ministry of Energy and Industry of Guinea-Bissau. The GEF project has been formally finalized. However, certain project activities, which were funded by other partners through UNIDO are still continuing (e.g. OeEB, ADA) until March 2021. The project had a steering committee chaired by National Director of Energy and composed by representatives of several public and civil society entities.

The main objective of the project is to promote investments (at least USD 8 million) in small to medium scale renewable energy technologies in the electricity sector in Guinea-Bissau. The project had four main components: investments into small and medium scale renewable energy technologies; consolidated policy and regulatory framework for renewable energy; capacity development and awareness raising on renewable energy; monitoring and evaluation. This is a pioneer project and a catalyzer, at the same time. Despite a situation of tense political and economic crisis, the project results have significantly improved the environment for targeted investments in the country with regards to innovative grid-connected and decentralized RE systems, and equipped the country with strategic documents and investment plan that constitutes a clear roadmap to increase RE penetration in the country (50% by 2030).

The GEF project has equipped the Government and attracted the interest of the private sector with RE&EE policies and an Investment Plan, which delineate a clear pathway and project pipeline on how to achieve a 50% renewable energy penetration by 2030. Through pre-investment support and match-making with banks and investors, the financing (around USD 22 million) for several key solar PV hybrid mini-grids was secured and is already implemented or under implementation. Moreover, the foundation for a transformative 27 MW medium-scale hydro power project (investment volume USD 98 million) was laid, by providing pre-feasibility support and building partnerships with development financing institutions. Furthermore, the project has provided capacity building support in key areas, such as the development and management of solar PV hybrid mini-grids, and promoted south-south cooperation through ECREEE with the Portuguese speaking Cabo Verde.

The project was able to establish a renewable energy sub-sector in the country and it attracted investment. The newly created Renewable Energy Unit in the Ministry of Energy and Industry was supported through an ownership-oriented "twinning" approach. However, potential for broader adoption of what has been achieved is limited due to the lack of capacity of the national private sector and limitations of the management model developed.

The project evaluation was limited by several factors, the most relevant being: the fact that by the time of the terminal evaluation (TE) several projects had not been fully implemented; at the time of writing this report there continues to be some uncertainty regarding key activities for the achievement of the envisaged goals (ex. EREF funded projects), or to achieve sustainability (ex. Bissorã management model); and the long duration of the implementation of the project has been accompanied with staff changes of implementation partners (such as TESE) and some information and project memory was not available.

The Project is **highly relevant**, as it is consistent with the needs of Guinea-Bissau, where the access to electricity was 11% on average, and despite the potential there was previously no renewable energy sub-sector. The project is also aligned with GEF Climate Change focal area's Strategic Program 3 and is part of GEF Programmatic Approach on Access to Energy in West Africa, approved by GEF Council in

November 2008. The project is also aligned with the UNIDO strategy and priorities regarding RE, and UNIDO's support to RE regional centers, in particular to ECREEE; the ECOWAS center could play a direct role supporting one of the member countries from capacity development to implementation of the EREF.

The project implementation followed in a great extent the project document (ProDoc). Some changes have been agreed upon by the Steering Committee and were captured by the mid-term evaluation (MtE). Given the political turmoil with a conflict between the President and the government/party that won the elections, some of the activities related to RE policy and regulations needed to be adapted or replaced (e.g. creation of a regulator). Moreover, the difficult economic situation and the weak financial capacity of the private sector required a flexible approach regarding the selection and further development of RE investment projects.

In line with the overall objective to mobilize project finance and foreign direct investment in innovative RE infrastructure/technologies (for the country), the project exceeded by far its initial target. With a limited budget of USD 1,5 million the project had an excellent fund leverage and has laid a solid foundation[1] for investments which are to happen after project closure. From the initially planned USD 8 million, at least USD 22 million have been committed for RE projects supported by this GEF project during its implementation (this is evidenced news from independent information sites, and reportedly by signed financial commitments of donors). Part of the RE projects are already operating, other projects are currently in the procurement stage and other are approaching bankable feasibility stage.

The installed mini-grid projects are currently amongst the largest hybrid solar PV systems in the ECOWAS region. Moreover, the technical and economic feasibility of the 27 MW Saltinho Hydro Power project, which was pre-developed and promoted by the GEF project, has been proven. The project is being developed by UNIDO in partnership with the African Development Bank (AfdB) and the Austrian Development Bank (OeEB) as a Public-Private Partnership (PPP). Its investment costs are projected to be around USD 98 million. The Saltinho project is transformative, will cover major parts of the electricity generation of the country, will produce far below the levelized cost of electricity (LCOE) of diesel and Heavy Fuel Oil (HFO) and generate major GHG emission reductions.

The project's **effectiveness is satisfactory**. The project document was more ambitious, but the GEF project was able to generate a high impact not only by the outputs it was able to produce, but by setting an investment plan with a pipeline of concrete projects opening the space for further investments, and by performing feasibility studies. The *train the trainers* programme could not be fully implemented, but over 200 persons have attended the trainings provided by the project. The EREF projects could not be completed, due to difficulties (access to private funds and other barriers) which constitute lessons.

It should be noted that the GEF financing stream of the project is closed but the project continues until March 2021 with OeEB support, namely for Saltinho and some other activities (the funding has currently increased by 50 thousand €). In what concerns the GEF, the project has been implemented in a timely manner, in particular the consolidated policy and regulatory framework and the capacity development components. The duration of the GEF project implementation has been extended for a year (without budget increase), but outputs and targets that were delayed – in particular the EREF projects and the start of operation of Bissorã - ended up not being achieved anyway. In this way, the **efficiency is satisfactory.**

The sustainability of the project outcomes is **moderately likely,** mostly due to external factors. The project was able to mobilize significant project finance and foreign direct investment that will result in an increase of penetration of the RE in the country. Moreover, the GEF project has equipped the Government with an investment plan on how to achieve the RE/EE targets. The project has laid a solid

[1] Contributing to the sustainability of Project's results.

basis for major grid-connected and decentralized priority projects, which have already received concessional financing commitments by development banks. After the project closure, it has also been agreed that ECREEE will continue to support the Ministry with follow-up on any pending activities. However, the *socio-political* as well as *the institutional framework and governance* risks remain. There is a need for the political situation to become more stable and regulated, and for reforms on the domestic/international financial sector to able to respond to the needs of the private sector (e.g. affordable interest rates) to occur, to enable the transition towards a more intense private sector involvement in the energy, and in particular of the renewable energy sub-sector. Moreover, increased access to energy will raise both the energy production and consumption levels. It remains to be seen whether the governing decision makers of the country are prepared and willing to lead Guinea-Bissau toward an environmentally sound development.

The gender dimension and women's empowerment have been taken into account in the design and implementation of the project. Gender issues have been included in the strategic and planning documents, with particular focus on capacity development activities. However, the number of women participating in the projects did not achieve the envisaged target.

The management approach agreed for the project was followed. However, the participation of national entities in the project steering committee (PSC) was less than expected. The PSC was mostly composed of international donors and NGOs, the National Project Coordinator (who also ended up representing the Directorate of Energy), and the GEF focal point. The project benefitted from experienced consultants, NGOs and Civil Society Organizations (CSO), and UNIDO's experience. The Project Steering Committee was flexible enough to allow for changes in the activities that favored the achievement of the outcomes. No monitoring and evaluation plan have been produced or implemented. However, there was regular tracking of the project progress through the PIRs and project management spreadsheet (based on the results framework).

With the purpose of assuring accountability, supporting management, and driving learning and innovation key recommendations and lessons learned are presented below.

Recommendations

As this project is being finalized, the following recommendations might be worth considering for similar projects or interventions:

	To UNIDO
R1	There is a time lag between the appraisal of a project, approval and the implementation kick off. Particularly in countries in which there is political instability, a quick assessment of the changes in conditions should be done, in order to adjust the project to the context.
R2	The political instability and weakness of the financial sector leads to limited capacity of the private sector to mobilize the required financing at affordable price and also to a limited appetite for investing. More and more there are innovative ways of getting financing to the private sector by private investors (impact investing), and these possibilities should be considered. Alternatively, in countries with very limited access to electricity, if private sector investment component does not advance, the project should consider other possibilities, such as rural electrification.
R3	There is a strong need for capacity development in managing utilities. A mini-grid is a utility and the management body, even if within a Civil Society Organization, should be

	professionalized. A secondment could be considered in the budget for the initial phase of these utilities.
R4	In future projects, UNIDO should provide appropriate training to the national project manager/team on results-based management, M&E, and outcome-oriented reporting.

	Recommendations to National stakeholders
R1	National stakeholders such as different ministries and representatives of private sector should involve themselves more on this type of projects that generate opportunities for new sectors and business to arise.
R2	National stakeholders should engage more on awareness raising of the private sector regarding the potential of renewable energy and energy efficiency, namely by showing future financial benefits.

	To the GEF
R1	GEF should consider financing a Phase II of the project to ensure replication and scaling up of results. To overcome identified key barriers during the first phase, a particular focus on private-sector approaches in combination with modalities to improve the availability of affordable domestic financing could be laid. The EREF was a first initiative in this context. It could be further expanded and equipped with other financing instruments (e.g. concessional loans, guarantees, insurance products), in partnership with national and development banks.

Lessons learned

Key lessons learned
LL 1. The project showed the importance of partnerships with other donors and development finance institutions. Demonstrative projects with a light management structure have the potential to be catalyzers and bring about change, if they are flexible enough. Even a small project can have significant finance leverage, when focusing on initial technical activities for high-impact projects.
LL2. The perception of and participation in the project by the private sector has confirmed the private sector's general interest to invest in grid-connected and decentralized RE infrastructure, even in the least developed countries (LDCs), with very difficult political contexts. However, one of the key barriers for investment and private participation is the financial sector, which is not capable to provide affordable financial products for such investments.
LL 3. **Partnership with civil society organizations to the delivery of public services is a** possible way to manage mini-grids. However, a closer monitoring is required, as community structures lack management capacity and can be easily influenced by financial interests of a part of the group.

LL 4. Projects need to be flexible enough to change the target of investment when the foreseen promoters change ideas. In particular, when there are pressing needs, such as the case of rural electrification.
LL5. Information campaigns targeting companies are a crucial component of a project having market development as an objective. The understanding by private sector of the benefits (financial and other) to invest in RE can be a main driver of the market.

1. Introduction

1.1 Evaluation objectives and scope

The GEF Monitoring and Evaluation Policy (February 2006)[2] specifies that the GEF partners, in addition to conducting various other evaluations, will also evaluate projects "at the end of the intervention (terminal evaluation)". The policy states that through monitoring and evaluation (M&E) the GEF aims to "promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes, and performance of the partners involved in GEF activities." It further states, that "GEF results will be monitored and evaluated for their contribution to global environmental benefits". Similarly, according to UNIDO's evaluation policy, project and program evaluations are part of its project cycle management. Evaluations serve three main purposes: to assure accountability, to support management, and to drive learning and innovation.

The terminal evaluation (TE) of the project: *"Promoting investments in small to medium scale renewable energy technologies in the electricity sector of Guinea-Bissau"* was implemented in October-November 2019. The evaluation field mission occurred between 4-8 November 2019. The TE covered the whole duration of the project, from its starting date 20 October 2014 to the estimated completion date of 31 October 2019. The TE was conducted in accordance with the UNIDO Evaluation Policy[3], the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle[4], and UNIDO's Evaluation Manual (2018). In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies have been applied.

The evaluation team is composed of one international evaluation consultant. The tasks of the evaluator are specified in the job descriptions annexed to the Terms of Reference (Annex 1). The evaluation has benefited from the logistics support of the National Project Manager (NPM).

The purpose of the Terminal Evaluation (TE) of the project *"Promoting investments in small to medium scale renewable energy technologies in the electricity sector of Guinea-Bissau"* is to independently assess the project to help UNIDO and the GEF improve the selection, as well as to enhance the design and implementation of similar future projects and activities. The evaluation has two specific objectives:

(i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact; and
(ii) Develop a series of findings, lessons learned and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

According to the ToR, the key questions of the TE are the following:

a. What are the key drivers and barriers to achieve the long-term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long-term objectives?
b. How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money?
c. What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent the achieved results will sustain after the completion of the project?

2 The GEF Monitoring and Evaluation Policy, Evaluation Document No. 1 (GEF Evaluation O ce, 2006) is available at http://gefeo.org/uploadedFiles/Policies_and_Guidelines-me_policy-english.pdf.
[3] UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)
[4] UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

d. What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

A mid-term review of the UNIDO-GEF project was carried out in May 2018, considering all the activities carried out within the project, from the beginning (October 2014) up to December 2017. The main findings were:

- The project is on the right path towards achieving its expected global impact, namely the expected GHG emissions reductions through efficient investments in RE systems in the electricity sector of Guinea-Bissau;
- Despite the continued political and economic instability in the country, the project has provided key enabling support, which resulted into pioneering investment of USD 10 million in innovative medium-scale renewable energy technologies (e.g. PV hybrid mini-grids, hydropower) and rural electrification models. The feasibility and the cost-effectiveness of such projects as alternative to diesel generators has been demonstrated. The GEF supported PV mini-grid hybrid projects, are currently the largest ones in the ECOWAS region.
- Moreover, the GEF project has developed a coherent vision and roadmap for the Government of GB on how to achieve SDG-7 by 2030. The increasing interest of financiers and the switch from purely grant-financed projects to more blended modalities are an indication that a basis for the further uptake of RE investments has been created.
- The RE sector plays now a more prominent role in the national energy planning and the responsible Ministry has increased capacities and resources to coordinate activities and partnerships with donors and project promoters.
- Due to the fragile situation in the country, the project execution period is expected to last longer than planned. The identification of reliable domestic project promoters and mature investment projects took longer as expected, and due to the high investment risks, the interest of financiers is difficult to maintain. By extending the project execution period for one more year (until end of 2019), therefore all the goals that are still to be achieved are more likely to be obtained.
- The project has achieved and even surpassed many of the expected objectives and impacts at 3/4 of the project implementation. There are still some goals and targets to be achieved, but all are likely to be reached if the project recommendations and suggested actions are adopted.

In line with the practice adopted by many development agencies, the UNIDO Independent Evaluation Division uses a six-point rating system, where 6 is the highest score (highly satisfactory) and 1 is the lowest (highly unsatisfactory).

According to UNIDO's Evaluation Manual (2018) the project evaluation criteria for sustainability use a six-class rating system, where highly likely is the highest score and highly unlikely is the lowest. To compute the overall rate, this classification is converted to points.

1.2 Overview of the Project Context

Guinea-Bissau is facing the interrelated challenges of energy access, energy security and climate change mitigation and adaptation simultaneously. The chronic energy crisis hampers the social, economic and industrial development of the country. The need for modern, reliable and affordable energy services (electricity, motive power, modern fuels) is huge at all levels (productive sectors, social sectors, residential). The national final energy consumption is characterized by the predominance of traditional use of biomass with up to 87.8%, followed by 11.7% from petroleum products and only 0.5% from electricity; fuelwood is the dominant source of fuel (particularly for cooking purposes) with a demand that exceeds 500,000 tons per year, followed by charcoal being the most-used fuel in the urban areas. It should be stressed that there is no recent data, and existing data is older than 5 years. According to the

MICS5-2014[5], the percentage of households with access to electricity was 17.2% in 2014. The unsustainable electricity generation and distribution system represents a high cost for the entire economy of the country, adversely affecting production costs and the population's standard of living. At the same time, the power transmission and distribution system of Guinea-Bissau remains underdeveloped. Therefore, only a small proportion of the population has access to reliable electricity services.

The situation in the national electricity sector is characterized by a structurally faulty service, both in quality and quantity, with a high dependence on imported fossil fuels (diesel), which drains the limited financial resources of the country. Access to electricity was estimated to be extremely low by the end of 2014, with access rates of 5.3% nationally, 20% in the capital city of Bissau and less than 2% in rural areas (Source: AfDB, 2015).

The baseline for the project was challenging. Apart from some small PV solar home systems the country had no real practical experience with renewable energy and energy efficiency technologies, policies and legislation. There was a political will, but no real plan and evidence-based knowledge on how a sustainable energy future could look like. Due to the high political risk and small project-size, financiers and investors were reluctant to invest in renewable energy projects with long payment periods. The domestic capacities to plan, install and maintain renewable energy systems were weakly developed.

1.3 Overview of the project

The project *Promoting Renewable Energy Investments in the Electricity Sector of Guinea-Bissau* has been implemented by UNIDO in close cooperation with the Ministry of Energy and Industry, the Ministry of Natural Resources, the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) and the Associação para o Desenvolvimento pela Tecnologia, Engenharia, Saúde e Educação (TESE). The project aimed at reducing barriers and creating an enabling environment for renewable energy investments in the national electricity sector. The project intends to foster a transformational change of the country towards a sustainable low-carbon development path.

The project is a Medium-Size Project (MSP), whose ultimate objective is to promote investments in small to medium scale renewable energy technologies in the electricity sector. The quantitative goal of the project is to install a capacity of 2.5MW to generate 4,977 MWh per year of renewable energy. The project intends achieving a cumulative reduction of GHG of around 76,267 tCO_2.

The project adopts a holistic approach and combines interventions in the areas of policy and planning, (pre-)investment support, technology demonstration, as well as capacity building. The project includes also south-south cooperation and knowledge transfer between other countries of the Economic Community of West African States (ECOWAS), particularly Cabo Verde.

The Project has four components:

- **PC 1 Investments into small to medium scale renewable energy technologies**: this component aims at mitigating technical and financial barriers for investments in renewable energy on-grid and off-grid technologies. Under this component the aim (after the mid-term evaluation changes)[6] is to mobilize at least USD 8 million investment to lay the foundation for the development and implementation of a number of high impacts on-grid and off-grid renewable energy demonstration projects with a total electric capacity of 2.5 MW (around 50% of the operating electricity generation capacity of Guinea-Bissau in 2012).

[5] https://www.unicef.org/infobycountry/files/unicef_MICS_Guinea-Bissau_2014.pdf
[6] In the Project document, the target was: "At least 8 million USD of investment for RE demonstration projects are mobilized and implemented"

- **PC 2 Consolidated policy and regulatory framework for renewable energy:** This component aims at reducing institutional, regulatory and policy barriers for the renewable energy investments and markets in Guinea-Bissau. Under the component the National Renewable Energy Policy (NREP) and National Renewable Action Plan (NREAP) for Guinea-Bissau will be developed in close coordination with the implementation process of the ECOWAS Renewable Energy Policy (EREP)
- **PC 3 Capacity development and awareness raising on renewable energy**: this component aims at mitigating the existing capacity constraints in the renewable energy sector of Guinea-Bissau. The activities are directed to strengthen the capacities of key market enablers (e.g. policy makers, developers, companies, utility, and banks) on different aspects of renewable energy through the implementation of train-the-trainers approaches and establishment of south-south knowledge transfer from the ECOWAS region.
- **PC 4 Monitoring and Evaluation:** the objectives of this component are to: i) establish a project management office, conduct adequate and systematic monitoring of all project indicators (based on a monitoring plan) together with regular and comprehensive assessment of an on-going and /or completed initiatives to ensure successful project implementation; ii) establish a dedicated website for the project in cooperation with ECREEE; iii) ensure that the dissemination programme is implemented and project milestones/reports etc., are regularly posted on the website.

The expected outcomes of the project are: 1.1) The technical feasibility and viability of small to medium scale on-grid and off-grid renewable energy technologies in the urban and rural context are demonstrated; 1.2) The National Renewable Energy Investment Plan to replicate and up-scale on-grid and off-grid renewable energy technology projects is developed and endorsed; 2.1) the existing policy and legal support framework for renewable energy is strengthened and regulatory mechanisms are improved; 3.1) The capacities of key stakeholders on renewable energy are strengthened.

The referred outcomes should be achieved through the production of 12 outputs. The project results framework is included as Annex A of the ProDoc and amended by the Mid-Term review report:

On PC1: Changing the project implementation schedule with respect to the mobilization of USD 8 million supporting the development and installation of 2.5 MW of RE investment projects, this goal should be implemented by the end of the project and not fully implemented by mid-project. This has an implication in the general expected impact of the project, expressed in MWh produced by the project, as this can only be effectively calculated after at least 1 year of operation of the installed units.

On PC2: The National Renewable Energy Action Plan (NREAP) would serve as an RE plan and policy for GB; In addition to NREAP, the National Energy Efficiency Action Plan for (NEEAP) and the SEforAll Action Agenda (SEforAll AA) are developed; Due to the political instability and the development of NEEAP and the SEforAll AA, the Steering Committee agreed that the activity of proposing a National Regulatory Agency concept and support mechanisms for Independent Power Producers (IPPs) and Public-Private Partnerships (PPPs) would not be developed; Regarding the GEF/UNIDO project Registration as Nationally Appropriate Mitigation Action (NAMA), the national registry and the implemented Monitoring, Reporting and Verification (MRV) system, it was agreed at a SC meeting that this would not be implemented during this project. Instead, GB will prepare and submit a proposal to the Climate Technology Center & Network (CTCN) to request support for the development of the NDC (request to the CTCN of USD 100 000).

On PC3: It was decided that the RE Project Development Manual to be developed as one of the activities of PC3 is replaced by the development of the "Manual of Mini Grid Models" publication, which refers to the various modalities of running mini-grids and includes the Bambadinca mini-grid as an example. The English version was published online by UNIDO in 2017[7]; it was decided that the activity in which fifty

7 http://www.ecowrex.org/system/files/renewable_energy-based_minigrids-unido_jan2017.pdf

(50) manuals would be sent to key stakeholders and more than 150 downloads from the project site would be expected, was modified by the Manual being made available on the ECOWREX website; it was decided that the RE training actions for at least 100 experts from different stakeholder groups would be implemented by trainers in the area, but not necessarily by trainers trained in the train-the-trainers program developed and implemented by the GEF/UNIDO project.

Table 1 below provides all the relevant information regarding project costs and co-financing, donors, duration, implementing and executing agencies.

Project title	Promoting investments in small to medium scale renewable energy technologies in the electricity sector
UNIDO ID	130012
GEF Project ID	5331
Region	Western Africa
Country(ies)	Guinea Bissau
Project donor(s)	GEF, Austria
Project implementation start date	20th October 2014
Expected implementation end date	31st October 2019
GEF Focal Areas and Operational Project	CCM-3, CCM-6, Climate Change
Implementing agency(ies)	UNIDO
Government coordinating agency	Ministry of Energy, Industry and Natural Resources (MEINR)
Executing Partners	ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), TESE - Associação para o Desenvolvimento
Donor funding	USD 1,735,160 (GEF) and 352,000 (Austria)
Project GEF CEO endorsement / approval date	8th August 2014
UNIDO input (in kind, USD)	USD 170,000
Co-financing at CEO Endorsement, as applicable	USD 10,258,189
Total project cost (USD), excluding support costs and PPG	USD 11,993,349
Mid-term review date	August 2018
Planned terminal evaluation date	October-December 2019

(Source: Project document)

A ***Project Steering Committee (PSC)*** was established for periodically reviewing and monitoring project implementation progress, facilitating co-ordination between project partners, providing transparency and guidance, and ensuring ownership, support and sustainability of the project results. The Steering Committee is composed of UNIDO, the Ministry of Energy, ECREEE, the national electricity utility (public institution), and civil society (namely TESE).

UNIDO is the implementing agency for the project. UNIDO holds the ultimate responsibility for the implementation of the project, the delivery of the planned outputs and the achievement of the expected outcomes. UNIDO is responsible for the general management and monitoring of the project and reporting on the project performance to the GEF. UNIDO is also in charge of procuring the international and national expertise, technologies, services, etc., needed to deliver the outputs planned under the four project components. UNIDO's Project Manager (PM) also participated in the Steering Committee. The PM also coordinates the UNIDO Global Network of Regional Sustainable Energy Centers (which includes ECREEE) and the regional knowledge program of the GEF Strategic Programme for West Africa (GEF-SPWA).

Local execution was accomplished through the creation of a Project Management Unit (PMU) in the Renewable Energy Unit of the line Ministry of Energy, and partnerships with a number of executing partners selected based on their comparative advantage. The National Project Coordinator (NPC), who was the sole member of the PMU, was responsible for ensuring the local implementation and coordination of all project activities. The integration of the NPC in the ministry is key to ensure that the results of the projects will be taken forward also after project close.

The political, economic and financial instability did not allow executing financing through the Ministry of Energy. Therefore, the project has used smart execution partnerships, strong country involvement and the provision of UNIDO technical services to execute activities.

ECREEE is a key executing partner for the envisaged policy and capacity development activities and is supposed to assist in the implementation of some of the investment projects. To address risks and maximize impact, the GEF activities were connected and interlinked with the activities of ECREEE (e.g. policies). ECREEE south-south cooperation support "from the countries for the country" is an important feature of the project. ECREEE supports the National Project Coordinator throughout the process. ECREEE is leading the implementation of the ECOWAS Renewable Energy Policy (EREP) on national levels in the fifteen ECOWAS countries. Moreover, ECREEE is operating several train-the-trainers' networks and is managing the ECOWAS Renewable Energy Facility (EREF). ECREEE is also implementing the ECOWAS Renewable Energy Investment Initiative and the ECOWAS Program on Gender Mainstreaming in Energy Access (ECOWGEN). ECREEE is also supposed to ensure the political buy-in of ECOWAS and create strong synergies to its regional activities and promote south-south cooperation between Cape Verde and Guinea-Bissau.

TESE - Associação para o Desenvolvimento is an important executing partner of several activities of the project, by providing technical and human resources, as well as co-financing, particularly for the envisaged PV powered mini-grids and some of the capacity development and policy activities. TESE is very experienced with regard to mini-grids and related policy issues in Guinea-Bissau. It implements several EU funded projects.

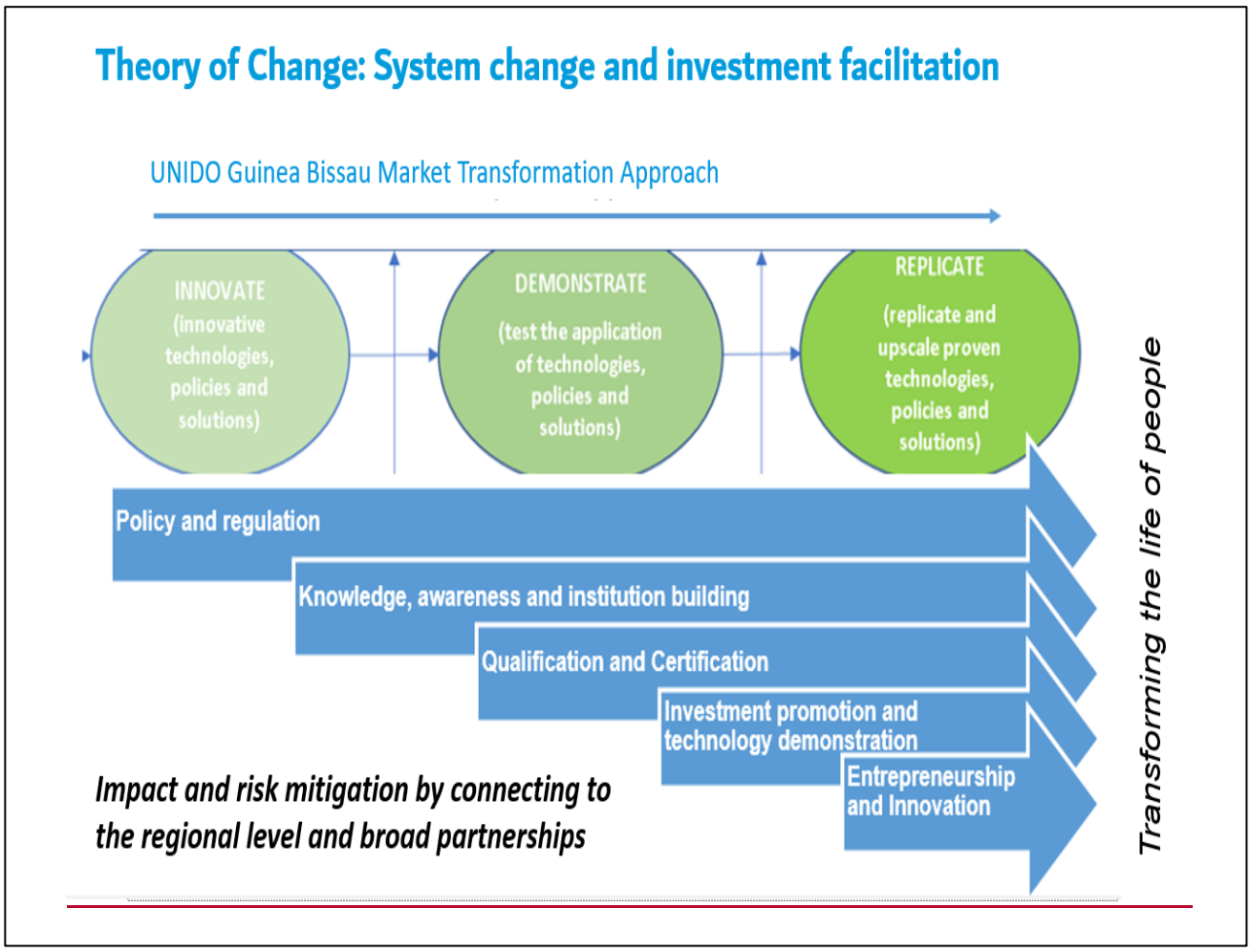
African Development Bank (AfDB) is an important partner and co-financier for the development of the project Saltinho HPP (19 MW). The early involvement of AfDB ensures access to loan finance once the project is developed to bankable feasibility stage. AfDB has a long-standing track-record and experience in the development and financing of hydropower projects in Sub Sahara Africa.

Several other organizations are involved at different stages of project execution in order to provide and/or share specific experiences and knowledge and to participate in the project's activities. Among the others: the energy utility EAGB, the NGO Ajuda de Desenvolvimento de Povo para Povo (ADPP) in Guinea-Bissau, training centers such as the Instituto Nacional de Investigação e Tecnologia Aplicada (INITA) or Centro de Instrução e Formação Artesanal Profissional (CIFAP), and ENERGIA - International Network on Gender and Sustainable Energy. The Figure below depicts the implementation arrangements.


Project Execution
CSOs (Industrial Associations etc.)
Private Sector, Communities
Research & Academic Institutions
Project Steering Committee
Chair: GEF Focal Point (VPO-DoE)
Members: UNIDO, MEINR, ECREEE, TESE, EAGB
Chamber of Commerce, Industry, Agriculture and Services; Ministry of Finance; AfDB; ENERGIA; PMO
Lead Executing Agency: (MEINR)
Project Management Office (PMO)
Headed by: National Project Manager (NPM), Project Administrative Assistants, Technical Advisors
Additional Executing Agencies
ECREEE, TESE, ADPP and ENERGIA

1.4 Theory of Change

The evaluation used Theory of Change (ToC) to assess the project's contributions to the conditions leading to the desired technological and behavioral transformations. The Theory of Change of the project (as provided in the ToR of the TE) focuses on key actions aiming at short-term and long-term market transformation from fossil fuel based towards renewable energy technologies. Project interventions, designed to achieve the transformation, aim to innovate (introducing new technologies, policies and solutions), demonstrate (showing that new technologies, policies and solutions are feasible and viable alternatives) and replicate (establish mechanisms to promote large-scale use/commercialization of proven technologies). The theory of change is depicted below:



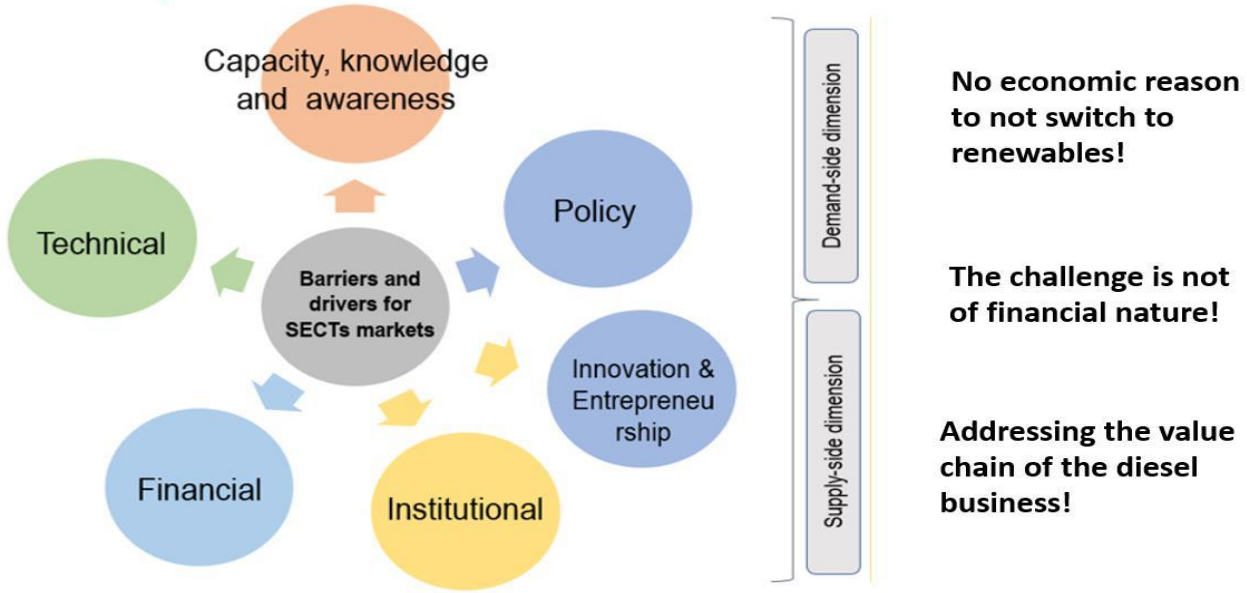
The rationale of the project is to support the country to "leap-frog" to new technologies beyond PV solar home systems, such as medium-scale grid-connected solar PV, solar PV hybrid mini-grid systems, PV stand-alone and bioelectricity systems for rural electrification and productive uses in the fishery and agricultural sectors. The project also aims at facilitating investment in run-of-the-river hydroelectricity.

The project takes into account existing barriers and adopts a holistic approach combining interventions in the areas of policy and planning, (pre-) investment support, technology demonstration, as well as capacity building to maximize spillover effects. This with the objective of reducing risks and creating an enabling environment for RE investments in the national electricity sector.

The main barriers, which the project tries to mitigate, are as following:

- *Financial barriers*: related in particular to the availability of tailored financing instruments and financing institutions in the country, as well as the high initial capital costs of renewable energy solutions ("affordability");
- *Institutional and regulatory barriers*: related to the unstable political and economic environment in the country, the lack of a clear tariff structure, the insufficient policy and regulatory support for RE, and the insufficient institutional capacity;
- *Technical barriers*: arising from the current poor energy transmission and distribution grid, and the insufficient technical capacity in the local market to identify, develop and implement renewable energy projects. The potential for the introduction of intermediate grid-connected renewable energy sources is limited due to the weak situation of the grid;
- *Capacity, knowledge and awareness barriers:* insufficient RE baseline data and limited information available about the characteristics of the renewable resources.

Theory of Change: Addressing the RE&EE investment and market barriers holistically



The project is structured in 4 different components (PC):

- *PC 1 Investments into small to medium scale renewable energy technologies*: this component aims at mitigating technical and financial barriers for investments in renewable energy on-grid and off-grid technologies. Under this component a number of high impact on-grid and off-grid renewable energy demonstration projects with a total electric capacity of 2.5 MW (around 50% of the operating electricity generation capacity of Guinea-Bissau in 2012) have been developed and implemented.
- *PC 2 Consolidated policy and regulatory framework for renewable energy:* This component is directed at reducing institutional, regulatory and policy barriers for the renewable energy investments and markets in Guinea-Bissau. Under the component the National Renewable Energy Policy (NREP) and National Renewable Action Plan (NREAP) for Guinea-Bissau were developed in close coordination with the implementation process of the ECOWAS Renewable Energy Policy (EREP)
- *PC 3 Capacity development and awareness raising on renewable energy:* this component aims at mitigating the existing capacity constraints in the renewable energy sector of Guinea-Bissau. The activities were directed to strengthen the capacities of key market enablers (e.g. policy makers,

developers, companies, utility, and banks) on different aspects of renewable energy through the implementation of train-the- trainers approaches and establishment of south-south knowledge transfer from the ECOWAS region.

- *PC 4 Monitoring and Evaluation:* the objectives of this component are to: i)establish a project management office, conduct adequate and systematic monitoring of all project indicators (based on a monitoring plan) together with regular and comprehensive assessment of an on-going and /or completed initiatives to ensure successful project implementation; ii) establish a dedicated website for the project in cooperation with ECREEE; iii) ensure that the dissemination programme is implemented and project milestones/reports etc., are regularly posted on the website.

1.5 Evaluation Methodology

Evaluation data was collected through desk and literature review of documents and stakeholder consultations. The desk and literature review of documents related to the project, included: the original ProDoc, progress reports, output reports, back-to-office mission report(s), financial reports, mid-term review, relevant correspondence, and other documents; minutes from the PSC's meetings and notes from the meetings of parties involved in the project. The list of documents made available to the Evaluation Team can be found in Annex D.

Stakeholder consultations were conducted through structured and semi-structured personal interviews, focus group discussion, and written request for comments. Interview protocols were developed for different types of stakeholders, and in particular common questions for common situations were used to enable results to be compared. Key stakeholders interviewed are included in Annex C. During the field mission the TE evaluator visited all demonstration projects, and potential projects that did not materialized, and performed group meetings with the beneficiaries.

Evaluation findings, conclusions and recommendations were discussed in detail with staff from the Directorate of Energy. Moreover, a debriefing has been held in Vienna UNIDO-HQ, joining among others, the UNIDOS' Director of Energy Department, the PM, the GEF representative, representatives from Independent Evaluation Division and some other UNIDO staff. The purpose of the de-briefing was a factual verification of key findings and an in-depth discussion of evaluation results. The feedback and comments received at the de-briefing have been considered in this report.

1.6 Limitations of the Evaluation

The evaluation had several limitations:

- At the time of evaluation several demonstration projects had not been implemented, and the project has been extended up to March 2020 – there is still some uncertainty regarding key activities for the achievement of goals (ex. EREF funded projects), or to achieve sustainability (ex. Bissorã management model);
- The long duration of the implementation of the project has been accompanied with changes in staff of implementation partners (such as TESE) and some information and project memory was not available;
- The field mission occurred amidst attempts by the President to occupy with military the ministries compound, and a presidential pre-campaign, and not all stakeholders were available to talk.

2. Project's contribution to Development Results - Effectiveness and Impact

2.1 Project's achieved results and overall effectiveness

The project consists of four technical components (PCs) and ten outputs. Table 2 below presents the expected outputs of each project component, after the changes decided by the Steering Committee. The full project results framework is included as Annex A of the project document.

Table 2: Project components and expected results

Project Components	Expected Outcomes	Expected Outputs	Targets
Overall	Investments in small to medium scale renewable energy technologies in the electricity sector promoted	-At least 8 million USD of investment for RE demonstration projects are mobilized and implemented; -Installed demonstration projects with a capacity of 2.5 MW produce at least 4,977 MWh per year; -Cumulative reduction of GHG of around 76,267 tCO2 over the lifetime of the implemented demonstration projects (20 or 25 years depending on the projects).	
Component 1: Investments into small to medium scale Renewable Energy technologies	-The technical feasibility and viability of small to medium-scale on-grid and off-grid renewable energy technologies in the urban and rural context are demonstrated. -The National Renewable Energy Investment Plan to replicate and up-scale on-grid and off-grid renewable energy technology projects is developed and endorsed – this has been replaced by SEforAll Action Agenda	-The RE projects developed under the PPG phase with a capacity of 1 MW and the projects to be fully developed under Output 1.2.1. with a capacity of 1.5 MW are implemented; -At least 9 (pre-)feasibility studies for RE projects are developed and included in the National RE Investment Plan; -Saltinho HPP (19 MW) is developed to feasibility stage and included in the National RE Investment Plan. - National Renewable Investment Plan including the project pipeline is finalized and validated by key stakeholders in a workshop -At least 3 projects of the National Renewable Energy Investment Plan (NREIP) receive support by the ECOWAS Renewable Energy Facility (EREF)	- On- and off-grid RE projects with a total capacity of 2.5MW are fully developed and implemented - At least 75% of the implemented demonstration projects generate sufficient revenues to meet the operating expenses and financial obligations - Finalized National Renewable Energy Investment Plan (NREIP) promotes a project pipeline with an investment volume of at least 30 million USD
Component 2: Consolidated policy and regulatory framework for renewable energy	2.1. The existing policy and legal support framework for renewable energy is strengthened and regulatory mechanisms are	-Available gap assessment including recommendations for improvement -The National Renewable Energy Policy (NREP) and the National Renewable Energy Action Plan (NREAP) are developed and endorsed by the	-The National Renewable Energy Policy (NREP) and the National Renewable Energy Action Plan (NREAP) are developed and endorsed by the Government -The concept for a National Regulatory Agency and

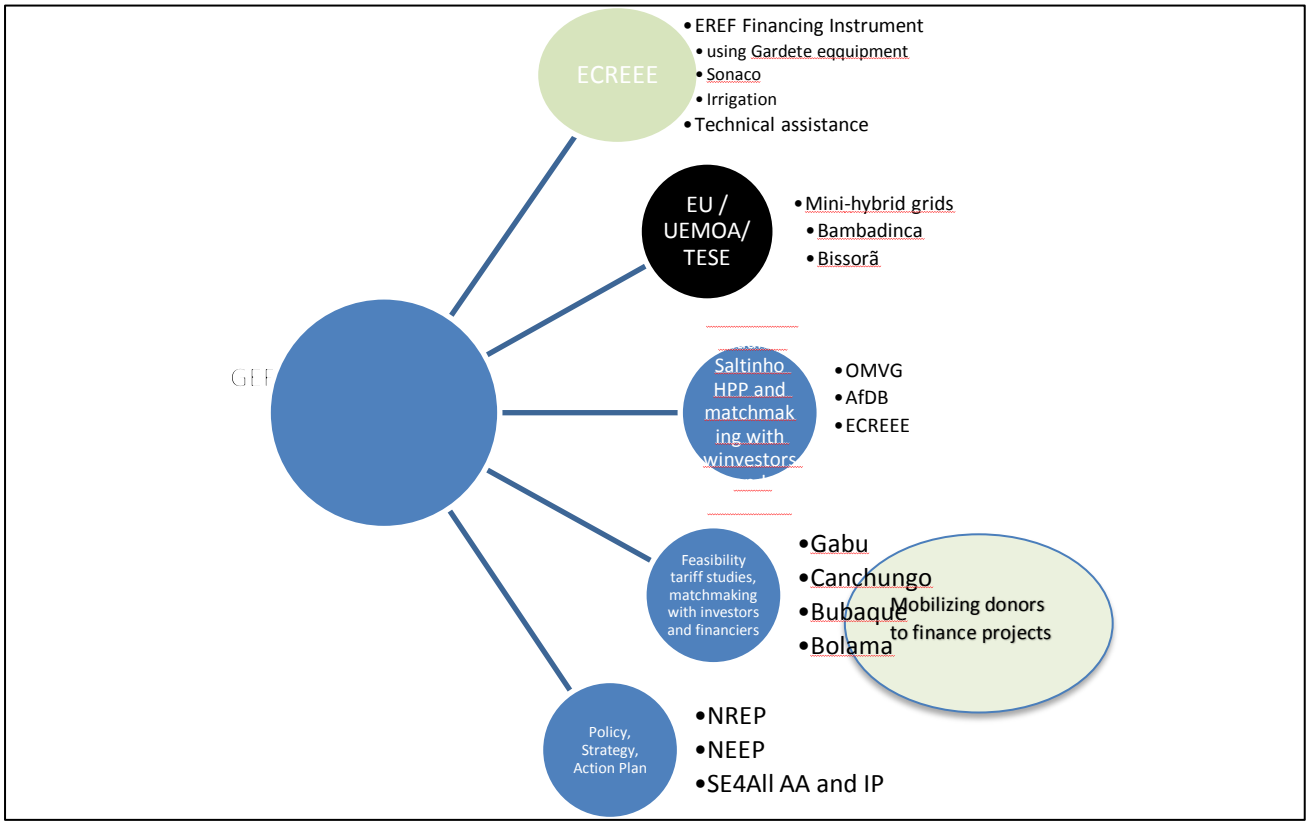
Project Components	Expected Outcomes	Expected Outputs	Targets
	improved	Government (As indicated in the MTR, the PSC agreed to replace NREP endorsement by production of NREAP, NEEAP, and SE4All); -Study with indication and recommendation on how to set up a National Regulatory Authority; -Support mechanisms for IPPs and PPPs are finalized, and its implementation facilitated; (As indicated in the MTR, the PSC agreed not to implement the above two activities[8]) -SE4ALL campaign implemented GEF-UNIDO project components as NAMA registered National registry and MRV system implemented (As indicated in the MTR, the PSC agreed to instead prepare and submit a proposal of USD 100 000 to the Climate Technology Center & Network (CTCN) to request support for the development of the NDC)	support mechanisms for IPPs and PPPs is proposed (Both targets are changed and replaced by the elaboration of NREAP, NEEAP, SE4All Agenda and NDC).
Component 3: Capacity development and awareness raising on renewable energy	The capacities of key stakeholders on renewable energy are strengthened	-At least 30% of the activities of the national capacity building programme are implemented by end of the GEF project -Handbook on renewable energy project development available – (As indicated in the MTR, the PSC agreed to replace this handbook by the inclusion of a case study on Guinea-Bissau on the UNIDO "Manual of Mini Grid Models". Nevertheless, the project's website[9] contains a set of very useful studies and plans resulting from the project) -Fifty (50) handbooks sent to key stakeholders and over 150 downloads from the project website – (As indicated in the	-The trained trainers under the capacity building program conduct follow-up trainings for at least 100 experts of different stakeholder groups (whereby at least 30% are female) -At least 50% of the trained experts apply their received renewable energy skills in the national energy sector of the country

8 During the implementation period of the project Guinea-Bissau had 8 governments. This renders the endorsement by the government, or the establishment of agencies and PPPs with IPPs very difficult, if not impossible, to achieve.
9 http://www.ecreee.org/news/unido-and-ecreee-support-guinea-bissau-making-sdg-7-reality-2030

Project Components	Expected Outcomes	Expected Outputs	Targets
		MtR, the PSC agreed to replace this activity by making the Manual available on the ECOWREX website) -At least 70% of the trained DGE expert apply the obtained skills in the Ministry -Three (3) Train-the-Trainers workshops carried out -Twenty (20) experts certified as trainers -The trained trainers conduct follow-up trainings for at least 100 experts of different stakeholder groups (at least 30% female) – (As indicated in the MTR, the PSC agreed that the trainings would be implemented by trainers in the area and not necessarily by trainers trained in the train-the-trainers program developed and implemented by the GEF/UNIDO project)	
Component 4: Monitoring and Evaluation	Adequate and systematic monitoring of all project indicators together with regular and comprehensive assessment of an on-going and / or completed initiatives to ensure successful project implementation	-Establishment of the Project Steering Committee and the execution of two annual committee meetings -Yearly progress reports in accordance with the established monitoring plan -Final evaluation	

The evaluation was carried out taking into account the updated Project Results Framework. This is because of the changes have been agreed upon by the Steering Committee, and highlighted in both the Mid-Term Review and the PIR.

The figure below depicts the interventions of the project



It is clear from the scheme above that the project interacted with a number of other initiatives and donors, and was pivotal to materialize some of the investments. In that sense, the project has been a catalyzer.

By purely regarding quantitative targets of the project, the effectiveness of the project is partially achieved. On one hand, the amount mobilized for RE projects in Guinea-Bissau is much higher than the foreseen 8 MUSD (22 million USD of projects which have financial close). An example is a large scale generation project[10] that includes a large capacity of 20MWp in Gardete (currently it seems the exact location will be elsewhere, but relatively close by) and the construction of two small mini-grid hybrid (with solar) projects in Gabu and Canchungo, 1 MW each – the GEF/UNIDO project has facilitated the establishment of the project and has performed the development of baseline consumer study, tariff study, and model for operation and management. The technical and economic feasibility of the 27 MW Saltinho Hydro Power project, which was pre-developed and promoted by the GEF project, has been proven. The project is being developed by UNIDO in partnership with the African Development Bank (AfdB) and the Austrian Development Bank (OeEB) as Public Private Partnership (PPP). Its investment costs are projected with USD 98 million. The project is transformative, will cover major parts of the electricity generation of the country, will produce far below the LCOE of diesel and HFO and generate major GHG emission reductions. Moreover, by setting an investment plan with a pipeline of concrete projects, the GEF project has opened up the space for further investments.

On the target of 2.5 MW, the project was able to mobilize the required investment for solar hybrid mini-grid project with a capacity of 2,8 MW (more than 50% of the active generation capacity of the national utility in 2010). All projects have received financial close and are either already installed, under

10 https://www.esi-africa.com/industry-sectors/generation/solar/epc-awarded-for-large-scale-generation-project-in-guinea-bissau/ - "The entire solar and hybrid project is being financed by the Government of Guinea-Bissau with a USD 42.9 million loan from the West African Development Bank (BOAD). This financing was granted as early as 2017."

implementation or being procured. The projects Bambadinca Sta Claro (312 kW) and the Bissorã (500 kW), financed respectively by the European Union and UEMOA were installed; two 1 MW solar PV mini-grids were procured by SABER-ABREC with financing of BOAD[11]. These are currently the largest ones in the ECOWAS region. At the time of the evaluation, Bambadinca had been in operation for some years, and Bissorã was starting its operation. But most of the remaining projects identified in PPG ended up not being implemented (fish processing and cashew processing plants), and the political instability prevented the flagship project of installing a roof-top PV system at the Ministry of Energy. At the time of evaluation, the project had raised around USD 22 million for projects with and overall capacity of 2,8 MW. Around 800 kw installed capacity was in operation (32.5% of 2.5MW "*installed and in operation*" initially planned at the project document; the Mid-term evaluation has recommended the text to change to "*implemented and/or supported until the implementation phase"*). The project has been directly reducing about 400tCO_2 per year and will start avoiding 1000 tCO_2 per year instead of the target of nearly 5000 tCO_2.

Regarding Saltinho 27 MW hydro-power potential, the GEF project has supported the pre-feasibility study and an initial review of the old project studies[12] during the PPG phase. During project implementation, the project has successfully mobilized and facilitated dialogue between the partners involved (e.g. OMVG, AfDB, OeEB, Ministry) co-financiers for the pre-investment phase, and co-financed the pre-investment studies and technical advisory during project development). Despite some delays (OMVG, COVID-19), the studies were finalized. The technical and economic feasibility of the 27 MW Saltinho Hydro Power project has been proven. Its investment costs are projected with USD 98 million. The project is transformative, will cover major parts of the electricity generation of the country, will produce far below the LCOE of diesel and HFO and generate major GHG emission reductions.

As foreseen, the project supported the development of a number of feasibility studies in the area of solar PV mini-grids but also bioelectricy projects. In fact pre-feasibility studies were carried out by TESE to build two mini-grids for Bubaque and Bolama (with an expected total installed capacity of around 850 kWe), from which it seems the one in Bolama will be financed by the European Union; for industries pre-feasibility studies were performed on two cashew peeling and processing plants (this one on biomass), and one bottling water plant; and two public spaces, the Ministry of Energy and the National Football Stadium 24 September. The goal has been achieved. With the exception of Bolama, the other projects did not go through, as the current political and financial instability in the country prevents an investment climate.

As planned, and despite the difficult political and economic situation, the GEF project established the first grant-financing instrument for the country. The first pilot call was implemented. Three projects, as foreseen, were selected for co-financing by EREF. However, the projects are delayed in their implementation – at the time of writing this report one of the projects is being implemented (irrigation for commercial farming), another one is stalled[13] (irrigation for agriculture and aquaculture), and a third one was able to deploy about 10% of the proposed[14] power. The main reasons for the delay consist in the required co-financing for the local private sector or civil society. In this context, the lack of own equity, coupled with the inability to raise affordable financing from the domestic and international financial markets are a major bottleneck. This has also been the case for larger grid-connected projects.

The project supported the development of the National Sustainable Energy Investment Plan (NSEIP), which has been included in the SE4ALL Investment Plan. It consists of a pipeline of priority projects

11 https://www.pv-magazine.com/2019/03/28/guinea-bissau-launches-22-mw-pv-tender/

12 Studies on Saltinho have started since the 1980s and there have been several studies in decades that followed.

13 The project promoter passed away, and the persons who became in charge have limited capacity on Project cycle.

14 The idea of this Project is as follows: In Gardete a private company had entered in a PPP to install a 350kW solar power plant. The company has installed 200kW, but the PPP was discontinued. The idea of the project was to recover the solar panels and equipment and use them elsewhere. So far, the re-installed recovered equipment powers a student residence and the welders' workshop of the company.

with an estimated investment volume of around 700 million USD. The NSEIP was presented to interested investors and financiers in May 2018 at the Sustainable Energy For All Forum in Lisbon, Portugal, as a side event *Guinea-Bissau Sustainable Energy Investment Workshop*[15], organized by the Government of Guinea-Bissau (GoGB) with support from ALER[16] and the GEF project. As a follow up to the investment workshop, the partners invited interested investors and financiers to the Guinea-Bissau Sustainable Energy International Conference, held from 6 to 7 December 2018 in Bissau. The conference was one of the final milestones of the GEF project and was the first of its kind in the country. It welcomed around 150 participants from Guinean public institutions, private sector, financiers, NGOs and academic institutions. At the conference, UNIDO and ALER launched also the publication of the Guinea-Bissau Sustainable Energy Status Report, a new flagship publication for interested developers and investors.

As stated in the table above, given the political instability, the objectives of component 2 have changed. The objective became to develop a series of documents, as in other ECOWAS countries, paving the way to the development of renewable energy and energy efficiency. A SE4ALL National Action Agenda[17], which is a strategy to achieve SE4ALL objectives by 2030 (with milestones in 2020), a SE4ALL Investment Plan, and the action plans that operationalize the strategy, the National Renewable Energy Action Plan and the National Energy Efficiency Action Plan.

It had been agreed by the PSC that instead of the NAMA action, the project should prepare and submit a proposal of USD 100 000 to the Climate Technology Center & Network (CTCN) to request support for the development of the Intended Nationally Determined Contribution plan. The proposal would have to be prepared and submitted by the end of the GEF/UNIDO project. This action did not take place It should be noted that during the project implementation, the NAMA process was replaced by the UNFCCC NDC process.

Component 3 consisted of a capacity needs assessment, the development of a renewable energy project development manual (that has been changed by including a case study on Guinea-Bissau on the UNIDO "Manual of Mini Grid Models"), the capacity development of the DGE, a train the trainers approach to develop capacity of national training institutions and training of different stakeholders groups. Moreover, several tools were developed and are available (e.g. tariff calculator) either in the project website (as stated above) or at ECOREX website[18];

In partnership with TESE a comprehensive renewable energy capacity needs assessment and action plan was developed. Based on the recommendations, a number of national and regional capacity building workshops on key issues and technologies were held (e.g. mini-grids, entrepreneurship, gender), and more than 150 experts were trained.

In partnership with ECREEE, ALER and EUEI-PDF a number of tools and toolkits were developed and translated into Portuguese (e.g. mini-grid tariff calculator and policy toolkit). UNIDO and ALER developed the Guinea-Bissau Sustainable Energy Status Report, a new flag-ship publication with lessons learned and key requirements for interested developers and investors; with EUEI-PDF and ALER the mini-grid policy toolkit was translated into Portuguese and is being used for training activities in Guinea-Bissau; the project has also supported ECREEE and EUEI-PDF developing and translate into

[15] https://www.aler-renovaveis.org/en/activities/events/guinea-bissau-sustainable-energy-investment-workshop/

[16] ALER is the Lusophone Association of Renewable Energies – is a NGDO (Non-Governmental Development Organization) with the mission to promote renewable energies in Portuguese-speaking countries. Members are companies of different sizes interested in the markets of the lusophone countries.

[17] The SE4ALL Action Agendas translate the national policies in a strategic path, quantifies inputs required to meet the objectives, such as capacity (MW) of installed renewable energy, electricity connections, penetration of energy efficient devices, efficient cooking fuels equipment and devices, etc. It also indicates schedule of actions and programmes necessary for the creation of an enabling environment for the necessary investments.

18 http://www.ecowrex.org

Portuguese a set of models19 that can be used to set or assess tariffs for grid-connected and off-grid renewable energy systems in West Africa.

On capacity development of the ministry, UNIDO and ECREEE organized a technical training in Bissau, from 3 and 4 December 2018, centered on decentralized energy systems for about 30 participants coming from the Ministry of Energy, the national utility, private sector, academia, etc. The main objective of the training was to sensitize the participants on the importance of mini-grids for rural electrification and strengthen the capacity of decision-makers, by providing them with knowledge and tools aimed at promoting a favorable framework for the development of mini-grids in Guinea-Bissau. The training was followed by two field-study-trips to mini-grids in Bambadinca (community-run) and Contuboel (private), with approx. 50 participants, in collaboration with ALER, the EU Delegation, ECREEE and TESE. The field trips exposed participants to the technical solutions and operational issues concerning the mini-grids. The mini-grid training participants in particular, had the opportunity to observe first-hand the benefits and challenges of mini-grid design and management, and assess their full potential.

Additionally, in line with the GEF project document, an active exchange on sustainable energy issues between Cabo Verde and Guinea-Bissau has been established. A team of three Portuguese speaking ECREEE experts have been assisting the national project coordinator in day-to-day activities and the review of documents. Experts from Guinea-Bissau have been invited to ECREEE trainings and conferences on a regular basis. Parts of the trainings in Guinea-Bissau were held by experts from Cape Verde (University of Cape Verde).

Despite the targeted efforts, it proved a difficult challenge to implement create a sustainable train-the-trainer approach. This was mainly due to the absence of qualified energy training institutions in Guinea-Bissau and the low qualification level of several trainees. For example, the mid-term evaluation states that GB stakeholders showed lack of interest in participating in the training program for trainers at Centro de Energias Renováveis e Manutenção Industrial (CERMI, Renewable Energy and Industrial Maintenance Centre) (South-South cooperation with Cabo Verde), even if funds were available and agreements set. In partnership with ECREEE at least three (3) train-the-trainer workshops have been organized in Guinea-Bissau and on a regional level. Experts from Guinea-Bissau have participated in regional ECREEE trainings. It is also interesting to note that the mid-term remarks that there are about 5 trainers trained on RE by the GEF/UNIDO project in GB; the great majority of these trainers (trained by the project) emigrated to other countries.

So far, the project trained already more than 200 experts from different stakeholder groups. Entrepreneurs from Guinea-Bissau have also previously participated in ECREEE training workshops undertaken between 20 and 27 June 2018 in Accra, Ghana. The training had been organized under the umbrella of the Regional Off-Grid Electrification Project (ROGEP) and ROGEP Entrepreneurship Facility, which was established with financial support of the World Bank. The entrepreneurs were trained on pay-as-you-go (PAYGO) solar technologies business models. A Business-to-Business (B2B) networking event was also organized.

The monitoring and assessment of project indicators disseminated through the ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX) website: http://www.ecowrex.org/.

The evaluation of effectiveness of this project has two components. Objectively, according to the UNIDO evaluation manual, the result is Satisfactory. On the other hand, noting that the project has been implemented in a period of high political instability, not conducive to investment and preventing a real ownership and coordination of the project by the successive governments, the achievements of the

19 The Toolbox consists of four separate excel models: a.) IPP Model, b.) Green Mini Grid (GMG) model, c.) Prosumer model (RE systems for own consumption and injection of excess generation into the grid) and d.) Supply Curve model.

project, and the contributions of the project to facilitate development of RE in the country, the classification should be Highly Satisfactory.

2.2 Progress towards impact

2.2.1 Behavioral change

Prior to this project, there were no grid-connected and no decentralized renewable energy projects installed with a capacity of 0.5 MW. Furthermore, there was no funding for renewable energy projects, and no strategy or action plans for renewable energy and energy efficiency. This project changed the situation. In line with the GEF objective, it has transferred (to the country) new and larger-scale technology solutions (e.g. solar PV mini-grids, small hydro). The project has leveraged with various donors and financiers around USD 22 million investment and PV hybrid mini-grid projects with a capacity of 2,8 MW. Other investments with feasibility studies prepared by the project are being prepared in recently started projects. The project has also contributed to prove the feasibility and bankability of a transformative 27 MW hydropower project (Saltinho HPP) and a financing partnership with Development Financing Institutions was set up. The Government was equipped with an investment plan and a project pipeline, which paves the way how to achieve 50% RE penetration in the electricity system by 2030.

With the support of UNIDO, the Renewable Energy Unit became a visible partner, mobilizing investments in RE, presenting the investment possibilities at international fora, and facilitating the implementation via feasibility studies, management modeling and creating a base of knowledge regarding RE and EE in the country. This despite of the fact that the political turmoil did not allow the strategy and plans to be endorsed by the GoGB.

The project has contributed to improve the capacity of stakeholders in the country regarding RE. However, part of the persons who received training emigrated. The project had a limited success on the willingness of the private sector to invest in renewable energy. This prevented the project to be pioneer in biomass renewable energy, or to broaden the scope of types of industries using RE. There have been several trials to implement EE measures in some hotels, by coupling them with solar PV and solar heating systems. However, the owners did not proceed with the investment.

The project is socially inclusive. In particular, the mini-grid projects enabled communities to start having access to electricity. For example, in Bissorã, there is a market now of electricians installing the electricity in the houses. Moreover, the management of the Bambadinca power plant is done by the community association.

Interviewed stakeholders state that the project has changed the scenario of renewable energy in the country, namely by establishing a RE sub-sector in the country. Currently there is a pathway to follow, where many projects have been identified and their feasibility analyzed, and there is an improved communication between the stakeholders and donors of the sector.

2.2.2 Broader adoption

The project has produced several studies, plans and feasibility studies. Some of the feasibility studies allowed projects to be financed, and other are being prepared for financing. Besides, the country has a realistic road map for the development of RE and EE until 2030. Several of the identified projects in the investment plan are subject of a GEF-UNDP project that is starting in Guinea-Bissau, and the Saltinho HPP is making progress to be financed. In this way the results of the project are being mainstreamed.

The innovative management model of the hybrid mini-grid of Bambadinca presents challenges. Bissorã will have a different management model. These trials might be replicated elsewhere.

The fact that most of the private sector projects did not go through and that the train the trainers could not be implemented as foreseen limit the broader adoption of the project.

Progress to impact is satisfactory.

3. Project's quality and performance

3.1 Design

The project document has been prepared based on the results of various studies, assessment of the relevant initiatives implemented in Guinea-Bissau, consultations with stakeholders, surveys etc. during PPG. The Project aims at transforming the electricity sector in Guinea-Bissau to a sustainable low-carbon development path. Based on the results of the initial studies, including feasibility studies, the project combines activities in the areas of technology demonstration, policy support as well as capacity building. Taking stock of the regional capacity, the project also facilitates "south-south knowledge transfer"[10] between ECOWAS (particularly Cape Verde) and Guinea-Bissau.

The activities foreseen for the project are sound and appropriate. The quantitative goals and main objective were reasonable and flexible. Critical risks such as related to political, infrastructure, financial, stakeholder engagement, implementation, or sustainability aspects have been identified with specific risk ratings.

However, the risk of lack of active participation/ engagement of sector stakeholders in the project was considered very low but turned out to be high. The project design has not adequately addressed the risk of implementation delays of the demonstration projects due to time it takes for promoters to mobilize funds. Those risks have materialized and direct implementation of increasing installed power were limited (about 33% was achieved), and the projects financed by EREF were not implemented by the end of the project.

The project design (in terms of funding, institutional arrangement, implementation arrangements) is valid and relevant. This is evidenced by the fact that even with institutional instability the project could be implemented.

Monitoring and Evaluation constituted the fourth component of the project. In this way, it had specified objectives, outputs, and a budget. Besides, the project document also specified the indicators to be monitored. A detailed M&E plan should have been prepared by UNIDO in collaboration with the Project Management Office (PMO), according to the project document. The plan has never been prepared and the information have not been collected in a systematic way. The project progress was monitored through annual PIRs and a project management spreadsheet (reporting in relation to the results framework).

The project design is rated as Satisfactory.

Overall, the Project Results Framework has adequate structure, outcomes and outputs, and target indicators. The indicators are SMART (Specific, measurable, attainable, realistic and timely). It can be argued that 2.5 MW of new installed power was a bit too ambitious, as it would have not been possible due to the low budget and the lack of time (4 years). In addition, the importance of registering the project as a NAMA is not evident from the project document - even if latter the process has been replaced by NDC, there was no really engagement with/from the GoGB or from the focal point.

The expected results are realistic. However, the development of a strategic framework is not presented in a straightforward way. There seems to be somewhat a confusion between policy, strategy and action plans, and energy efficiency is not mentioned. In fact, SE4ALL has an Agenda and an Investment Plan, and there are national plans for renewable energy and energy efficiency. For some outputs the indicators and targets are a bit muddled.

The PRF contains a list of assumptions and risks - at output and activities level - which seem realistic and would allow achieving success.

The Project Results Framework is considered Satisfactory.

3.2 Relevance

This project is highly relevant, in particular given the situation of the country.

By the time of designing the project, a new government had been elected and it was starting to implement an overarching development reform and trying to get international community interested. The programme "Terra Ranka". Unfortunately, political instability followed and the programme did not go through. The country had a tremendous need to increase renewable energy installed power at urban, peri-urban and rural areas, and to define a strategy and action plan to guide progress. Some isolated initiatives in the country had shown promising results. Some opportunities of larger scale intervention, such as Saltinho HPP, were also present.

The country was facing and it continues facing in present day the interrelated challenges of energy access, energy security and climate change mitigation and adaptation simultaneously. At baseline, the national energy consumption is characterized by the predominance of traditional use of biomass with up to 87.8%, followed by 11.7% from petroleum products and only 0.5% from electricity. The country relies mostly on diesel generators for electricity generation, and the generation capacity has dropped more than 80% in the past years. The country's electrical network used to be divided into several isolated grids, which include the main grid for the capital, Bissau, and independent secondary grids and secondary production centers in peri-urban areas (i.e. Bafata, Gabu, Farim, Mansoa, Bissorã, Canchungo and Catio). In Bissau, the four (out of seven) units operated by the national utility EAGB (7.5 MW) are, in practice, estimated to deliver 2 MW on average due to lack of ability to purchase fuel and maintenance challenges (the remaining groups were out of order), while the needs are estimated at 30MW;. There is an ongoing emergency project[20] to increase production of EAGB. The status of the secondary grids is also poor. Due to the political instability, economic decline, poor maintenance, theft of wires and high costs of diesel none of the isolated grids and generation facilities were functional. Therefore, the national electrification rate was estimated at 11.5% in 2010, with Bissau achieving 29.1% electrification rate of electrification, while the other major cities had an average of 4.3% rate, and the rural areas had less than 1% electrification rate. The urban and rural poor in Guinea-Bissau spend more income for poor quality energy services, than the better off for clean and modern energy services. Besides electricity, costs are very high, due to inefficiencies of the system.

By the time of project preparation and inception, some promotion of decentralized renewable energy solutions for rural electrification had been made, with around 0.5 MW of installed electric capacity. This installed RE capacity came mainly from micro-scale PV systems for rural households, health facilities or water pumping. Such projects have been currently implemented by CILSS with co-funding of the European Union (EU) under the Programme Regional Solaire (PRS) and UNDP. The small size of the systems hardly allows other productive uses, which are crucial for income generation in rural areas. There were also efforts to make use of cashew shells for supplying power to cashew processing plants or villages. However, the projects SICAJU in Bissau (80 kVA), SAFIM in Safim (42 kVA) and LICAJU in Bolama (150 kVA) were either not functional or still not finalized, and a programmatic approach to make use of bioelectricity was still lacking.

Relevance to GEF priorities

The project is relevant to GEF Climate Change focal area's Strategic Program 3 – Promoting market approaches to renewable energy, in particular OP6 promoting grid electricity from renewable sources,

20 https://projects.worldbank.org/en/projects-operations/project-detail/P161630

and promoting renewable energy for rural energy services. The intended outcome of the program (which the project replicates) is to establish *Favorable Conditions for Market Development in Terms of: Policy, Finance, Business Models, Information and Technology*. Moreover, the project was part of GEF Programmatic Approach to Access to Energy in West Africa, part of the Strategic Program for West Africa (SPWA), approved by GEF Council in November 2008.

Relevance to UNIDO's priorities

The project is fully in line with UNIDO's mandate of promoting services for improved industrial energy efficiency, enhanced use of renewable sources of energy and promotion of cleaner technologies uses of renewable energy in developing countries. UNIDO's Department of Energy implements and executes GEF-supported projects under the climate change mitigation cluster that focus on: providing energy access for productive usage to the rural poor, with an emphasis on renewable energy; increasing productivity and competitiveness by improving industrial energy efficiency; and reducing greenhouse gas emissions through capacity building projects designed in conformity with the United Nations Framework Convention on Climate Change.

UNIDO's Renewable Energy Strategy aims at helping developing countries and countries in transition to achieve the following strategic outcomes:

- Mainstream the use of renewable energy in industrial applications, in particular in small and medium sized enterprises (SMEs), to increase their competitiveness and reduce dependence on fossil fuels;
- Create business development opportunities through increasing access to energy through mini-grids, by promoting renewable energy technologies;
- Support innovative business models promoting renewable energy as a business sector, thereby increase the viability of enterprises, particularly in rural areas, by augmenting the use of locally available renewable energy sources.

Besides, UNIDO is coordinating the Global Network of Regional Sustainable Energy Centers, which is comprising of centers in Africa, the Caribbean and the Pacific. UNIDO has been a key technical partner in the establishment and operation of the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) as well as in the design of the ECOWAS Renewable Energy facility (EREF). Moreover, within a framework of south-south cooperation UNIDO in partnership with ECREEE is coordinating the energy component of the GEF Strategic Programme for West Africa (SPWA). UNIDO is implementing several similar GEF projects in the region (e.g. Guinea, Sierra Leone, Liberia, Burkina Faso, Cape Verde and Chad). UNIDO is also fostering potential synergies with relevant other programmes (e.g. Environmental Management, Business, Investment and Technology, Trade Capacity-Building and Agro-Business Development). UNIDO pays special attention to mainstream gender equality throughout its technical cooperation project portfolio.

Overall, the Project is consistent with the focal areas/operational program strategies of GEF with UNIDO's mandate and plan of action and addresses the needs of Guinea-Bissau. The project ended up support the Renewable Energy Unit of the Directorate of Energy and the Steering Committee to promote the Renewable Energy in the country, even if the successive governments did not provide guidance.

The Relevance is considered Highly Satisfactory.

3.3 Efficiency

The project was operationally launched in October 2014, where the first contracts and procurements started to be implemented. However, the project was officially launched in March 2015 in the margins of a jointly organized ECOWAS energy event and training. . The difficult political and economic situation

had definitely and impact on the implementation of the project and several times there were UN travel restriction imposed. Additionally, the Ebola crisis led to travel restriction and partial "lock-downs" and border closures. Therefore, the project extended for one more year to finalize some of the physical projects. Furthermore, even after the GEF financing closure, some project activities are still continuing with funding from other partners (e.g. OeEB).

As seen above, at the time of finalization of the project some projects were yet to be concluded, other ones were not implemented. Bissorã was just starting production, and starting to have clients, but it did not yet have a management model in place, despite of the efforts of UNIDO[21]. Projects of EREF were also with large delay, and only one (out of 3) is prone to be fully implemented. The budget of the project by January 2020 had been all consumed. It shall be noted that the GEF project aimed to create an enabling environment for RE investments. The installation of projects lies in the responsibility of the respective promoters and financiers (e.g. DFIs).

During project implementation component 1 could not reach the ambitious target by the time of the evaluation. By March 2020, however, the project had mobilized USD 22 million for solar hybrid mini-grid projects with a capacity of 2,8 MW. Further projects were developed but have not reached financial close during project implementation (e.g. Saltinho project). The efforts made by the project on delivering studies and providing assistance to the projects was implemented and were extended. However, the political instability did deter private investments and co-financing of the government did not materialize. Component 4 efficiency was also limited, in particular as the monitoring of the foreseen indicators was not implemented.

The components 2 and 3 have been completed on time. The project has supported the production of a strategy, action plans, investment plans, baseline studies, and also awareness raising tools in an efficient way. Additionally, several trainings were implemented, although not all expected results could be attained.

The co-financing has materialized, in a higher extent than foreseen under Component 1. Component 3 has mobilized USD 210,000, in line with what was expected in the project document. Co-financing has not been accounted for in Components 2 and 4, the expected amount was about USD 76,000 and USD 90,000 respectively.

Efficiency is rated as Satisfactory.

3.4 Sustainability

The sustainability of benefits measures the continuation of benefits from a development intervention after the project has been completed. The rating is related to the probability of continued long-term benefits, as the resilience to risk of the net benefit flows over time.

Overall, the project has managed to mobilize significant project financing and foreign direct investment that will result in an increase of RE penetration in the country. Moreover, the GEF project has equipped the Government with an investment plan on how to achieve the RE/EE targets. The project has laid a solid basis for major grid-connected and decentralized priority projects, which have already received concessional financing commitments by development banks.

21 This project was financed by UEMOA, who sub-contracted the overall management of procurement to SABER-ABREC. SABER-ABREC focused almost exclusively on physically building the mini-grid system through sub-contractors, and did not focus on the preparation of a management model, including a tariff regime.

Furthermore, it was agreed that after the project closure, ECREEE will continue to support the Ministry with the follow-up of the activities. Finally, despite the completion of the GEF funding part, the UNIDO project activities are still continuing with funding from other partners by March 2021 (e.g. OeEB).

However, in general the socio-political, institutional framework and governance risks remain high. The transition of the renewable energy (and the overall energy sector) toward more private sector oriented approaches and commercial financing will become a reality only if the political situation becomes more stable and regulated, and the domestic/international financial sector is able to respond to the needs of the private sector interested to invest in such projects (e.g. blended financing with affordable interest rates). Moreover, increased access to energy will increase production and consumption and it remains to be seen if the environmental governance of the country will verge towards an environmentally sound development

Overcoming financial risks – likely – The number of pre-feasibility studies and mobilization of financing for implementation of renewable energy projects is visible, and already commented extensively above. It should be mentioned also that a new GEF-UNDP project is starting at the time of writing this report. Part of the project will implement projects that have been identified during the present PIRE project. Hence, this GEF-UNIDO project has been a critical catalyzer.

Overcoming socio-political risks – moderately unlikely – there continued to be instability in government of Guinea-Bissau. The strategies and plans developed during this project have not been endorsed by the government yet. Reportedly, the new line Minister of Energy has a vision for the sector and there is hope that the structural documents can be endorsed, but uncertainties remain high. The PSC was able to guide the project in the absence of the government, but the committee is composed by international institution representatives, international NGO, the NPC (from the DG Energy), and the GEF focal point. Other national entities have been mentioned in the project document as members of the Steering Committee, but as seen from the PSC meeting proceedings, those entities did not attend the meetings. In some of the PSC meetings the representative of the national electricity utility was also present. Therefore, national ownership is not widespread.

Overcoming institutional framework and governance risks – moderately unlikely – The management of the mini-grid of Bambadinca, that was expected to be able to serve as a model, turned out to be jeopardized by the governance of the association itself. Bissorã mini-grid will be managed differently, but it is yet to stabilize. Also, it has not been possible to implement a train-the-trainers scheme, and some of the trained persons have left the country.

Overcoming Environmental Risks - moderately likely - The project is considered to be ecologically sound and sustainable as it is promoting the use of renewable energy and the establishment of a renewable energy market. The project was not able to improve the use of biomass on the cashew plants, due to a lack of interest of the owners, so an opportunity was lost on this front. Additionally, as electricity becomes available and productive activities can be more easily developed, there is a risk for increasing consumption with the associated impacts. This will need to be addressed by the Ministry of Environment.

In conclusion, the rating on sustainability is Moderately likely.

3.5 Gender mainstreaming

Gender has been specifically considered in the project design. The project document establishes several ways in which gender can be mainstreamed into the project. For example, the trainings for component 3 included modules on gender, and the steering committee was supposed to be attended by *ENERGIA International network on "Gender and Sustainable Energy"*.

ENERGIA ended up not being present at the PSC meetings. The strategy and action plans developed on component 2 address gender. Trainings addressed gender.

However, despite continuous efforts towards gender mainstreaming, the participation of women in trainings and project activities has proven to be a challenge, thus their involvement somehow limited. The target was 30% of women attending the trainings.

As the project took some concern for gender perspective, although in a limited way, gender rating is considered moderately satisfactory.

3.6 Performance of partners

The project was designed by UNIDO after consultations with the national counterparts.

It is clear that UNIDO HQ staff provided much support to the project. The PM and its deputy have participated in the Steering Committee meetings and visited the project annually and have directly engaged in reaching out to partners and to stakeholders. Without a proper institutional support, the NPC felt supported by UNIDO to carry on its activities. The success of the project in a significant extent due to the engagement of UNIDO HQ. NPC performed with high motivation and mission spirit, natural to his personality. The NPC is a staff of the ministry and has several decades of experience and is well-known in the energy sector of Guinea-Bissau. It shall be noted that although the GEF project has closed, the UNIDO project still continues with funding of other partners (e.g. OeEB).

ECREEE received an execution contract from UNIDO to support the NPC throughout the project duration. A senior and a junior expert have been regularly supporting the NPC. ECREEE also supported the NPC to implement the first EREF call and created synergies to ECREEE training activities and tools. ECREEE continues to support the NPC, who is currently working in the Ministry, also after the project closure.

There has been a Project Steering Committee (PSC) consisting of the directorate of energy, the GEF focal point, NGOs such as TESE and ADPP, and representatives of partners such as UNDP and EU, and representative of the utility EAGB. Other entities that had been invited to the PSC did not participate, as per the proceedings of the PSC. The PSC convened in 2015, 2017 and 2018, and took decisions regarding changes in the project direction that have been captured by the mid-term evaluation and are described above. The level of ownership of local stakeholders is high. In fact, interviewed representatives of the government agencies, municipalities, and other public institutions, private sector representatives, beneficiaries and other stakeholders express strong ownership of their roles within this project. The organization of PSC meeting remained a challenge, as UN travel restrictions were introduced several times due to the political situation and the Ebola outbreak (partial lock-downs, airport and border closures). Therefore, it was decided to have only one PSC meeting per year.

The other partners of the project were the NGO TESE, which implemented the Bambadinca Sta Claro project and carried out different studies and technical assistance activities. TESE has performed very well during the project implementation. However, by 2019 it changed the team composition, which continued to provide technical assistance, but with less project institutional memory. ALER, the lusophone association of renewable energy was pivotal in organizing the investment conferences and the background documents. Other partners have also provided the required support.

The project proposal has been submitted in August 2010, and the endorsement date is March 2012. By July 2012, GEF had made the payments to enable the project start. UNIDO has submitted the PIR to GEF from 2014 to 2017. It is not clear if GEF has provided any feedback to them. There is also no evidence was found of any feedback from GEF to the MTR.

Performance of partners is rated as Satisfactory, except regarding the government.

4. Factors facilitating or limiting the achievement of results

4.1 Monitoring and evaluation

Component 4 of the project related to project monitoring and evaluation. Expected outputs were Project monitoring and evaluation through: (a) the establishment of the Project Steering Committee and the execution of two annual committee meetings; (b) Yearly progress reports in accordance with the established monitoring plan; (c) Final evaluation

The PSC was established but only convened 3 times instead of 8 times. Due the repeating UN travel restrictions it was decided to have only annual meetings (e.g. political crisis, Ebola). In 2016 and 2019 there were no meetings. However, despite this, every year annual progress reports and work plans in the form of PIRs were produced. Progress was tracked through a PCM sheet in line with the results framework.

The project document also indicated in the Monitoring and Evaluation section that M&E detailed plan should be prepared by UNIDO in collaboration with the Project Management Office (PMO) and project partners. The project document describes the monitoring information to be gathered and responsibilities about who should gather the information. The monitoring plan has never been prepared and the information gathering has not been performed on a systematic way. The implementation progress has been tracked through a PCM sheet, in line with the results framework.

As indicated in the project document, the M&E plan was expected to make reference to the impact and performance indicators defined in the Project Results Framework. The Project Results Framework includes baseline and, in general, the proposed indicators and sources of verification for the project development objective, outputs and outcomes therein are adequate to monitor progress. Most of the proposed indicators are smart and can be easily verified, and the assumptions are realistic. However, the risk related to adherence of the partners has not been adequately addressed, as the document had been written at a time of hopeful optimism.

A mid-term review has been conducted from January to March 2018. It indicates that *the M&E system based on the Project Results Framework (which has measurable indicators for each activity to be implemented by the project as well as identification of the sources to be used in the evaluation) does not have a plan and a tool to register and report the results for each of its outputs. The M&E of the project so far has been done in an ad-hoc way and has focused primarily on achieving the project's overall impacts and key results.*

The Project Implementation Reports of the years 2015 to 2019 (5 documents) have been submitted to the evaluation team.

Rating on M&E is Moderately unsatisfactory.

4.2 Results-Based Management

The national management and overall coordination mechanisms seem to be efficient and effective. All parties were aware of their roles in the Project and act within their appropriate responsibilities.

The implementation approach, with the NPC at the Directorate of Energy was key to ensure some country ownership of the project. The PSC also demonstrated an important flexibility for the appropriate execution of the activities, allowing to change some of the outputs for more realistic ones given the situation, and also scope of some studies and final dates of the deliverables, in order to guarantee a greater effectiveness and impact of the project results.

The UNIDO HQ-based management, coordination, monitoring, quality control and technical inputs have been effective. However, some interviewees report that there is scope for improvement on time-effective response from HQ.

Rating on results-based management is satisfactory

4.3 Overarching assessment and rating table

Table 3 below summarizes the evaluators' assessment of the project:

Evaluation Criteria	Comments	
Progress to impact	This is a pioneer project, and also a catalyzer. Despite the political situation the project was able to mobilize different partners and engage in a series of pre-feasibility studies that are currently in the pipeline to be implemented in the near future. The project was able to establish a renewable energy sub-sector in the country and attracted investment. However potential for broader adoption of what has been achieved is limited due to political instability and difficult access to affordable financing, leading to a certain apathy of the private sector. The management system implemented in Bambadinca could not become a model.	S
Project design		S
Overall design	The project was adequate to address the RE development barriers (financial, regulatory, technical, information and awareness) identified in the project preparation. The design is consistent with the country and donors priorities. Stakeholder analysis was adequate, but analysis of some risks are limited. The overall objectives were very ambitious.	S
Logframe	There is a coherent logic between the objective, outcome, outputs and activities. The quantitative targets of the goal and objective of the project were realistic, although some risks turned out to be higher than expected.	S
Project performance		S
Relevance	The project is highly coherent with country's priorities, and with the ECOWAS regional policy priorities. The project is also aligned with GEF Climate Change focal area's Strategic Program 3 and is part of GEF Programmatic Approach to Access to Energy in West Africa, approved by GEF Council in November 2008. The project is also aligned with UNIDO strategy and priorities regarding RE and has allowed ECREEE to gain experience on technical assistance to the countries.	HS
Effectiveness	Objectively, the overall effectiveness of the project is satisfactory. The project was too ambitious regarding MWh production targets of	S

Evaluation Criteria	Comments	
	component 1 implying installed power, and Component 3's results were limited. But it should be highlighted that the project has been implemented in a period of high political instability, not conducive to investment and preventing a real ownership and coordination of the project by the successive governments. Under these circumstances, the achievements of the project, and the contributions of the project to enable and promote development of RE in the country, deserve to be considered Highly Satisfactory	
Efficiency	The project has been implemented in a timely manner. Whatever outputs and targets not achieved on time, they were not achieved at all. The time of the project has been extended for one year, and the available budget has practically been consumed, some of the efforts done did not result. Co-financing has materialized, and in component 1 was about 6 times higher than expected. The GEF financing has closed but the UNIDO project is still continuing with other funding.	S
Sustainability of benefits	Purely financial risks have been overcome with the mobilization of investment (22M.USD) and Saltinho HPP (27MW) and another GEF project starting on the wake of this one. The project has also worked in support of ECREEE continued support to the country. However, given the political turmoil that continues in the country, the strategic and planning documents (including a clear roadmap on how to achieve 50% of RE by 2030) are not yet endorsed. The project has had limited impact in devising a mini-grid management model, and in using biomass (cashew husk) energy for industry. There is still not a strong nexus between energy and environment.	ML
Cross-cutting performance criteria		MS
Gender mainstreaming	The project document did address gender mainstreaming, and the strategic and planning documents included gender. Training modules on gender issues were imparted. However, the project was not able to attain the target of 30% of women in the training courses.	MS
M&E design and implementation	Component 4 of the project focused on M&E. The detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments foreseen in the ProDoc has not been prepared by UNIDO, PMO and project partners. Due to travel restrictions (political crisis and Ebola), the PSC meeting were not held. Reporting was done through annual PIRs and a PCM sheet.	MU
Results-based Management (RBM)	The approach agreed for the project was followed and a Steering Committee has been established and was operational. The different partners were aware of their roles and responsibilities. The project benefitted from experienced NGOs and UNIDO's experience. The management model was flexible enough to allow for changes that benefited the project.	MS
Performance of partners		MS
UNIDO	UNIDO HQ staff from different UNIDO departments provided good quality support and advice to the project. UNIDO HQ has also hired international	S

Evaluation Criteria	Comments	
	consultants who were appreciated. Several interviewed persons stated that they would have liked UNIDO to provide further and timelier support.	
Other partners	ECREEE had a very important role in supporting the project, providing technical assistance, supporting with the EREF grants, and hosting the website. The NGO TESE hired to support several studies and technical assistance in the project was also of paramount importance for the contribution of the project. ALER played a very important role on the promotion of the RE & EE needs and investment plan of Guinea-Bissau.	
National counterparts	Country ownership is not so high, as involvement of major national stakeholders was less than satisfactory. In fact, there is no report of the presence of most of the national entities (mentioned at the end of Chapter 1.3) in the PSC meetings. There has been limited support from the ministry, as ministers did not stay long enough in office. Successive ministers and their delegations, local authorities, hospital administrations, and local population, who understood the importance of the project, participated in the activities and provided support.	MU
Donor	GEF provided funds. Co-financing has materialized, except from the side of the government.	S
Overall assessment	The overall rating is Satisfactory	S

Project rating criteria[22]

Score		Definition	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% to 100% achievement rate of planned expectations and targets)	SATISFACTORY
5	Satisfactory	Level of achievement presents minor shortcomings (70% to 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% to 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% to 49% achievement rate of planned expectations and targets)..	UNSATISFACTORY
2	Unsatisfactory	Level of achievement presents major shortcomings (10% to 29% achievement rate of planned expectations and targets)..	
1	Highly unsatisfactory	Level of achievement presents severe shortcomings (0% to 9% achievement rate of planned expectations and targets)	

Project rating criteria for sustainability:

22 The Project rating criteria are those of the UNIDO's Evaluation Manual, 2018.

Score		Definition (interpretation of the evaluation team)
6	Highly Likely (HL)	There are no risks affecting this dimension of sustainability.
5	Likely (L)	There are minor risks that affect this dimension of sustainability.
4	Moderately Likely (ML)	There are moderate risks that affect this dimension of sustainability
3	Moderately Unlikely (MU)	There are significant risks that affect this dimension of sustainability
2	Unlikely (U)	There are major risks that affect this dimension of sustainability
1	Highly Unlikely (HU)	There are severe risks that affect this dimension of sustainability

5. Conclusions, recommendations and lessons learned

5.1 Conclusions

The project *Promoting investments in small to medium scale renewable energy technologies in the electricity sector in Guinea-Bissau* is a full-sized project funded by the Global Environment Facility (GEF) and implemented from October 2014 to October 2019 by the United Nations Industrial Development Organization (UNIDO), and the Unit of Renewable Energy of the line Ministry of Energy and Industry of Guinea-Bissau. The GEF project has been formally finalized. However, certain project activities, which were funded by other partners through UNIDO are still continuing (e.g. OeEB, ADA) until March 2021. The project had a steering committee chaired by National Director of Energy and composed by representatives of several public and civil society entities.

The main objective of the project is to promote investments (at least USD 8 million) in small to medium scale renewable energy technologies in the electricity sector in Guinea-Bissau. The project had four main components: investments into small and medium scale renewable energy technologies; consolidated policy and regulatory framework for renewable energy; capacity development and awareness raising on renewable energy; monitoring and evaluation. This is a pioneer project and a catalyzer, at the same time. Despite a situation of tense political and economic crisis, the project results have significantly improved the environment for targeted investments in the country with regards to innovative grid-connected and decentralized RE systems, and equipped the country with strategic documents and investment plan that constitutes a clear roadmap to increase RE penetration in the country (50% by 2030).

The GEF project has equipped the Government and attracted the interest of the private sector with RE&EE policies and an Investment Plan, which delineate a clear pathway and project pipeline on how to achieve a 50% renewable energy penetration by 2030. Through pre-investment support and match-making with banks and investors, the financing (around USD 22 million) for several key solar PV hybrid mini-grids was secured and is already implemented or under implementation. Moreover, the foundation for a transformative 27 MW medium-scale hydro power project (investment volume USD 98 million) was laid, by providing pre-feasibility support and building partnerships with development financing institutions. Furthermore, the project has provided capacity building support in key areas, such as the development and management of solar PV hybrid mini-grids, and promoted south-south cooperation through ECREEE with the Portuguese speaking Cabo Verde.

The project was able to establish a renewable energy sub-sector in the country and it attracted investment. The newly created Renewable Energy Unit in the Ministry of Energy and Industry was supported through an ownership-oriented "twinning" approach. However, potential for broader adoption of what has been achieved is limited due to the lack of capacity of the national private sector and limitations of the management model developed.

The project evaluation was limited by several factors, the most relevant being: the fact that by the time of the terminal evaluation (TE) several projects had not been fully implemented; at the time of writing this report there continues to be some uncertainty regarding key activities for the achievement of the envisaged goals (ex. EREF funded projects), or to achieve sustainability (ex. Bissorã management model); and the long duration of the implementation of the project has been accompanied with staff changes of implementation partners (such as TESE) and some information and project memory was not available.

The Project is **highly relevant**, as it is consistent with the needs of Guinea-Bissau, where the access to electricity was 11% on average, and despite the potential there was previously no renewable energy sub-sector. The project is also aligned with GEF Climate Change focal area's Strategic Program 3 and is

part of GEF Programmatic Approach on Access to Energy in West Africa, approved by GEF Council in November 2008. The project is also aligned with the UNIDO strategy and priorities regarding RE, and UNIDO's support to RE regional centers, in particular to ECREEE; the ECOWAS center could play a direct role supporting one of the member countries from capacity development to implementation of the EREF.

The project implementation followed in a great extent the project document (ProDoc). Some changes have been agreed upon by the Steering Committee and were captured by the mid-term evaluation (MtE). Given the political turmoil with a conflict between the President and the government/party that won the elections, some of the activities related to RE policy and regulations needed to be adapted or replaced (e.g. creation of a regulator). Moreover, the difficult economic situation and the weak financial capacity of the private sector required a flexible approach regarding the selection and further development of RE investment projects.

In line with the overall objective to mobilize project finance and foreign direct investment in innovative RE infrastructure/technologies (for the country), the project exceeded by far its initial target. With a limited budget of USD 1,5 million the project had an excellent fund leverage and has laid a solid foundation[23] for investments which are to happen after project closure. From the initially planned USD 8 million, at least USD 22 million have been committed for RE projects supported by this GEF project during its implementation (this is evidenced news from independent information sites, and reportedly by signed financial commitments of donors). Part of the RE projects are already operating, other projects are currently in the procurement stage and other are approaching bankable feasibility stage.

The installed mini-grid projects are currently amongst the largest hybrid solar PV systems in the ECOWAS region. Moreover, the technical and economic feasibility of the 27 MW Saltinho Hydro Power project, which was pre-developed and promoted by the GEF project, has been proven. The project is being developed by UNIDO in partnership with the African Development Bank (AfdB) and the Austrian Development Bank (OeEB) as a Public-Private Partnership (PPP). Its investment costs are projected to be around USD 98 million. The Saltinho project is transformative, will cover major parts of the electricity generation of the country, will produce far below the levelized cost of electricity (LCOE) of diesel and Heavy Fuel Oil (HFO) and generate major GHG emission reductions.

The project's **effectiveness is satisfactory**. The project document was more ambitious, but the GEF project was able to generate a high impact not only by the outputs it was able to produce, but by setting an investment plan with a pipeline of concrete projects opening the space for further investments, and by performing feasibility studies. The *train the trainers* programme could not be fully implemented, but over 200 persons have attended the trainings provided by the project. The EREF projects could not be completed, due to difficulties (access to private funds and other barriers) which constitute lessons.

It should be noted that the GEF financing stream of the project is closed but the project continues until March 2021 with OeEB support, namely for Saltinho and some other activities (the funding has currently increased by 50 thousand €). In what concerns the GEF, the project has been implemented in a timely manner, in particular the consolidated policy and regulatory framework and the capacity development components. The duration of the GEF project implementation has been extended for a year (without budget increase), but outputs and targets that were delayed – in particular the EREF projects and the start of operation of Bissorã - ended up not being achieved anyway. In this way, the **efficiency is satisfactory.**

The sustainability of the project outcomes is **moderately likely,** mostly due to external factors. The project was able to mobilize significant project finance and foreign direct investment that will result in an increase of penetration of the RE in the country. Moreover, the GEF project has equipped the

23 Contributing to the sustainability of Project's results.

Government with an investment plan on how to achieve the RE/EE targets. The project has laid a solid basis for major grid-connected and decentralized priority projects, which have already received concessional financing commitments by development banks. After the project closure, it has also been agreed that ECREEE will continue to support the Ministry with follow-up on any pending activities. However, the *socio-political* as well as *the institutional framework and governance* risks remain. There is a need for the political situation to become more stable and regulated, and for reforms on the domestic/international financial sector to able to respond to the needs of the private sector (e.g. affordable interest rates) to occur, to enable the transition towards a more intense private sector involvement in the energy, and in particular of the renewable energy sub-sector. Moreover, increased access to energy will raise both the energy production and consumption levels. It remains to be seen whether the governing decision makers of the country are prepared and willing to lead Guinea-Bissau toward an environmentally sound development.

The gender dimension and women's empowerment have been taken into account in the design and implementation of the project. Gender issues have been included in the strategic and planning documents, with particular focus on capacity development activities. However, the number of women participating in the projects did not achieve the envisaged target.

The management approach agreed for the project was followed. However, the participation of national entities in the project steering committee (PSC) was less than expected. The PSC was mostly composed of international donors and NGOs, the National Project Coordinator (who also ended up representing the Directorate of Energy), and the GEF focal point. The project benefitted from experienced consultants, NGOs and Civil Society Organizations (CSO), and UNIDO's experience. The Project Steering Committee was flexible enough to allow for changes in the activities that favored the achievement of the outcomes. No monitoring and evaluation plan has been produced or implemented. However, there was regular tracking of the project progress through the PIRs and project management spreadsheet (based on the results framework).

With the purpose of assuring accountability, supporting management, and driving learning and innovation key recommendations and lessons learned are presented below.

5.2 Recommendations

As this project is being finalized, the following recommendations might be worth considering for similar projects or interventions:

To UNIDO	
R1	There is a time lag between the appraisal of a project, approval and the implementation kick off. Particularly in countries in which there is political instability, a quick assessment of the changes in conditions should be done, in order to adjust the project to the context.
R2	The political instability and weakness of the financial sector leads to limited capacity of the private sector to mobilize the required financing at affordable price and also to a limited appetite for investing. More and more there are innovative ways of getting financing to the private sector by private investors (impact investing), and these possibilities should be considered. Alternatively, in countries with very limited access to electricity, if private sector investment component does not advance, the project should consider other possibilities, such as rural electrification.
R3	There is a strong need for capacity development in managing utilities. A mini-grid is a utility and the management body, even if within a Civil Society Organization, should be professionalized.

	A secondment could be considered in the budget for the initial phase of these utilities.
R4	In future projects UNIDO should provide appropriate training to the national project manager/team on results-based management, M&E, and outcome-oriented reporting.

Recommendations to national stakeholders	
R1	National stakeholders such as different ministries and representatives of private sector should involve themselves more on this type of projects that generate opportunities for new sectors and business to arise.
R2	National stakeholders should engage more on awareness raising of the private sector regarding the potential of renewable energy and energy efficiency, namely by showing future financial benefits.

To the GEF	
R1	GEF should consider financing a Phase II of the project to ensure replication and scaling up of results. To overcome identified key barriers during the first phase, a particular focus on private-sector approaches in combination with modalities to improve the availability of affordable domestic financing could be laid. The EREF was a first initiative in this context. It could be further expanded and equipped with other financing instruments (e.g. concessional loans, guarantees, insurance products), in partnership with national and development banks.

5.3 Lessons learned

Key lessons learned
LL 1. The project showed the importance of partnerships with other donors and development finance institutions. Demonstrative projects with a light management structure have the potential to be catalyzers and bring about change, if they are flexible enough. Even a small project can have significant finance leverage, when focusing on initial technical activities for high-impact projects.
LL2. The perception of and participation in the project by the private sector has confirmed the private sector's general interest to invest in grid-connected and decentralized RE infrastructure, even in the least developed countries (LDCs), with very difficult political contexts. However, one of the key barriers for investment and private participation is the financial sector, which is not capable to provide affordable financial products for such investments.
LL 3. Partnership with civil society organizations to the delivery of public services is a possible way to manage mini-grids. However, a closer monitoring is required, as community structures lack management capacity and can be easily influenced by financial interests of a part of the group.
LL 4. Projects need to be flexible enough to change the target of investment when the foreseen promoters change ideas. In particular, when there are pressing needs, such as the case of rural electrification.
LL5. Information campaigns targeting companies are a crucial component of a project having market development as an objective. The understanding by private sector of the benefits (financial and other) to invest in RE can be a main driver of the market.

Annex A: Evaluation Terms of Reference

The complete evaluation Terms of Reference could be accessed at the below link:

https://www.unido.org/sites/default/files/files/2020-01/GFGBS-130012_TOR_TE-2019.pdf

Annex B: Persons met

Nº	Institution	Person met	
		Name	**Position**
1	UNIDO	Martin Lugmayr	Project Manager
2		Gentjan Sema	Assistant project manager
3	Directorate of Energy	Julio Antonio Raul	National Project Coordinator
4		Lamberto Soares Camara	Director of Planning
5	Regional Dirctorate of Energy, Bafatá	Domingos Gomes	Director
6	TESE	Nadia Faria	Country team leader
7	Mini-grid Bissorã	Romeu Abel	Responsible for the plant
8	Project promoters Pitche	Adulai Embaló	Beneficiary
9		Bacar Camara	Beneficiary
10		Binta Baldé	Beneficiary
11	Suntrough / Stenaks	Reinder Bouwmeester	Beneficiary
12	Project promoter Sonaco	Amadou Embaló	Beneficiary
13	Association for the Development of Bambadinca – ACDB (supervise the service that manages the mini-grid of Bambadinca)	Aliu Jaló	Secretary
14		Bucar Mané	First Secretary
15		Sana Mané	Administrative
16	Bambadinca Energy Community Service (managers of the mini-grid of Bambadinca)	Salmo Baldé	Coordinator
17	Bambadinca Water Administration	Quintino Djata	Coordinator
18	Prosolia (constructor of Bissorã power plant)	Eme parfait	National manager
19	Directorate of Environment	João Raimundo Lopes	GEF focal point
20	Directorate of Environment	Laurentino Rufino Tino	Currently Director of Environment

Annex C: Itinerary of the field mission

Nb	Activities	Day	Venue	Participants
1	Field visit to projects and stakeholders in Bissau	4/11/2019	Bissau	National Project Coordinator, and Project beneficiary representatives, and TE consultant
2	Field visit Bissorã	5/11/2019	Bissorã	National Project Coordinator, and power plant construction team and management, and TE consultant
3	Field visit to EREF projects	6/11/2019	Bafata, Pitche, Sonaco	National Project Coordinator, TESE representative, beneficiaries of EREF project, and TE consultant
4	Field visit to Bambadinca project	7/11/2019	Bambadinca	National Project Coordinator, TESE representative, beneficiaries of EREF project, and TE consultant
5	Meetings with stakeholders in Bissau	8/112019	Bissau	National Project Coordinator, TE consultant, and representatives of the Directorate of Energy, Directorate of Environment. Short meeting with the Secretary of State of Environment

Annex D: List of referred documents

Deliverables
010218 Estudo_de_Base_sobre_produ_elec_biomassa_Guinea Bissau_PT.pdf
200617 Baseline Study on Bioelectricity in Guinea-Bissau.pdf
aler_relatorio_gb_2018_3231.pdf
Concept Note_Guinea-Bissau Sustainable Energy Investment Workshop_SEforALL side Energy_Baseline_Report_Gabu Canchungo.docx
RE Status and baseline reports
UNIDO and ECREEE support Guinea-Bissau in making SDG-7 a reality by 2030 _ ECREEE.pdf
UNIDO and ECREEE support Guinea-Bissau in making SDG-7 a reality by 2030 _ ECREEE.pdf
web_agenda_de_acao_optimized.pdf
web_plano_de_acao_nacional_eficiente_optimized.pdf
web_plano_de_acao_nacional_optimized.pdf
web_plano_de_investimento_optimized.pdf

Component 1/ Investment faciliated
Other feasibility studies
- 010218 Estudo_de_Base_sobre_produ_elec_biomassa_Guinea Bissau_PT.pdf
- 170216 UNIDO GB FS cashew shell electricity DraftV1.pdf
- Anexo 36_ F2_BADORA_v2_11112015.pdf
- Anexo 38_ F2_Estadio Nacional_v2_19072016.pdf
- Anexo 40_F2_ParecerBiomassa_30052016_Vf_CPC.pdf
- Anexo 41_F2_ParecerBiomassa_30052016_Vf_Licaju.pdf
- Anexo 42_F2_ParecerBiomassa_30052016_Vf_Noba Sabi.pdf

PIRE_MEI-Estudo Viabilidade_VF.pdf
TESE-PIRE_LAIMCO_QUINHMEL_V3_11082016.pdf
TESE-PIRE_Replicação_D2-v2_12082016.pdf
PV Mini Hybrid Project Gabu Cachungo
PV Mini-Grid Project Bambadinca
PV Mini-Grid Project Bissora

Saltinho Project

Component 3
E1 - Relatório Estudo Diagnóstico e Programa de Acção para DGE - Versao Final V1.pdf
Anexo 1 – Necessidades de Formação.pdf
Anexo 2 – Plano de Formação Operacional Interno.pdf
Anexo 3 – Plano de Formação Operacional Externo.pdf
Produto3_Relatório_Final.pdf

PSC_Meetings
1st PSC meeting
- 020315 GEF_5_Launch Guinea-Bissau EN.pdf
- 170215 Guinea_Bissau_GEF5_Project_Agenda_ PSC_Meeting_v1.doc
- Acta da 1ª reunião do comite de pilotagem do GEF unido.docx

Rules of Procedure for PSC.pdf
Documents of the 2nd_PSC_Meeting_BTOMR_Guinea-Bissau
Documents of the 3rd_PSC_Meeting_and_Training_on_Tariffs

Progress reports and evaluations

Reporting_and_PIR_Evaluations
- 2015 Project Implementation Report docs
- 2016 Project Implementation Report docs
- 2017 Project Implementation Report docs
- 2018 Project Implementation Report docs
- 2019 Project Implementation Report docs

Mid-term review report EN vFINAL with annexes-01082018.pdf

Implementation documents

01 Introducao ao RETScreen.pptx
010717 TOR Bissora Project_ml_gs_revised_track_changes_v2.docx
080317_Workshop_Agenda_CR.pdf
170215 GEF_5_Launch Guinea-Bissau.pdf
170215_Concept_Note_mini_grids_workshop_GB.pdf
180823_2nd_Progress Report_GEF GB_ess.pdf
20140808_Final_Submission_to_GEF_(2nd_Submission)
20181204-09_Bissau_SE Conference
210518 Tracking framework co-funding.xlsx
300818 Revised TOR for ECREEE.docx
Agenda KoM_Vf.docx
ECREEE partnership
Executing partners contracts and TOR
GEF Project Bissora-001.pdf
Guinea-Bissau Sustainable Energy Investment Workshop_4May2018_Event Report.pdf
Guinea-Bissau_Project_Delivery_Report_by_Grant_and_SP_and_SC_Detail.xlsx
Programa_Conferência Internacional de Energia Sustentável na GB_20181123.pdf
seminario_abuja_draft_agenda_17_22_port.pdf
TESE monitoring reports EREF projects - Gardete
TESE Partnership
TESE_PPT Formação Homer Bissau_Dez2014.pdf