TERMINAL EVALUATION OF THE PROJECT "PROMOTING SUSTAINABLE MINI-GRIDS IN MAURITANIAN PROVINCES THROUGH HYBRID TECHNOLOGIES (MINIGRIDS)

Final report

Title of project funded by GEF and supported by UNDP	Promoting sustainable mini-grids in Mauritanian provinces through hybrid technologies (MINIGRIDS): 2016-2020
GEF Focal Area/Strategic Program	Objective 3 "Promoting investment in renewable energy technologies" of the Climate Change Mitigation section of the GEF Focal Area Strategy
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GEF-ID	5769
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Region and country covered by the project	Mauritania
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List of acronyms and abbreviations

ADFD	Abu Dhabi Fund for Development
AFD	French Development Agency
APAUS	Agency for the Promotion of Universal Access to Services
ARM	Multi-sector regulatory agency
WB	World Bank
CAD	Development Aid Committee
CDN	National Determined Contribution
CPD	Country Program Document
CPDD	Partnership Framework for Sustainable Development
DEME	Director of Electricity and Energy Management
DSPE	Public Electricity Service Delegate
EMG	Servicing, Maintenance and Management
ER	Renewable energy
GEF	Global Environment Facility
IRENA	International Renewable Energy Agency
CDM	Clean Development Mechanism
MINIGRIDS	Hybrid mini-grids
MPME	Ministry of Petroleum, Mines and Energy
MWH	Magat Watt Hour
NIM	National implementation
OECD	Organization for Economic Cooperation and Development
SDGs	Sustainable Development Goals
NGO	Non Government organization
ONM	National Office of Meteorology
PANE	National Action Plan for the Environment
PERZI	Electrification project in isolated areas
UNDP	United Nations Development Program
PRODOC	Project Document
ProPEP	Extended Priority Program of the President of the Republic
AWP	Annual work plan
MFTP	Multifunctional technical platform
ROAR	Results-Oriented Annual Report
RIMDIR	Program for Strengthening Productive and Energy Investments in Mauritania for the Sustainable Development of Rural Areas
SCAPP	Accelerated Growth and Shared Prosperity Strategy
SNEDD	National Strategy for the Environment and Sustainable Development
UNS	United Nations System
SOMELEC	Mauritanian Power Company
UDD	Sustainable Development Unit
EU	European Union
UNEG	Evaluation Ethics Guide and Code of Conduct

I. Executive summary

1.1 Table 1: Project Information

Details about the project		Project Milestones	
Title of the project	Promoting sustainable mini-grids in Mauritanian provinces through hybrid technologies	Date of approval of the PIF	05/20/2014
UNDP Project ID	00095958	CEO Approval Date / MSP Approval Date	11/20/2015
GEF Project ID	00005769	PRODOC signature date	11/24/2016
UNDP Business Atlas	00089934	Date of recruitment of the Project Coordinator	09/28/2017
Unit, Assignment ID, Project ID:	00095958	Launch workshop date	01/24/2018
Country	Mauritania	Mid-term evaluation completion date	01/08/2020
Focal field	Climate change	Final Assessment Completion Date	12/31/2021
GEF Operational Program or Strategic Priorities/Objectives	Objective 3: "promoting investments in renewable energy technologies "	Projected operational closure date	11/24/2020
Special fund	GEF TF (GEF Trust Fund)	Revised closing date	11/24/2021
Other financial partners	IRENA/ADFD		
Implementing Partner (GEF Executing Agency)	UNDP		
Executing agency	DEME (Department of Electricity and Energy Management), SOMELEC		
Involvement of NGOs/CBOs	N/A		
Involvement of the private sector	N/A		
Geo-spatial coordinates of project sites	N/A		
Financial information on the project (USD)			
Formulation	**To approval**	**Upon completion of PDF/PPG**	

Amount of the grant for the preparation of the project	68 000	68 000	
Co-funding for project preparation	70 000	70 000	
Project	**At ProDoc approval**	**At Terminal Evaluation**	
1. UNDP contribution	450 000	450 000	
2. Government	2 250 000	2 250 000	
3. IRENA/ADFD	5 000 000	2 455 000	
Total co-financing	7 700 000	5 150 000	
Total GEF funding	1270142	1 079 620	
Total project funding	8 970 142	6 234 620	

Sources: UNDP, DEME, UNDP-GEF Evaluation Guide, PRODOC Minigrids

1.2 Overview

i. The project *"Promoting sustainable mini-grids in Mauritanian provinces through hybrid technologies"*, abbreviated MINIGRIDS aims to contribute to both the development and use of renewable energy sources in rural Mauritania. It illustrates a decentralization policy promoting better involvement of sectoral ministries in the management of climate change in sectoral strategies and it is in line with all the international treaties fighting against climate change to which Mauritania has subscribed. The project duration was five (5) years, starting on November 24, 2016 and officially ending on the same date of this year 2021.
The objective of the project is to optimize existing mini-grids in Mauritania by providing an adaptive operational model and preserving a viable hybrid system (diesel/RE).
It is designed and implemented by the Government of Mauritania with the support of its development partners, in particular the Global Environment Facility (GEF), the United Nations Development Program (UNDP) and the Abu Dhabi Fund for Development (ADFD). The project has two main components: strategic (soft) and operational (hard).

ii. The "soft" component implemented according to the national execution modality by a Project Management Unit housed in the Ministry of Petroleum, Mines and Energy, aims to improve the governance of rural electrification at national level, through assistance in designing political, regulatory, legislative and financial instruments, favorable to developing hybrid mini-grids, and building national capacities to harness them. It is financed by the GEF, UNDP and supported by an in-kind contribution from the Government. The so-called "hard" operational component relates to the creation of an operational model of a hybrid mini-grid and is financed by the Abu Dhabi Fund and the Mauritanian Government (co-financing of 5 million USD) and implemented by SOMELEC after the dissolution of the APAUS Agency in 2018. The main objective of this operational component of the MINIGRIDS project is to improve access to electricity through renewable energies in four villages along the coast, to the north of the country (District of M'heijratt).The four villages targeted are M'haijratt, Tiwillit, Lemcid and Bellewakh with about 500 households in total. The inhabitants are mainly Imraguens, an indigenous Mauritanian ethnic group who are traditional fishermen and the descendants of the first peoples of Mauritania. The conservation of fish products, which is their main activity, requires energy. In addition, in these localities, access to drinking water remains a real concern. The populations get their supplies from cans of water from Nouakchott, the prices of which are often very expensive in view of their rather precarious socio-economic situations. Sea water

treatment is one of the ways that can help the inhabitants of these villages located on the coast to have access to drinking water.

iii. According to the PRODOC, the execution of MINIGRIDS required the mobilization of indicative resources amounting to 8,970,142 USD, of which: 1,270,142 from the Global Environment Facility representing 14.2%; 450,000 USD from the United Nations Development Program representing 5% of funding; USD 2,250,000 from the Mauritanian Government, i.e. 25.1% of the overall budget and USD 5,000,000 from the Abu-Dhabi Fund, i.e. 55.7% of all projected resources.

1.3 Assessment Ratings Table

iv. In accordance with the indications of the ToRs and with reference to the project results framework, the evaluation ratings focused on the following criteria: (i) The quality of monitoring and evaluation (design at entry, implementation and overall evaluation) , (ii) quality of implementation/oversight by UNDP, (iii) quality of implementing partner execution, (iv) overall quality of implementation/execution (v) operational coordination and management, (vi) risk management, (vii) key criteria relating to relevance, effectiveness, efficiency and sustainability.

Scoring scale: Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight and Execution, Relevance are rated on a six-point scale: 6=Highly Satisfactory (HS), 5=Satisfactory (S), 4=Moderately Satisfactory (MS), 3=Moderately Unsatisfactory (MU), 2=Unsatisfactory (U), 1=Very Unsatisfactory (VU). Sustainability is rated on a four-point scale: 4=Likely (L), 3=Moderately Likely (ML), 2=Moderately Unlikely (MU), 1= Unlikely (U) Assessment not possible (U/A): the expected impact and the extent of sustainability risks could not be assessed. The following table summarizes the ratings assigned to each criterion. The supporting elements of these ratings are discussed in the findings and conclusions section of the report.

Table 2: Scoring of criteria

Monitoring and evaluation (M&E)	**Rating (1-6)**
M&E design at entry	4
M&E Plan Implementation	3
Overall quality of M&E	3
Implementation and execution	**Rating (1-6)**
Quality of UNDP implementation/oversight	4
Quality of implementing partner execution	3
Overall quality of implementation/execution	3
Assessment of Outcomes	**Rating (1_6)**
Relevance	6
Effectiveness	4
Efficiency	3
Overall Project Outcome Rating	4
Sustainability	**Rating (1-4)**
Financial resources	3
Socio-political sustainability	3
Institutional framework and governance sustainability	4
Environmental sustainability	3
Overall likelihood of sustainability	3

1.4. Summary of findings/conclusions, lessons learned and recommendations

(1) The review of the MINIGRIDS project's achievements and the interviews conducted with national and local stakeholders highlight certain results that should be documented and promoted. The general conclusions and findings that emerge are understood according to the two strategic and operational components that structure the MINIGRIDS project:
With reference to the evaluation criteria of the DAC (Development Assistance Committee) of the OECD (Organization for Economic Cooperation and Development), the situation is as follows:

1.4.1 Relevance-coherence-alignment

(2) The MINIGRIDS is a strategically and operationally relevant project, in that it aligns perfectly with the national priorities of Mauritania. This, particularly in the field of rural electrification which requires the consideration of renewable energies for lower carbon investments, therefore concerned with reducing the country's ecological footprint and participating in better establishing its determined national contribution to mitigate the climate change effects. The project also provides appropriate solutions to structural problems of the rural electrification sector: its institutional framework and adequate energy production infrastructure. The project is well aligned with the strategic areas of the GEF, with the UNDP-Mauritania Country Program Document 3 and also with other technical and financial partners involved in the energy sector.
The project responds to the concerns of the populations in terms of access to energy sources for the development of their activities. Overall the relevance of the MINIGRIDS project is very strong because of these different points of observation.

1.4.2 Effectiveness

(3) The effectiveness of the project should in principle be assessed according to the state of progress of each component. Hence, the strategic component was conducted with a very good level of satisfaction, unlike the operational part, which is still struggling to deliver its expected investments. The development and validation of legislative measures (revised and validated Electricity Code with the consideration of the rural electrification sector, the involvement of the private sector, the injection of renewable energies into the circuit, etc.), the revised institutional framework (Master Plan for Rural Electrification finalized, revised framework applicable to PSDs, various studies carried out and other documents as illustrated in the rating table above), technical capacity building, the feasibility for the establishment of a renewable energy observatory, so many achievements to the credit of the strategic component.

(4) The operational component, on the other hand, had not delivered its investments at the time of this final evaluation. These delays were attributable to the dissolution of APAUS with its limited capacities that did not favor the proper execution of this component even before its dissolution. These technical capacity deficits had led to the signing of almost ineffective contracts. To this was added the period of uncertainty which lasted about eight (8) months for the transfer of responsibilities from APAUS concerning the rural electrification sector to SOMELEC.
The absence of an explicit theory of change for the MINIGRIDS project, which precisely describes the results chain, did not facilitate a relevant cross-analysis of the evolution of the results stemming from the execution of the project. At the same time, the absence of a steering committee which could have played an important role in the governance of the project and help

provide structural and institutional solutions to implementing the operational part hampered the effectiveness of the MINIGRID project.

1.4.3 Efficiency

(5) As a reminder, in the financial arrangement of the project, the operational part was carried out through co-financing from the Abu Dhabi Fund for Development and Government; while the strategic and institutional part is carried out thanks to the GEF and UNDP grant. Consequently, the efficiency of the project is assessed according to the two components of the project: the strategic or soft component managed by the Project Coordination Unit housed at the DEME and the operational or hard component whose management was first ensured by APAUS then by SOMELEC.

At the strategic level, financial management was good and carried out with the support of the UNDP according to the fiduciary methods and procedures commensurate with the international dimension of the UNDP. The management has also been certified by audits. At the end of the day, good budget execution of the strategic part was noted. According to the data provided by the UNDP-Mauritania Office as of December 2021, the overall execution rate is approximately 89%. At this strategic level, the management of MINIGRIDS has proven to be very efficient.

With regard to the operational part, the analysis of the financial data provided recently reveals a financial execution rate of 96.2% (disbursements/commitments ratio) only for Lot 2. This financial information should be considered with relativity, because it dates from April 2022 while the evaluation was carried out in December 2021. The non-availability of this financial implementation status of the operational component in time may be correlated with the significant delays noted in the completion of the infrastructure at the time of the evaluation in early December 2021.However, this interesting level of financial execution of the operational component observed a few months after that of the strategic component can reflect a significant progress in the construction of mini-grids. Even if this execution rate is interesting, its late delivery in relation to the strategic component does not allow for a fair, cross-cutting and concurrent evaluative assessment of the two components during the evaluation period (December 2021). It is important to specify that this level of progress in the execution of the operational component could not be checked independently on the ground by the evaluator, since this information was recently provided by the DEME after the end of project evaluation. This also reflects the loopholes and shortcomings noted in the operational implementation of the MINIGRIDS project.

Unfortunately, the efficiency of the project and all the other evaluation criteria are wholly assessed at the same time and also taking into account the operational aspect. This reveals, by extension, a generally low level of efficiency of the project during the evaluation period.

1.4.4 Sustainability

(6) As for the previous evaluation criteria, sustainability is also apprehended in a cross-cutting way. At the institutional and regulatory level, the solid anchoring of the strategic results obtained, the strategic interest given to MINIGRIDS by the government authorities, works in favor of a high probability of occurrence for the sustainability of the project's achievements. In addition to this, the rural electrification sector is a national priority to which the Mauritanian Government pays particular attention.

(7) On the other hand, the sustainability of the operational part suffers from a low likelihood due to the difficulties experienced by this component. The change decided by the government authorities with the agreement of the ADFD to connect the installations directly to the grid of the fully photovoltaic Cheikh ZAYED solar power plant in Nouakchott which supplies the port of Tanit. However, this last option also entails major risks for sustainability, in the sense that the SOMELEC network from which the mini-grids will be directly connected is faced with frequent outages. In addition, in the event of high demand and network outages, SOMELEC could be more oriented and concerned about meeting the high demand for areas or sectors that have more economic and social impact, to the great displeasure of these units located in sites with fewer populations.

The sustainability of the systems under construction (seawater desalination units, ice-making units for the preservation of fish, social water and electricity connections, etc.) in the four villages on the coast will largely depend on the operation, management and maintenance mode that the government authorities, through the Central Department of Rural Electrification of SOMELEC, will put in place. Mainly, two modes of operation of these infrastructures are possible: either the direct management of the installations by SOMELEC, or by a public electricity service delegate subject to specifications drawn up by the Regulatory Authority and a license granted by the Minister of Petroleum, Mines and Energy. In both cases, the contribution of the populations to the payment of the services (drinking water, ice for the conservation of fishery products, lighting, etc.) generated by the installations will constitute a fundamental element of the sustainability of the systems being installed. However, for social reasons, the authorities have decided to give priority, for the time being, to free services for the inhabitants of the four sites.

(8) The national anchoring of the MINIGRIDS project (national implementation methods) which empower the national entities (Ministry of Petroleum, Mines and Energy through the Department of Electricity and Energy Management (DEME), favored ownership of the project by the Mauritanian government authorities, which itself guarantees good sustainability of the results, particularly at the institutional, strategic and operational levels.

(09) Moreover, the distribution and allotment of income that will stem from the exploitation of the significant natural resources (gas and oil) discovered in the country will be likely to contribute to calming and stability of the social climate, a necessary condition for any development endeavor. However, the exploitation of these important fossil energies could also eventually compete with the development of renewable energies in Mauritania.

1.4.5 Impacts

(10) Currently, it is very early to speak of impacts of this project. The strategic component of the project is in the process of stabilizing important achievements relating to the regulatory, legislative and institutional framework, tools for managing electricity concessions, the technical capacity building of executives and engineers to take into account renewable energies, etc
Thus, the impacts will only really take effect when all these instruments become operational. Indeed, the Electricity Code revised and technically validated by the national entities and the technical and financial partners concerned has not entered in its operational phase yet to generate effects in terms of investments made in renewable energy-diesel hybrid mini-grid projects (impact indicator 1). What is missing for it to be operational is putting in the official circuit of the Government and the National Assembly to be adopted and voted.

On the carbon footprint and the sensitivity of the project to climate change, there is no impact in terms of reducing CO2 emissions since the investments are not yet operational in the context of rural electricity production (impact indicator2).However, given the change in the way mini-grids are supplied, the reductions in CO2 emissions that will be achieved will be different from those calculated in the PRODOC. Similarly, no electricity generation took place under the project (impact indicator 3), and no one in rural areas benefited from access to better services under the project (impact indicator 4), since the construction of the mini-grids in the four sites on the coast had not yet been completed at the time of this final evaluation.

1.4.6 Lessons learned

At strategic level

(11)The project was hampered in its overall implementation, from the two-headedness adopted in its management and coordination. The "soft" part being provided by the UNDP is fully implemented and the "hard" part managed by SOMELEC has experienced considerable delays, while the results of the project are assessed as a whole. It must be emphasized that this duality did not help a proper execution of the MINIGRIDS. In view of these findings and shortcomings and given the complexity and innovative nature of this project, it would have been better to implement it through a single management and coordination unit. This would have made it possible to speed up the execution of activities, ensure quality control and closer monitoring of achievements in order to complete them on time. Any innovation, especially technological, requires the adoption of a unified careful approach to minimize the risks that may hinder its implementation. In the absence of a single management and coordination unit, a specialized operator with all the required skills should have been recruited to support SOMELEC in the implementation of this project.

(12) The absence of a steering committee bringing together the key actors identified in the project document was an obstacle to good governance and the partnership dynamic of the project.

A project of this dimension should have a steering committee established early in the project inception phase in order to provide it with the necessary strategic orientations within the deadlines, to ensure the coherence of its interventions and to avoid interruptions of the project in case of possible institutional changes as was the case with the dissolution of APAUS where a period of uncertainty of about eight months was observed before the choice of SOMELEC as the new implementation partner. This deplorable situation, repeatedly mentioned, including in the mid-term review of the project and the annual implementation reports, also contributed to the imbalance in terms of coordination and achievements between the two components of the project.

(13)The implementation of MINIGRIDS has proven to be particularly catalytic in many ways, because the significant achievements obtained at the institutional, legislative and regulatory levels have encouraged partners to come and consolidate and build on these strategic achievements to develop other projects in the field of renewable energies. This is true, for example, with the World Bank and the AFD, which are preparing a major project on hybrid mini-grids in the south-east, where SOMELEC will ensure the management of the project. Moreover, the European Union had taken over the revisions of the electricity code on the basis of what the UNDP had already done as part of this project. There is also the financing agreement obtained by the Government with the Spanish cooperation for a rural electrification project in 25 villages expandable to 50 villages. In addition, DEME heads the Project Coordination Unit in order to ensure the coordination of interventions in the field of renewable energies and so

that the regulatory and institutional framework established thanks to the project is now applied to other projects.

(14) Solid and integrated planning from the formulation stage of a project was lacking in the case of the MINIGRIDS project. Indeed, the changes that occurred to supply the systems being installed at the four sites from the electrical network of the Cheikh Zayed solar power plant in Nouakchott, abandoning the option of starting with a hybridized system (diesel/wind energy coupling) would reflect the deficiencies in the planning of the rural electrification sector and also in the formulation of the project.

At the operational level

(15) The operational component was hampered by the dissolution of APAUS and its technical shortcomings which did not help in the implementation of activities. For example, the procurement of works and the various contracts that were signed with companies and other service providers had known delays and blockages due to internal problems of APAUS. These issues had also contributed to speed up its dissolution. To this end, for future projects of this kind, it will be necessarily to carry out an in-depth analysis of the capacities of the implementing partners.

(16) Even if the physical achievements of the project are limited just in the four villages, the effects of the MINIGRIDS project will be perceived at the national level because of the significant changes that will be brought about by the project at the institutional, legislative and regulatory levels.
At the time of the evaluation (December 2021), the infrastructure was being built at a fairly advanced stage. There still remained the finishing to the works, the transport of ancillary equipment from the port of Nouakchott to the four (4) sites, the connection of households to the electricity grid and connection of the units to the power line of the Sheikh Zayed solar power plant, etc. However, given the importance of this operational component, considered as a technological innovation and which has known many delays, SOMELEC should not perform the role of project management and contracting authority at the same time. Thus, it would be important to ensure the continuity of regular close monitoring of the works by the consulting engineer by renewing his contract which expired 6 months ago (reference period of the evaluation in December).

1.4.7 Recommendations

Table3 : Recommendations

N°	Recommendations	Responsible entities
Promote an integrated governance and orientation framework for future mini-grid projects in order to boost their achievements and make them much more efficient and sustainable		
01	For future projects, it will be necessary to ensure that their steering committees can be operational from the start of the project and to ensure that this mandatory requirement for any UNDP project can be abided by the national party. *This recommendation is based on the conclusions/findings and lessons learned*	
02	In the future, for these types of projects, it will be necessary to choose a single coordination unit in order to avoid the problems	**National entities/parties**

	encountered with the two-headedness in the governance and coordination of the MINIGRIDS. *This recommendation relates to findings/conclusions on effectiveness, efficiency and lessons learned*	
03	For future projects, the Government will ensure to put in place a good, solid and integrated planning system to decide on the most appropriate types of investments and technologies to adopt according to the areas of intervention of the projects. *This strategic recommendation stems from lessons learned and is also linked to all the findings/conclusions*	**Government of Mauritania**
04	In view of the important results at the strategic level, UNDP will have to continue to consolidate its leadership position by strengthening its presence in the "energy" sector group (set up by all the technical and financial partners and the ministries concerned) by initiating periodic meetings, round tables on rural electrification, renewable energies, in particular by starting to share the results obtained with the MINIGRIDS which produced catalytic effects that encouraged other technical and financial partners to invest more in the clean energy sector to improve access to electricity for rural populations.	**UNDP**
Improved effectiveness and sustainability of the project and other future interventions		
05	Given the importance of the works in progress and in accordance with the indications of the project document, it would be better to reflect on the mechanism for managing these works by a delegate of services (outsourcing) who could be linked to the State via the Central Directorate for rural electrification at SOMELEC, the Department of Electricity and Energy Management (DEME) at MEPM by establishing clearly defined specifications. At the same time, it will be necessary to reflect on the implementation of a degressive mechanism of contribution of the communities to the maintenance and management of these investments. In addition to improving the sustainability of the systems, this will allow the communities to better perceive the importance of these investments, since they will have participated in paying for the services that will result from them. *These recommendations derive from the observations made on the effectiveness and sustainability*	**DEME and SOMELEC**
06	SOMELEC, which is in charge of rural electrification, is in a restructuring process which has not yet been completed with limited specific technical capacities, particularly in the field of renewable energies. Consequently, it is still necessary to continue to accompany and support the central direction of rural electrification of SOMELEC, recently created. To do this and to be in line with the requirements of a strategic financial partner like the GEF, which limits the use of a national execution modality assisted by the UNDP, it would also be important to reflect on a mechanism for closer assistance of SOMELEC, by a qualified and competent operator who would be recruited with clearly defined specifications.	**DEME, SOMELEC, UNDP and other technical and financial partners**

	In general, support for project implementing partners should be carefully considered and taken into account upstream during the project formulation phases in order to avoid the same problems encountered (shortcomings in technical capacity and structuring) with SOMELEC do not occur with other implementing partners.	

II. Introduction

2.1 Purpose of the evaluation

(17) This evaluation comes at the end of the MINIGRIDS project. Its main purpose is to meet the requirements of accountability, responsibility and transparency with regard to stakeholders: the Government of Mauritania, the GEF, the UNDP, the Abu-Dhabi Fund, etc. The aim is to provide them with the elements necessary for a good understanding of the results obtained by MINIGRIDS, lessons learned and recommendations likely to improve the performance of future interventions in the rural electrification sector.

2.2. Objectives and scope of the evaluation

- **Objectives of the assessment**

(18) According to its Terms of Reference, the mission aims to assess the level of achievement of project results compared to what was planned and to draw lessons that can both improve the sustainability of MINIGRIDS achievements and contribute to the overall improvement in UNDP programming. The mission promotes accountability and transparency, and assesses the extent of project outcomes.
The evaluation also aims to draw lessons from project experiences related to the development of policies and regulations conducive to investment in hybrid mini-grids and to explore their benefits in order to improve access to energy in the country by exploiting renewable resources, especially in the most remote areas.
The idea is to assess the performance of the project against the expectations set out in the results framework.

- **Scope of the assessment**

(19) The evaluation covers the entire MINIGRIDS Project, through its two components, strategic and operational. It is made against the criteria described in the guidelines for conducting final evaluations of UNDP-supported and GEF-funded projects. These are the criteria of relevance, effectiveness, efficiency, sustainability and impact.
Overall, the evaluative analysis focused on the following areas:

- ☞ Project design/development;
- ☞ Implementation of the project;
- ☞ Project results.

The geographical scope of this assessment consisted of field visits and interviews with beneficiary communities in the four villages of M'haijratt, Tiwillit, Lemcid and Bellewakh located along the Mauritanian coast north of Nouakchott.

2.3. Methodology

(20)The methodological approach that underpinned this evaluation was participatory, consultative, collaborative and inclusive, taking into account the contributions, suggestions and orientations of the UNDP Mauritania Office. Thus, the evaluation was carried out by involving all the categories of actors concerned. Ultimately, the evaluation methodology was closely linked to UNDP guidelines for carrying out evaluations of UNDP-supported projects and programs. The evaluation was conducted in accordance with the principles set out in the United Nations Evaluation Group's Guide to Ethics in Evaluation and the UNEG Code of Conduct for Evaluation in the United Nations System. It is essentially based on the following steps:

2.3.1 Collection and analysis of data and information

(21) The data and information collected come from two main sources: primary and secondary. Secondary sources refer to the use of documentation classified into two categories: documentation on strategic tools and instruments (SCAPP, CPDD, CPD, CDN, Codes, UNDP Strategic Plan, etc.) and programming documents and implementation (PRODOC, reports, studies, etc.). As for the primary sources, they consist of interviews with (i) the UNDP: Senior Management, Sustainable Development Unit, Monitoring-Evaluation Unit, and other experts from the UNDP Mauritania Country Office, and the Regional Energy Technical Advisor of the Office under Regional UNDP Dakar; (ii) Strategic Partners particularly the GEF Operational Focal Point; (iii) the National Strategic Part: MSMEs, Sectoral Agencies; (iv) Local national party: decentralized and deconcentrated authorities, technical services; the beneficiary populations (v) Implementation operators (civil society and groups of companies). In accordance with the ToRs, the secondary (documents consulted) and primary (lists of institutions and people met) data sources are appended to this report.

2.3.2 Data collection procedures and instruments

(22) UNDP provided the consultant with all the secondary data sources which are subsequently supplemented by internet research and the sharing of documents also from certain national authorities met and MINIGRIDS implementation partners, i.e. the DEME, SOMELEC, the Regulatory Authority, and the Group of companies making investments. Regarding the primary data sources, interviews and focus groups were used as methods and techniques for collecting data and information. In addition to this and taking advantage of the opportunities offered by new information and communication technologies, the primary sources were supplemented by videoconference interviews which were carried out with the UNDP Mauritania Office and the UNDP Regional Technical Advisor in Energy. In this participatory and interactive process, the triangulation of sources was used to ensure the reliability of the data and information collected. During this evaluation process, the mid-term evaluation report and other reports on the project were put to good use in the collection and analysis of the data and information collected. These documents, particularly the mid-term evaluation report, served as a reference framework for analysis and assessment of the results and progress recorded in the implementation of the project and mentioned in this final evaluation.

2.3.3 Data analysis

(23) The analysis of the data and information collected was undoubtedly one of the most important phases of this evaluation process. It made it possible to move from pure description

to the identification of elements for learning and assessing the overall performance of the project. This involved both the synthesis and the critical review of the data and information collected, based on the OECD criteria and tools (evaluation matrix, interview guides) in accordance with the ToRs. During this phase the collected and processed data and information are compiled, argued, as well as the points of view, assessments, recommendations, successes and success factors that were decisive in obtaining the results, induced changes, impacts, lessons learned, etc. in short, the performance of the MINIGRIDS project.
Initially, analysis criteria were defined which approximated the objectives and results of this evaluation process (according to the ToRs) and the elements contained in the collection tools.

(24) This analysis is followed by the organization and systematization of the results of the evaluation.
This step consisted in organizing and formatting the elements of the report. This involves a lot of writing, editing, and style correction work in an effort to give the final report proven content and a visually acceptable and pleasing appearance. Strictly, the drafting plan for the evaluation report proposed in the TOR was used to ensure overall consistency of the different parts and to meet UNDP requirements in this area.

(25) Overall, for the assessment of the performance of MINIGRIDS, the analysis was built around a grading scale up to levels: 6 Very satisfactory; 5 Satisfactory; 4 Moderately Satisfactory; 3 Moderately Unsatisfactory; 2 Unsatisfactory; 1 Highly Unsatisfactory. This rating scale was based on the evaluation criteria already reviewed in the report: relevance, effectiveness, efficiency, impact, sustainability, cross-cutting issues.

2.4 Ethics

(26) At this level, the consultant has complied with the ethical and professional requirements of the United Nations Evaluation Group, with full and unreserved acceptance of its Code of Conduct. Therefore, the following attitudes have been strictly observed:

- Provide sources with all necessary confidentiality and anonymity
- Give equal respect to interviewed stakeholders
- Respect the freedom of speech of responders
- Respect the diversity of actors and reflect it in an inclusive sampling, with particular attention to women and vulnerable parties
- Use the appropriate protocols to adequately reach women and the most disadvantaged
- Make it clear, from the outset to all interlocutors that the Evaluator is neither UNDP staff nor a member of any other stakeholder, but an external and independent professional who seeks feedback on the Program and its implementation work
- Deal with everyone in transparency, respect and serenity
- To deviate from all practices prohibited by law and morality

2.5 Assessment limitations

(27) The mission took place between December 2021 and January 2022, a period which coincides with the end of the year when many executives were mobilized in missions either inside the country or abroad. This situation may have had a negative impact on the availability of resource persons within UN Agencies, Ministries and other development partners. This is why the Director of Electricity and Energy Management (DEME), the Director of Water and Electricity at the level of the regulatory authority, the GEF Focal Point, could not be met on due dates. As a remedy, virtual meetings via videoconference were preferred. Thus the number

of working days set at the start also turned out to be limited for the final evaluation of the MINIGRIDS. So in terms of mitigation the extension of the consultant evaluator's stay in Mauritania was taken as an alternative measure.

2.6 Evaluation matrix

(28) The evaluation matrix is available in the annex to this Report. It is made up of seven (07) entries below:

1. Criteria
2. Key questions
3. Specific sub-questions
4. Data Sources
5. Data Collection Methods and Tools
6. Indicators and Standards of Success
7. Data analysis methods

III. Description and development background of the project

3.1 Start and duration of the project

(29) The MINIGRIDS project was formulated starting from 2014 and the signature of the project document took place the same year on November 24, 2016. This discrepancy is due to differences in interpretation on the institutional anchoring of the project: this is initiated, within the framework of the Climate Change theme, by the Ministry of Environment and Sustainable Development, and operates in the energy sector. The arbitration finally weighed in favor of a sectoral anchoring in the Ministry of Petroleum, Mines and Energy. Then the management team was recruited including the National Coordinator who has also fallen behind for a few months. The project launch workshop was finally held on January 24, 2018 in Nouakchott. The project had an initial duration of 48 months and was due to end on November 24, 2020. A 12-month extension was granted mainly due to delays related to the COVID-19 pandemic, and the operational closure of the project finally took place on November 24, 2021.

3.2 Project development background

(30) In recent years, the government of Mauritania has taken several actions to promote access to modern energy services and clean energy. Mauritania has clearly determined that access to basic services, including energy services, is one of the main elements of its national development policy. This policy aims to extend electricity distribution as soon as possible and to independently provide energy services when the grid is not available. This access policy directly addresses the need to develop local or regional energy sources (gas and renewables) and to balance the renewable energy mix.

(31) Thus, the country has also implemented many projects under these policy objectives, including a 15 MW PV plant in operation and a 30 MW wind farm under construction. More specifically, the country is actively promoting access to energy services and the hybridization of isolated mini-grids for energy production. In this regard, the Kiffa project aims to hybridize power generation in isolated areas using a 1.3 MW PV array combined with a 4 MW fossil fuel power plant. In addition, more than 52 solar multifunctional platforms have been installed in remote villages through combined sources of development financing and an additional 100 solar platforms are expected to be installed in the short term through additional financing from the ACP-EU Facility for energy for the purposes of the ERUDI project.

(32) It is in this context that the MINIGRIDS project was formulated and jointly financed by the Government of Mauritania, the GEF, the UNDP, the Abu-Dhabi Fund and implemented in its operational component with investments located in 4 villages on the coast in Mauritania. The strategic component with a national dimension actually benefits the entire population of the country.

3.3 Issues the project aimed to address

(33)Mauritania has potential sources of renewable energy, the development of which will improve the population's access to energy. To achieve this, the project is working on strategic renewable energy management capacities and is piloting the installation of mini hybrid networks in four coastal villages. The project was therefore expected to contribute to solving the country's lack of technical capacity in renewable energy by helping to renovate the institutional framework and management tools of the sub-sector, on the one hand, and by launching a pilot experience of mini-grids to be managed with the new tools facilitated by the project, on the other.

(34) The lack of technical capacity in terms of renewable energies is real in Mauritania, even though the country has significant natural potential, especially in the field of solar and wind power. The MINIGRIDS project became a serious option for the government because many, if not most, hybridization experiments are experiencing serious difficulties.
The project is well aligned with UNDP priorities, in particular through its UNDP-Mauritania Country Program Document (CPD 2018-2022)3 which reflects UNDP support in the areas of the environment, renewable energies, resilience to disasters and climate change in Mauritania. The project is also linked to the focal area of the GEF (Climate Change) and its Operational Program or Priorities/strategic objectives relating in particular to the Promotion of investments in renewable energy technologies.

3.4 Immediate and development objectives of the project

(35)The immediate objectives are as follows: (i) A policy and institutional framework conducive to the creation of hybrid mini-grids is developed; (ii) The financial viability of mini-grids is ensured; (iii) Capacity for delivering turnkey solutions and quality O&M&M services is ensured; (iv) A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids.
It is expected that this project will gradually contribute, when replicated on a larger scale, to reducing the use of fossil fuels, which will contribute to improving Mauritania's energy balance, which is currently made up of more than 80% of fossil fuels. Renewable energies represent only 20% and the rural electrification rate is less than 5%.

(36) The development objective of the project is to promote the use of renewable energy sources in rural areas, while promoting decentralization of the management of climate change and the integration of sectoral strategies for local development, in accordance with the international control treaties to which Mauritania has subscribed in environmental matters. This is, according to the terms of the project results framework, to Optimize existing mini-grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate operational model for the sustainability of the hybrid system.

(37) The theory of change underlying the project is that Mauritania has renewable energy potential, the development of which can improve social access to energy. The project should therefore contribute to solving the problem of the technical capacity gap for the country in terms of renewable energies by helping to renovate the institutional and regulatory framework for the management of the renewable energies sub-sector, by launching pilot mini-grids that had to be managed with the new tools facilitated by the project. The project aims to prove that by combining the provision of services (electricity, water, refrigeration/ice) to help create added value within rural communities, it is possible to guarantee maximum impact on local development, while encouraging the economic growth necessary to enable people to pay for the corresponding services and help ensure the maintenance of mini-grids. To achieve this, the project needed to adopt a two-pronged approach:

- Foster the creation and implementation of the necessary institutional and legislative measures while encouraging an integrated approach to capacity building aimed not only at ensuring the maintenance of project facilities, but also at ensuring that professional training and education future techniques include issues related to the renewable energy sector;
- Demonstrate technologies and an innovative operating model combining the utility and the private sector for the management of hybrid mini-grids.

3.5 Basic indicators put in place

(38) The indicators selected for the project development objective: "To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system", are as follows:

- Investment in hybrid RE-diesel mini-grid projects mobilized in comparison to baseline year 2014
- Amount of reduced CO2 emissions by the investments facilitated by the project (in rural electricity generation compared with the baseline)
- Number of MWH produced under the project
- Number of people in rural areas benefiting from access to better services

The indicators selected for the intermediate, specific or immediate results are as follows:

Indicators for Outcome 1:"Enabling policy and institutional framework for hybrid-based mini-grids set up":

- Legislative package is designed and enacted;
- The institutional framework is revised;
- Creation of a renewable energy observatory.

Indicators for Outcome 2: "Financial viability of mini-grid ensured"

- Revised framework for hybrid-based DSP is implemented;
- The level of investments and tariff reforms ensure the financial viability of mini-grids

Indicators for Outcome 3: "Capacity for delivering turnkey solutions and quality O&M&M"

- Ministry and related agency representatives have the capacity to understand and design measures to ensure quality O&M&M.
- Education and professional training necessary for quality O&M&M are implemented and viable.

Indicators for Outcome 4:"A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids":

- Coastal community project is demonstrated to be financially and technically viable.
- Lessons learned from the project are applied to future off-grid projects

3.6. Key Stakeholders and Expected Roles and Responsibilities

Table 4: Roles and responsibilities of the stakeholders in the project

National stakeholders	
Stakeholders	**Expected roles and responsibilities**
Government of Mauritania	High-level strategic management of the project, declination of its roles and responsibilities through the various national entities under its orders.
The Ministry of Environment and Sustainable Development	Initially anchor partner of the project. The strategic and operational Focal Points were to ensure and cover issues related to climate change and to liaise between the project and the Ministry of the Environment and Sustainable Development (MEDD).
The Ministry of Petroleum, Mines and Energy	The Ministry develops and implements policies, strategies and programs in the field of electricity and oversees their application. MPEM also provides governance structures to oversee operational entities such as SOMELEC and ADER for the Directorate of Electricity and Energy Management (DEME) (APAUS under the Ministry of Economic Affairs and Development – MAED)
APAUS then SOMELEC	APAUS was an independent entity funded by various sources (which in particular controls the management of the Universal Access to Services Fund (FAUS) for the government). It also managed the Universal Access to Regulated Services Fund, which aimed to gradually consolidate most of the resources used for the

	expansion and operation of these services. APAUS carried out electrification and infrastructure development actions in rural villages, while being responsible for the heavy maintenance of the generators of the delegated service. APAUS was responsible for managing the operational part of the MINIGRIDS project. SOMELEC: Created in 2001 following the split of SONELEC (the National Water and Electricity Company) with the aim of liberalizing the electricity sector, it is responsible for production, transport, the distribution and sale of electricity in urban and peri-urban areas throughout the national territory. It was to manage the operational component after the dissolution of APAUS.
The Multisectoral Regulatory Authority	The MRA is responsible for regulating activities in the water, electricity, telecommunications, postal service sectors, and in any other area under its responsibility. To date, in the field of electricity, it is only responsible for operators of delegated services and for issuing production licenses to entities that do not belong to SOMELEC (mining companies, etc.) insofar as the SOMELEC does not yet come under its jurisdiction.
Technical and financial partners	
UNDP	The UNDP, a strategic technical and financial partner, had among other roles to support the national entities implementing the project, to accompany the coordination units of the strategic and operational parts and to contribute to the financing of the project.
GEF, IRENA/ADFD	As the UNDP, these financial partners contribute to the financing of the MINIGRIDS. The GEF for the strategic part and IRENA/ADFD for the operational part of the project.
The private sector	
NGOs, private businesses (service providers)	Partner/beneficiaries through mini-grid management concessions to be installed.

Beneficiary communities	
The inhabitants of the four sites	Beneficiaries of the project, they were to contribute to the management, operation and maintenance of the mini-grids.

3.7 Expected results

(39) The expected results are: (i) A policy and institutional framework conducive to the creation of hybrid mini-grids is developed; (ii) The financial viability of mini-grids is ensured; and (iii) Capacity for delivering turnkey solutions and quality O&M&M services is assured; and (iv) Demonstration of a functional business model for technical and financial viability of hybrid diesel/RE mini-grids is made. As a reminder, the reference strategic objective is to ". "To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system".

III. Findings

4.1 Project design/development

4.1.1 Analysis of the results framework (Rationale/strategy of the project - indicators)

(40) The results framework is generally well developed and illustrates the close link that exists between the project objectives, the strategy deployed, the indicators for assessing the results and progress towards achieving the objectives. It also clearly outlines how progress can be checked. Through its objectives, it is articulated according to the two strategic and operational components which structure the project. With reference to the first component, the project's intervention levers and the chain of expected results are quite well linked and help create the project's theory of change, even if the latter should be clearly worded in the project document whose starting premise is that, despite the existence of a significant potential for renewable energy sources in the country, in particular solar and wind power, these are still insufficiently harnessed while the country is among those in Africa with the lowest rural electrification coverage rates.

(41) These energy sources still represent a tiny part of Mauritania's energy mix, which continues to be dominated by diesel and thus constitute a major factor in greenhouse gas emissions, and therefore a contribution to global warming. In this paradoxical context, the project highlights a lack of strategic and technical capacities to formulate and manage in a sustainable way, solid networks or hybrid power plants coupling fossil and renewable energies. Hence, the project proposes to help the country fill these gaps within the framework of a dual strategic and operational demonstration approach.

(42) At the strategic level, the MINIGRIDS brings changes and promotes the adaptability of the institutional, legislative and regulatory framework through the production and delivery of appropriate strategic tools and instruments likely to boost the rural electrification sub-sector by Mauritania using renewable energy sources.

(43) At the operational level, the MINIGRIDs supports the implementation of a package of services backed by a renewable energy offer formulated and managed on a demonstrative basis according to the conceptual model initially drawn in the project document. The intervention logic is clear in its willingness to provide the country with strategic and technical capacities for the development of renewable energies, and to demonstrate the viability of this model through a hybrid experiment based on wind energy and diesel, in four villages along the coast. However, this hybrid conceptual model has been abandoned in favor of a direct connection of the mini-grids to the SOMELEC network, even if it is from a solar power plant located in the outskirts of Nouakchott.

(44) The project indicators are on the whole technically relevant; but some, particularly those related to the objective of the project, seem no longer suitable in this current context of the operational component whose structures or "mini-grid" are no longer hybridized with diesel and wind power. In addition to this, the cross-cutting axis relating to gender, human rights and social inclusion does not clearly appear. On the other hand, this in no way decreases the sensitivity of the project to this gender and social inclusion dimension, because as mentioned earlier in the document, all the physical achievements in the four sites will largely benefit women and their cooperative which are active in fishing and the processing of its products. In addition, the strategic tools developed, such as the revised electricity code, which took into account renewable energies and rural electrification, will also benefit disadvantaged groups and promote social inclusion. Moreover, at this strategic level, women are well taken into account. As part of the training provided in the energy sector, a quota has been imposed for the participation of women in these activities. A minimum quota of 25% for the participation of women in the training of renewable energy laboratories and training on automated systems and SCADA has been respected.

(45) Four indicators are linked to the development result of the project: “To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system”. The first relates to the increase in investment in hybrid RE-diesel mini-grid projects mobilized in comparison to baseline year 2014 and should, had it not been for this change in the power source, contribute to the sustainability of the hybrid model referred to in the result
The second indicator, which is a GEF proxy indicator relating to the reduction of CO2 emissions thanks to the investments facilitated by the project, is also in itself a good indicator for measuring the progress of the hybrid model which should result in a reduction in CO2 emissions. CO2 linked to the heavy use of diesel as the main source of electricity. The "Number of MWH produced", the third indicator, would express the progress that should be generated by the hybrid model which should be carried out with the operational component of the project in the 4 villages located on the coast. However, the optional changes made in the supply of mini-grids from the 100% photovoltaic Sheikh Zayed solar power plant will contribute to better confirming and further strengthening this mandatory indicator of the GEF by contributing to further reducing the impacts of the project in

terms of CO2 emissions. This means that these indicators still keep all their relevance, despite their formulation and definition based on the hybridization of mini-grids which is no longer relevant.

(47) The fourth and last indicator referring to the "number of people in rural areas benefiting from access to better services" expresses the social dimension of the result and keeps all its relevance and importance, despite this change in the choice of the type of energy to power the mini-grids. Whatever the source of energy, the purpose is to allow people to have access to basic social services such as electricity and water. The results framework lacks a real socio-economic dimension of support for the beneficiaries for a better valuation of the technological assets to be deployed on site and which are real innovations for them.

(48) With regard to specific result 1.a, the indicator on "creation of a renewable energy observatory" is still relevant, since it will also benefit the sector and all partners involved in the field of renewable energies in Mauritania.
For the specific result 1.b, the indicator "The level of investments and tariff reform guarantee the financial viability of mini-grids" has become an issue and seems to no longer be appropriate since the State, through SOMELEC, which will ensure the operation of these mini-networks intends now to adopt for political reasons the system of social connections with low tariffs or even free electricity to strengthen the coverage rate of rural electrification in the country. Consequently, it is difficult and even irrelevant to speak of financial viability, since the option of applying tariffs to the price of electricity guaranteeing the financial viability of mini-grids no longer seems to be required.

(49) At the level of specific result 2, "Capacity for delivering turnkey solutions and quality O&M&M services", the second indicator "The education and vocational training necessary for quality O&M&M services are implemented and sustainable" marks and keeps its strategic importance. Even if the operation, maintenance and management of these facilities will be provided by SOMELEC, perhaps through a delegated service provider, this side is still fundamental and the technical support provided to SOMELEC by the various partners all contribute to support this indicator. Finally, regarding Specific outcome 3 “A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids”, the second indicator “The coastal communities project is demonstrated to be financially and technically viable” has all its strategic importance, because the investments are made for the exclusive needs of these communities in the four villages. However, with the management method adopted with SOMELEC, it is still difficult to comment on the financial and technical viability of the project for the communities.

(50) Ultimately, at the strategic level, the project's set of indicators is robust enough to express its substance and measure progress. However, this cannot be done immediately because the experimentation and application of the strategic tools developed will take time to reveal effects that can be assessed.
On the operational level, the situation is even more uncertain and worrying; since the mini-grids had not been delivered at the time of the visit of the project appraisal mission (the system was under construction and had not yet been connected or plugged from the grid of the Sheikh Zayed

photovoltaic solar power plant).All the same, the commitments of the government party and the strategic interest it grants to the MINIGRIDS project predict that consolidation efforts will be made to translate into action all the strategic tools developed and operate the works that were in progress (desalination units, ice factory units, social connections for electricity, standpipes, etc.). In this perspective, the project indicators will prove to be solid in expressing the substance and measuring the expected progress.

4.1.2 Lessons learned from other relevant projects (e.g. in the same focal area) incorporated into project design

(51) The MINIGRIDS project is built on the lessons learned from previous projects in the field of renewable energies while trying to bring added value and solutions to the problems not solved by these projects of yesteryear. According to the project document, the first initiatives that have been developed and focused on renewable energies are being tested. Among these initiatives, we can cite the UNDP-FEM Alyzés program started with mechanical wind turbines, the Multifunctional Platforms (PTMF) which had also begun to spread in rural areas and which were supported by NGOs and dedicated national agencies such as APAUS and ADER, and increasingly integrating renewable energy, photovoltaics in particular. Through these entities, the EU Energy Facility had completed 24 solar-powered PTMFs between 2008 and 2011, while 24 others were installed under a joint UNDP/USAID/APAUS project, and 6 others by APAUS itself. More recently, between 2011 and 2015, no less than 100 additional solar platforms have been set up under the Energy Facility.

(52) On a larger scale, hybridization projects have also emerged and contribute to enriching the national experience in this field. This includes a 15 MW PV plant in operation and a 30 MW wind farm, as well as the Kiffa project to hybridize electricity production in isolated areas using a 1.3 PV field. MW combined with a 5 MW fossil fuel plant, and more than 52 solar multifunctional platforms installed in isolated villages. The technical problems of sizing and management of hybridization programs within these projects have led the national authorities to be convinced of the need for a project to support the development of the framework, tools and management capacities of the RE sub-sector in the country.

(53) The project finally builds on the Renewable Energy Readiness Assessment undertaken jointly by UNDP and the International Renewable Energy Agency (IRENA) in 2013-2014. This evaluation had highlighted the progress made and the persistent challenges on which new actions could be based. The project notably integrated the following elements resulting from this evaluation: the creation of a renewable energy observatory; the centralized collection of data on renewable energies collected within the framework of the projects implemented; collaboration with universities and professional training schools in order to offer quality training on renewable energies.

4.1.3 Planned participation and role played by stakeholders

(54) In accordance with the project document, stakeholders are grouped into categories: national stakeholders, technical and financial partners, private sector, beneficiary communities. Their main roles and responsibilities have also been clearly spelled out. Thus, the following table summarizes the assessment of their effective commitments in the implementation of this project.

Table5: Actual Roles and responsibilities of stakeholders

National stakeholders	
Stakeholders	**Roles and responsibilities played**
Government of Mauritania	The Government is at the same time a beneficiary and a contributor. The role it played as part of the project is declined and perceived through its various national entities involved. However, it should have played a more decisive role in the high-level management of the project by helping to set up and operate its steering committee. The change in strategic options desired by the government and consisting in abandoning the hybrid system (Diesel/RE with the wind turbine) in favor of direct connection to the SOMELEC network from the Nouakchott solar power plant also had an impact on the delay in the construction of mini-grids on the ground.
The Ministry of Environment and Sustainable Development	Initially, the MEDD should be the national anchor partner of the project because it had initiated it under the Climate Change window. For institutional reasons, the project was finally anchored in the MSME. Thus the MEDD became an indirect partner of the project. Faced with this situation, the role played in the project had become almost minor, apart from its participation in workshops relating, for example, to the regulatory and institutional framework of the rural electrification sector.
The Ministry of Petroleum, Mines and Energy	The MPME reflects the national anchoring of the project. Through DEME, which is one of its entities, the "soft" or strategic part of the project was managed. Nevertheless, the MPME should have made the best use of its institutional power to boost the operational part managed initially by the former APAUS dissolved then and by SOMELEC which is one of its branches. The DEME as National Director of the project and which hosted the coordination unit played

	its role of supervision and coordination of the strategic component; while the operational component should also have been subject to more rigorous monitoring by the authorities in order to avoid the delays and shortcomings noted.
APAUS then later SOMELEC	APAUS did not properly exercise its responsibilities in accordance with the project document, due to its limited technical and managerial capacities, which led to its dissolution. In the end, the operational part was transferred to SOMELEC, which also experienced problems with restructuring and the availability of specific skills enabling it to deal with the issue of renewable energies. These structural and institutional shortcomings also did not facilitate the desired speed in the implementation of the operational component.
The Multisectoral Regulatory Authority	ARM participated in the process of drafting and revising various instruments such as the electricity code, approval of calls for tenders, etc. However, its real role will be assessed with the application of the electricity code, the launch and evaluation of offers for the allocation of licenses and authorizations for the operation, management and maintenance of installations under construction; while this service delegate option has not yet been adopted by the authorities. If this is accepted, the MRA will draw up the specifications for the delegation of the public electricity service. On the strength of all this, its real role will be appreciated after taking into account all these steps and useful provisions.
The technical and financial partners	
UNDP	UNDP as a strategic partner played an important role in the implementation of the project according to the project document. The Country Office supported the national anchor entity of the project in the recruitment of staff for the coordination unit. He also identified and facilitated the various training activities and participated in the organization and facilitation of various workshops on the regulatory, institutional and legislative framework, accompanied the carrying out of studies, facilitated contact with other technical and financial

	partners involved in renewable energies. As a donor, UNDP supported the operational management of the "soft" part by providing project support services. However, the mobilization of its M&E Unit for the monitoring and evaluation of the implementation of this project could not be done as announced in the project document.
GEF, IRENA/ADFD	Like the UNDP, these financial partners have honored their commitments by mobilizing the resources committed under this project. The GEF co-financed the strategic part with the UNDP, IRENA/ADFD and the Government provided the financing for the operational part
The private sector	
NGOs, private businesses of service providers	At this level too, given the progress of the works and the mode of operation and maintenance which had not yet been adopted, it is difficult or even impossible to comment on their roles and responsibilities in the project. In principle, private service provider operators are potential partner-beneficiaries who are called upon to carry the management concessions for mini-grids being installed by the operational component.
The beneficiary communities	
The residents of the four sites	These communities demonstrated collaboration and hosted the various missions carried out on the sites. They also participate in monitoring the equipment and installations under construction, even if guards are recruited by the consortium of companies in charge of building the mini-grids. However, their roles and responsibilities can be fully exercised only with the operation or commissioning of these mini-grids.

4.1.4 Links between the project and other interventions in the sector

(55) The nature of MINIGRIDS, particularly in its strategy component, means that it is closely linked to other initiatives in the sector. The revised, validated and adopted institutional framework offers an institutional space for the management of renewable energies around which the technical and financial partners agree.
UNDP and the GEF have in the past supported the installation of mechanical wind turbines first, but also multifunctional platforms (PTMF). The European Union Energy Facility completed 24 mini-grids in the form of solar-powered PTMFs between 2008 and 2011. Under joint or complementary programs, UNDP, USAID, the EU and the 'APAUS have installed some 200 new solar platforms; all of them are mini-grids. Larger-scale projects are also in operation, such as the Kiffa hybrid power plant supplied by a 1.3 MW PV field combined with a 5 MW fossil combustion power plant, and the Cheikh Zayed photovoltaic solar power plant to which the beneficiary communities of the project will be connected.

(56) The MINIGRIDS project is perfectly rooted in this environment. The Ministry of Petroleum, Mines and Energy, which serves as its anchoring body, clearly indicates that the project was precisely designed to provide contributory solutions to the recurring problems of technical and strategic capacities that have been noted in previous experiences of mini -networks.
At the same time, the anchoring of the MINIGRIDS project within the Ministry of Petroleum, Mines and Energy, constitutes an interface between the Multisectoral Regulatory Agency, the DEME and the technical and financial partners for the scaling up of the approach and strategic tools developed by the MINIGRIDS project. Already the RIMDIR project developed by the State with the support of the World Bank, the European Union and the French Development Agency, and dedicated to the installation of several dozen mini-grids in rural environment is based on the achievements of the experience of MINIGRIDS.

(57)There is also the establishment of an energy sector group which brings together all the technical and financial partners concerned, including UNDP, which is a leading member.
This illustrates how this project is closely linked with other interventions and also reflects its very high level of reproducibility, especially in its strategic component, which has now become a frame of reference in the sub-sector in Mauritania.

4.2 Implementation

In this part, aspects related to adaptive management, the real participation of stakeholders and real partnership agreements, the financing and co-financing of the project, the monitoring and evaluation, the coordination of the works with UNDP on project execution by the implementing partner as well as operational issues and risk management. With regard to gender, it is addressed in the “findings and conclusion” section, while the environmental and social dimensions are directly taken into account through the sub-heading implementation of monitoring and evaluation in this section 4.2.

4.2.1 Adaptive management (modification of project design and products during implementation)

"To what extent the management of the project was adaptive in order to achieve the expected results? »

(58) In the project document, it was mentioned that the implementation must be ensured by a Project Management Group set up within APAUS itself and supervised by a Project Committee co-chaired by the UNDP and the MPEM and having the role of pilot. The GGP was to be composed of a full-time Project Manager and three heads of components: (i) Policy and Institutional Framework; (ii) Capacity building; (iii) Implementation. This project management model has undergone quite a considerable change. Thus, the management unit (MU) substituted for the GGP was taken out of the APAUS and installed in the MPME via the DEME to ensure the implementation of the strategic component of the project, leaving APAUS the exclusive responsibility for execution of the operational component. Furthermore, the Steering Committee according to the PRODOC has not been set up.

(59) The project management framework was disrupted by the dissolution in 2018 of APAUS, which was responsible for implementing the operational component of the project, namely the installation of mini-grids and desalination and ice making in the 4 selected villages on the coast, between Nouakchott and Nouadhibou. For eight months, this operational component, which nevertheless represents approximately 80% of the project's total budgetary resources, had no institutional receptacle for its management, until the moment when the responsibilities of APAUS were transferred to SOMELEC, which finally took over for the management of this component. So the transfer of this component to SOMELEC was the adaptive solution that was found by the government authorities.

(60)Therefore, SOMELEC had the appropriate profile closest to the desired execution entity, given that this company is still the actual or potential contracting authority for the mini-grids in order to be able to connect them to a segment of its network if necessary. However, SOMELEC was more focused on fossil sources. Renewable energies were not part of its core business. Thus, it was able to show adaptive capacities, to try to fill this gap within the limits of its technical capacities while retaining for 6 to 8 months, the key technicians of the defunct APAUS who were active on the MINIGRIDS file. This adaptive approach enabled the company to move forward with procurement: lot 1 on production, validated by APAUS before its disbandment, was signed by SOMELEC; lot 2 on distribution and the new consulting engineering contract, awarded and commissioned. However, this contract with the consulting engineer ended 6 months ago (reference period: December for the evaluation mission), whereas it could have been renewed to ensure proper monitoring of the construction works of the mini- networks. This would have further strengthened the adaptive management of the project.

(61) If the project showed resilience to these unforeseen events, the fact remains that it showed a weak ability to read and adapt to strategic changes in the environment. Following the adoption of a law on Public Private Partnerships in 2017, a dedicated Unit was created and operationalized in February 2019. The law transferred, from the Multisectoral Regulatory Authority to this PPP Unit housed in the Ministry of Economy and Finance, the management of all public service delegations. Until then, the project had difficulty in really integrating into this evolving environment and

continued to work exclusively, or at least largely, with the Multisectoral Regulatory Authority, to which it transferred the piloting tools of the mini -networks he helped develop. However, by law, future delegations for the management of coastal mini-grids will be technically administered, not by the Regulatory Authority, but by the PPP Unit.

(62)The project was also confronted with a real difficulty, in relation to its governance framework. The steering committee provided for in the project document was not operational, despite the recommendations made through the mid-term review and the annual reviews of the project. As a result, the MINIGRIDS project was deprived of a robust institutional framework for its management. The only informal project steering body consisted of an ad hoc committee set up which was more focused on the strategic component, while the operational component encountered acute difficulties. The project implementation reports relate exclusively to the strategic part and hardly report on the progress of the operational component.

(63) Regarding the occurrence of the COVID 19 pandemic, the project management was not really adaptive and proved to be less resilient in facing up this health situation. Alternative measures were discussed and recommended but were not implemented by the project team. This is the case, for example, of the recommended alternative option of training SOMELEC technicians on the equipment paid for by the project in Mauritania rather than carrying out the study trip to France, which has been made impossible due to the health situation. This was even recommended in the annual reports but without being followed up, the project team preferring to put this activity on hold for an indefinite period.
Therefore, COVID had an impact on the execution of the project implementation schedule, by putting some important activities on hold. Moreover, this delay or postponement of activities greatly influenced the extension of the project until November 2021 when it was to end the same month in 2020.
Overall, given these elements, project management showed limited adaptability.

4.2.2 Actual participation of stakeholders and real partnership agreements

(64). Broader partnerships exist from a co-financing and execution perspective. In the field of co-financing, two parallel agreements serve as the basis for the MINIGRIDS project. The UNDP/GEF/Government Agreement recorded in the project document duly signed in 2016 by the UNDP and the representatives of the Government, allows the project to have nearly 19% of its projected resources, dedicated entirely to the strategic component. The second agreement of this type is a financing agreement signed in 2014 between the government and the Abu Dhabi Fund for Development covering 55.7% of the project budget and devoted to the operational component. The remaining 25% of the overall financing of the project is provided by the government and contributes to the specific budget of the operational component.

(65). The setting up of the energy sector group by the technical and financial partners in Mauritania, constituted the most relevant space which illustrates the real participation of the partners in the MINIGRIDS project. In addition to the Ministry of Petroleum, Mines and Energy through the Department of Electricity and Energy Management (DEME), SOMELEC, this energy sector group brings together all the technical and financial partners interested by the energy sector including the UNDP which is a leading member.

4.2.3 Financing and co-financing of the project

(66). The project is articulated around a provisional financing of 8,970,142 US dollars: the Global Environment Facility provides 1,270,142 USD, or 14.2% of the budget; the United Nations Development Program is contributing USD 450,000, representing 5% of the funding; the Mauritanian Government provides a national counterpart of 2,250,000 USD, or 25.1%; and the Abu-Dhabi Fund contributes 5,000,000, or 55.7% of the total estimated resources.

Table6: Status of MINIGRIDS co-financing

Type/source of co-financing	**UNDP**		**Government**		**GEF**		**Abou Dhabi Fund**		**Total in USD**	
	Approved	**Executed**	**Approved**	**Executed**	**Approved**	**Executed**	**Approved**	**Executed**	**Approved**	**Executed**
In Kind			2,250,000	2,250,000 (100 %)					2,250,000	2,250,000
Grant	450,000	450,000 (100 %)			1,270,142	1,079,620 (85 %)			1,720,142	1,529,620
Loan							5,000,000	2,455,000 (49%)	5,000,000	2,455,000

									8,970,142	6,234,620

Sources: Department of Electricity and Energy Management (DEME), April 2022

Table 7 :Sources of co-financing

Source of co-financing	Name of co-financier	Type of co-funding	Mobilized investment	Total amount in USD
GEF agency	GEF	Grant	Mobilized Investment	1 270 142
Donor agency	PNUD	Subvention	Current expenditures	450 000
Bilateral agency	IRENA/ADFD	Loan	Mobilized Investment	5 000 000
Government of the recipient country	Government of Mauritania	In-kind	Current expenditures	2 250 000
Total co-financing				**8 970 142**

Sources: ProDoc, GEF evaluation guide

(67). The different sources of financing are conceptually (from the point of view of the project document) targeted. The 19.2% of the overall budget provided by the GEF and the UNDP are exclusively dedicated to financing the strategic component. The Mauritanian government provides this component with additional budgetary support in kind, including in particular the provision of premises that house the Project Management Unit, as well as the coordination and management contributions made by the Director of Electricity and of Energy Management, who is also the National Director of the Project.

(68). The resources provided by the Abu-Dhabi Fund are exclusively oriented towards the operational component, i.e. the installation of mini-grids for the production of electrical energy, the production of ice for the conservation of products fishing and the supply of drinking water by a desalination unit in each of 4 targeted villages. In addition to its cash counterpart to this component, the government also contributes in kind through the implementation contributions of the Agency for Universal Access to Services first, the Mauritanian Electricity Company afterwards. The table

below shows that the funds initially earmarked for financing the hybrid mini-grids according to the project document were not mobilized due to changes in the power supply options for the facilities during the implementation of the project. The other budget items finally had a satisfactory execution rate. This is the case, for example, of the consulting engineer whose contract with SOMELEC expired and was not renewed. The 92.6% budget execution rate for the operational part concerning only disbursements against commitments confirms the analyses and assessments made in the efficiency part in the previous section "Summary of Findings, Conclusions, Recommendations and Lessons Learned. However, this high rate hides a certain disparity, because it concerns only the disbursements in relation to the commitments of Lot 2 without taking into account the budget execution in relation to the initial total programming of the two Lots for this operational part, Lot 1 being finally abandoned following the changes in the supply options of the mini networks.

Table8: Status of budget execution of the project operational component (USD)

Headings	Programming	Commitments	Disbursements	Execution rate
Engineering-Consulting	502 465,91	247 269,32	247 269,32	100%
Lot 1/Hybrid production: Wind plus Diesel	4 019 727,25	0	0	0
Lot 2/Distribution plus socio-economic equipment		2 009863,62	1 843 933,32	92%
Total Component	4 522 193,16	2 257 132,94	2 091 202,64	92,6%

4.2.4 Monitoring and evaluation

"To what extent did the monitoring and evaluation system under the project work and promote the implementation of the project? »

(69). **Design at entry**: According to the project document, the UNDP should ensure it within the framework of an integrated implementation of the various components of the project, therefore carried by a single and same executing entity, the Project Management Group (GGP), an entity which was based within APAUS and which should be placed under the supervision of a Steering Committee co-chaired by UNDP and MPEM. The project document specifically states on page 60 chapter III on Management Systems; "that it will be the responsibility of UNDP/Mauritania to monitor the implementation of the project, to report in due time on the progress made to the UNDP regional coordination center and to the GEF,

as well as to organize the reviews and mandatory and possible additional assessments as needed". Further, it specifies on page 61, Section 1 dealing with Monitoring and evaluation: that it will be up to UNDP to carry out monitoring and evaluation (M&E) tasks and, in particular, to organize project evaluations, approve annual work programs and budget revisions, monitor project progress, identify problems and propose corrective measures". In the project document, the M&E reports are well specified with a breakdown of their periodicity, their recipients, and budget resources to be mobilized for a proper implementation of the M&E. These include periodic reporting of project performance indicators on the UNDP project monitoring platform, progress reports whose recipients are also specified, as well as annual PIR-type reviews, all with a view to report on the progress of the project as a whole, to identify problems and to allow stakeholders to take management/mitigation measures.

(70**). Implementing monitoring and evaluation**:
Although well worded and designed in the project document, monitoring and evaluation was not implemented as previously described. Finally, the coordination unit created within the Ministry of Petroleum, Mines and Energy and which manages the strategic component ensured the monitoring and evaluation of the project, but which focused mainly on this component. Thus the "hard" or operational part suffered from the lack of regular and correct monitoring of its activities. Within the M&E Unit of UNDP-Mauritania, intermediary or M&E assistant capable of monitoring and evaluating the project, to just collaborate with DEME and SOMELEC, particularly in the production and delivery of data and information that would be generated by the project execution process and ensure its overall monitoring.
Nevertheless, the documents or reports that go with the MINIGRIDS implementation process were regularly prepared and delivered. These include annual progress reports, annual PIR reports, mid-term review report as well as this final evaluation which are all requirements under UNDP-GEF projects. Operationally, M&E data has been entered in relation to the ATLAS platform. These monitoring and evaluation elements largely relate to the strategic or soft component.
For the operational or hard part, which nevertheless represents about 80% of the overall resources of the project, monitoring and evaluation proved ineffective, because this component is not covered by the M&E system.

(71) In accordance with the guidelines of the project document, the environmental and social screening procedure carried out in 2015 was not updated to then be monitored and evaluated, despite the strong recommendation made to this effect. The recruitment of an environmental and social safeguard expert to monitor the implementation of the environmental and social management plan before project closure was not carried out until this assessment took place. The absence of a study of the environmental and social impacts of the project somehow reflects the shortcomings noted in the operational part.
However, to overcome these shortcomings, the UNDP Country Office had taken measures to ensure better consideration of the social and environmental risks of the project, particularly for field activities. For example, as part of its support for the evaluation of the Government's Strategy for Accelerated Growth and Shared Prosperity (SCAPP) in 2020, a number of nationwide measures have been taken, including monitoring and control of environmental and social risk management for all projects to ensure compliance of their activities with national regulations, international

standards and good practices in environmental and social management of UNDP. In addition, there are also communications to the national party, support for the updating of the National Determined Contribution (CND) in partnership with the Ministry of the Environment and Sustainable Development (MEDD), the sharing of environmental standards and social services of the UNDP, the instruction of Environmental Impact Studies (EIS) and Environmental Management Plans (EMP) of public and private development projects, the development of an information system for the monitoring and evaluation of environmental and social data for cross-sectoral exchange, etc. All these sets of measures contribute to better take into account the environmental and social management and disaster risk management of development projects in Mauritania, including MINIGRIDS.
Unfortunately, as part of this project, the M&E which was supposed to help take these measures into account did not really provide information on the overall execution of the project, whereas its correct operation could have helped in taking decision that can help provide remedial solutions to the problems experienced by this project.
Overall, the M&E was not able to thoroughly document the real causes of the operational component's poor performance.
These structural shortcomings meant that, overall, the monitoring and evaluation of the project was not efficient and useful enough. ***Therefore, the overall quality of monitoring and evaluation was moderately unsatisfactory with a rating of 3 (see rating table)***

4.2.5 Implementation coordination with UNDP and project execution by the implementing partner and operational issues

(72). The UNDP had supported the project in the process of recruiting the coordinator. Between the signature of the project at the end of 2016 and the implementation of this management framework, several months have passed. After the establishment of the management team, the official launch of the project finally took place in January 2018. The coordination of the project hosted by the DEME at the MSME was responsible for the strategic component of the project with some support provided to the operational component following the disbandment of APAUS in 2018.
The national execution modality through which the project was implemented fostered a very good relationship and fluid collaboration with the national authorities. All the structuring stages (PTA, studies, national workshops, development of strategic documents and institutional instruments, etc.) of the implementation of the MINIGRIDS project were carried out in a collegial manner. The project was implemented under the supervision and monitoring role of the UNDP, which provided it with technical and institutional support. The coordination and quality of the implementation of the strategic component are solid and well rooted, as they have resulted in the almost complete and satisfactory delivery of all the expected products.

(73)With the first institutional plan initially put in place, the government side encountered a first coordination challenge between the Ministry of the Environment and Sustainable Development, and the Ministry of Petroleum, Mines and Energy. Initiated by the MEDD, in the Climate Change line of the GEF funds, the project, of an energy sector kind, has migrated to the MPME. This situation was the basis of a long institutional hesitation on the anchoring of the project, whose signature of the PRODOC was thus delayed by more than two years. Finally, by decision of the government,

the project was able to find its anchorage in the MPEM. This institutional change unfortunately cut off the MEDD from a fruitful collaboration up to the end of the project.

(74) However, the shortcomings and delays noted in the coordination and management of the operational component, which was carried out outside the coordination unit, did not allow for overall and effective management of the project. However, in the 4 localities, the structural works concerning the investments are all almost completed at the time of the evaluation. There remained all the same the finishes, the connections for the water supply, the installation of the poles for the connection of the desalination units to the power line, the accessories to be installed, etc. all this has led suddenly and relatively to this low rating. This operational component has experienced some turmoil in its management and its management of APAUS which has been dissolved at SOMELEC now with still the slowness and heaviness that characterize it.
As a result and given these findings and the importance of the operational component which represents more than 80% of the project budget, ***the overall quality of project implementation was moderately unsatisfactory with a rating of 3, as shown in the rating table.***

4.2.6. Risk management (protective measures)

"How were the risks originally identified in the project document, managed in accordance with the mitigation measures taken?"
(75) During the project formulation stage, a number of risks were identified which had been subject to a probability of occurrence assessment ranging from "moderate to high". It is important to emphasize that with the end of the project, these risks must be assessed on their potential to negatively influence the sustainability of the project's achievements. In the project document, these risks are:

- Risk of political instability deemed low
- Risk of institutional instability deemed moderate
- Technological risk deemed moderate
- Financial risk deemed moderate
- Market risk considered high
- Environmental risk deemed moderate

(76) Among all these risks, two are essentially likely to have more impact on the sustainability of the project. These are the political/institutional risk and the financial risk, which were nevertheless assessed, before the start of the project, with a moderate probability of occurrence. For the institutional instability risk, the project document mentions that projects have sometimes been cancelled. In this case, it was not the project itself that was threatened, but the operational component because of the structural problems and capacity deficits that characterized the Agency for Universal Access to Services (APAUS) initially responsible for implement it. The dissolution of this public entity had caused delays in the implementation of the operational component. Faced with this situation, it was recommended that the project team and the UNDP country office maintain a high level of awareness and communication with SOMELEC, the government and other relevant stakeholders on the great importance

of the project for the electrification of rural communities in Mauritania, and on the need to accelerate the delivery of the facilities under construction in the four villages.

(77) Satisfactory consideration of these recommendations would have been possible if an effective project governance mechanism (steering committee) had been put in place for the project, as recommended by the project mid-term review report in December 2019, the 2019 PIR and the approval of the extension of the project. However, even if this recommendation was not implemented, it can be said that this political/institutional risk was managed in accordance with the mitigation measures formulated in the project document. As evidence, the project, through the UNDP, has contributed to the establishment of an "energy" sector group bringing together national entities and all the technical and financial partners involved in the energy sector which have among other objectives, the continued promotion of hybrid mini-grids, even in the event of a change of regime in the country. The process of structuring SOMELEC, with the creation of a Central Directorate for Rural Electrification, is considered a strategic institutional measure that can mitigate this risk in future projects.

(78) The financial risk as a threat to the capacities of small and medium-sized enterprises active in the renewable energy sub-sector was partly linked to the difficulties in executing the production lot awarded by APAUS before its disbandment. Indeed, the selected supplier did not have the required capacities, including the adequate financial capacities for a lot which nevertheless weighed 190.7 million MRU or USD $ 5,224,571.98. The service provider did not have the means to start up and was also unable to obtain support from a financial institution to access the start-up advance, which resulted in a request for an extension of time execution on his part. It was in this context that he had submitted execution studies which lacked quality and which SOMELEC had rejected.
To deal with such a situation, a mitigation plan should have been developed in collaboration with national stakeholders and based on UNDP quality assurance standards.

(79) Widespread poverty and the lack of viable sources of income, which severely limit the population's ability to pay for energy services, also constitute a financial risk which was assessed moderately in the project document. To this end, a measure to reduce this financial risk was formulated in the project document and which consisted of the combination of the operating model of the electricity utility company and the operating model of the private sector through PPPs (public-private partnerships) which should also make it possible to reduce this financial risk on each side (on the side of the public service company and on the side of the private sector) and to ensure a system of management and maintenance of the technologies installed. However, this financial risk is no longer relevant following the decisions of the authorities to ensure free services with the direct connection of installations to the national network. There are no more commercial losses on the payment of tariffs by the populations within the framework of a delegation of services to the private sector which should take place. Consequently, the financial risk that was on the side of the private sector shifted to the public sector.

(80) The outbreak of COVID 19, even though it did not exist at the time of project formulation to be considered as a potential risk, had an impact on the process of implementing project activities. Missions abroad, in particular the training of executives and technicians in France, have been delayed because of this pandemic. Travel, meetings and workshops have also been restricted. The project team was encouraged to continue to closely monitor the progress of the health situation, to apply all the necessary health measures and to explore alternative options to achieve the objectives. Faced with this situation, mitigation measures or alternative options had to be taken to adapt to this context and reduce the impacts of COVID on the project implementation schedule.

4.3 Overall results and impacts of the project

4.3.1 Progress towards objectives and expected results

"To what extent have the intended project objectives been achieved through the project outputs?"

(81) The overall strategic objective of the project is "To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system". To measure performance in this regard, 4 result indicators are provided for in the project document: (i) Investment in hybrid RE-diesel mini-grid projects mobilized in comparison to baseline year 2014; (ii) The extent of the reduction in CO2 emissions thanks to the investments facilitated by the project (in the context of rural electricity production, compared to the baseline). ; (iii) Number of MWH produced under the project; and (iv) Number of people in rural areas benefiting from access to better services.

(82) With regard to the first indicator, the results obtained at the end of the project do not make it possible to assess their impact on this important objective. The institutional, legislative and regulatory outputs produced with the strategic component have not yet been sufficiently translated into action to be able to generate effects and elements of assessment and analysis of their contributions to the outcomes of this objective. The mini-grids planned under the operational component had not yet been delivered at the time of this evaluation.

(83) Under the second indicator, it is common ground that the project has not yet had any effect on a possible reduction in carbon dioxide emissions. There are currently no positive impacts on the reduction of CO2 emissions since the ongoing achievements of the mini-grids are not yet delivered to produce such changes and impacts in the field of climate change mitigation. The strategic outputs are not yet in the implementation phase to have any chance of influencing the hybrid installations deployed by other partners. The same is true for the last two result indicators: in the absence of an entry into activity of the operational component, there is hardly any "production of MWH" in the assets of the project (indicator 3). Also due to the non-start-up of the operational component, there are no more "natural persons in rural areas who have improved their access to services" as a result of the project's action (indicator 4): the approximately 500 households in 4 targeted villages are still waiting for the finalization and operation of the investments by the project in their localities.

For greater overall consistency in the report, this part on the overall results is complementary to the analysis made on the results framework previously discussed in this document.

(84) Thanks to the combined efforts of UNDP, GEF, the Mauritanian Government and other partners, the use of renewable energies is increasing in the country. In addition, a consultation of the partners around the electricity code has made it possible to structure the debate on the validation of this instrument in 2021. This will ultimately make it possible to better organize the electricity sector, in particular with regard to the production and marketing.

(85) On the operational level, which should enable the target populations to have access to energetic services and other basic social services, the MINIGRIDS that was supposed to provide elements of contents and results for the rural communities, suffered too much from two-headedness in the coordination and overall project management. Indeed if the "Soft" part of the project managed by the coordination of the project at the MPME, was effective by generating high-quality strategic tools and instruments, the "hard" part under the responsibility of SOMELEC and in charge of making structuring investments on mini hybrid networks, dragged on for various and institutional reasons.

(86) As of the appraisal date, desalination units were still under construction at the four project sites on the coast. In addition, the decision to connect the desalination units to the power line that supplies the port of Tanit from the Sheikh Zayed photovoltaic solar power plant was taken at the highest level of Government with the approval of the financial partner. The issues of operation and maintenance of these types of structures, which should be supplied by the energy mix, would remain problematic, especially for SOMELEC because of the lack of the required skills. This impeded to change the energy supply system of mini-grids.

(87) No matter what these technological structural shortcomings may be, in no way they affect the quality of the response provided by the UNDP through (i) the participatory and inclusive development of institutional, legal and regulatory tools such as the development and the validation of the electricity code and the Specifications for Delegates of Public Electricity Services (DPES) which now includes renewable energies in power supply, especially in rural areas; (ii) preparation of the master plan for rural electrification; (iii) the development of specifications for the management of measurement stations for ONM. These various institutional achievements have further strengthened the interest and the hope that the national authorities have granted to the UNDP intervention through this project. From now on, the MINIGRIDS approach is considered as a model by the national authorities, which serves as a reference for all other interventions in the renewable energy sector with the establishment of hybrid mini-grids.
The sharing of strategic documents has been initiated, which will influence current and future initiatives. MINIGRIDS is considered by government authorities as the institutional framework of reference for all interventions in this sector.

4.3.2 Relevance-alignment

"How does the project relate to the main objectives of the GEF focal area and to environmental and development priorities at the local, regional and national level?"

(88) The project is relevant from a strategic and operational point of view, in the sense that it aligns perfectly with the development priorities of the Mauritanian Government. It fits perfectly with the Expanded Priority Program of the President of the Republic for economic recovery (PROPEP), the Strategy for Accelerated Growth and Shared Prosperity (SCAPP 2016-2030) in its axes "growth, sustainable and inclusive and "strategic project of 'better environmental governance, sound management of natural resources and disaster risk reduction' which constitutes Mauritania's strategic development vision for the period 2016-2030 and serves as a frame of reference for all development actions undertaken by the State, public and socio-professional organizations as well as technical and financial partners (PTF).The alignment of MINIGRIDS with the NDC (National Determined Contribution), which has just been updated thanks to UNDP support, further illustrates its relevance and consistency with national strategic priorities. It is also in line with the various national communications to the United Nations Framework Convention on Climate Change (UNFCCC), which mentioned that the energy sector was the source of 14% of greenhouse gas emissions in the country and that the exploitation of renewable energies should, conversely, mitigates these greenhouse gas emissions.

(89) At the local level, the project constitutes a relevant solution to the priority needs of the populations who live from activities such as fishing and the processing of its products and whose development requires a lot of energy. In addition, with the mini-networks under construction, the project provides answers to the problems of access to basic social services such as drinking water and electricity.

(90) The project is well aligned with UNDP policies and intervention. It is ranked under Output 3 of the CPD 2018-2022 and the CPDD (Partnership Framework for Sustainable Development) of the United Nations System in Mauritania for the period 2018-2022. At the same time, it is linked to outcome 1 of the UNDP Strategic Plan which states "Growth and development are inclusive and sustainable, integrating productive capacities that create jobs and livelihoods for the poor and excluded". Internationally, it is aligned with SDG 1, SDG 6, SDG 7, SDG 11, SDG 13, SDG 14, and SDG 15.

(91) The project is consistent with Goal 3 on "Promoting Investments in Renewable Energy Technologies" of the Climate Change Mitigation section of the GEF Strategy. It is also aligned with the Intervention Areas of the UNDP Strategic Plan, in particular Output 1.3. "Inclusive and sustainable solutions are adopted to achieve greater energy efficiency and universal access to modern energy (including off-grid renewable energy sources)". ***It is apparent from these elements of assessment that the relevance of the MINIGRIDS project is very satisfactory with a score of 6.***

4.3.3 Effectiveness

"To what extent have the expected results and objectives of the project been achieved?"

(92) As a reminder, the strategic objective already mentioned in the report and entitled “To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system” is pursued through four specific outcomes: (i) Enabling policy and institutional framework for hybrid-based mini-grids set up; (ii) The financial viability of mini-grids is ensured; (iii) Capacity for delivering turnkey solutions and quality O&M&M”;(iv) A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids”. Thus the effectiveness is assessed according to these different outcomes of the project.

(93**) The first outcome 1.a**, “A political and institutional framework conducive to the creation of hybrid mini-grids” is expressed through the following 3 performance indicators: (i) Legislative measures are developed and adopted; (ii) A revised institutional framework; and (iii) Creation of a renewable energy observatory. In relation to the legislative measures and the institutional framework (the first 2 indicators), many strategic outputs have been achieved: the revised and validated Electricity Code, the electricity reform which was made possible thanks to the MINIGRIDS with considerable support from UNDP. Thus, rural electrification which was not in the old electricity code, renewable energies, the involvement of the private sector for the management of mini-grids, the injection of renewable energies produced and managed by private in the electrical network which is a property of SOMELEC.

(94) To these documents must also be added the finalized Master Plan for Rural Electrification, studies on: (i) contractual relations with the DSPEs or specifications for the regulation of the Public Electricity Service Delegation (PESD) in Mauritania, (ii) the drafting of the call for proposals (RAO) for the Management of Electrification Projects by Public Electricity Service Delegate (DSPE) carried out, (iii) the development of politicy and institutional measures and legislation in favor of hybrid electrification in rural and isolated areas, (iv) electricity tariffs in rural and semi-urban areas achieved, (v) the revised remuneration framework for Public Electricity Service Delegates (DSPE) in Mauritania carried out.
With the third indicator of this outcome 1.a, there is the development of specifications for the management of measurement stations of the ONM and the completion of the study on the establishment of an Observatory for renewable energies.
Overall, with regard to the requirements noted in the indicators, the corresponding outputs of the project appear to be generally satisfactory.

(95**) The first outcome 1.b**of the project, “The financial viability of mini-grids is ensured” and assessed through 2 performance indicators: (i) The revised framework applicable to PSDs of hybrid mini-grids is implemented; (ii) The level of investments and tariff reforms ensure the financial viability of mini-grids. In relation to indicators 1 and 2, a package of outputs has been produced: the Electricity Code which has been revised and technically validated by national entities and technical and financial partners in Mauritania, regulatory studies drawn up, but with tools built within this framework not yet implemented, a maintenance guide for hybrid mini-grids in progress, technical control of the implementation of the installation of measurement masts on sites in progress.
In view of the requirements contained in the two indicators of this outcome, the project performance is moderately satisfactory due to the unfinished construction (at the time of the evaluation) of the 4 mini-grids to be able to demonstrate the viability of the model.

(96**) The second outcome** of the project "Capacity for delivering turnkey solutions and quality O&M&M" is to be measured through the 2 performance indicators: (i) The representatives of the ministry and relevant agencies have the capacity to understand and design the measures necessary to quality O&M&M services; (ii) Education and professional training necessary for quality O&M&M services are implemented and viable. Under Indicator 1, the project deployed a capacity building process that benefited public officials and private operators. Thus, the capacities of six (6) executive trainers were strengthened in the field of solar power and the Automated Remote Control System (SCADA) with practical training modules prepared and delivered in the EDM labs. In addition, there is the training of 17 public and private technicians in the management of renewable energies and the financing of the participation of national executives in international thematic seminars. A study for the establishment of a certification system by the SOMELEC Trades School for renewable energy technicians of Public Electricity Service Delegates was also carried out. For the observatory of renewable energies, the study of the observatory has been completed, there is a reform of the Energy sector which is in progress and in which a new organization chart is planned for the sector of Energy. The entity in charge of the observatory will be placed in this organizational chart.

(97) In relation to the second indicator, the project provided the SOMELEC School of Trades with batches of didactic equipment and material for the management of renewable energies , and supports its institutional change in order to act its openness to all players in the sub-sector. Other training was also planned but was not held at the appraisal date. This is the training of trainers programmed with INES de PARIS (4 for renewable energies and 2 in SCADA). The memorandum of understanding with the Technological Institute of the Canary Islands for the transfer of technologies and the training of Mauritanian executives in this institute was also signed.
The project achievements under outcome 3 materialize moderately satisfactory progress in achieving this result.

(98) Finally, with **the third and last outcome** of the project, "A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids", the performance is measurable on the basis of 2 indicators: (i) The coastal communities project has been demonstrated to be financially and technically viable; (ii) Lessons learned from the project are applied to future off-grid projects. Under indicator 1, nothing can be said about the financial and technical viability of mini-grids for communities, because they were not completed. In relation to indicator 2, the catalytic effects of the project, its importance and its strategic achievements led to some extent to a financing agreement obtained with the Spanish Cooperation for rural electrification using solar and wind energy for 25 villages expandable to 50 villages. This project which will start in the first quarter of 2022 is an induced effect of MINIGRIDS. Therefore, the lessons learned at the institutional level have contributed to these achievements. On the other hand, from a physical point of view, investments in mini-grids are not yet functional to draw lessons applicable to future projects.
Thus, the project is not performing well with respect to this third outcome. The progress made with this outcome is still on the whole unsatisfactory.

On the overall exploitation of analysis elements carried out on the various project outcomes on both the strategic and operational components, the project succeeded in terms of efficiency with a moderately satisfactory score of 4.

4.3.4 Efficiency

"Was the project implemented efficiently, in accordance with national and international norms and standards?"

(99) Like the two-headedness that characterizes the management of the MINIGRIDS project, the overall management of the project's budgetary resources followed the same pattern, which did not allow for a relevant and cross-cutting overall analysis of the project's efficiency. All the same, the analysis of efficiency is differentiated according to the separation of the two components.
With regard to the strategic component, a total budget resources of USD 1,720,142 have been approved, including USD 450,000 from UNDP fully executed (100%) and USD 1,270,142 from GEF executed at 85%. These levels of budgetary performance are consistent with the significant results obtained with the strategic component.

(100) At the strategic level, financial management was good and carried out according to UNDP's international fiduciary methods and procedures. The management has also been certified by audits. Upon arrival, good budget execution was noted with the strategic part. From the use of data provided by the UNDP-Mauritania Office in December 2021, there is an overall execution rate of approximately 89% for the total of UNDP and GEF funds. At this strategic level, the management of MINIGRIDS has proven to be very efficient.

(101) The operational component has a budget recorded in the project document of 7,250,000 USD, divided between a concessional loan from the Abu-Dhabi Fund for Development in the amount of 5,000,000 USD (programming) of which only 49 % of commitment rate executed in the month of April 2022 and a contribution from the Mauritanian government of USD 2,250,000 fully realized. This average budget execution rate of the Abu Dhabi Fund for Development could be explained by the changes in technological options in the construction of mini-grids. As a result, the programmed USD 4,019,727.25 which should be used for hybrid generation (Wind/Diesel) was not mobilized and executed. Foreign financing has effectively been mobilized through a financing agreement signed since May 2014. This financing is disbursable on direct payments from the donor itself, at the request of the Department of Electricity and Energy Management and the implementing entities, successively APAUS and SOMELEC. According to the Project Management Unit, the State counterpart is regularly provisioned in the budget of the Ministry of Petroleum, Mines and Energy. Overall, as for the strategic part, the operational component is fully mobilizing its projected resources.
Unfortunately, the efficiency of the project and all the other evaluation criteria are assessed globally at the same time and also taking into account the operational aspect. ***This reveals, by extension, a generally low level of project efficiency during the evaluation period with a score of 3.***

(102) Ultimately, the weaknesses noted in the programming and execution of the hard part due to the APAUS-SOMELEC institutional turmoil had a considerable impact on the effectiveness and efficiency of the project. If the mid-term evaluation had revealed significant weaknesses and delays, readjustments and adaptations were subsequently made to try to raise the bark, which led to this slight improvement in the overall execution of activities compared to the mid-term evaluation.
The level of achievement of project results is assessed globally on the two components. We seem to be witnessing, as part of this project characterized by an unbalanced two-headedness in management and coordination, a joint acceptance of all the shortcomings and weaknesses noted in the overall implementation of the project.
Thus, notwithstanding the interesting results obtained with the strategic part, the overall implementation of the project lacked significant performance; since the operational component, which is of major importance in this project, has experienced considerable problems and delays in the delivery of the mini-grids on which most of the expected structural results depend.
As a result of this overall assessment approach, the overall implementation of the project was moderately satisfactory with a rating of 4.

4.3.5 Sustainability

"To what extent are there financial, institutional, socio-economic or environmental risks to sustaining project results in the long term?"
(103The sustainability of the project's achievements is consubstantially linked to the solidity of its strategic and operational interventions. It is also a function of key factors, upstream and downstream of the project intervention. Upstream, there is the entire methodological support system whose implementation has generated quality deliverables (institutional frameworks and mechanisms, strategic tools, etc.). Downstream, we should find tangible results that meet the concerns of beneficiaries and that are likely to be sustained with a good level of ownership. This is why the likelihood of sustainability of the MINIGRIDS project is undermined.
Thus, the coherence of the project with the national strategic orientations and the operational needs of the local populations, presumes that sustainability has a strong chance of being a reality. In clear terms, the relevance and coherence already demonstrated earlier in the document is an important sustainability factor to consider.
At the strategic and institutional level, the hitherto solid anchoring of the MINIGRIDS project in the MPME with strategic results obtained, instruments and institutional mechanisms revised and validated by all the stakeholders in particular, the governmental entities, favors ownership of the project assets by national authorities.
According to the TOR for the evaluation, sustainability should also be assessed in terms of the following criteria: financial, socio-political, institutional and governance, and environmental.

(104) **Thus under the financial criterion**, the mini-grids under construction in the 4 sites along the coast could be viable from a commercial and financial point of view if they are managed as part of an operation by public service delegate through which, the populations will contribute to the payment of electricity. However, this option may not be preferred since the authorities have decided for the moment, for social reasons, to ensure free electricity generated by the facilities under construction.

In addition, the environment of the rural electrification sector in Mauritania now benefits from new funding from strategic partners such as the World Bank, the European Union and AFD who are starting an investment of 27 million dollars for the installation of 76 hybrid mini-grids (RIMDIR Project).
In addition, the government of Mauritania has made rural electrification a top national priority, which entails the establishment of suitable conditions for the financial viability of the investments made in the four localities. Until then, Mauritania is one of the countries in Africa that has the lowest level of rural electrification coverage, although a large part of the population is rural. All in all, it is difficult to comment on the sustainability relating to the financial sub-criterion of mini-grids under construction, given the current situation where the authorities have decided to ensure free electricity regardless of the management method, operation and maintenance to be adopted. *Thus, the project copes with this situation with an average probability of financial sustainability with a rating of 3 (see summary table of ratings).*

(105**) Under the socio-economic criterion**, the difficult and precarious living conditions of the populations of the four villages and the lack of viable sources of income limit the ability of the populations to pay for energy services, if the option of a public service delegate with the contribution of the communities would be retained. The combination of the operating model of the electricity utility company and the operating model of the private sector through PPPs (public-private partnerships) which will also have to allow sustainable management of the installations through community participation is unlikely to succeed without some targeted risk mitigation measures to make services affordable to populations and improve the viability of systems. Electricity should promote income-generating activities that could then improve people's ability to pay for these services. Unfortunately, the free services that will be offered by the mini-grids can be a real factor of inefficiency in the medium and long term. *As a result, the socio-economic sustainability of mini-grids is weakened, with an average probability reflected in a score of 3*.

(106**) As regards to the political, institutional and governance criterion,** the achievements obtained at the strategic level with the preparation and validation of institutional, regulatory and legislative documents constitute factors for the consolidation and sustainability of the national anchoring of the project's achievements. The current peaceful political context is conducive to consolidating the institutional framework promoted and strengthened under the MINIGRIDS project.
After the disbandment of APAUS, there was no formal framework to manage rural electrification. Fortunately, the MINIGRIDS came to fill this gap by supporting this rural electrification sector.
The significant efforts made to strengthen national capacities will allow for better governance of infrastructure and ongoing and future investments in the context of new projects on rural electrification and the use of renewable energies.
These favorable conditions make the sustainability of the institutional and governance framework to be likely with a rating of 4.

(107**) With regard to the environmental criterion**, the starting hybrid option (Diesel/ER) is quite naturally more concerned with the protection of the environment, because it is more low-carbon compared to a system that would operate 100% with fossil fuels. However with the change of power option of the mini-grids which will be directly connected to the fully photovoltaic solar power plant located in the outskirts of Nouakchott,

the project could become more environmentally friendly and contribute more to the mitigation of climate change with less CO2 emissions. As the infrastructures were not operational at the time of the final evaluation, the updated CO2 emission reduction calculations related to this new approach were not conducted.

Furthermore, the recent discovery of offshore oil may be a potential source of pollution at sea and disruption of the reproduction cycle of many fish species. This could have an impact on the productivity of fishing whose exploitation and conservation of fish justifies, among other things, the operational component of the MINIGRIDS project. Therefore, environmental sustainability is moderately likely (3).

Based on all the findings and the cross-reading of the assessments of all the sub-criteria, the sustainability of the project turned out to be moderately likely with a score of 3.

4.3.6 Country ownership

(108) This point is consubstantially linked to the above-mentioned sustainability.
The project results from needs that are well identified by Mauritanian authorities and has deployed the appropriate strategies in this direction. In fact, according to the Department of Electricity and the management of Energy (interviews), a review of the experiences of mini-grids, in particular, of hybridization projects which often were grafted onto conventional diesel-powered installations, showed that they had long-standing technical control and management problems. Many of the renewable modules are poorly sized, and especially the dealers/resellers do not have the technical expertise. In addition, there is a strong penetration of diesel to the detriment of RE installations, which are abandoned at the slightest breakdown, to turn to conventional energies. It is crucial to have the appropriate capacities and tools to clean up this context and allow Mauritania to develop its potential in terms of renewable energy that the Government has relied on its partners to set up the MINIGRIDS project.

(109) National ownership of the project is also expressed through institutional commitment to the project. The project is anchored in the Ministry of Petroleum, Mines and Energy through the Directorate of Electricity and Energy Management, whose Director is the National Directorate of the Project. It brings national ownership through its commitment to the development of annual work plans, the supervision of the implementation and the monitoring of activities. The national commitment has also resulted in a significant counterpart, in kind and in cash.
However, national ownership needs to be consolidated with the MEDD with which the project was initiated under the Climate Change window of the GEF funds and which was not effectively associated for the rest of the project.

4.3.7 Gender equality and empowerment of women

"How has the project contributed to gender equality and the empowerment of women?"

(110). As part of the strategic activities that have been carried out, gender equality and the empowerment of women have not been sufficiently taken into account. The very low participation of women in the strategic work relating to the development of tools and the regulatory framework has not favored their positioning in the renewable energy sub-sector or the strengthening of their capacities to enable them to play an active role in the development of renewable energies. At this strategic level, the project could have been more sensitive to gender by adopting, for example, requirements for the representation of women in management and during the various works.

(111) Operationally, while women are significantly present in the fishing-processing-marketing value chain, no specific approach has been dedicated to them in the 4 coastal villages. These shortcomings observed in the project are also linked to its logical framework through which data on the assessment of gender equality and the empowerment of women are almost non-existent. The strategic objective of the project, the results, the end-of-project objectives and as well as the indicators, the main elements of the logical framework are not gender-sensitive. The project thus evolved without a relevant referential analysis framework and without means of action for the integration of gender and the empowerment of women. Therefore, the project's low gender sensitivity is consubstantially linked to its formulation and design, while the project's potential in this regard is real since the main final beneficiaries of the facilities on the ground will benefit women and their organizations active in the processing and preservation of fish.

Even if these aspects are not explicitly mentioned and difficult to perceive for the moment, the project's achievements should nevertheless essentially benefit the poor and disadvantaged groups, in particular women and their cooperative organizations whose processing and conservation activities require energy for more performance.

(112) Therefore, given the current state of the project, the real effects on gender, women empowerment, on the promotion of human rights cannot be perceived and appreciated immediately, but will be in the medium or long term when the investments will have started to work and the strategic and institutional documents will be really and completely applied by all the actors and partners evolving in the energy sector.

(113) However, the local populations greatly need to be prepared, reorganized and supported to enable them to better exploit and enhance the equipment in order to stimulate real socio-economic development in the villages. In this sense, the project document should include a strategy for capacity building and empowerment of women through their cooperatives so that they can better benefit from the exploitation of the energy provided by the project.

4.3.8 Cross-cutting issues

(114) As shown by the elements that confirm its relevance, in part "1.4.1" of the report, the project is well aligned with the strategic plan and the UNDP country program document in Mauritania, with the SDGs as well as with the environmental benefits required by the GEF.

Furthermore, the lack of factual data on the project (disaggregated socio-economic data from the four sites) does not allow for an evaluative analysis of the project's impact on poverty reduction, disaster prevention and recovery, human rights, etc. The tools and the legal and regulatory framework put in place were not yet functional and the mini-grids were still under construction at the time of the evaluation. They can later contribute to improving the governance of the sector. This finding is also well addressed in the "findings/conclusions" sections of this report.
Consequently, it is difficult, if not impossible, to comment on the positive or negative effects of the project in the medium/long term on the local populations in terms of income generated, jobs created, poverty reduction, etc.
From an operational point of view, the mini-grids that were under construction will undoubtedly have positive repercussions on climate change mitigation and adaptation due to their clean energy sources coming entirely from the Nouakchott photovoltaic solar power plant.
Compared to other cross-cutting issues such as human rights, for example, the project showed gaps and shortcomings in the same way as gender and the empowerment of women, the supporting elements of which are already discussed above.

4.3.9 GEF Additionalities

(115) The GEF additionalities in this project are in fact linked to the results obtained. As recommended in the UNDP-GEF project evaluation guide, the additionalities of the GEF are apprehended here according to the following components:

The legal and regulatory additionalities are very important. The GEF financing which supported the strategic part has made it possible to obtain interesting results relating to the promotion and establishment of a political, regulatory, institutional and legislative framework conducive not only to the creation of hybrid mini-grids, but also favorable to promoting renewable energies in the supply of electricity, especially in rural areas.

In addition, despite the end of the project, the coordination unit is maintained by DEME to continue to ensure the coordination of renewable energy interventions and that the regulatory and institutional framework established through the project is now being applied to other projects. This arrangement by the authorities is a strong factor in the institutional sustainability of the MINIGRIDS project, which is also attributable to the GEF intervention.

(116) On the specific environmental level, the nature of the project itself contributes to preserving the environment and reducing the ecological footprint of the country, thanks to low-carbon investments. Whether it is the initial option, hybridized mini-grids with Diesel/RE coupling (in particular wind farms) mentioned in the project document or finally the direct mode of supplying the installations from the SOMELEC starting from the Cheikh Zayed solar power plant in Nouakchott, the sensitivity of the project to environmental protection remains the same. All the investments in progress that will be powered by a renewable energy source (solar center) are naturally more concerned with the protection of the environment, with a reduction in the level of use of fossil fuels. Even if the GEF funding does not act directly in the operational part of the project,

its strategic intervention offers a political, institutional and regulatory framework essential to the development of sustainable investments for the environment, in particular renewable energies.

(117) In terms of socio-economic additionalities of the GEF, the project investments, through the desalination units, the ice-making units for the conservation of fishery products, the social connections for water and electricity, etc., all contribute to improve the livelihoods of the beneficiary populations of the villages concerned. These fishing inhabitants live in difficult and precarious conditions with difficulty in accessing basic social services (electricity, drinking water).

From an innovation point of view, GEF support has made it possible in particular to strengthen the technical capacities and knowledge of institutional actors and technical managers to enable them to better master the environment of renewable energies and related technological innovations.

(118) To sum up, the creation of a political, institutional, regulatory and legislative environment that is favorable to the promotion and development of renewable energies is attributable to the contribution of the GEF. All this will contribute directly and indirectly to reducing and avoiding GHG emissions through the promotion of mini-grid projects, while facilitating the application of national electricity production policies that use clean energy sources, through the adoption of appropriate harvesting and management technologies.In other words, GEF funding was necessary for the implementation of the operational part, because it constituted factors or common threads that catalyzed the continuation of the execution of the operational part, even after the end of the project. Without these GEF funds, all these achievements would not have taken place.

4.3.10 Impact

"Are there any indications that the project has contributed (or allowed) to make progress towards a reduction in pressures exerted on the environment and/or an improvement in ecological status?"

(119) At the current state, it is very early to talk about impact as part of this project. The strategic component of the project is in the process of stabilizing important achievements relating to the regulatory, legislative and institutional framework, tools for managing electricity concessions, the technical capacities of executives and engineers for the consideration of renewable energies, etc. However, the impacts will only be produced in the short and long term when all these instruments become operational.

(120) Indeed, the revised and validated Electricity Code has not yet really entered its operational phase to generate effects in terms of investments made in hybrid renewable energy-diesel mini-grid projects (impact indicator 1). On the carbon footprint and the sensitivity of the project to climate change, there is no impact in terms of reducing CO2 emissions since the investments are not yet operational in the context of rural electricity production (impact indicator 2). Also, no MWh is yet produced under the project (impact indicator 3), and no more people in rural areas benefiting

from access to better services under the project (impact indicator 4), since the construction of the mini-grids in the four sites on the coast had not yet been completed.

4.3.11 Catalytic outputs of the project

(121) The MINIGRIDS project was particularly catalytic because it was, in part, at the origin of other initiatives to intervene in the rural electrification sector with the development of renewable energies. The significant achievements obtained at the institutional, legislative and regulatory levels have encouraged partners to consolidate and build on these strategic achievements to develop other projects in the field of renewable energies. Thus, the catalytic outputs of the project can also be considered as potential factors contributing to the achievement of project objectives.

(122) These catalytic positive effects of MINIGRIDS are determining factors for the intervention of other partners such as the AFD, the EU and the World Bank in the development of hybrid mini-grids to help improve the rate of access to rural electrification in Mauritania. This consistency is also demonstrated in the establishment of an energy sector group which brings together all the technical and financial partners concerned, including the UNDP, which is a leading member.

(123) Since the formulation and start-up phase of MINIGRIDS, hybrid solutions have been in place. This is the case, for example, of the Kiffa hybrid power plant for which nearly 24 million Euros of investment have been mobilized. A financing agreement with the Spanish Cooperation has been found for the rural electrification of 25 villages expandable to 50 villages. Through this project, which was scheduled to start in January 2022, technology transfer and training for SOMELEC teams are planned. There is also the PERZI project (rural electrification project in isolated areas) whose feasibility studies were financed by the UNDP. Another catalytic effect induced by the MINIGRIDS concerns the restructuring of SOMELEC which now has a central directorate for rural electrification with a dedicated team, even if the latter must be strengthened to have more technical and managerial capacities to succeed in its mission.

In parallel and independently of the project, 76 hybrid mini-grids are in prospect within the framework of the RIMDIR project for a total investment of more than 27 million dollars.

IV. Major findings, lessons learned, recommendations

5.1 Findings of the evaluation

5.1.1 Relevance

The project turned out to be very relevant by being particularly well anchored in the development strategies of the country and its partners, namely the UNDP and the GEF.

(124) The MINIGRIDS is a strategically and operationally relevant project, in that it aligns perfectly with the national priorities of Mauritania. And this, particularly in the field of rural electrification which requires the consideration of renewable energies for lower carbon investments, therefore concerned with reducing the country's ecological footprint and participating in better establishing its determined national contribution to mitigation of the effects of climate change. The project also provides appropriate solutions to structural problems of the rural electrification sector: its institutional framework and adequate energy production infrastructure. The project is well aligned with the strategic areas of the GEF, the UNDP-Mauritania Country Program Document 3 and also with other technical and financial partners involved in the energy sector on the whole.
The project answers to the concerns of the populations in terms of access to energy sources for the development of their activities.

5.1.2 Effectiveness

Overall, the effectiveness of the project is moderately satisfactory and essentially driven by the strategic part with its interesting results obtained.

(125) The effectiveness of the project should in principle be assessed according to the state of progress of each component. Consequently, the strategic component was carried out with a very good level of satisfaction, unlike the operational part, which is still struggling to deliver its expected investments. The development and validation of legislative measures (revised and validated Electricity Code with the consideration of the rural electrification sector, the involvement of the private sector, the injection of renewable energies into the circuit, etc.), the revised institutional framework (Master Plan for Rural Electrification finalized, revised framework applicable to PSDs, various studies carried out and other documents as illustrated in the rating table above), technical capacity building, the feasibility of establishment of a renewable energy observatory, so many achievements to the credit of the strategic component.

(126) The operational component, for its part, had not delivered its investments during the period covered by this final evaluation. These delays were attributable to the dissolution of APAUS with its limited capacities which was not in favor of a good execution of this component even before its dissolution. These technical capacity deficits had led to the signing of almost ineffective contracts. To this was added the period of uncertainty which lasted about eight (8) months for the transfer of responsibilities from APAUS concerning the rural electrification sector to SOMELEC.
The absence of a steering committee that could have provided solutions to the shortcomings noted in the implementation of the project, particularly in its operational part, and the lack of an explicit theory of change that precisely describes the chain of results, did not make it possible to carry out a relevant cross-analysis of the evolution of the results from the execution of the project. As a result, the effectiveness of the project suffered greatly from these difficulties and shortcomings, as shown in the section on the findings of the evaluation.

5.1.3 Efficiency

If the efficiency of the implementation of the strategic component is considered very good, the weaknesses noted in the programming and budget execution of the operational part because of the institutional disturbances APAUS-SOMELEC have considerably impacted the efficiency of the project.

(127) At the strategic level, financial management has been good and has been carried out in accordance with UNDP's international fiduciary modalities and procedures. The management has also been certified by audits. At the end, a good budget execution has been noted with the strategic part. According to the data provided by the UNDP Mauritania Office as of December 2021, there is an overall execution rate of about 89% for the total of UNDP and GEF funds. At this strategic level, the management of MINIGRIDS has proven to be very efficient.
At the operational level, the project was less efficient, despite the rather interesting levels of financial execution (92% relating to disbursements compared to commitments) of Lot 2 relating to Distribution plus Socio-economic equipment according to the data received at the end of April, therefore impossible to verify in the field by the appraiser.

5.1.4 Impact

The strategic component of the project is in the process of stabilizing important achievements relating to the regulatory, legislative and institutional framework. However, the impacts will only be produced in the short and long term when all these instruments become operational.

(128) The revised and validated Electricity Code has not yet really entered its operational phase to generate effects in terms of investments made in hybrid renewable energy-diesel mini-grid projects (impact indicator 1). On the ecological footprint and the sensitivity of the project to climate change, there is no impact in terms of reducing CO2 emissions since the investments are not yet operational in the context of rural electricity production (impact indicator 2). Also, no Megawatts are yet produced under the project (impact indicator 3), and no more people in rural areas benefiting from access to better services under the project (impact indicator 4), since the construction of the mini-grids in the four sites on the coast had not yet been completed.

While considerable achievements have been made with the strategic component, they are not yet sufficient to generate impacts, since all the regulatory, institutional and management instruments and tools have not yet been put into practice. The same observation is also valid with installations that have not yet been delivered.

5.1.5 Sustainability

Overall, the likelihood of occurrence of the sustainability of the project, assessed according to the sub-criteria that structure it, is relatively average.

(129) The national anchoring of the MINIGRIDS project, which empowers national entities (Ministry of Petroleum, Mines and Energy through the Directorate of Electricity and Energy Management (DEME)), has fostered ownership of the project by Mauritanian government authorities, which in turn ensures the sustainability of the results, particularly at the institutional and strategic levels. This solid anchoring of the strategic results obtained, the strategic interest granted to the project by the government authorities advocates in favor of a strong likelihood of occurrence for the sustainability of the achievements. In addition, the rural electrification sector is a very important national priority to which the Mauritanian government pays particular attention.
On the other hand, the poor performance recorded in the operational part and previously discussed in this report, risks hampering the likelihood of the project's sustainability.

5.2 Lessons learned

At the strategic level

(130) The project suffered in its overall implementation, from the two-headedness adopted in its management and coordination. The "soft" part being provided by the UNDP is fully implemented and the "hard" part managed by SOMELEC has experienced considerable delays, while the results of the project are assessed as a whole. It must be emphasized that this duality did not facilitate the proper execution of the MINIGRIDS. In view of these findings and shortcomings and given the complexity and innovative nature of this project, it would have been preferable for it to be implemented through a single management and coordination unit. This would have made it possible to speed up the execution of activities, ensure quality control and close monitoring of achievements in order to complete them on time. Any innovation, especially technological, requires the adoption of a unified prudent approach to minimize the risks that may hinder its implementation. In the absence of a single management and coordination unit, a specialized operator with all the required skills should have been recruited to support SOMELEC in the implementation of this project.

(131) The lack of a steering committee bringing together the key actors identified in the project document was an obstacle to good governance and the partnership dynamic of the project.
A project of this size should have a steering committee established early in the project initiation phase in order to provide the necessary strategic orientations in a timely manner, to ensure consistency in its interventions and to avoid interruptions in the project in the event of institutional changes, as was the case with the dissolution of APAUS, where there was a gap of about eight months before SOMELEC was chosen as the new implementing partner. This unfortunate situation, which was recalled on many occasions, including in the mid-term evaluation of the project and the annual implementation reports, also contributed to the imbalance in terms of coordination and achievements between the two project components.

(132) The implementation of MINIGRIDS has proven to be particularly catalytic in many ways, because the significant achievements obtained at the institutional, legislative and regulatory levels have encouraged partners to come and consolidate and build on these strategic achievements to

develop other projects in the field of renewable energies. This is the case, for example, with the World Bank and the AFD, which are preparing a major project on hybrid mini-grids in the south-east, the project management of which will be provided by SOMELEC. Moreover, the European Union had taken over the revisions of the electricity code on the basis of what the UNDP had done under this project. There is also the financing agreement obtained by the Government with the Spanish cooperation for a rural electrification project in 25 villages expandable to 50 villages. In addition, the Project Coordination Unit is maintained by the DEME to continue to ensure the coordination of interventions in the field of renewable energies and that the regulatory and institutional framework established thanks to the project is now applied to other projects.

(133) Solid and integrated planning from the formulation stage of a project was lacking in the case of the MINIGRIDS project. Indeed, the changes made to supply the systems being installed at the four sites from the electrical network of the Cheikh Zayed solar power plant in Nouakchott, abandoning the option of starting with a hybridized system (diesel/wind energy coupling) would reflect the deficiencies in the planning of the rural electrification sector and also in the formulation of the project.

At operational level

(134) The operational component was affected by the disbandment of APAUS and its technical shortcomings which did not facilitate the implementation of activities. By way of illustration, the procurement of works and the various contracts that were signed with companies and other service providers had experienced delays and blockages due to internal problems of APAUS. These problems had also contributed to speed up its disbandment. To this end, for future projects of this kind, it will be necessary to carry out an in-depth analysis of the capacities of the implementing partners.

(135) Even if the physical achievements of the project are limited just in the four villages, the effects of the MINIGRIDS project will be felt at the national level because of the significant changes that will be brought about by the project at the institutional, legislative and regulatory levels.
At the time of the evaluation (December 2021), the infrastructure was being built at a fairly advanced stage. There still remained the finishings to the works, the transport of accessory equipment from the port of Nouakchott to the four (4) sites, the connection of households to the electricity grid and the connection of units to the power line of the Sheikh Zayed solar power plant, etc. However, given the importance of this operational component, considered as a technological innovation and which has known many delays, SOMELEC should not ensure the role of project management and contracting authority at the same time. Thus, it would have been essential to ensure the continuity of the regular close monitoring of the works by the consulting engineer by renewing his contract which had expired 6 months ago (baseline period of the evaluation in December).

1.4.7 Recommendations

Table 2: Recommendations

N°	Recommendations	Responsible Entities
Promote an integrated governance and orientation framework for future mini-grid projects in order to boost their achievements and make them much more efficient and sustainable		
01	For future projects, it will be necessary to ensure that their steering committees can be operational from the start of the project and to ensure that this mandatory requirement for any UNDP project can be met by the national side. *This recommendation is based on the findings and lessons learned*	**National entities/parties**
02	In the future, for these types of projects, it will be necessary to opt for a single coordination unit in order to avoid the problems encountered with the two-headedness in the governance and coordination of the MINIGRIDS. *This recommendation relates to findings/conclusions on effectiveness, efficiency and lessons learned*	
03	For future projects, the Government should ensure to put in place a good, solid and integrated planning system to decide on the most appropriate types of investments and technologies to adopt according to the areas of intervention of the projects. *This strategic recommendation result from lessons learned and is also linked to all the findings/conclusions.*	**Government of Mauritania**
04	In view of the important results at the strategic level, UNDP will have to continue to consolidate its leadership position by strengthening its presence in the "energy" sector group (set up by all the technical and financial partners and the ministries concerned) by initiating period meetings, round tables on rural electrification, renewable energies, in particular by starting to share the results obtained with the MINIGRIDS which has produced catalytic effects that have encouraged other technical and financial partners to invest more in the clean energy sector to improve access to electricity for rural populations.	**UNDP**

Improved effectiveness and sustainability of the project and other future interventions		
05	Given the importance of the works in progress and in accordance with the indications of the project document, it would be better to reflect on the mechanism for managing these works by a delegate of services who could be linked to the State via the Central Directorate for rural electrification unit at SOMELEC, the Department of Electricity and Energy Management (DEME) at MPEM by establishing clearly defined specifications. At the same time, it will also be necessary to reflect on the establishment of a degressive mechanism for the contribution of communities to the maintenance and management of these investments. This will allow them to better perceive the importance of these investments, since they will have participated in paying for the resulting services. *These recommendations stem from the observations made on the effectiveness and sustainability*	**DEME and SOMELEC**
06	SOMELEC in charge of rural electrification is in a process of restructuring which has not yet been completed with limited specific technical capacities, particularly in the field of renewable energies. Consequently, it is still necessary to continue to accompany and support the central direction of rural electrification of SOMELEC, recently created. To do this and to be in line with the requirements of a strategic financial partner like the GEF, which limits recourse to a national execution modality assisted by the UNDP, it would also be important to reflect on a mechanism for closer assistance of SOMELEC, by a qualified and competent operator who would be recruited with clearly defined specifications. In general, support for project implementation partners should be carefully considered and taken into account upstream during the project formulation phases in order to avoid the same problems	**DEME, SOMELEC, UNDPand other technical and financial partners**

	encountered (shortcomings in technical capacity and structuring) with SOMELEC do not occur with other implementation partners.	

VI. Annexes

- Audit-trail
- Terms of reference
- Methodological tools
  - Overall Evaluation Matrix
  - Evaluation matrix for cross-cutting aspects
  - Interview guide
- List of people met
- List of documents consulted

Template of terms of reference (ToR) for the final evaluation
UNDP-supported and GEF-funded projects
Standard template 1 formatted for the UNDP procurement site: *UNDP Procurement website*

1. INTRODUCTION

In accordance with UNDP and GEF monitoring and evaluation policies and procedures, all medium and large-scale UNDP-supported and GEF-funded projects must undergo a Final evaluation (FE) at the end of the project. These Terms of Reference (ToR) set out the expectations associated with the FE of the *medium-scale project* titled *Promoting mini-grids in Mauritanian provinces using hybrid technologies and implemented by the Government of Mauritania (Directorate of electricity to the Ministry of Energy and SOMELEC).*The project started on *November 24, 2016* and is currently in its 5th year of implementation. The FE process should follow the guidelines outlined in the document "Guidelines for Conducting Final Evaluations of UNDP-Supported and GEF-Financed Projects" (*http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf*).

2. BACKGROUND OF THE PROJECT

The MINIGRIDS project aims to contribute both to the development and use of renewable energy sources in rural Mauritania. It illustrates a decentralization policy promoting better involvement of sectoral ministries in the management of climate change in sectoral strategies and it is in line with all the international treaties for the fight against climate change to which Mauritania has subscribed.
The Minigrids project is made up of two main components:

1) **The so-called "Hard" component: Creation of an operational model of a hybrid mini-grid financed by the Abu Dhabi fund and the Mauritanian Government (co-funding of 5 million USD) and implemented by SOMELEC after the disbandment of the APAUS Agency in 2018.**

This component consists of improving access to electricity through renewable energies in four villages along the coast, towards the north of the country (Arrondissement of M'heijratt). The four localities targeted are Lemcid, M'haijratt, Bellewakh and Tiwillit. They are located in isolated areas, far from any electrical network. Wind energy was chosen because of the strong potential of the Mauritanian coast, particularly in the targeted areas. The wind speed in this region is about 9 m/s.
The localities selected are fishing villages with important activities in the field of fish conservation. Energy is needed for refrigeration and ice production. But energy is also needed for the production of drinking water, through the desalination of seawater. Water is scarce in the targeted villages, located in the Sahara desert, and the only way to having access to drinking water is the treatment of sea water.
The localities selected have a total permanent population on the spot, of about 500 households, mainly composed of Imraguens, an indigenous Mauritanian ethnic group. The Imraguens are traditional fishermen and the descendants of the first peoples of Mauritania.
The pilot operational part of the Project is therefore oriented towards the creation of integrated local development including electricity, drinking water and the conservation of fishery products.

The pilot project for this component was prepared by the Agency for the Promotion of Universal Access to Services (APAUS) and submitted for funding to the Abu Dhabi Fund for Development (ADFD). It was pre-approved in January 2014. Funding is now available.

2) **The so-called "Soft" component: Financed by the GEF (GEF financing of USD 1.2 million) and the UNDP and implemented by the Project Management Unit within the Ministry of Petroleum, Energy and Mines**

This component consists of: (1) Development of policy, regulatory, legislative and financial instruments for the development of hybrid mini-grids; (2) Reinforcement of hybrid mini-grid operating capacities.

It aims to improve the governance of rural electrification at the national level, and it is therefore all rural Mauritanians who will benefit from its spin-offs.

The project is affected by the negative impact of COVID-19, just as the whole national and international environment, which is disrupting its mode of operation in terms of travel and the slipping of deadlines for some of its activities. As the remainder, Mauritania is currently undergoing the third wave of COVID-19 with the highest contamination rates since the start of the pandemic.

3. OBJECTIVE OF THE FE

The FE report should assess the achievement of project results against what was planned and draw lessons that can both improve the sustainability of the benefits of this project and contribute to the overall improvement of UNDP programming. The FE report promotes accountability and transparency, and assesses the extent of project achievements.

It also aims to draw lessons from the project's experiences related to developing favorable policies and regulations for investment in hybrid mini-grids and to explore their benefits for improving access to energy in the country by harnessing the renewable resources, especially in the most remote areas.

4. FE APPROACH AND METHODOLOGY

The FE report should provide credible, reliable and useful fact-based information.

The FE team should review all relevant sources of information, including documents developed during the preparation phase (such as the FIP, UNDP Inception Plan, UNDP Environmental and Social Risk Screening Procedure). UNDP/PDRES), the project document, project reports including annual PMRs, project budget reviews, lessons learned reports, national policy and legal documents and any other material the team deems useful to support this assessment.The FE team should review the GEF Focal Area baseline and mid-term indicators/tracking tools, submitted to the GEF at the time of Director's endorsement and at mid-term milestones, as well as the core indicators/tracking tools that need to be completed before the start of the FE field mission.

The FE team should follow a participatory and consultative approach ensuring active involvement of the project team, government counterparts (the GEF operational focal point), implementing partners, UNDP country office, the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Stakeholder participation is essential to the success of FE. This mobilization must consist of interviews with the stakeholders who assume responsibilities related to the project, namely, among others, the Project Management Unit and other relevant personnel of the Ministry of Petroleum, Energy and Mines, SOMELEC, the GEF operational focal point, the UNDP country office, the UNDP Regional Technical Advisor based in the region, senior officials and team/component leaders, key experts and consultants in the relevant field, project beneficiaries, academia, local authorities and CSOs, etc.

Due to the COVID-19 pandemic, these consultations will have to be held remotely as much as possible. The international consultant of the FE team will carry out its mission entirely by teleworking. The national consultant of the FE team may be required to carry out face-to-face consultations, in which case respect for barrier gestures and social distancing will be imperative. The national consultant is also expected to carry out field missions in Nouakchott and in the project intervention areas on the coast. These visits will be carried out taking into account health and safety constraints, in order to ensure the well-being and safety of the consultant. No stakeholder, consultant or UNDP staff member should be put at risk and safety is the top priority.

The specific design and methodology of the FE should emerge from consultations between the FE team and the above-mentioned parties as to what is appropriate and feasible to achieve the purpose and objectives of the FE and answer evaluation questions, given budget, time and data constraints. The FE team should use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and the SDGs, are integrated into the FE report.
The final methodological approach, including the schedule of interviews, field visits, and data to be used in the evaluation, should be clearly outlined in the FE inception report and be thoroughly discussed and agreed between UNDP, stakeholders and the FE team.
The final report should describe the overall approach adopted for the FE and the rationale for this approach by making explicit the underlying assumptions, challenges, strengths and weaknesses regarding the methods and approach of the Evaluation.

5. DETAILED SCOPE OF THE FE

The FE should assess the performance of the project against the expectations set out in the project's log/results framework (see Annex A of the ToR). It should assess results against the criteria outlined in the Guidelines for Conducting Final Evaluations of UNDP-Supported and GEF-Financed Projects
(http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf).
The findings section of the FE report should cover the topics listed below. A complete presentation of the contents of the FE report is provided in Annex C of the ToR.
Criteria requiring scoring are marked with an asterisk (*).
Findings

i. Project design/development

- National priority and country ownership
- Theory of change
- Gender equality and women empowerment
- Social and environmental safeguards

- Analysis of the results framework: project rationale and strategy, indicators
- Assumptions and risks
- Lessons learned from other relevant projects (e.g. in the same focal area) included in project design
- Planned stakeholder involvement
- The links between the project and other interventions within the sector
- Management methods

ii. Project implementation

- Adaptive management (modification of project design and project products during implementation)
- Actual participation of stakeholders and real partnership agreements
- Financing and co-financing of the project
- Monitoring and evaluation: design at entry (*), implementation (*) and overall evaluation of M&E (*)
- Implementing partner (UNDP) (*) and executing agency (*), overall project control/implementation and execution (*)
- Risk management, including Environmental and Social Standards

iii. Project outcomes

- Assess the achievement of outcomes against indicators by reporting the level of progress for each objective and result indicator at the time of the FE and noting the final achievements
- Relevance (*), Effectiveness (*), Efficiency (*) and overall achievement of the project (*)
- Sustainability: financial (*), socio-political (*), institutional framework and governance (*), environmental (*) and overall likelihood of sustainability (*)
- Country ownership,
- Gender equality and empowerment of women
- Cross-cutting issues (poverty reduction, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, fundamental rights, capacity building, South-South cooperation, knowledge management, volunteerism, etc. ., depending on the case)
- GEF additionality
- Catalyst role / Replication effect
- Progress towards impact

Main findings, conclusions, recommendations and lessons learned

- The TE team should include a summary of key findings in the TE report. Findings should be presented as statements of fact based on data analysis.
- The conclusions section is written in light of the findings. Conclusions should be comprehensive and balanced, broadly supported by evidence, and consistent with the findings of the TE. They must highlight the strengths, weaknesses and results of the project, answer the main questions of the evaluation and provide food for thought for the identification and/or resolution of major problems or questions relevant to the beneficiaries of the project, UNDP and GEF, including gender equality and women's empowerment issues.

- The report should present concrete, practical, achievable recommendations for the intended users of the evaluation regarding actions to be taken or decisions to be made. Recommendations should be specifically supported by evidence and linked to findings and conclusions related to the key issues addressed by the evaluation.
- The TE report should also include lessons that can be learned from the evaluation, including best practices regarding relevance, performance and success, which can provide insights gained from particular circumstances (methods of programming and evaluation used, partnerships, financial levers, etc.) applicable to other GEF and UNDP interventions. Where possible, the FE team should include examples of good practice regarding project design and implementation.
- It is important that the conclusions, recommendations and lessons learned from the FE report integrate gender equality and the empowerment of women.

The FE report will include an assessment ratings table, as shown below:

Table 2 of ToRs: Scoring Table *for Promoting Mini-Grids in Mauritanian Provinces Using Hybrid Technologies*

Monitoring and evaluation (M&E)	Score [1]
M&E design at entry	
Implementing the M&E plan	
Overall quality of M&E	
Implementation and execution	**Score**
Quality of UNDP implementation/oversight	
Quality of implementing partner execution	
Overall quality of implementation/execution	
Results assessment	**Score**
Relevance	
Effectiveness	
Efficiency	
Rating of the overall project achievement	
Sustainability	**Score**
Financial Resources	
Socioeconomic sustainability	
Institutional and governance framework	
Environmental sustainability	
Overall likelihood of sustainability	

6. TIMESHEET

The total duration of the FE will be approximately 25 days [16 working days for CI and 21 working days for CN] over a *9-week period* starting September 20, 2021. The tentative schedule for the FE is the following:

Schedule	Activity

[1]Achievements, effectiveness, efficiency, M&E, implementation/oversight and execution, relevance are rated on a six-point scale: 6=Highly Satisfactory (TS), 5=Satisfactory (S), 4=Moderately satisfactory (MS), 3=Moderately unsatisfactory (MI), 2=Unsatisfactory (I), 1=Very unsatisfactory (TI). Sustainability is rated on a four-point scale: 4=Likely (P), 3=Moderately Likely (MP), 2=Moderately Unlikely (MI), 1=Unlikely (I)

15 September 2021	Closing of applications
17 September 2021	TE Team Selection
22 September 2021	TE team preparation period (presentation of project documents)
24 September 2021 (2 working days) [2 CI days/2 CN days]	Review of documents and preparation of the TE inception report
29 September 2021 (2 working days) [1 day CI / 1 day CN]	Finalization and validation of the initial TE report – at the latest at the start of the TE mission
15 October 2021 (12 working days) [6 days CI/12 days CN]	TE mission: meetings with stakeholders, interviews, field visits, etc.
18 October 2021 (1 working day) [1 day CI/1 day CN]	Closing meeting of the mission and presentation of the first findings – at the earliest at the end of the TE mission
26 October 2021 (6 working days) [5 days CI/4 days CN]	Preparation of draft TE report
26 October 2021to 29 October 2021	Disclosure of draft TE report for comments
02 November 2021 (2 working days) [1day CI/1 day CN]	Inclusion of comments on the draft TE report into the audit trail and finalization of the TE report
12 November 2021	Preparation and disclosure of the management response
12 November 2021	Expected date of completion of the entire TE process

Options for site visits should be included in the TE inception report.

7. FE DELIVERABLES

#	Deliverables	Description	Timesheet	Responsibilities
1	TE inception report	TE team clarifies TE objectives, methodology and timeline	No later than two weeks before the TE mission: *29 September 2021)*	TE team submits inception report to commissioning unit and project management
2	Presentation	First findings	End of TE mission: October 18, 2021	TE team presents findings to commissioning unit and project management
3	Draft TE report	Draft report completed *(Drafted using the content guidelines in Annex C of the ToR)* with annexes	Within three weeks of the end of the TE mission: *October 26, 2021*	The TE team submits the draft report to the commissioning unit; it is then reviewed by the Regional Technical Advisor, the project

				coordinating unit and the GEF Operational Focal Point
5	Final report of TE* + audit trail	Revised final report and TE audit trail in which the TE team details how comments received in the TE final report were acted upon (or not)*(see the model in Annex H of the ToR)*	Within one week of receiving comments on the draft report: *November 02, 2021*	TE team submits both documents to commissioning unit

*All final TE reports will be subject to a quality review by UNDP's Independent Evaluation Office (IEO). For more details on the quality analysis of decentralized evaluations carried out by the IEO, please see Section 6 of the UNDP[2] Evaluation Guide.

8. PROVISIONS RELATING TO THE FE

The primary responsibility for managing the TE lies with the commissioning unit. The commissioning unit for this TE project is the UNDP Mauritania Country Office. The commissioning unit will contract with the evaluators and ensure that per diem and in-country travel facilities are available to the TE team in a timely manner. The project team will be responsible for contacting the TE team to provide all necessary documents, prepare interviews with stakeholders, and organize field visits.

9. COMPOSITION OF THE TE TEAM

A team of two independent evaluators will conduct the TE - an International Consultant team leader (with experience in projects and evaluations in other regions) who will conduct the assignment on a teleworking basis, and a National Consultant expert, usually from the country in which the project is implemented. The team leader will be responsible for the overall design and drafting of the TE report, and for providing remote technical support to the national evaluator's field missions. The country expert will be responsible for assessing emerging trends in regulatory frameworks, budget allocations, capacity building, working with the project team to define the TE mission itinerary, conducting country consultations and field missions, and providing input to the international evaluator.

The evaluator(s) may not have been involved in the preparation, formulation, and/or implementation of the project (including the drafting of the Project Document), may not have conducted the mid-term evaluation of this project, and may not have any conflict of interest in relation to project activities.

Evaluators will be selected to ensure that the team has maximum expertise in the following areas:

International Consultant (Team Leader and International Evaluator) :

Education

- Master's degree in energy, environmental science, engineering or other closely related field;
- Experience

[2] Available on : http://web.undp.org/evaluation/guideline/French/section-6.shtml

- Recent experience in results-based management evaluation methodologies;
- Experience in applying SMART indicators and redesigning or validating baseline scenarios;
- Skills in adaptive management, as applied to climate change mitigation;
- Experience in evaluation projects;
- Professional experience in West Africa;
- At least 10 years of professional experience in relevant technical areas;
- Demonstrated understanding of gender and climate change mitigation issues; Experience in gender-sensitive evaluation and analysis;
- Excellent communication skills;
- Demonstrated analytical skills;
- Experience in project evaluation/review in the UN system will be considered an asset.
- Experience in implementing remote evaluations will be considered an asset.

Language

- Fluency in written and spoken French
- Fluency in English would be considered an asset.

National Consultant (Expert and National Evaluator):

Education
- Bachelor's degree in energy, environmental science, engineering or other closely related field;

Experience
- Recent experience in results-based management evaluation methodologies;
- Experience in applying SMART indicators and redesigning or validating baseline scenarios;
- Skills in adaptive management, as applied to climate change mitigation;
- At least 5 years of professional experience in relevant technical areas;
- Demonstrated understanding of gender and climate change mitigation issues; Experience in gender-sensitive assessment and analysis;
- Excellent communication skills;
- Demonstrated analytical skills;
- Experience in project evaluation/review in the UN system will be considered an asset.

Language
- Fluency in written and spoken French.
- Fluency in English would be considered an asset.

10. EVALUATOR'S CODE OF ETHICS

The TE team is required to adhere to the highest ethical standards and to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the

principles outlined in the UNEG "Ethical Guidelines for Evaluation. The evaluator must protect the rights and confidentiality of informants, interviewees, and stakeholders by taking steps to ensure compliance with legal and other relevant codes governing data collection and reporting. The evaluator should also ensure the security of information collected before and after the evaluation and follow protocols to ensure the anonymity and confidentiality of information sources where appropriate. Furthermore, information and data collected as part of the evaluation process must be used only for the evaluation and not for any other purpose without the express permission of UNDP and its partners.

11. PAYMENT TERMS AND CONDITIONS

- 10% payment upon signature of the contract
- 40% of payment upon satisfactory submission of the draft TE report to the commissioning unit
- 50% payment upon satisfactory submission of the final TE report and approval by the commissioning unit and the Regional Technical Advisor (via signatures on the TE report approval form), and upon submission of the TE audit trail

  Criteria for issuing the final 40 %[3] payment

  - The final TE report includes all requirements outlined in the TE ToR and follows the TE guidelines.
  - The final TE report is clearly written, logically organized, and specific to the project in question (i.e., the text has not been copied and pasted from other mid-term evaluation reports).
  - The audit trail includes responses and justifications for all listed comments.

Note:

In accordance with UNDP's financial regulations, where the commissioning unit and/or the consultant determine that a deliverable or service cannot be satisfactorily provided due to the impact of COVID-19 and limitations on the TE, that deliverable or service will not be paid for.

Due to the current situation and implications of COVID-19, partial payment may be considered if the consultant has invested time in producing the deliverable but has been unable to provide it in full due to circumstances beyond their control.

12. NOMINATION PROCESS[4]

[3] The commissioning unit is required to make payments to the FR team as soon as the conditions in the ToR are met. If there is an ongoing discussion between the commissioning unit and the RU team regarding the quality and completeness of the final deliverables, the Regional M&E Advisor and the vertical fund management should be consulted. If necessary, senior management of the commissioning unit, the Procurement Services Unit, and the Legal Support Office will also be informed so that a decision can be made as to whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract, and/or remove the relevant contractor from all relevant lists. For more details, see UNDP's Individual Contract Policy: https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

[4] Recruitment of evaluators should be done in accordance with the Guidelines for Recruitment of Consultants in the POPP https://popp.undp.org/SitePages/POPPRoot.aspx

(Adjust this section if an approved list is used)
Recommended presentation of the proposal:

a) **Letter of confirmation of interest and availability** using the template[5] provided by UNDP;
b) (CV and **Personal History** Form (P11)[6] ;
c) **Brief description of the work approach/technical proposal** indicating why the individual believes he/she is best suited to perform the assigned task, and proposed methodology indicating how he/she will approach and perform the assigned task (1 page max)
d) **Financial proposal** indicating the total all-inclusive amount of the contract and all other associated travel expenses (airfare, per diem, etc.), breaking down the costs using the template attached to the Letter of Interest template. In the event that an applicant is working for an organization/company/institution and anticipates that his/her employer will charge management fees in connection with the process of making him/her available to UNDP under a Reimbursable Loan Agreement (RLA), the applicant should indicate this here and ensure that all associated costs are included in the financial proposal submitted to UNDP.

All application materials should be sent to (insert mailing address) in a sealed envelope marked "Consultant for the Final Evaluation of *(Project Title)"* or by e-mail ONLY to *(insert e-mail address)* by *(date and time)*. Incomplete applications will not be considered.

Proposal Evaluation Criteria: Only proposals that meet the criteria will be evaluated. Proposals will be evaluated using a combined scoring method - where training and experience in similar functions will count for 70% and the proposed fee will count for 30% of the total score. The contract will be awarded to the applicant with the highest combined score who agrees to the UNDP terms and conditions.

13. ToRs ANNEXES

- ToR Annex A: Project Logical Framework/Results
- ToR Annex B: Project Information Package for Review by the TE Team
- ToR Annex C: TE Report Content
- ToR Annex D: Sample Evaluation Criteria Matrix
- ToR Annex E: UNEG Code of Conduct for Evaluators
- ToR Appendix F: TE Rating Scales
- ToR Appendix G: TE Report Approval Form
- ToR Appendix H: TE Audit Trail

[5] https://intranet.undp.org/unit/bom/pso/Support%20documents%20on%20IC%20Guidelines/Template%20for%20Confirmation%20of%20Interest%20and%20Submission%20of%20Financial%20Proposal.docx
[6] http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc

ToR Annex A: Project Logical Framework/Results

This project will contribute to the following country program outcome, as defined in the CPAP or CPD: from CPAP Component 3: Improved environmental governance and rational use of natural resources.					
Country program outcome indicators: level of greenhouse gas emissions.					
Key environmental and sustainability outcome (the same as on the first page, please circle one) : **4. Expand access to environmental and energy services for the poor.**					
	Indicators	**Baseline**	**Objectives at the end of project**	**Source of verification**	**Risks and assumptions**
Objective of the project To optimize existing mini grids in Mauritania by increasing the share of Renewable Energy (RE) and developing an appropriate business model for the sustainability of the hybrid system	Investments made in RE-diesel hybrid mini-grid projects compared to, the baseline year 2014 The extent to which CO2 emissions are reduced as a result of project-facilitated investments (in rural electricity generation, compared to the baseline). The number of MWH produced by the project. The number of people in rural areas	0 US$/year (2014) 2014: the baseline assumes that all new electricity demand will be met by diesel generators.	At the end of the project - year 4 (FDP): a total of US$7 million in investments from government, multilateral aid organizations and the private sector will be mobilized. FDP : 47.104 tCO_2 64.2 MWh (2.5 MWh/year over 20 years of lifespan and 2.5% growth/year) FDP: 4 sites, 430 households benefiting from access to improved energy, water and refrigeration services for fish product.	Monitoring and reporting on all investments made through the project in RE-diesel mini-grids. M&E Framework Monitoring and reporting on the annual implementation of ER-diesel mini-grid pilot projects.	Investor risk is lower than expected. Co-financing from government and multilateral institutions is not forthcoming. Installed capacity is lower than expected. The downtime of RE-diesel mini-grid projects, identification and construction is longer than expected.

	with access to improved services.				
Outcome 1.a An enabling policy and institutional framework for the creation of hybrid mini-grids	Legislation is developed and passed. A revised institutional framework. Creation of a renewable energy observatory.	0 0 0	Revised legislation encouraging the development of renewable energy. A revised institutional framework is put in place. A RE observatory is established and functioning.	Publication by MPEM of relevant laws. Drafting and submission of laws to the government. Implementation of the revised institutional framework. A national wind atlas is available online.	The country's policy and regulatory priorities for rural electrification are refocused on other issues. New regulations are not adopted by the government.
Outcome 1.b The financial sustainability of the mini-networks is assured.	The revised framework for hybrid mini-grid DGPs is implemented. The level of investment and tariff reform ensure the financial viability of mini-grids.	The existing compensation framework does not take into account the management of hybrid networks. 0	A new framework is put in place. New sources of funding for fare subsidies are being sought.	Publication of tariffs by the ARM. New partnerships signed, new laws proposed for fundraising.	New sustainable pricing is considered politically unworkable. There is not enough political support for the expansion of PSD. The legislative and institutional framework is considered too risky by the IFIs.
Outcome 2:	Department and relevant agency				

Capacity for delivering turnkey solutions and quality O&M&M	representatives have the capacity to understand and design the measures necessary for quality O&M&M services. Education and vocational training necessary for quality O&M&M services are implemented and sustainable.	Technicians are trained on a project-by-project basis. Limited RE training in vocational schools and limited practical training in university modules. Nonexistent.	A training module is available and delivered. Consulting services are used for training, preparation and project management. Participation of schools and universities in project-related training.	Available publications M&E Report	Training and educational institutions refrain from cooperating/prefer to retain their prerogatives. Training and educational institutions do not feel that RE training is important enough to change the curriculum.
Outcome 3 : A functioning business model is demonstrated for the technical and financial viability of diesel/RE hybrid-based mini-grids	The coastal communities' project is shown to be financially and technically viable. Lessons learned from the project are applied to future off-grid projects.	Nonexistent Nonexistent	Local people have embraced the project and designed additional activities to use the existing infrastructure. Measuring instruments are operational and managed in a collegial manner. Additional measurements are being made for potential additional hybrid-ER sites.	M&E Report An equipment management contract is signed. M&E Report	The infrastructure is inadequate for the intended uses, its installation is inadequate. There is insufficient political support. Measuring instruments are damaged.

Appendix B: Project Information Package for review by the TE Team

#	Elements (electronic versions preferred where available)
1	Project Identification Form (PIF)
2	UNDP Launch Plan
3	Final UNDP-GEF project document, with all annexes
4	Request for Director's Approval
5	UNDP Environmental and Social Risk Identification Procedure (ESRP) and related management plans (if applicable)
6	Initial Workshop Report
7	Mid-Term Evaluation Report and Management Response to Recommendations
8	All Project Implementation Reports (PIRs)
9	Progress reports (quarterly, semi-annually or annually, with associated work plans and financial reports)
10	Oversight mission reports
11	Minutes of project steering committee meetings and other meetings (e.g., Project Review Committee meetings)
12	GEF monitoring tools (from director approval, to mid-term and final project phase)
13	GEF/LDCF/SCCF core indicators (from PIF, Director's approval, mid-term and final project phase); only for GEF-6 and GEF-7 projects
14	Financial data, including actual expenditures by outcome and management costs, including documentation of any major budget revisions
15	Co-financing data with planned and actual contributions, broken down by type of co-financing, by source, and by whether the contribution is considered a leveraged investment or an operating expense
16	Audit reports
17	Electronic versions of project products (brochures, manuals, technical reports, articles, etc.)
18	Examples of communication materials related to the project
19	Summary list of formal meetings, workshops, etc. held, including date, location, topic and number of participants
20	Any relevant socio-economic monitoring data, such as average income/employment levels of stakeholders in the target area, changes in income from project activities
21	List of contracts and purchases of items over $5,000 (organizations or companies contracting for project products, unless confidential information)
22	List of projects/initiatives contributing to project objectives approved/initiated after GEF project approval (i.e., any leveraged or catalytic outcomes)
23	Data on relevant project website activity - e.g., number of unique visitors per month, number of page views, etc. over the relevant period (if available)
24	UNDP Country Program Document (CPD)
25	List/map of project sites, specifying those for which visits are proposed
26	List and contact information for project staff, key stakeholders including project board members, CTR, project team members and other partners to be consulted
27	Project deliverables that provide documentary evidence of progress toward project completion
	Additional documents, as required

ToR Annex C: TE Report Content

i.	Title page
	• Project title supported by UNDP and funded by GEF
	• UNDP PMIS project no. and GEF project no.
	• TE Schedule and Final FE Report Date
	• Region and country concerned by the project
	• GEF Focal Area/Strategic Program
	• Executing Agency, Implementing Partner and other project partners
	• Members of the TE team
ii.	Acknowledgements
iii.	Table of contents
iv.	Acronyms and abbreviations
1.	Executive summary (3-4 pages)
	• Project information table
	• Project description (brief)
	• Evaluation Scorecard
	• Concise summary of findings, conclusions and lessons learned
	• Summary table of recommendations
2.	Introduction (2-3 pages)
	• Goal and objective of the TE
	• Scope
	• Methodology
	• Data collection and analysis
	• Ethics
	• Limitations of the evaluation
	• Structure of the TE report
3.	Description of the project (3-5 pages)
	• Project start-up and duration, including milestones
	• Development background: environmental, socio-economic, institutional and political factors relevant to the project's purpose and scope
	• Issues the project seeks to address: threats and obstacles
	• Immediate and developmental objectives of the project
	• Expected results
	• Stakeholders: Checklist
	• Theory of change
4.	Findings
4.1	Project design/development
	• Analysis of the results framework: project logic and strategy, indicators
	• Assumptions and risks
	• Lessons learned from other relevant projects (e.g., in the same focal area) incorporated into the project design
	• Planned stakeholder participation
	• Links between the project and other interventions within the sector
4.2	Project implementation
	• Adaptive management (changes to project design and project products during implementation)
	• Effective stakeholder participation and partnership arrangements

	• Financing and co-financing of the project
	• Monitoring and evaluation: design at entry (*), implementation (*) and overall evaluation (*)
	• Implementation/oversight by UNDP (*) and execution by implementing partner (*), overall project implementation/execution (*), coordination and operational issues
	• Risk management, including environmental and social standards (safeguards)
4.3	Project results and impacts
	Progress towards objectives and expected results
	Relevance (*)
	Effectiveness (*)
	Efficiency (*)
	Overall achievement (*)
	Sustainability: financial (*), socio-political (*), institutional framework and governance (*), environmental (*), overall sustainability probability (*)
	Country ownership
	Gender equality and women empowerment
	Cross-cutting issues
	GEF Additionality
	Catalytic/replication effect
	Progress towards impact
5.	Key findings, conclusions, recommendations and lessons learned
	• Key findings
	• Conclusions
	• Recommendations
	• Lessons learned
6	Annexes
	• ToR of the TE (without annexes to the ToR)
	• TE mission itinerary, including summary of field visits
	• List of interviewees
	• List of reviewed documents
	• Evaluation Question Matrix (evaluation criteria with key questions, indicators, data sources and methodology)
	• Questionnaires used and summaries of responses
	• Co-financing tables (if not included in the body of the report)
	• TE Rating Scales
	• Signed Acceptance Form for the Evaluation Consultant Code of Conduct
	• Signed UNEG Code of Conduct Form
	• Signed TE report approval form
	• *To be attached separately*: TE Audit Trail
	• *To be attached separately: relevant GEF/LDCF/SCF baseline indicators or monitoring tools*

ToR Appendix D: Sample Evaluation Criteria Matrix

Evaluation criteria questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area and to local, regional and national environment and development priorities?			

(insert evaluation questions)	*(e.g., existing linkages, level of consistency between project design and implementation approach, specific activities undertaken, quality of risk mitigation strategies, etc.)*	*(e.g., project documentation, national policies or strategies, websites, project team, project partners, data collected throughout the TE mission, etc.)*	*(e.g., document analysis, data analysis, project team interviews, stakeholder interviews, etc.)*
Effectiveness: To what extent have the expected results and objectives of the project been achieved?			
Efficiency: Was the project implemented efficiently, in accordance with national and international norms and standards?			
Sustainability: to what extent are there financial, institutional, socio-political and/or environmental risks to maintaining project results over the long term?			
Gender equality and women's empowerment: How has the project contributed to gender equality and women's empowerment?			
Impact: Is there evidence that the project has contributed to (or enabled) progress towards reduced environmental pressures and/or improved ecological status?			
(Expand table to include questions related to all criteria assessed: monitoring and evaluation, UNDP implementation/oversight, implementing partner execution, crosscutting issues, etc.)			

Evaluation Matrix

Criteria for evaluation	Key questions	Specific sub-questions	Data sources	Data Collection Methods/Tools	Indicators/Standard of success	Methods to analyze the data
Relevance	Does the Results Chain meet national priorities, the priorities expressed in the CPDD, the CPD 2018-2022 and the new CPD under development, the UNDP Strategic Plan, etc.?	*To what extent are the results aligned with national priorities, the SDGs, the CPD, the SCAPP, the NSSD, regional development strategies, sectoral strategies in the area of energy, access to drinking water, etc.? *Does the Results Chain respond to: (i) the problems identified in the CPD and (ii) the main objectives and national priorities in the areas of energy, rural electrification, environment, climate change at the local, regional and national levels? *To what extent has the design taken into account lessons	National reference documents; Project reports; CPD/CPAP; UNDP Strategic Plan; Outcome 3 project document, revisions if any, PTA; quarterly and annual activity reports - PIR; Steering Committee reports; review/evaluation reports; audit reports and management response reports; field visit reports...	Document review, interview guide with UNDP, Ministry of Energy, Ministry of Environment and other ministries involved, development partners, private sector, CSOs Questionnaire and interview guide with beneficiary communities	-Comprehensive results framework reflecting a rigorous chain: SDGs/National Priorities/CPDs/UNDP Strategic Plan -Relevance of recommended strategic and programmatic guidelines	Triangulation of data Critical analysis of interview results

		learned from previous projects/programs? *Does the project meet the needs of the targeted beneficiaries? * To what extent is the approach to the various problems identified, the needs expressed and the actions proposed to address the renewable energy issue relevant? *To what extent has the partnership with government authorities and other development partners been relevant? *To what extent is the project implementation modality (NIM) relevant? *To what extent has gender been taken into account in the design of the project?				
Criteria for evaluation	**Key questions**	**Specific sub questions**	**Data sources**	**Data Collection**	**Indicators/Standard of success**	**Methods to analyze the data**

				Methods/Tools		
Consistency	Is the project design consistent with the requirements of results-based management, based on the Global Sustainable Development Goals, National Priorities and Strategies, the CPD, the UNDP Strategic Plan, the UNS Framework and the UNDP program?	*Has the results chain been fully defined (outcomes, outputs, indicators, targets, baselines, etc.), taking into account national priorities, UNDAF, CPD, the UNDP Strategic Plan, the objectives of other UN organizations in Mauritania and other partners? *Have the indicators and targets been defined in a "SMART" manner (specific, measurable, achievable, relevant and time-bound)? *Is there a match between the MINIGRIDS implementation mechanism, the resources mobilized and the results targeted? * Has the	National reference documents; Monitoring/evaluation reports on the cooperation cycle between UNDP and the Government; UNDAF; CPD/CPAP; UNDP Strategic Plan; MINIGRIDS ProDoc, revisions if any, PTA; quarterly and annual activity reports - PIR; Steering Committee reports; review/evaluation reports; audit reports and follow-up reports on management responses; field visit reports	Document review, interview guide with UNDP, Ministry of Energy, Ministry of Environment and other ministries involved, development partners, private sector, CSOs Questionnaire and interview guide with beneficiary communities	Comprehensive results framework reflecting a rigorous chain: SDGs/National Priorities/CPDs/UNDP Strategic Plan -Relevance of recommended strategic and programmatic guidelines	Triangulation of data Critical analysis of interview results

		monitoring/evaluation system made it possible to identify the beneficial effects for the promotion of renewable energy, access to rural electrification, climate change, income generation, gender equality and women's empowerment, better governance, etc.)?				
Effectiveness	What is the level of achievement of the expected results (status of the outputs/targets reached, level of achievement of the MINIGRIDS project	*What is the level of achievement of outputs and outcomes? *What was the monitoring/evaluation mechanism? * What was the partnership strategy (mobilization of resources, synergy with other TFPs, etc.)? *What were the modalities and the overall management quality of the intervention and its	Monitoring and Evaluation Reports ; PIF; ROAR ; MINIGRIDS project description; Logical framework ; Partnership agreements ; Partner reports ; Activity reports ; Evaluation reports ; Steering Committee Reports...	Document review, interview guide with UNDP, Ministry of Energy, Ministry of Environment and other ministries involved, development partners, private sector, CSOs Questionnaire and interview guide with	-Level of achievement of targets/outputs -Status of indicators -Importance of the partnership established - Ratios of time to completion/time to target	Document/report analysis Triangulation of data Critical analysis of interview results

		supported actions towards institutions and communities? *To what extent and how has MINIGRIDS achieved or is expected to achieve its objectives and results, including differential results between groups? *What were the success factors in implementation? *What were the gaps, limitations, constraints, and solutions? *How were the identified risks managed? * What was the level of UNDP contribution? *How did the identification of external or internal factors positively or negatively influence the achievement of the MINIGRIDS project objectives?		beneficiary communities		

		*What was the gender approach to the intervention? And was it effective? *What are the clear orientations, objectives, actions to be undertaken, partnerships to be developed, and any other relevant information, suggestions, and recommendations for better results that could improve the effectiveness of future interventions within the framework of the new CDP currently being finalized?				
Efficiency	*To what extent have current outcomes been achieved in an efficient manner?	*What was the volume of contributions mobilized? *Were the management arrangements adequate, and what was the level and quality of	MINIGRIDS Project Document; Logical Framework ; Results and Resources Framework; ROAR; PTA, Activity reports, financial reports, evaluation reports,	Documentary review, interview guide with the UNDP, the Ministry of Energy (SOMELEC management,	-Resource mobilization rate -Financial execution rate of budgets by output -Level of correlation between physical implementation and Actual expenditure	Critical analysis of documents and interview results

		UNDP/operations support to government, institutions and communities for the implementation of MINIGRIDS? *Were the allocated resources available on time and what were the timelines for delivery of outputs and actual expenditures? *Are the results achieved commensurate with the resources used? What are the relevant leads and proposals for areas and strategies that should be modified or need significant improvement to improve the efficiency of future interventions?	annual reports, Audit Reports, Steering Committee Reports/ Tripartite Tripartite Meetings, Data extracted in Atlas...; Minutes of meetings .	SMAGEC-TDHI company group)	-Ratios of time to completion/timeframe	
Criteria for evaluation	**Key questions**	**Specific sub questions**	**Data sources**	**Data Collection Methods/Tools**	**Indicators/Standard of success**	**Methods for analyzing data**

Impact	What expected or unexpected changes have MINIGRIDS brought?	*To what extent has the MINIGRIDS project generated significant positive or negative impacts, intended or otherwise? *How have the results of MINIGRIDS implementation contributed to improving access to energy, rural electricity, drinking water, and climate change mitigation in Mauritania? *What are the notable changes observed in the living conditions of the populations between the initial situation and the end of the project? *Has there been an improvement in the support/advice provided by governmental institutions to improve the promotion of	Project Document; Logical Framework ; Results and Resources Framework; ROAR; PTA, Activity reports, financial reports, evaluation reports, annual reports, Audit Reports, Steering Committee Reports/ Tripartite Meetings, Data extracted in Atlas...; Minutes of meetings	Document review, interview guide with UNDP, Ministry of Energy, Ministry of Environment and other ministries involved, development partners, private sector, CSOs Questionnaire and interview guide with beneficiary communities	Evolution of the HDI ; Poverty index Net forest degradation rate ; Share of green funds in the government budget Inequality reduction rate ; Response time of government institutions in providing support/advice	Critical analysis of documents and interview results

		renewable energy, rural electrification, drinking water, etc.? *How have the results of MINIGRIDS contributed to the capacity building of national and local actors to take ownership of issues related to the promotion of renewable energy? *Has the project contributed to reducing the vulnerability of the target populations to climate change and to strengthening their capacity to respond? *What are the other effects generated by the support of UNDP and its partners?				
Criteria for evaluation	**Key questions**	**Specific sub questions**	**Data sources**	**Data Collection Methods/Tools**	**Indicators/Standard of success**	**Methods for analyzing data**

Sustainability	Will the benefits of implementing MINIGRIDS last after the project ends?	*To what extent are the net benefits of the project likely to continue or be maintained, with a view to ensuring their proper continuity, replication or extension to other localities in the country and other institutions involved? *What mechanisms and tools have been put in place and what actions have been taken to ensure the ownership of MINIGRIDS' achievements by the national and local authorities and the communities benefiting from the various actions that have been carried out as part of the project's implementation? *Has the MINIGRIDS project ensured a transfer of skills to national and	Project document; Logical framework ; Results and resources framework ; ROAR, PTA; Activity reports, financial reports, evaluation reports, annual reports, Audit reports, Steering Committee reports, Data extracted from Atlas... Minutes of meetings, Follow-up / Completion reports from partners...	Document review, interview guide with UNDP, Ministry of Energy, Ministry of Environment and other ministries involved, development partners, private sector, CSOs Questionnaire and interview guide with beneficiary communities	Share of green funds in the state budget; State commitment to increase the rate of rural electrification, Texts/institutional frameworks for energy and electricity sector governance at national and local levels; Timeliness and quality of support/advice provided by national and local capacity	Critical analysis of documents and interview results

		institutional actors in order to ensure the sustainability of actions? *Has the MINIGRIDS project ensured the transfer of skills to institutional and national actors in order to ensure the sustainability of its actions? *Is there any improvement in the existence and effective functioning of the governance bodies of the energy and rural electrification sector at national and local levels? *To what extent are there financial, institutional, socio-economic, or environmental risks to sustaining long-term results?				

- **Other crosscutting lines to be taken into account in the evaluation matrix presented above**

Lines of intervention/criteria	Areas of discussion and questions		
	UNDP, National Authorities	**Beneficiary communities**	**Implementing partners**
Other issues and cross-cutting criteria	*Gender approach of the MINIGRIDS project *The contribution of MINIGRIDS implementation to gender equality, women's empowerment and a human rights-based approach - The adaptation of the project to political, legal, economic, institutional, etc. changes in the country - The contribution of the MINIGRIDS project to the theory of change for Mauritania's country program outcomes	- Assessment of the inclusion of disadvantaged groups (women, youth and men).	- The project's contribution to gender equality, women's empowerment and a human rights-based approach
Monitoring and evaluation and project	- Number of meetings of the steering committee and other MINIGRIDS coordination bodies - Status of implementation of recommendations, conclusions or recommendations - Number of missions carried out in the field and follow-up on the implementation of recommendations - Regularity of progress monitoring of results - outreach monitoring in relation to the risk management/mitigation plan - implementation of quality assurance of MINIGRIDS implementation	-Assessment of the follow-up of their activities by the technical services and the project.	- Assessment of the project's and its own monitoring mechanisms for activities: - Number of missions - Recommendations made - Follow-up on the implementation of recommendations - Assessment of capitalization, dissemination and extension of the use of good practices

coordination mechanisms	- Quality of partner reporting - Conducting regular reviews to assess project performance, the annual work plan, and ensure realistic budgeting over the life of the project - Production of annual progress reports		
Lessons learned and recommendations	- Lessons learned from the formulation phase of MINIGRIDS and its implementation strategy - Lessons learned on coordination and consultation mechanisms - Lessons learned on the major achievements - Lessons learned on the limitations and difficulties encountered - Lessons learned on the partnership with UN agencies and other development partners in Mauritania in general - Lessons learned on organizational performance of local populations - General strategic and operational recommendations	- Lessons learned on the project approach and community participation - Lessons learned on the relevance of the activities carried out - Lessons learned on the outcomes/impacts - Lessons learned on organizational and technical performance - Lessons learned on the difficulties encountered Operational recommendations	Lessons learned from the MINIGRIDS implementation strategy - Lessons learned on collaborative and partnership dynamics - Lessons learned on the outcomes/impacts and sustainability of MINIGRIDS achievements - Lessons learned on limitations and challenges - Lessons learned on the capacities of beneficiary institutions and communities - Strategic and operational recommendations

List of people met

List of people and institutions met at the central level

First name and surname	Institutions	Position	Telephone	E-mail
Adama Dian BARRY	UNDP-Mauritania	Deputy Resident Representative		
Mallé Diagana		Head of UDD/SDU		
Hassen El TEGUEDI		Head of Monitoring and Evaluation Unit		
Ousmane Dia		UDD Program Officer		
Mamadou LY		employment Project Expert		
Lala Aïcha		Ex Gender officer		
Fatoumata Kane		EPA Coordinator at the Ministry of Finance		
Christelle ODONGO	UNDP regional office	Regional advisor		
Abdellahi Ould ZEIDANE	Regulatory authority	Director of Water and Power	22 00 04 88	azeidane@are/mf
Mohamed Ould DNEHBI	SOMELEC	Central Director of Rural Electrification	36 64 76 75	
Adama Hann	SMAGEC company	Project Manager		
Mokhtar Ahmed Ely	Ministry of Finances	Mission Manager	20 95 99 00	moctarahmedely@gmail.com
Ethmaneould Boubacar	Ministry of Environment and Sustainable Development	Manager	22 17 47 74	ouldboubacar@yahoo.fr
Sidi Mohamed El Wavi		Director Climate and Green Economy Department	46 00 83 83	elwavi.sm@gmail.com
Mohamed Yahya Ould Lafdal		Pont Focal FEM		
Mouhamed Khairy	UNDP Mauritania	MINIGRIDS Coordinator		
Brahim Abdallahi	MPME	DNP Minigrid	36 32 90 99	bah.brahim@gmail.com

Pierre-YVES RENAUD	European Union	Program Officer, Cooperation Section	45 29 98 64	Pierre-uves.renaud@eeas.europa.eu
Lemine Mohamed	AFD	Energy Department	45 25 23 09	Leminem.ext@afd.fr

Visited villages
Belawakh

- Chief of the village
- Cooperative of women fish processors

Lemsid

- Head of the village
- Cooperative of women fish processors

Tiwilt

- Head of the village
- Village women's cooperative

M'hayjiratt

- - Cooperative of women fish processors

List of documents consulted

- Mauritania CPD 2018-2022;
- Project documents (PRODOC);
- Project annual reports;
- Annual reports Program-ROAR ;
- Evaluation of Development Results Mauritania;
- Mission, evaluation and study reports;
- Annual work plans;
- SCAPP document
- UNDAF/UNSDCF
- Sectoral strategies that the program has supported
- Program and project quality assurance reports.
- Annual work plans.
- Consolidated quarterly and annual reports.
- Results-based monitoring report.