



## Project Implementation Report

(1 July 2022 – 30 June 2023)

<b>Project Title:</b>	Increased energy access for productive use through small hydropower development in rural areas in Madagascar
<b>GEF ID:</b>	5317
<b>UNIDO ID:</b>	120094
<b>GEF Replenishment Cycle:</b>	GEF-5
<b>Country(ies):</b>	MADAGASCAR
<b>Region:</b>	AFR - Africa
<b>GEF Focal Area:</b>	Climate Change Mitigation (CCM)
<b>Integrated Approach Pilot (IAP) Programs<sup>1</sup>:</b>	N.A
<b>Stand-alone / Child Project:</b>	Stand alone
<b>Implementing Department/Division:</b>	ENE / ETI
<b>Co-Implementing Agency:</b>	N.A
<b>Executing Agency(ies):</b>	Ministry of Energy and Hydrocarbons (MEH), Ministry of Environment and Sustainable Development (MEDD), Rurale Electrification Agency (ADER)  Other Project Partners: KfW, GIZ, CEAS, Polytechnical School of Antananarivo (ESPA), Directorate of Meteorology, Private operators
<b>Project Type:</b>	Full-Sized Project (FSP)
<b>Project Duration:</b>	60 months
<b>Extension(s):</b>	3
<b>GEF Project Financing:</b>	USD 2 855 000
<b>Agency Fee:</b>	USD 271 225
<b>Co-financing Amount:</b>	USD 14 305 000
<b>Date of CEO Endorsement/Approval:</b>	5/27/2015
<b>UNIDO Approval Date:</b>	7/24/2015

<sup>1</sup> Only for **GEF-6 projects**, if applicable

Actual Implementation Start:	7/24/2015
Cumulative disbursement as of 30 June 2023:	USD 2.658.304,37
Mid-term Review (MTR) Date:	6/30/2019
Original Project Completion Date:	7/24/2020
Project Completion Date as reported in FY22:	4/20/2023
Current SAP Completion Date:	7/30/2023
Expected Project Completion Date:	7/30/2023
Expected Terminal Evaluation (TE) Date:	7/30/2023
Expected Financial Closure Date:	6/30/2024
UNIDO Project Manager <sup>2</sup> :	LIU Heng

## I. Brief description of project and status overview

Project Objective			
<p>This project is contributing to the GEF Climate Change Strategic Objective 3: Promote investment in Renewable Energy Technologies. The project aims to transform the small hydropower (SHP) market for productive use in Madagascar to provide sustainable income generation for women and men in target areas.</p> <p>It aims to do this through triggering private sector investment in combination with public funds, through market demonstration, development of appropriate financial instruments, establishment of technical specifications, capacity building (for SMEs, academic institutions, policy makers and financial sector) and by strengthening the policy and regulatory environment.</p> <p>Setting up a stimulating market environment that enables the realization and replication of SHP projects will lead to significant GHG emission reduction through replacement of diesel based generation and help Madagascar in activating its significant small hydropower potential of its poverty reduction strategy.</p> <p>To summarize <b>the main project objective is to stimulate the use of small hydropower to reduce Greenhouse Gas emissions and trigger productive use for income generation, in alignment with strategic and policy priorities of the Government of Madagascar.</b></p>			
Project Objective	Project indicators	Core	Targets expected at approval stage
The project aims to stimulate the use of small hydropower (SHP) to reduce GHG emissions and trigger productive use for income	1. Number of SHP projects installed and stimulated 2. Energy generated from SHP		1. SHP capacity of at least 2 MW realised 2. Energy generated annually from SHP through demonstration projects = 13,140 MWh per year,

<sup>2</sup> Person responsible for report content

generation in line with priorities of GoM, with the overall aim to increase the competitiveness of the Madagascan SME sector and reduce its dependency on fossil fuels	technology (in operating from 2018- 2038 MWh)	3.Direct CO2 emissions reduced (tonnes of CO2eq)	3. Direct emission reduction of 131,400 tonnes, and indirect emission reductions between 525,600 tonnes (bottom-up) and 578,160 tonnes (top- down)
--	---	--	--

**Baseline**

Given that many parts of the country are suitable for the development of SHP, there has been some modest government and private sector activity in the SHP sector, yet despite this significant potential, the country's performance has not been as strong as it could be. This is evidenced by the comparatively larger amount of hydrocarbon based small energy systems operating nationwide on about 100 isolated rural grids, with the vast majority (about 80%) using diesel. It has been estimated by the World Small Hydropower Development Report (2013) that a near-term 48.19 MW capacity of SHP could potentially be available in Madagascar, although the total economically feasible capacity of all hydro, including all large projects, is at least 2,600 MW. Despite this significant potential - which is the fifth largest hydro potential in Africa - only 6% is presently exploited.

Although there could be a few SHP projects developed by government and private operators in areas judged technically feasible and financially viable, it is clear that without the GEF intervention, mostly further diesel-based grids will be installed, increasing GHG emissions and the country's vulnerability to changes in world oil prices. The vast majority of potential stakeholders will continue to suffer from lack of information, and a limited understanding and technical capacity to take forward SHP opportunities. Without GEF support only a limited amount of supporting policy work to improve the RE/SHP sector can be prepared due to the lack of public resources to enable this.

This UNIDO-GEF project therefore aims to support the GoM in fine tuning the regulatory framework which can provide the confidence for investors and project developers, and demonstrate the use of SHP to support inclusive economic advancement. Based on the observation that political willingness, initial private sector interest and demand for electricity are all present, the project aims to play a triggering and facilitating role to reduce the risks for private sector. The project will especially focus on the capacity range of 200 to 10 000 kW, as a range which has received relatively limited attention but has specific replication potential to help the government in its ambition to address the currently low access rates to modern energy services.

Overall Ratings <sup>3</sup>	FY23	FY22
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	<i>Highly Satisfactory (HS)</i>	<i>Highly Satisfactory (HS)</i>
<p>Although operation of SHP has not yet begun, the three SHP plants (Belaoko Lokoho – 8 000 kW, Andriamanjavona – 490 kW and Mandialaza – 200 kW) considered under Component 2 foresee an installed capacity of 8.6 MW which is more than three times the capacity estimated in the CEO document.</p> <p>Construction of Mandialaza has started in 2022 and will be operational in May 2023. (25 years</p>		

<sup>3</sup> Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

authorization given to local operator)		
Construction of Belaoko is expected to start in October 2023 and be operational in June 2026 (25 years concession given to local operator)		
Finally construction of Andriamanjavona site should start in May 2024 and be operation by March 2026 (25 years authorized given by ADER to local operator).		
Implementation Progress <b>(IP)</b> Rating	<i>Satisfactory (S)</i>	<i>Satisfactory (S)</i>
As in 2022, Project implementation is rated Satisfactory. All detailed feasibility studies under component 2 had been finalized over 2022 and co-financing secured to start construction. No major obstacles for activities under component 1 and 3.		
Overall <b>Risk</b> Rating	<i>Low Risk (L)</i>	<i>Moderate Risk (M)</i>
In general, overall risk rating is Low. In 2022 PIR, COVID 19 risk had been considered as a risk but the UNIDO/GEF project local team made all efforts to minimize the delay implied by the sanitary situation and lack of visibility (back and forth) of the pandemic. Since September 2022, COVID 19 is not impacting the project implementation anymore.		

## II. Targeted results and progress to-date

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

Project Strategy	KPIs/Indicators	Baseline	Target level	Progress to-date
<b>Component 1 – POLICY AND REGULATORY FRAMEWORK STRENGTHENED</b>				
<b>Outcome 1:</b> National Low-Carbon Energy Development Plan developed and tailored initiatives to support SHP in place.				
<b>Output 1.1:</b> Policy framework on RE for productive use reviewed and recommendations to streamline policies/incentive schemes towards a greater use of rural-based SHP proposed.	Policy framework on RE for productive uses reviewed and recommendations to streamline policies/incentive schemes towards a greater use of rural-based SHP proposed	Regulatory framework for management of National Energy Fund (FNE) and for rural electrification with RE is lacking  Productive use not specifically included within policies for SHP and RE  Lack of a regulatory framework for the use of waterways to avoid conflicts between agriculture, fisheries, biodiversity and hydro electricity producers  Lack of co-ordination between Ministry of Energy, ORE and ADER on RE master planning	Better management of regulation of RE and rural electrification programmes  Productive uses from RE made a key indicator within reporting mechanisms  Marked change in problematic aspects of current legislation, e.g. on licencing use of water from rivers and incentives for SHP (i.e. tax and customs)	<ul style="list-style-type: none"> <li>No new progress in this FY23 as all the activities under this output have been completed.</li> </ul>
<b>Output 1.2:</b> Standardised reference emission levels established	Standardized reference emission levels established	Ad hoc reporting on emissions levels obtained from SHP and RE in general	System in place for standardisation of CO <sub>2</sub> emission levels and M&E in place (in line with Output 5.2)	<ul style="list-style-type: none"> <li>No new progress in this FY23 as all the activities under this output have been completed.</li> </ul>

<b>Component 2 – PRIVATE LED SHP TECHNOLOGY DEMONSTRATION</b>				
<b>Outcome 2: Construction of SHP based mini-grids for productive use and income generation.</b>				
<p><b>Output 2.1:</b> Target SHP projects fully prepared for development and co-financing</p>	<p>Limited number of technical documents / project assessments made of potential SHP projects leading to co-finance</p>	<p>No previous assessments leading to appropriate reports carried out</p>	<p>At least 2 specification documents assessed as appropriate for presentation for co-financing</p>	<ul style="list-style-type: none"> <li>• To date 3 projects and 3 operators had been identified for demonstration among which 2 projects (Andriamanjavona and Belaoko Lokoho) are located in SAVA Region and 1 project (Mandalaza) is located in Alaotra Mangoro Region</li> <li>• In 2022, all detailed feasibility studies for Belaoko Lokoho (8 MW) and for Mandalaza (200 kW) had been realized and finalized except for Andriamanjavona project which will finally be a hybrid Hydro/solar project.</li> <li>• In addition, Environmental and Social assessment had been closely followed over 2022 : To date: <ul style="list-style-type: none"> <li>○ E&amp;S for Mandalaza project had been 100 % realized and environmental permit delivered in January 2022.</li> <li>○ E&amp;S for Belaoko Lokoho had been 100% finalized and Andriamanjavona had been closely followed but expected to be finalized in October 2023.</li> </ul> </li> </ul>
<p><b>Output 2.2:</b> SHP capacity of 2 MW on preselected sites realized</p>	<p>Number of SHP projects implemented with support from GEF</p> <p>Number of projects with link to productive use activities by women and men</p>	<p>Zero SHP projects supported by GEF</p>	<p>Project reports and copies of Case Studies</p> <p>GEF project tracking tool</p> <p>Independent monitoring &amp; evaluation reports</p>	<p>UNIDO/GEF project support the realization of 3 SHPs project:</p> <ul style="list-style-type: none"> <li>• Belaoko Lokoho (8 000 kW)</li> <li>• Andriamanjavona (490 kW)</li> <li>• Mandalaza (200 kW).</li> </ul> <p>➔ Cumulated SHP installed capacity of 8 690 kW (8,6 MW).</p> <p>In the FY2022/2023, main efforts of project team concentrates on finalization of detailed feasibility studies and secure co-financing to enter construction phase.</p> <ul style="list-style-type: none"> <li>• For Mandalaza, UNIDO/GEF is co-financing the electromechanical equipments and part of the MV mini grid. Construction has started in Q3 2022. Constructors and suppliers had been selected in early 2023 – construction is ongoing and commissioning is expected for May 2024.</li> <li>• For Belaoko Lokoho and Andriamanjavona SHP project, UNIDO/GEF collaborated with KfW and GIZ and agreed that main support from UNIDO / GEF will focus on the studies while KfW and German cooperation will co-finance the CAPEX as the capacity installed and amount of CAPEX is beyond UNIDO/GEF capacity. However, the support from UNIDO/GEF during studies is considered as co-financing the total cost of both projects. For Belaoko Lokoho project, Tenders had been launched for construction and control of construction. Evaluation of offers are expected during July 2023 and construction should start before Q4 2023. Andriamanjavona project is still finalizing all studies by end of October 2023 and start of construction is expected for May 2024.</li> </ul>

**Component 3 – REPLICATION IN PLACE TARGETED CAPACITY STRENGTHENING CARRIED OUT AND KNOWLEDGE MANAGEMENT IN PLACE**

**Outcome 3:** Appropriate financial measures to create conditions for SHP project replication developed and operational. Capacity of project developers on technical, productive use aspects and financial viability of SHP enhanced and local capacity to manufacture SHP equipment strengthened

<p><b>Output 3.1:</b> A mechanism to facilitate sustained securing of finance set up through development of appropriate business models between public entities and private &amp; financial sectors developed</p>	<p>Matrix of appropriate financial tools based on business models</p> <p>Financial due diligence guidelines for SHP projects</p> <p>Standardised financial and technical parameters for reporting against</p>	<p>No matrix available to assist in selecting financial model appropriate to SHP</p> <p>No due diligence guidelines available</p> <p>No standardised parameters for project feasibility studies</p>	<p>Matrix developed.</p> <p>Due diligence guidelines for the various aspects of SHP developed.</p> <p>Standardised financial and technical parameters for reporting developed.</p>	<ul style="list-style-type: none"> <li>No new progress in this FY23 as all the activities under this output have been completed.</li> </ul>
<p><b>Output 3.2:</b> Capacities of major actors from private, government, and finance and target SME sectors strengthened in the specifics of SHP through tailored training(s) and knowledge management</p>	<p>Training materials developed around productive uses from electrification projects (and are gender responsive)</p> <p>Number of training sessions for SMEs; sex-disaggregated reporting on participants</p> <p>Number of trained entities (SMEs, academia etc)</p> <p>Number of female participants in training sessions</p> <p>No. of best practice reports and project flyers developed</p> <p>Tailored course in place at university or polytechnic institute</p> <p>Awareness raising and marketing material available (and is gender responsive)</p> <p>Evidence of fostering of south-south LDC co-operation</p> <p>Link to technology suppliers for training on local turbine and concrete pole manufacturing</p>	<p>No dedicated training material on productive uses developed for SMEs</p> <p>Very limited trainings on link of SHP to productive uses</p> <p>Some SMEs self-trained through project experience</p> <p>Low no. of women in trainings</p> <p>No best practice reports or flyers exist in Madagascar</p> <p>No tailored course in place</p> <p>Shortage of effective and good quality public awareness raising and marketing material</p> <p>Some north-south co-operation for small-scale SHP development</p> <p>Limited local turbine and concrete poles manufacture</p>	<p>2 productive use training workshops conducted including on social aspects</p> <p>20 trained SMEs and academic institutions</p> <p>At least 30% of participants women</p> <p>Reports and flyers published for each project</p> <p>Tailored university course in at least 1 university or polytechnic institute in Madagascar</p> <p>Public awareness raising, marketing and training material developed and made available</p> <p>South-south SHP co-operation visit conducted</p> <p>Trainings held on turbine and concrete pole manufacturing</p> <p>All communication and training materials will be gender responsive</p> <p>20% female trainers/ facilitators (where appropriate and feasible)</p>	<ul style="list-style-type: none"> <li>Since the beginning of the project, six technical Conferences at Polytechnic University of Antananarivo and at Superior Institute of Technology about innovation technology within Hydropower projects (Gender approach had been considered. More than 30% of women students had been represented in average.)</li> <li>UNIDO/GEF project supported ESPA (Polytechnic School of Antananarivo) for the set-up of a specialized Master degree on “Hydropower” Main UNIDO/GEF Mandate was to provide technical inputs for the curricula, communication support and partnerships promotion. First promotion of the Master Degree had started courses in January 2023.</li> <li>Market study for potential manufacture of Banki turbine for power range of 50-300 kW had been realized in 2018.</li> <li>Quality tests for Circular pre-Stressed Concrete Electrical Pole is available. The National Laboratory for Civil Work had been responsible for technical quality tests and provided one day training to 5 local operators and 8 ministry technicians had been realized in 2019.</li> <li>Technical Manual for implementation of SHP plants had been designed with Ministry of Energy, ADER and other institutional counterparts and is currently at finalization stage. In 2022, local mission to test the SHP manual had been successfully organized. Final edition of the Manual is being designed.</li> <li>Atlas of potential SHP in the Vatovavy and Fitovinany Regions had been initiated. More than 64 sites had been identified and 20 visited.</li> <li>UNIDO/GEF project supported together with GIZ and European Union, the creation of Public Private Platform for Rural Electrification. Ten meetings already occurred since 2017 (including 2 between 2022/2023) and raise awareness and share good practices about rural electrification from renewable energy (including SHP);</li> </ul>

				<ul style="list-style-type: none"> <li>• Madagascar participated to the last two editions of the Vienna Energy Forum (May 2017 and 2018) organized by UNIDO.</li> <li>• Two participants from Madagascar participated to the Sustainable Energy Leadership Program (SELP) in India in 2016.</li> <li>• A specific technical training had been organized at the International Centre of Small Hydropower (ICSHP) for a delegation of 16 participants from Madagascar in November 2018. South-south collaboration strengthened.</li> <li>• International guidelines on SHP (IWA 33) developed and two representatives of Madagascar participated (ICSHP).</li> </ul>
<b>Output 3.3:</b> A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed	A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed	No NAMA developed	Tailored NAMA ready in line with international climate change rules and procedures	<ul style="list-style-type: none"> <li>• No new progress in this FY23 as all the activities under this output have been completed.</li> </ul>

### III. Project Risk Management

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

	(i) Risks at CEO stage	(i) Risk level FY 22	(i) Risk level FY 23	(i) Mitigation measures	(ii) Progress to-date	New defined risk <sup>4</sup>
1	Political: Stability of the country and the mechanisms of GoM to underpin the project in terms of the co-financing.	M	M	After the military coup in Madagascar in 2009 condemned by the international community, democratic elections took place in December 2013 allowing all sanctions to be removed. Despite the normalization of the situation, the history of Madagascar, with recurrent political crisis (2001 2002, 2009-2013), shows that the democratic process remains volatile. Therefore, the political situation and its potential impact on the project will constantly be monitored	The situation has been closely monitored and communication platforms put in place with the counterpart ministries of energy and environment. Despite frequent changes in counterparts, this interaction has continued and ensures smooth relations with the government.  Co-financing had been secured with other DFIs (KfW, CEAS, GIZ, Private Sector) for total amount of USD 68 578 800  Presidential election are scheduled in 2023 (campaigns in Q4 2023);	<input type="checkbox"/>
2	Technology: Risk of the chosen technology not being applicable or developable in the chosen areas.	M	M	Small hydro-power is based on well-established technology that is centuries old and now well practiced in many developing countries for electrification. The particular technology risk as applied to Madagascar will be mitigated through involvement of technical experts and UNIDO's expertise and by South-to-South partnerships facilitated in Component 4.	The feasibility work is of utmost importance in this regard and numerous studies have been carried out in order to determine the appropriate technology options and choices for each selected site to equipped.	<input type="checkbox"/>
3	Investment: Risk that the financial sector	M	M	The investment risk will be mitigated through bringing in international and local	The feasibility studies are involving private sector partners in order to consolidate the	<input type="checkbox"/>

<sup>4</sup> New risk added in reporting period. Check only if applicable.

	and investment requirements of the project are not realised.			private finance. The GEF project is expected to provide an incremental 20-25%, with the other 75-80% coming from the private sector project developers, through equity and/or loans. Bank of Africa is one of the commercial banks having expressed its willingness to provide loans for the type of SHP investments targeted under the GEF project.	appropriate business models and assess the economic viability of operating the project sites	
4	Social: Risk of social resistance against project activities, especially with regards to women inclusion	L	L	There will be thorough communication and stakeholder involvement at all levels of decision-making to ensure that there is consensus around project objectives.	Awareness raising activities are taking place at the project sites to communicate effectively the project's objectives and ensure local ownership. Especially when it comes to developing productive uses, emphasis is placed on involving women and women associations to take leadership roles. To be noted that socio organizers had been hired to facilitate continuous communication with local population and authorities.	<input type="checkbox"/>
5	Environmental: Climate Change and Water Supply risks	M	M	The pre-feasibility studies suggest that water supplies are sufficient to justify investments. Other studies show uncertainty as Malagasy rainfall has not been studied sufficiently (rainfall during wet season supposed to increase by 5-20%; rainfall during dry season to decrease by 10-30% though unclear whether referring to Madagascar or areas affected by ENSO in general (WWF n.d.). Rainfall in the north is expected to increase but to occur as more sporadic and intense periods (USAID 2008). This will be assessed in further detail for the target sites to be developed under the project, in cooperation with the private partners.	Environmental impact assessments are part of the feasibility studies that are being conducted by specialized consultancy office and related questions / recommendations had been closely considered and will be monitored during the operationalization of project sites as well.  Strategic note for in stream flow had been realized and good practices considered for each site to develop.	<input type="checkbox"/>
6	Sanitary: Risk of delays due to COVID-19	L	M	Since March 2020, the COVID-19 pandemic is in Madagascar. Measures had been taken by Government of Madagascar in order to limit as much as possible the spread of the pandemic over the country. National borders and inter-regional borders had been closed since March 2020. In order to mitigate the risk of delay, the situation will be closely monitored and agenda currently updated.	Since September 2022, COVID 19 is not a constraint anymore in Madagascar for project implementation.	<input type="checkbox"/>

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

*Not Applicable*

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

COVID 19 impacted project implementation over 2020, 2021 and beginning of 2022. Since September 2022, COVID 19 does not have any negative impact on the progress of the project.

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

Three timing extension had already been requested and granted by GEF (cf paragraph above). Last timing extension had been approved in April 2023 in order to conduct properly Terminal Evaluation of the project,



which has started in May 2023. The end project date is 31 July 2023. No additional extension is foreseen or will be submitted.

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

**The MTR realized in 2019 has raised the following recommendations (in black) specific actions taken (in blue):**

- R-1: Project non-cost extension: it is recommended to extend the project for 15 months in order to give more time to complete component 2 in the best possible way. At the same time streamlining the project in general for this final phase of project to allow for the achievement of the outstanding targets;  
→ It has been submitted and approved by GEF – In total three timing project extensions had been approved without any financial extension. The end of project implementation date is now 31 July 2023.
- R-2: Elaborate M&E plan for the project and follow closely;  
→ Since 2020, Quarter reports had been elaborated and monthly call between UNIDO HQ and local project team are organized to monitor closely the activities implementation. Project Management Unit for every SHP projects supported had been put in place with all partners involved.
- R-3: Maintain and broaden the very good collaboration with the partners and non-partners in this project should be followed and if possible, further intensified;
- R-4: Technical and financial partners: Further deepen collaboration with the German Development Corporation (KfW and GIZ), EU and World Bank in order to prepare a hand-over and scale-up of the project and the sector in general;  
→ Project Management Unit for each SHP had been put in place together with German Cooperation to intensify collaboration and fasten decision on SHP detailed feasibility studies. Co-financing
- R-5: Involve non-traditional technical and financial partners: e.g. establish and strengthen links with UNDP's Small Grants Project (SGP) in order to capitalise already existing project, studies and community-based approaches in the project regions to leverage positive impact to rural communities. This will result in improved integration of SHP in the local geographic and socio-economic context (e.g. the sector private offers jobs to the local population);  
→ GEF SGP local team participated to local mission in 2019 with project team in order to raise awareness of local population in SAVA Region;
- R-6: Increased involvement of local entities, respect of traditions and advancement of profitable activities and types of revenue increase: the environmental and social studies currently being implemented will be an opportunity for greater involvement of the local community in setting up projects for the two SAVA sites. Social and environmental measures should then be defined in a concerted manner to reduce the risk of rejection of the project and the loss of the already existing community assets in terms of preservation of the environment, source of income.  
→ A socio organizer based in SAVA Region had been recruited as part of project team and had facilitate regional and local follow up / discussion with local communities and authorities;

#### **Component 1: Policy and regulatory framework:**

- R-7: Given the change of the national context since the beginning of the project, more stakeholders with long term technical assistance facilities and a more appropriate budget in the renewable energy sector and in the electricity sector in general (e.g. GIZ), the continuation of this component seems today less favourable. If continued, the project may play again the role in providing innovative support to the legal and regulatory energy framework in concentrating on contributing with a small and very focused study aligned to the available budget which will be of interest for the sector but not necessarily financed in the near future by other partners.  
→ UNIDO / GEF project concentrates effort in the elaboration of a strategic note to consider in stream flows in hydropower project. In stream flows plays a major role in environmental impact mitigation of hydropower and is related to legal framework which still does not exist in Madagascar. The strategic note formulated several recommendations adapted to the context of Madagascar and capacity building of a technical committee composed by national counterparts had been successful over 2021/2022;

#### **Component 2: Private-led SHP technology demonstration:**

- R-8: Encourage companies to create SPVs (Special Purpose Vehicles) that are more or less project companies. This facilitates the transfer of funds and project monitoring during the implementation phase as well as for operation;  
→ Every company involved in component 2 has created a dedicated project company;
- R-9: Strongly encourage project promoters to approach financial partners by signing in particular NDAs (Non Disclosure Agreement) protecting reciprocal parties on shared information;

- It has been promoted and three NDAs had been signed by private project developers with other companies;
  - R-10: Conduct an audit of the future operator can be an advantage during the study phase to optimise his coaching before the implementation phase. ;
    - A proper audit has not been realized but all partners are providing financial and technical support to local private sector in order to conduct project properly;
  - R-11: Due to political instability in Madagascar, the financing mechanism of FNED (National Fund for Sustainable Energy) needs to exist and operate on its own behalf (without state intervention, only focusing on financial support for the energy sector. This means that it should be kept neutral without being linked into governmental transition while State Actors like the Ministry of Finance will be present in the CA (example: Fondation pour les Aires Protégées à Madagascar, Fonds de Développement Agricole et Fonds de Développement Local).
    - This recommendation was addressed to national counterparts and had been considered since MTR.
- Component 3: Capacity strengthening for sustainable replication and up scaling**
- R-12: Capitalisation of experiences: Focus on detailed capitalisation in order to assure replication and an up-scaling of the project in the final phase of the project;
    - Since Q4 2022, capitalization of project had been done with major key players of the project;
  - R-13: Upscaling should take into account and be in line with sustainable exploitation of the project;
    - It has been considered by national counterparts;
  - R-14: Activity 3.2.4 “Training strategy for the local manufacture of turbines and training building concrete poles”: The results of the mission of an int. specialist in Banki turbine manufacturing as well as the market study by a national consultant for Banki Turbines done by local manufactures showed that currently the envisaged training strategy for local manufacturers of turbines should not be continued in light of a) technical constraints, b) insufficient market demand and c) absence of necessary machines to grow the activity (question on sustainable economic impact when financing one machine for one operator). Given its delay and a suggested focus on component 2 it is highly recommended not to pursue this activity but rather to use PSC time and projects resources in order to strengthen other more viable and sustainable activities recommended in this chapter.
    - Major efforts of project team are dedicated to component 2 since 2020.

#### IV. Environmental and Social Safeguards (ESS)

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

- Category A project
- Category B project
- Category C project

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

*Not Applicable to our GEF-5 project.*

Please expand the table as needed.

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement			

(ii) New risks identified during project implementation (if not applicable, please insert 'NA' in each box)			
---	--	--	--

## V. Stakeholder Engagement

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

Project stakeholders had been solicited and involved for all activities carried out over July 2022 / June 2023:

### Component 1: Legal Framework

All activities of this component had been realized since Q3 2022. National counterpart played a key role in the implementation of “legal Framework” component. The very good partnership with GIZ must be stressed as several activities undertaken under Component1 had been co-financed and realized by GIZ PERER II (Programme d’Electrification Rurale à partir d’Energies Renouvelables) mostly with regards to the revision of the national electricity code (cf cofinancing letter provided in July 2019).

### Component 2: Demonstration led by private sector

- **Progress:**

- Construction of Mandialaza SHP project has started in Q3 2022;
- CEAS partner for Mandialaza, had launched tender for construction of civil work in May 2023 and contract is ongoing with selected companies.
- Public Utility Decree for both Belaoko Lokoho and Andrimanjavona SHP projects in SAVA Region had been released in Q2 2023 – Major support from Ministry of Energy and the ADER;
- E&S studies of Belaoko Lokoho SHP project had been finalized and tender for construction launched in Q1 2023. Evaluation of tenders with all stakeholders (UNIDO/KfW/ADER/ and local operator HIER) are expected for Q3 2023;
- KfW cofinancing for finalization of studies of Andriamanjavona SHP/Solar PV project had been secured in June 2023 and will be taken over UNIDO/GEF support.

- **Challenges:**

- Lack of visibility of secured co-financing from private sector for the realization of detailed feasibility studies;
- No experiences yet of the ADER with regard to Environment and Social international standards;
- Lack of planning strategy between ADER (Rural Electrification Agency) and JIRAMA (former National Electricity Utility) (cf Andriamanjavona Project)

### Component 3: Capacity Building for Replication

- **Progress**

- Specialized Master of Hydropower hold by ESPA (Superior Polytechnic School of Antananarivo) had been launched in January 2023;

- Support from MEH, ADER, ORE, MEDD, ESPA, ONE to develop Hydropower Manual for Madagascar;
- **Challenges**
  - Conflict for leadership from different department of ESPA (Electrical engineering and Hydraulic engineering)
  - Limited human and financial resources from ESPA;
  - Limited human resources of Government National Counterparts;
- **General Outcomes :**
  - All activities under component 1 realized;
  - Cofinancing letter between ADER / UNIDO / CEAS and SIER GC had been signed in Q3 2023. The total financial support of UNIDO/GEF is 400 000 USD grant for a total CaPEX project of nearly 1 000 000 USD. CEAS will support 450.000 USD in grant for civil work while the private operator will support 200.000 USD for MV and LV mini grid and power plant construction. Additional support from UNIDO / GEF had been provided for control of construction and support the ADER in commissioning of the infrastructure.
  - Construction of Mandialaza SHP project has started in August 2022.
  - Detailed feasibility studies for Belaoko Lokoho (8 000 kW) and associated environmental and social studies as well as tenders for construction are finalized;
  - Draft of feasibility study for Andriamanjavona project (490 kW) hybridized with 2MWp Solar PV and associated environmental and social studies are at finalization stage;
  - Specialized Hydropower Master degree launched and selection of first promotion of 12 students realized and led by ESPA;
  - Manual on Hydropower being finalized with support from key players;

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

UNIDO / GEF project had been highly recognized for the capacity to initiate SHP project and close collaboration with the Ministry of Energy, the ADER, and Ministry of Environment. It as facilitate preparation of detailed feasibility studies, respecting both national and international standards also for environment/social/gender dimension. Also, UNIDO/GEF project initiated with ESPA (University) the first specialized Hydropower Master Degree and qualitative various capacity building activities related to SHP.

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

Cf attached : 6<sup>th</sup> Project Steering Committee minutes, January 2023 (**5317\_6<sup>th</sup>PSC minutes\_2023**):

To be noted that last PSC (6<sup>th</sup> PSC) happened in January 2023.

## VI. Gender Mainstreaming

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

Guiding principle of the project ensured that both women and men are provided equal opportunities to access, participate in, and benefit from the project, without compromising the technical quality of the project results. In practical terms:

- Whenever possible existing staff is trained and their awareness raised regarding gender issues. Sensitization had been done for instance through workshops, trainings, etc.
- Decision-making processes had been considering gender dimensions and including representatives of SSOs and NGOs promoting gender equality and empowerment of women (providing them with equal voice). This is both at project management level, such as Project Steering Committee meetings. A gender balance had been set between chair and co-chair of the PSC.
- To the extent possible, necessary efforts had been made to promote participation of women in training activities, both at managerial and technical levels. This included advertising of the events to women's technical associations, encouraging companies to send women employees, etc.
- When data-collection or assessments had been conducted as part of project implementation, gender dimensions had been considered, particularly with reference to the impact of SHP and energy access on the livelihood of community members whether male or female. This can include sex-disaggregated data collection, performing gender analysis.
- This project had overall limited direct influence over gender equality and/or women's empowerment in the countries (and therefore is classified as a project with "limited gender dimensions" according to the UNIDO Project Gender Categorization Tool). Nevertheless, UNIDO recognizes that all interventions dealing with energy and/or natural resources (such as the water) is expecting to have an impact on people and are, therefore, not gender-neutral. In fact, due to diverging needs and rights regarding natural resources, energy consumption and production, women and men are expected to be affected differently by the project (in terms of their rights, needs, roles, opportunities, etc.). Therefore, (regardless of the project's gender category,) the project aims to be gender responsive and to demonstrate good practices in mainstreaming gender aspects into SHP projects, wherever possible, and avoid negative impacts on women or men due to their gender, ethnicity, social status or age. Hence, gender aspects is be integrated in the plan as appropriate, especially for training and capacity building. In addition, the support this GEF project gives for industrial innovation and increasing competitiveness of the country by moving towards more electrification from hydropower plants (not reliant on imported and expensive oil) is favourable for Madagascar by sustaining better social and economic conditions, giving employment, economic well-being and therefore gender equality.
- Over 2022/2023, general gender balance approached had been considered with regards to i) Project Steering Committee participants and decision making, ii) subcontractors team of implementing activities, iii) participants to the Specialized Hydropower Master degree (12 participants including 5 women) and within Detailed Feasibility Studies on Energy Demand Part of all SHP project supported by UNIDO/GEF in 2022/2023. Indeed, UNIDO/GEF team requested private operator to include one specific chapter focus on Gender Analysis of future Beneficiaries in the studies. This is a first time for private sector to include such a chapter in energy demand evaluation studies. It has been highly appreciated and will have an impact in the design of the marketing strategy and impact monitoring.

## VII. Knowledge Management

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

Please kindly find bellow attached document which follow up closely activities of the project  
Please find below attached relevant reports over 2022/2022.

- **5317\_Q1\_Report\_2023**
- **5317\_PSC\_ENG\_Q42022**
- **5317\_Q1-Report-2023**

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

Please find below the list of relevant knowledge management mechanisms/tools and documents attached

in addition to the report:

- **5317\_Debits\_Réservés\_Madagascar**
- **5317\_Manuel\_Hydro\_Madagascar**
- **5317\_SHP\_V7Vsites**
- **5317\_Tableau\_de\_bord**

## VIII. Implementation progress

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

Please find below a summary of major accomplishments between 1 July 2022 and 30 June 2023:

### **Admin:**

- Last Project steering Committee happened in January 2023 (cf minutes attached);
- A third timing project extension had been approved in February 2023 – official implementing of project new end date is 31<sup>st</sup> July 2023. The main purpose of this third request amendment was related to Terminal Evaluation (TE) and would give the UNIDO/GEF project the time comfort to finalize TE before implementing closing date of the project.
- Terminal Evaluation of the UNIDO/GEF project has started in May 2023 and is scheduled to be finalized by end of July 2023;

### **Component 1 -LEGAL AND REGULATORY FRAMEWORK:**

- A study on the “determination of in stream flow adapted to the context of Madagascar” had been successfully realized jointly with national counterparts gathered into a technical committee. Final version of the strategic note had been released in June 2022 through an online workshop and shared with National Counterparts in October 2022.
- Thus, all activities of Component had been 100% realized since Q3 2022.

### **Component 2 - DEMONSTRATION LED BY PRIVATE SECTOR:**

- Three SHP projects had been selected together with the ADER, to be technically and financially supported by the UNIDO/GEF project:
  - Andrimanjavona 490 kW – SAVA Region
  - Belaoko Lokoho 8 000 kW – SAVA Region
  - Mandialaza 200 kW – Alaotra Mangoro Region

Overview 2022/2023:

#### MANDIALAZA (200 kW) – Alaotra Mangoro Region:

Over 2022, all studies (technical, environmental, Business Plan etc) had been finalized and approved by national counterparts. Local operator had been selected, environmental permit approved in January 2022) and legal authorization for construction signed in March 2022. In addition, Business plan of the project had been submitted to the electricity regulatory office in March 2022 and approved in June 2022.

A financing convention had been elaborated between ADER / UNIDO-GEF project / CEAS / SIER GC (local operator) and signed in July 2023.

The construction of the project has officially started in August 2022.

UNIDO/GEF project is mainly supported financially and technically all the electro-mechanical part of the project. Tenders had been launched over 2023 to select: i) electromechanical equipment's (contract signed in January 2023) and ii) isolated mini grid electrical equipment's (launched in May 2023 and contract ongoing) for a total amount of USD 400.000 grant. In addition the UNIDO/GEF project is supporting the



ADER by hiring an engineering control office (launched in June 2023 and contract ongoing).

ANDRIAMANJAVONA (490 kW hydro / 2 MWp Solar PV) – SAVA Region :

Over 2022/2023, additional technical studies about the design of the Andriamanjavona potential hydride SHP / Solar PV power generation had been realized.

SHP Design: due to low hydrology, environmental purposes, high CAPEX and difficulty during operation the initial 1200 kW with reservoir drafted by KfW had been abandoned and shifted to a run of river version for of 490 kW installed capacity. To be noted that technical divergence of vision between the local operator (MASAHYA) and KfW technical team has implied delays for decision making.

Environmental and Social studies for the mini grid part had been finalized in May 2023.

UNIDO/GEF has supported studies and KfW is taking over UNIDO/GEF with complementary activities from July 2023 to December 2023 (expected end of studies).

BELAOKO LOKOHO (8 000 kW) – SAVA Region

Detailed Feasibility Studies for Belaoko Lokoho had been finalized and validated by partners in 2022 (all documents available on request). Also, final Business plan, Marketing strategy and environmental studies are still had been finalized and shared with all key players in March 2023. One major discussion to finalize the business plan is the update of construction cost. Indeed mainly due to covid 19, transport cost and raw material cost has increased since the finalization of the detailed feasibility studies. Revision of budget had been made by HIER (local operator) and his consultant Tractebel in 2022 and forecast an increase of nearly 40% of CAPEX compared to the budget estimated in the detailed feasibility study. Thus, the tenders for construction had been finalized and launched in January 2023 – Evaluation is scheduled for July 2023, submission of bidders will allow to know updated cost for the construction. Afterwards, financial solution will be given by KfW but remaining that ERER SAVA project is a top priority for KfW in Madagascar. Additional financing from KfW (approx. 10,000,000 EUR) is ongoing and incentives for HIER to increase equity and debt could also be considered with regards to update of the business plan and contract to be signed with JIRAMA for the surplus of production to be sold to JIRAMA in Andapa and Sambava (main cities near by Belaoko Lokoho Project).

To be to noted that an UNIDO / GEF project also supports ADER and the Ministry of Energy with the Environmental and Social assessment / land compensation of both Andriamanjavona and Belaoko Project.

The commodo / in commodo surveys (in view of land financial compensation from Gov. of Madagascar to local population prior to construction phase) had been realized in October 2022 and finalized in January 2023. It is the first time in ADER history that such a regional project is considered and will impact more than 20 000 households and 2500 productive uses. Parcel mapping of both project are ongoing and partly supported by UNIDO/GEF project had been finalized in May 2023. Both Andriamanjavona and Belaoko Lokoho project had been granted by Government of Madagascar (General Assembly) as public utility projects in June 2023. It will allow and facilitate land negotiation with current owner for the construction.

**Component 3: CAPACITY BUILDING AND REPLICATION:**

- Two public-private platform meetings had been organized jointly with ADER, GIZ and European Union) in October 2022 and April 2023;
- Manual for SHP projects in Madagsacar had been drafted and discussed with national counterparts actors involved in SHP projects (2 technical meetings over 2022/2023) and one local mission to test the manual for SHP implementation and defined responsibilities (Ministry of Energy, Ministry of Environment) to each national counterparts entity – the document is being finalized and will be ready by end of July 2023;
- Curricula for a Master degree on Hydroelectricity had been finalized jointly with Polytechnic School of Antananarivo and support provided to promote partnerships with ESPA (5 partners secured) – Master Degree had been officially launched in January 2023 and first promotion of 12 students (5women) had been selected – UNIDO/GEF team provided the first week of courses in February 2023;
- Atlas for SHP projects in Vatovavy and Fitovinany Regions had been finalized and technical sheets of 64 shared with national counterparts;

2. Please briefly elaborate on any **minor amendments**<sup>5</sup> to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

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

<input checked="" type="checkbox"/>	Results Framework	Initial target as cumulated capacity installed to be considered by the UNIDO/GEF project was 2 MW of hydropower. In implementation phase, 8,6 MW are considered.
<input type="checkbox"/>	Components and Cost	
<input type="checkbox"/>	Institutional and Implementation Arrangements	
<input type="checkbox"/>	Financial Management	
<input checked="" type="checkbox"/>	Implementation Schedule	Related to component 2: Initially due to lack of hydrological data, studies had been delayed and has postponed start of construction of SHP supported by the UNIDO/GEF project. In addition, COVID 19 appeared the exact timing detailed feasibility was at finalization stage. SHP construction will start in 2022/2023 but co-financing had been secured for the implementation of all initiated SHP projects by UNIDO/GEF project.
<input type="checkbox"/>	Executing Entity	
<input type="checkbox"/>	Executing Entity Category	
<input type="checkbox"/>	Minor Project Objective Change	
<input type="checkbox"/>	Safeguards	
<input type="checkbox"/>	Risk Analysis	
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	
<input checked="" type="checkbox"/>	Co-Financing	In CEO document co-financing of 14 500 000 USD was scheduled. In implementation co-financing of 68 578 800 USD in kind had been secured (EUR 32 000 000 from KfW, EUR 20 300 000 from GIZ and USD 450 000 from CEAS). In addition financing from private sector: SIER GC USD 200 000 (for Mandialaza SHP), HIER USD 5 450 000 (for Belaoko Lokoho SHP) and MASAHYA USD 2 180 000. (for Andriamanjavona SHP).
<input checked="" type="checkbox"/>	Location of Project Activities	Even though SAVA and Alaotra Mangoro Regions had been considered within CEO for the SHP projects remains, the exact site position and rivers had been changed in order to optimize hydrological parameters and efficiency of power production to local population. This in order to increase energy production potential from SHP projects.
<input type="checkbox"/>	Others	

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



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

Financially, over 2022/2023 financing secured over the last 5 years had been closely followed. Indeed the UNIDO/GEF project managed to secure co-financing from other technical and financial partners as in kind additional grant to UNIDO/GEF projects for a total of USD 68 578 800

- i) Co-financing of 32.000.000 EUR in-kind grant in 2018 to support the realization of two SHP projects in SAVA Region –cofinancing letters and email are available
- ii) Co-financing from GIZ of 20,300,000 EUR on legal framework improvement and capacity buildings – cofinancing letter is available;
- iii) Co financing of USD 450 000 had been secured from CEAS (Swiss NGO) for Mandialaza SHP project cofinancing letter is available;

Private sector equity/debt amount co-financing is ongoing upon finale version of detailed feasibility studies, but estimation of USD 7,300,000 investment is foreseen for the construction phase:

SIER GC for Mandialaza : USD 200 000 (is secured)

HIER for Belaoko Lokoho: USD 5 450 000 (is being secured)

MASAHYA for Andriamanjavona : USD 2 180 000 (is being secured)

For both projects in SAVA Region, private operators already mobilized since 2020, 50% of total cost of the studies which represents an amount of nearly USD 365 000.

Also, please find below the project financial delivery Report :



**PROJECT  
DELIVERY  
REPORT**

			120094 - INCREASED ENERGY ACCESS FOR PRODUCTIVE USE THROUGH SMALL HYDROPOWER DEVELOPMENT IN RURAL AREAS MADAGASCAR (MAIN PHASE)	<b>Project Manager:</b>	Heng Liu	<b>Project Validity Status:</b>	24.07.2015 - 30.07.2023 Implement
<b>Reporting Period:</b>	24.07.2015 - 30.06.2023	<b>Project Theme:</b>	Energy and Environment	<b>Country:</b>	Madagascar	<b>Region</b>	Africa
<b>Sponsor Nr.</b>	<b>Sponsor</b>	<b>Grant</b>	<b>Grant Description</b>	<b>Fund</b>	<b>Currency</b>	<b>Grant Status</b>	<b>Grant Validity</b>
400150	GEF - Global Environment Facility	2000003144	MAG - ENERGY ACCESS	GF	USD	Authority to implement	24.07.2015 - 30.07.2023

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
<b>2000003144</b>											
<b>120094-1-01-01</b>	<b>Policy and Regulatory Framework</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	4 326,21	4 326,21	4 326,21	0,00	0.00	4 326,21
1500	Local Travel	0.00	0.00	0.00	0.00	7 547,89	7 547,89	7 547,89	0,00	0.00	7 547,89
1600	Staff Travel	0.00	0.00	0.00	0.00	0,00	0,00	0.00	0,00	0.00	0.00
1700	Nat.Consult./Staff	0,00	0.00	0.00	0.00	12 254,84	12 254,84	12 254,84	0,00	0.00	12 254,84
2100	Contractual Services	0,00	0.00	0.00	0.00	139 741,15	139 741,15	139 741,15	0,00	0.00	139 741,15
3000	Train/Fellowship/Study	0,00	0.00	0.00	0.00	1 978,92	1 978,92	1 978,92	0,00	0.00	1 978,92

4500	Equipment	0,00	0,00	0,00	0,00	(10,81)	(10,81)	(10,81)	0,00	0,00	(10,81)
5100	Other Direct Costs	0,00	0,00	0,00	0,00	459,86	459,86	459,86	0,00	0,00	459,86
9300	Support Cost IDC	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	15 798,41	15 798,41
<b>120094-1-01-01</b>	<b>Total</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>166 298,06</b>	<b>166 298,06</b>	<b>166 298,06</b>	<b>0,00</b>	<b>15 798,41</b>	<b>182 096,47</b>
<b>120094-1-01-02</b>	<b>Technology Demonstration</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>
1100	Staff & Intern Consultants	29 965,76	2 247,10	29 538,28	31 785,38	394 229,03	394 229,03	396 048,65	(1 819,62)	0,00	396 048,65
1500	Local Travel	7 914,28	(1 049,07)	7 023,43	5 974,36	52 692,56	52 692,56	50 752,64	1 939,92	0,00	50 752,64
1600	Staff Travel	0,00	0,00	34,85	34,85	299,66	299,66	334,51	(34,85)	0,00	334,51
1700	Nat.Consult./Staff	13 413,89	604,58	12 817,39	13 421,97	170 377,48	170 377,48	170 385,56	(8,08)	0,00	170 385,56
2100	Contractual Services	25 000,00	157 892,30	43 061,69	200 953,99	763 213,01	763 213,01	939 167,00	(175 953,99)	0,00	939 167,00
3000	Train/Fellowship/Study	0,00	0,00	0,00	0,00	930,62	930,62	930,62	0,00	0,00	930,62
3500	International Meetings	0,00	0,00	0,00	0,00	8 903,98	8 903,98	8 903,98	0,00	0,00	8 903,98
4300	Premises	0,00	0,00	0,00	0,00	2 640,37	2 640,37	2 640,37	0,00	0,00	2 640,37
4500	Equipment	112 922,00	(287 078,00)	57 493,21	(229 584,79)	408 704,70	408 704,70	66 197,91	342 506,79	0,00	66 197,91
5100	Other Direct Costs	4 115,79	11 013,68	7 793,77	18 807,45	26 741,77	26 741,77	41 433,43	(14 691,66)	0,00	41 433,43
9300	Support Cost IDC	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	159 263,77	159 263,77
<b>120094-1-01-02</b>	<b>Total</b>	<b>193 331,72</b>	<b>(116 369,41)</b>	<b>157 762,62</b>	<b>41 393,21</b>	<b>1 828 733,18</b>	<b>1 828 733,18</b>	<b>1 676 794,67</b>	<b>151 938,51</b>	<b>159 263,77</b>	<b>1 836 058,44</b>
<b>120094-1-01-03</b>	<b>Replication and Capacity Strengthened</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>
1100	Staff & Intern Consultants	0,00	0,00	0,00	0,00	217 047,86	217 047,86	217 047,86	0,00	0,00	217 047,86
1500	Local Travel	3 753,46	(3 519,00)	7 348,95	3 829,95	47 132,95	47 132,95	47 209,44	(76,49)	0,00	47 209,44

1600	Staff Travel	0,00	0.00	0.00	0.00	408,01	408,01	408,01	0,00	0.00	408,01
1700	Nat.Consult./Staff	0,00	0.00	0.00	0.00	40 238,94	40 238,94	40 238,94	0,00	0.00	40 238,94
2100	Contractual Services	0.00	0.00	0.00	0.00	221 725,26	221 725,26	221 725,26	0,00	0.00	221 725,26
3000	Train/Fellowship/Study	0,00	0.00	0.00	0.00	2 574,68	2 574,68	2 574,68	0,00	0.00	2 574,68
3500	International Meetings	0.00	0.00	0.00	0.00	29 554,52	29 554,52	29 554,52	0,00	0.00	29 554,52
4300	Premises	0,00	0.00	0.00	0.00	3 976,61	3 976,61	3 976,61	0,00	0.00	3 976,61
4500	Equipment	38 725,13	0,00	2 716,83	2 716,83	39 302,37	39 302,37	4 366,25	34 936,12	0.00	4 366,25
5100	Other Direct Costs	9 783,83	9 691,19	3 647,80	13 338,99	37 167,69	37 167,69	40 722,85	(3 555,16)	0.00	40 722,85
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57 704,65	57 704,65
<b>120094-1-01-03</b>	<b>Total</b>	<b>52 262,42</b>	<b>6 172,19</b>	<b>13 713,58</b>	<b>19 885,77</b>	<b>639 128,89</b>	<b>639 128,89</b>	<b>607 824,42</b>	<b>31 304,47</b>	<b>57 704,65</b>	<b>665 529,07</b>
<b>120094-1-51-01</b>	<b>Management and Monitoring</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	99 136,60	99 136,60	99 136,60	0,00	0.00	99 136,60
1500	Local Travel	0.00	0.00	0.00	0.00	11 451,96	11 451,96	11 451,96	0,00	0.00	11 451,96
1700	Nat.Consult./Staff	0.00	0.00	0.00	0.00	29 969,73	29 969,73	29 969,73	0,00	0.00	29 969,73
2100	Contractual Services	0.00	0.00	0.00	0.00	539,26	539,26	539,26	0,00	0.00	539,26
4500	Equipment	0.00	0.00	0.00	0.00	4 794,05	4 794,05	4 794,05	0,00	0.00	4 794,05
5100	Other Direct Costs	0,00	0.00	0.00	0.00	18 746,91	18 746,91	18 746,91	0,00	0.00	18 746,91
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15 640,81	15 640,81
<b>120094-1-51-01</b>	<b>Total</b>	<b>0,00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>164 638,51</b>	<b>164 638,51</b>	<b>164 638,51</b>	<b>0,00</b>	<b>15 640,81</b>	<b>180 279,32</b>
<b>120094-1-53-01</b>	<b>Mid-Term and Final Evaluations</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>	<b>USD</b>

1100	Staff & Intern Consultants	40 000,00	5 326,65	10 746,40	16 073,05	49 524,30	49 524,30	25 597,35	23 926,95	0.00	25 597,35
1500	Local Travel	0.00	1 902,85	525,16	2 428,01	0,00	0,00	2 428,01	(2 428,01)	0.00	2 428,01
1700	Nat.Consult./Staff	0.00	885,64	1 836,04	2 721,68	1 457,85	1 457,85	4 179,53	(2 721,68)	0.00	4 179,53
5100	Other Direct Costs	4 723,54	10 048,15	0,00	10 048,15	5 219,21	5 219,21	10 543,82	(5 324,61)	0.00	10 543,82
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4 061,10	4 061,10
<b>120094-1-53-01</b>	<b>Total</b>	<b>44 723,54</b>	<b>18 163,29</b>	<b>13 107,60</b>	<b>31 270,89</b>	<b>56 201,36</b>	<b>56 201,36</b>	<b>42 748,71</b>	<b>13 452,65</b>	<b>4 061,10</b>	<b>46 809,81</b>
<b>2000003144</b>	<b>Total</b>	<b>290 317,68</b>	<b>(92 033,93)</b>	<b>184 583,80</b>	<b>92 549,87</b>	<b>2 855 000,00</b>	<b>2 855 000,00</b>	<b>2 658 304,37</b>	<b>196 695,63</b>	<b>252 468,74</b>	<b>2 910 773,11</b>
<b>120094</b>	<b>USD Total</b>	<b>290 317,68</b>	<b>(92 033,93)</b>	<b>184 583,80</b>	<b>92 549,87</b>	<b>2 855 000,00</b>	<b>2 855 000,00</b>	<b>2 658 304,37</b>	<b>196 695,63</b>	<b>252 468,74</b>	<b>2 910 773,11</b>

## IX. Work Plan and Budget

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

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

Outputs by Project Component	2023		2024	Status	GEF Grant Budget Available (US\$)
	Q3	Q4	Q1		
<b>Component 1 –POLICY AND REGULATORY FRAMEWORK STRENGTHENED</b>					
Outcome 1: <b>Outcome 1:</b> National Low-Carbon Energy Development Plan developed and tailored initiatives to support SHP in place.					
<b>Output 1.1:</b> Policy framework on RE for productive use reviewed and recommendations to streamline policies/incentive schemes towards a greater use of rural-based SHP proposed.	Already 100 % realized				USD 0,00
<b>Output 1.2:</b> Standardised reference emission levels established	Already 100 % realized				USD 0,00
<b>Component 2 –PRIVATE LED SHP TECHNOLOGY DEMONSTRATION</b>					
Outcome 2: Construction of SHP based mini-grids for productive use and income generation.					
<b>Output 2.1:</b> Target SHP projects fully prepared for development and co-financing	Already 100 % realized				USD 0,00
<b>Output 2.2:</b> SHP capacity of 2 MW on preselected sites realized				Implementing closing date : 30 July 2023  Financial closing date : early 2024	USD 151.938,51
<b>Component 3 – REPLICATION IN PLACE TARGETED CAPACITY STRENGTHENING CARRIED OUT AND KNOWLEDGE MANAGEMENT IN PLACE</b>					
Outcome 3: Appropriate financial measures to create conditions for SHP project replication developed and operational. Capacity of project developers on technical, productive use aspects and financial viability of SHP enhanced and local capacity to manufacture SHP equipment strengthened					
<b>Output 3.1:</b> A mechanism to facilitate sustained securing of finance set up through development of appropriate business models between public entities and private & financial sectors developed	Already 100 % realized				USD 0,00
<b>Output 3.2:</b> Capacities of major actors from private, government, and finance and target SME sectors strengthened in the specifics of SHP through tailored training(s) and knowledge management				Implementing closing date : 30 July 2023  Financial closing date : early 2024	USD 31.304,47
<b>Output 3.3:</b> A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed	Already 100 % realized				USD 0,00
<b>Component 4 – MONITORING AND EVALUATION AND DISSEMINATION CARRIED OUT</b>					
<b>Output 4.0:</b> Project Management					USD 0,00

<b>Output 4.1:</b> Mid-term and final evaluation carried out; project's progress assessed, documented and recommended actions formulated					USD 13.452,65
<b>Output 4.2:</b> GHG emission reductions from the project monitored and evaluated and carbon registry for the project in place	<b>Already 100 % realized</b>				USD 0,00
<b>TOTAL (USD)</b>					<b>USD 196.695,63</b>

## X. Synergies

### 1. Synergies achieved:

**German Cooperation:** The German cooperation (GIZ and KfW) is one of the main partners on rural electrification sector both on legal framework improvement (GIZ) and for the setting up of 2 SHP in SAVA region (KfW). Co-financement letters had been provided both by GIZ and KfW. Among many activities GIZ and UNIDO/GEF project had been working closely on:

- Settled a Public/private platform about rural electrification and renewable energy together with European Union and led by Ministry of Energy;
- Participated to the revision of national electricity code in favor of renewable energy and particularly SHP;
- Revised the National Electricity Fund (National Financial mechanism for financing rural electrification);
- Backstop the ADER (Rural Electrification Agency under Ministry in charge of Energy) to improve planning and strategy;
- Setting up a formal platform of coordination between Ministry of Energy and Technical and Financial partners.

**CEAS (Albert Schweizer Ecological Center):** CEAS is a Swiss NGO proactive in Madagascar and providing financial and technical support to some local operators involved in rural electrification and renewable energy. CEAS is cofinancing the Mandialaza SHP project

**UE/WB/GIZ/KFW/AfDB/AFD/USAID:** a coordination between several technical and financial partners (European Union / GIZ / KfW / USAID / AFD / AfDB and UNIDO occurred to raise awareness of Ministry of Energy to support the implementation of a national financial mechanism (Sustainable Energy Fund: FNED) to provide financial facilities for renewable energy and rural electrification projects.

Finally with USAID, GIZ, European Union, French Development Agency (AFD), World Bank with regards to university technical trainings for students. UNIDO/GEF took the lead to initiate trainings and partners followed.

Regular cooperation via informal meetings with all financial and technical partners are organized to discuss about synergies between different ongoing projects which aim at promoting renewable energy in Madagascar.

### 3. Stories to be shared (Optional)

N.A

## XI. GEO LOCATION INFORMATION

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

Web mapping applications such as [OpenStreetMap](#) or [GeoNames](#) use this format. Consider using a conversion tool as needed, such as: <https://coordinates-converter.com>

Please see the Geocoding User Guide by clicking [here](#)

<b>Location Name</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Geo Name ID</b>	<b>Location and Activity Description</b>
Belaoko Lokoho	14°35'34.07"S	49° 43'38.75"E	Belaoko Lokoho SHP site	Belaoko Lokoho SHP site – SAVA Region
Andrimanjavona	13°51'24.54"S	49° 53'21.30"E	Andrimanjavona SHP site	Andrimanjavona SHP site – SAVA Region
Mandialaza	18°36'4.13"S	48° 0'9.80"E	Mandialaza SHP site	Mandialaza SHP Site – Alaotra Mangoro Region

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

--