



Project Implementation Report

(1 July 2021 – 30 June 2022)

Project Title:	Increased energy access for productive use through small hydropower development in rural areas in Madagascar
GEF ID:	5317
UNIDO ID:	120094
GEF Replenishment Cycle:	GEF-5
Country(ies):	MADAGASCAR
Region:	AFR - Africa
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs¹:	N.A
Stand-alone / Child Project:	Stand-alone
Implementing Department/Division:	ENE / ETI
Co-Implementing Agency:	N.A
Executing Agency(ies):	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
Project Type:	Full-Sized Project (FSP)
Project Duration:	60 months
Extension(s):	2
GEF Project Financing:	USD 2,855,000
Agency Fee:	USD 271,225
Co-financing Amount:	USD 14,305,000
Date of CEO Endorsement/Approval:	5/27/2015
UNIDO Approval Date:	7/24/2015
Actual Implementation Start:	7/24/2015
Cumulative disbursement as of 30 June 2022:	2,233,606
Mid-term Review (MTR) Date:	5/28/2019
Original Project Completion Date:	7/24/2020
Project Completion Date as reported in FY21:	4/20/2023

¹ Only for GEF-6 projects, if applicable

Current SAP Completion Date:	4/20/2023
Expected Project Completion Date:	4/20/2023
Expected Terminal Evaluation (TE) Date:	1/20/2023
Expected Financial Closure Date:	10/19/2023
UNIDO Project Manager ² :	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. 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. 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 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.</p>		
Project Objective	Project Core indicators	Targets expected at approval stage
<p>The project aims to stimulate the use of small hydropower (SHP) to reduce GHG emissions and trigger productive use for income generation in line with priorities of GoM, with the overall aim to increase the competitiveness of the Madagascar SME sector and reduce its dependency on fossil fuels</p>	<p>1. Number of SHP projects installed and stimulated</p> <p>2. Energy generated from SHP technology (in MWh)</p> <p>3. Direct CO₂ emissions reduced (tonnes of CO₂eq)</p>	<p>1. SHP capacity of at least 2 MW realised</p> <p>2. Energy generated annually from SHP through demonstration projects = 13,140 MWh per year, operating from 2018- 2038</p> <p>3. Direct emission reduction of 131,400 tonnes, and indirect emission reductions between 525,600 tonnes (bottom-up) and 578,160 tonnes (top-down)</p>

Baseline
<p>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.</p> <p>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</p>

² Person responsible for report content

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 ³	FY22	FY21
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	Highly Satisfactory (HS)	Highly Satisfactory (HS)
Although construction / operation of SHP has not yet begun, the three SHP power plants (Belaoko Lokoho – 8 000 kW, Andriamanjavona – 400 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.		
Implementation Progress (IP) Rating	Satisfactory (S)	Satisfactory (S)
As in 2021, 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 Risk Rating	Moderate Risk (M)	Moderate Risk (M)
In general, overall risk rating remains Moderate. In 2021 PIR, COVID 19 risk had been added 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.		

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 in FY22
Component 1 – POLICY AND REGULATORY FRAMEWORK STRENGTHENED				
Outcome 1: National Low-Carbon Energy Development Plan developed and tailored initiatives to support SHP in place.				
Output 1.1: Policy framework on RE for productive use reviewed and recommendations to streamline policies/incentive schemes towards a	Policy framework on RE for productive uses reviewed and recommendations to streamline policies/incentive schemes towards a greater use of rural-	Regulatory framework for management of National Energy Fund (FNE) and for rural electrification with RE is lacking	Better management of regulation of RE and rural electrification programmes	<ul style="list-style-type: none"> Feedbacks and recommendations formulated during the Design of the New Energy Policy, Revision of Electricity Code had been provided and highly considered. All legal framework is in favour of Renewable Energy – National target indicated by 2030 80% of the energy mix should come from hydro

³ 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

greater use of rural-based SHP proposed.	based SHP proposed	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	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)	<p>source (renewable comparative advantage of Madagascar);</p> <ul style="list-style-type: none"> The realization of strategic and methodological note to determine in stream flows for Hydropower projects with regards to the environmental context of Madagascar had been successfully realized over 2021/2022 (finale version in June 2022) International guidelines on SHP (IWA 33) for which Madagascar had been involved has been approved by ISO Technical Management Board (ISO/TMB) submitted by Standardization Administration of China (SAC) for establishment of Technical Committee (TC) for small hydropower plants, i.e., ISO/TC 339 Small hydropower plant. Madagascar manifest interest to become P-Member for the next steps. UNIDO/GEF has initiated together with GIZ the Ministry of Energy, ORE and ADER to launch an official platforms between Ministry of Energy entities and DFIs to improve dialogue and planning. The platform had been launched in 2021 (ToR and Meeting PV are available).
Output 1.2: 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 ₂ emission levels and M&E in place (in line with Output 5.2)	Measurable Reportable Verification (MRV) had been designed in 2018 with support from UNIDO/GEF project and is still in place at the Ministry of Environment and Ministry of Energy level. The tool strengthens ability for the government of Madagascar to monitor improvement regarding the NDC for Energy sector.
Component 2 – PRIVATE LED SHP TECHNOLOGY DEMONSTRATION				
Outcome 2: Construction of SHP based mini-grids for productive use and income generation.				
Output 2.1: Target SHP projects fully prepared for development and co-financing	Limited number of technical documents / project assessments made of potential SHP projects leading to co-finance	No previous assessments leading to appropriate reports carried out	At least 2 specification documents assessed as appropriate for presentation for co-financing	<ul style="list-style-type: none"> UNIDO/GEF project follows and backstop the national process of Call for Project launched by the Rural Electrification Agency (ADER) for the identification of SHP sites and operators. 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 (Mandialaza) is located in Alaotra Mangoro The three projects had been selected with regards to hydrological potential, productive use electricity potential consumption and financing partners available. In 2022, all detailed feasibility studies had been realized and finalized except for Andriamanjavona project which will finally be a hybrid Hydro/solar project. Detailed feasibility studies for Belaoko Lokoho (8 MW) and for Mandialaza (200 kW) had been 100% finalized. Also, Environmental and Social assessment had been closely followed over 2022 : To date: <ul style="list-style-type: none"> E&S for Mandialaza project had been 100 % realized and

				<p>environmental permit delivered in January 2022.</p> <ul style="list-style-type: none"> o E&S for Belaoko Lokoho and Andriamanjavona had been closely followed, improved but are expected to be finalized in Q3 2023.
<p>Output 2.2: 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 & evaluation reports</p>	<p>UNIDO/GEF project support the realization of 3 SHPs project:</p> <ul style="list-style-type: none"> • Belaoko Lokoho (8 MW) • Andriamanjavona (400 kW) • Mandialaza (200 kW). <ul style="list-style-type: none"> ➔ Cumulated SHP installed capacity of 8,6 MW <p>In the FY2021/2022, 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"> • For Mandialaza, UNIDO/GEF will co-finance the electromechanical equipments and part of the MV mini grid. Construction is expected to start in Q3 2022. • 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 project. Construction is expected to start in Q1 2023 (before the closing date of UNIDO/GEF project).

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>Output 3.1: A mechanism to facilitate sustained securing of finance set up through development of appropriate business models between public entities and private & 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"> • 5 Business Plan realized during PPG phase which has led to call for project launched by ADER in 2015 (at the beginning of the project). • More recently, Business plans of component 2 projects (Belaoko Lokoho, Andriamanjavona and Mandialaza) had been consolidated and had been considered by local counterparts (ADER especially) as reference for SHP business plans in Madagascar.
<p>Output 3.2: 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</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>2 productive use training workshops conducted including on social aspects</p> <p>20 trained SMEs and academic institutions</p>	<ul style="list-style-type: none"> • 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.) • UNIDO/GEF project supported ESPA (Polytechnic School of Antananarivo) for

	<p>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>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>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>	<p>the design of a specialized Master degree on "Hydropower" Main UNIDO/GEF Mandate was to provide technical inputs for the curricula, communication support and partnerships promotion.</p> <ul style="list-style-type: none"> Market study for potential manufacture of Banki turbine for power range of 50-300 kW had been realized in 2018. 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. Technical Guidelines 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. Atlas of potential SHP in the Vatovavy and Fitovinany Regions had been initiated. More than 60 sites had been identified and 20 visited. UNIDO/GEF project supported together with GIZ and European Union, the creation of Public Private Platform for Rural Electrification. Height meetings already occurred since 2017 (including 2 between 2021/2022) and raise awareness and share good practices about rural electrification from renewable energy (including SHP); Madagascar participated to the last two editions of the Vienna Energy Forum (May 2017 and 2018) organized by UNIDO. Two participants from Madagascar participated to the Sustainable Energy Leadership Program (SELP) in India in 2016. 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. International guidelines on SHP (IWA 33) developed and two representatives of Madagascar participated (ICSHP).
<p>Output 3.3: A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed</p>	<p>A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed</p>	<p>No NAMA developed</p>	<p>Tailored NAMA ready in line with international climate change rules and procedures</p>	<p>A NAMA for "Hydropower promotion and watershed management" had been realized in 2018 in line with climate change rules and procedures.</p>

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 21	(i) Risk level FY 22	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁴
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 60 067 444 Presidential election are scheduled in 2023 (campaigns in Q4 2022);	<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 be equipped.	<input type="checkbox"/>
3	Investment: Risk that the financial sector and investment requirements of the project are not realised.	M	M	The investment risk will be mitigated through bringing in international and local 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.	The feasibility studies are involving private sector partners in order to consolidate the appropriate business models and assess the economic viability of operating the project sites	<input type="checkbox"/>
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	Environmental impact assessments are part of the feasibility studies that are being conducted by specialized consultancy office and related questions will be closely monitored	<input type="checkbox"/>

⁴ New risk added in reporting period. Check only if applicable.

				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	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.	
6	Sanitary: Risk of delays due to COVID-19	M	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.	All activities that could have been launched at distance (desktop study, securing co-financement, elaboration of roadmap for detailed feasibility studies etc.) had been undertaken. UNDSS Madagascar sanitary recommendations had been followed carefully over 2021/2022.	<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.

As all countries, Madagascar has been highly impacted by worldwide COVID-19. In March 2020, the state of health emergency had been declared and the borders of the country had been closed drastically until November 2021. Since December 2021, borders re-opened slightly and in June 2022 the international flight numbers reached nearly 65% compared to what it used to be before the pandemic. In addition, at local level, inter-regional frontier had been closed for more than a year. Between April 2020 to June 2021 no possibility to travel from one region to another in order to limit the propagation of the virus at national level. Those precautionous decisions at local and international level has impacted the project with some delays and/or postponed activities such as:

- Low availability of counterparts because of several lockdown;
- International mission had not been possible for more than a year. For instance our International Hydropower expert did not managed to come to Madagascar for 18 months. Partners such as KfW which is not representing in Madagascar has finally managed to organize a mission in Madagascar in end of June 2022 (after two years).
- Despite most part of the project team is based in Madagascar, no local mission had been possible for a year which has implied delays on finalization of detailed feasibility studies;
- Project steering committee initially scheduled in July 2020 had also been postponed to Q2 2021 (30th of June 2021).

COVID 19 happened in early 2020 at the exact timing of finalization of detailed feasibility studies for our SHP project and right after the first approval of timing project extension. In 2021 PIR, approx. 1 year of additional delay had been estimated due to COVID 19 and a request to GEF for one additional extension had been granted in January 2022 defining a new completion date of project in April 2023. This timing extension of project will allow to finalize detailed feasibility studies (negatively impacted by COVID 19) and start construction of at least one SHP scheduled within our UNIDO/GEF project. Even though all construction of SHP projects had not started yet, co-financing had been secured in order to make sure SHP projects on which the UNIDO/GEF project initiated will be realized.

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

Two timing extensions had already been requested and granted by GEF (paragraph above). 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 two timing project extensions had been approved without any financial extension. The end of project date is now 20 April 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.
- 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;

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 two 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.

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;
→ From Q3 2022, capitalization of project will be done with major key players;
- 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
(f) 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)			
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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).

<p>Project stakeholders had been solicited and involved for all activities carried out over July 2021 / June 2022:</p> <p>Component 1: Legal Framework Main activity related to Component 1 in 2021/2022 focused on the finalization of the “in stream flow” strategic note.</p> <ul style="list-style-type: none"> • Progress: Final version of the strategic note is available since early June 2022 and has been validated by all ministries staff member of technical committee • Challenges: <ul style="list-style-type: none"> ○ Legal framework for water sector is still under revision (pending for the last 3 years); ○ Few hydrological data available; ○ Biodiversity data availability; ○ COVID-19: Workshop organization and low availability of national counterparts; ○ Private sector solicitation / survey outlined that very few SHP operator considered in stream flow within their existing project; ○ Human Resource turnover at all ministries decision level; • Outcomes: Three workshops organised with all involved ministries (Ministry of Energy, Ministry of Environment, Ministry of Water, Ministry of Meteorology), and private sector solicitation. <p>Component 2: Demonstration led by private sector</p> <ul style="list-style-type: none"> • Progress: <ul style="list-style-type: none"> ○ Finale selection of project and operators to be financially and technically supported by our UNIDO/GEF project. Selection had been jointly realized together with ADER (Rurale electrification agency) ○ Detailed feasibility studies of Mandialaza (in January 2022) and Belaoko Lokoho (in April 2022) are fully available and accepted by national counterparts and other partners (KfW, CEAS). • Challenges: <ul style="list-style-type: none"> ○ Covid 19 – impossible to organize international mission (until December 2021) and also national mission (until July 2021) delayed final version of detailed feasibility studies; ○ Lack of visibility of secured co-financing from private sector for the realization of detailed feasibility studies; ○ Low expertise of ADER with regard to Environment and Social international standards; ○ Lack of planning strategy between ADER and JIRAMA (cf Andriamanjavona Project) • Outcomes : <ul style="list-style-type: none"> ○ Co-financing in total grant of USD 600,000 secured for the realization of SHP project of Mandialaza (400 000 USD from CEAS and nearly 200 000 USD from SIER GC – local operator); ○ Detailed feasibility study for Mandialaza Project (200 kW) and associated environmental and social studies are available; ○ Draft of feasibility studies for Belaoko Lokoho (8 000 kW) and associated environmental and social studies are available; ○ Draft of feasibility study for Andriamanjavona project (400 kW) and associated environmental and social studies are at finalization stage;

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 ADER. It as facilitate preparation of detailed feasibility studies, respecting both national and international standards also for environment/social/gender dimension.

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

To be noted that last steering committee of the project was in June 2021 (already share in PIR 2021). Next Steering committee is scheduled for October/November 2022.

Since beginning of COVID 19 Quarter Report are prepared by project team which highlight consultations of other stakeholders (cf Management Knowledge paragraph).

VI. Gender Mainstreaming

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

- Whenever possible existing staff will be trained and their awareness raised regarding gender issues. Sensitization will be done for instance through workshops, trainings, etc. Considerations will be made to cooperate with regional centres or other stakeholders such as local women's associations
- Decision-making processes will consider gender dimensions and include 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. If it is not possible to nominate a gender-sensitized PSC member, an observer will be invited to attend the PSC meetings to ensure that gender dimensions are represented. Also at the level of project activity implementation, efforts will be made to consult with stakeholders focusing on gender equality and women's empowerment issues. This is especially relevant in policy review and formulation
- To the extent possible, necessary efforts will be made to promote participation of women in training activities, both at managerial and technical levels. This can include advertising of the events to women's technical associations, encouraging companies to send women employees, etc.
- When data-collection or assessments are conducted as part of project implementation, gender dimensions will be considered, particularly with reference to the impact of SHP on the livelihood of community members whether male or female. This can include sex-disaggregated data collection, performing gender analysis
- In case of awareness raising activities targeting communities, changing the medium of communication may be considered to reach the illiterate population, for example to rely more on images and radio instead of text. Additionally, to promote participation of mothers, the time of trainings should be taken into consideration as well as childcare facilities.
- This project is expected to have overall limited direct influence over gender equality and/or women's empowerment in the countries (and therefore could be 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) are expected 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 will 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) will be favourable for Madagascar by sustaining better social and economic conditions, giving employment, economic well-being and therefore gender equality.

1. Gender consideration for recruitment in FY 2022 (source of verification: contract):
 - Interns recruited within UNIDO local team over 2021/2022: 2 interns: 1 woman (electrical engineer) and 1 man (Hydraulic engineer)
 - Gender consideration for constituting the team of subcontractors:
 - Biotope – In stream flow : 5 consultants (3 men / 3 women)
 - Biotope – Environmental studies: 6 consultants (3 men / 3 women).
2. Gender consideration for PSC, workshops, conferences and training (source of verification: attendance record): Try to promote women participation in all capacity building activities even though technical

engineering capacity shows underrepresentation of women.

- Technical Committee for SHP Manual (4 technical meetings and 1 local mission): 3 women / 10 men
 - Conference on Hydropower at ESPA (University) 7th of June 2022 : participants (20 women / 52 men);
3. Gender consideration within Detailed Feasibility Studies on Energy Demand Part of all SHP project supported by UNIDO/GEF in 2022. 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.

Since 2020, Quarter reports are elaborated to follow up closely activities of the project. It summarizes on quarter basis the evolution of each component activities.

Please find below attached relevant reports over 2021/2022 :



120094_Q4-Report-2
021.docx



120094_Q1-Report-2
022.docx



120094_Q2-Report-2
022.docx

To be noted that Q3 Report 2021 had been replaced by preparation note of last project steering committee already shared in 2021 PIR.

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

Please find attached the GEF GHG Tracking tool updated to current SHP project considered:



5317_PIR_FY22_Mad
agascar_Final.xlsx

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.

Despite COVID 19 and related delayed activities (mentioned above), the project is progressing and many activities has moved forward over 2021/2022.

Please find below a summary of major accomplishments between 1 July 2021 and 30 June 2022:

Admin: A timing project extension had been approved in January 2022 – end date of project is 20 April 2023. The main purpose of this second request amendment was related to COVID 19 and would give the UNIDO/GEF project the time comfort to finalize all detailed feasibility studies and start construction of SHP initiated by UNIDO/GEF and considered under component 2.

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.

Component 2 - DEMONSTRATION LED BY PRIVATE SECTOR:

- Three SHP projects had been selected together with Rurale Electrification Agency (ADER) to be technically and financially supported by the UNIDO/GEF project:
 - Andrimanjavona 400 kW – SAVA Region
 - Belaoko Lokoho 7500 kW – SAVA Region
 - Mandialaza 200 kW – Alaotra Mangoro Region

Overview 2021/2022:

MANDIALAZA (200 kW):

Detailed feasibility studies had been finalized in November 2021 – submitted to Ministry of Energy / ADER for approval in December 2022 and approved in January 2022. Also environmental and social studies had been realized and environmental permit delivered in January 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. The construction should start in August 2022.

UNIDO/GEF will mainly support financially and technically all the electro-mechanical part of the project. ToR had been drafted and will be launch at international level in Q3 2022. Finally the UNIDO/GEF will also support financially part of the MV mini grid. 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 400.000 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

ANDRIAMANJAVONA (400 kW):

Over Q1/Q2 2022, several technical discussions about design of Andriamanjavona potential SHP, and decision made to move forward: Energy Demand: targeted areas had been reviewed (due to JIRAMA new master plan for SAVA Region, few villages initially scheduled in the area of MASAHYA had been taken by JIRAMA)

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 a run of river version for 400 kW had been preferred. This implies revision of detailed feasibility studies for the SHP as well as for the all general design related to energy production for the area of electrification of MASAHYA. Current discussion foreseen 6 PV mini grids + 1 hybride Hydro / PV minigrd. All mini grid would start to be isolated but could be interconnected over time. Finalization of Detailed feasibility studies are available in draft version since Q2 2022, final version expected for Q3 2022.

BELAOKO LOKOHO (8 000 kW)

Detailed Feasibility Studies for Belaoko Lokoho had been finalized and validated by partners over Q1 2022 (all documents available on request). Final Business plan, Marketing strategy and environmental studies are still in draft by advanced and shared with all key players in Q2 2022 (Available on request). 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 and his consultant Tractebel in Q2 2022 and forecast an increase of nearly 40% of CAPEX compared to the budget estimated in the detailed feasibility study. Thus, discussion with KfW during mission in Madagascar highlighted that the first step would be to launch the tenders in order to have as soon as possible the best offer from construction companies. Afterwards, financial solution will be given by KfW but remaining that ERER SAVA project is a top priority for KfW in Madagascar. Additional financement from KfW could be foreseen 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. Tenders had been drafted in Q2 2022 but validation and re-launch are scheduled in Q3/Q4 2022.

To be 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. UNIDO/ADER contract amendment signed in February 2022, implies support from the UNIDO/GEF project to MEH/ADER for the commodo / in commodo surveys (in view of land financial compensation from Gov. of Madagascar to local population prior to construction phase) expected for Q2/Q3 2022. 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.

Component 3: CAPACITY BUILDING AND REPLICATION:

- Two public-private platform meetings had been organized jointly with ADER, GIZ and European Union) – Digital version (due to COVID-19) – in October 2021 and May 2022;
- Guidelines for SHP projects in Madagascar had been drafted and discussed with national counterparts actors involved in SHP projects (4 technical meetings over 2021/2022) 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;
- Curricula for a Master degree on Hydroelectricity had been drafted jointly with Polytechnic School of Antananarivo and support provided to promote partnerships with ESPA (5 partners secured);
- 2 interns (one men one women) from ESPA had been recruited in April 2022;
- Atlas for SHP projects in Vatovavy and Fitovinany Regions is being finalized together with General Direction of Meteorology and ADER,

2. Please briefly elaborate on any **minor amendments⁵ 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	
<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. This in order to increase energy production potential from SHP projects.

⁵ 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%.

<input type="checkbox"/>	Others	
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3. Please provide progress related to the financial implementation of the project.

Financially, over 2021/2022 financing secured over the last 4 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 60 067 444

- 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 letter available
- ii) Co-financing from GIZ of 20,300,000 EUR on legal framework improvement and capacity buildings – cofinancing letter available;
- iii) Co financing of USD 569.444 had been secured from CEAS (Swiss NGO) for Mandialaza SHP project cofinancing letter 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 198 000 (secured)
 HIER for Belaoko Lokoho: USD 5 000 000
 MASAHYA for Andriamanjavona : USD 2 000 000

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.

Please find below the project financial delivery Report :



**PROJECT DELIVERY
REPORT**

Project:		120094 - INCREASED ENERGY ACCESS FOR PRODUCTIVE USE THROUGH SMALL HYDROPOWER DEVELOPMENT IN RURAL AREAS MADAGASCAR (MAIN PHASE)		Project Manager:	Heng Liu	Project Validity Status:	24.07.2015 - 20.04.2023 Implement
Reporting Period:	24.07.2015 - 30.06.2022	Project Theme:	Energy and Environment	Country:	Madagascar	Region	Africa
Sponsor Nr.	Sponsor	Grant	Grant Description	Fund	Currency	Grant Status	Grant Validity
400150	GEF - Global Environment Facility	2000003144	MAG - ENERGY ACCESS	GF	USD	Authority to implement	24.07.2015 - 20.04.2023

	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)
2000003144											
120094-1-01-01	Policy and Regulatory Framework	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
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	(117,71)	0.00	0.00	0.00	12 137,13	12 137,13	12 254,84	(117,71)	0.00	12 254,84
2100	Contractual Services	9 810,10	(10 500,00)	10 532,11	32,11	149 519,14	149 519,14	139 741,15	9 777,99	0.00	139 741,15
3000	Train/Fellowship/Study	7 000,00	0.00	0.00	0.00	8 978,92	8 978,92	1 978,92	7 000,00	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	(129,09)	0.00	0.00	0.00	330,77	330,77	459,86	(129,09)	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
120094-1-01-01	Total	16 563,30	(10 500,00)	10 532,11	32,11	182 829,25	182 829,25	166 298,06	16 531,19	15 798,41	182 096,47
120094-1-01-02	Technology Demonstration	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	83 899,80	24 358,73	40 108,32	64 467,05	392 805,92	392 805,92	348 987,08	43 818,84	0.00	348 987,08
1500	Local travel	24 104,28	2 160,43	1 718,73	3 879,16	65 910,41	65 910,41	40 685,29	25 225,12	0.00	40 685,29
1600	Staff Travel	(76,06)	0.00	60,22	60,22	80,20	80,20	216,48	(136,28)	0.00	216,48
1700	Nat.Consult./Staff	49 968,98	12 961,33	27 053,70	40 015,03	167 272,68	167 272,68	146 479,27	20 793,41	0.00	146 479,27
2100	Contractual Services	424 416,51	(23 710,87)	63 612,24	39 901,37	1 172 728,15	1 172 728,15	738 213,01	434 515,14	0.00	738 213,01
3000	Train/Fellowship/Study	(0,52)	0.00	0.00	0.00	930,10	930,10	930,62	(0,52)	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	2 636,22	2 636,22	0.00	0.00	2 636,22	(2 636,22)	0.00	2 636,22
4500	Equipment	(79,98)	0.00	49,56	49,56	7 739,88	7 739,88	7 869,42	(129,54)	0.00	7 869,42
5100	Other Direct Costs	11 971,96	2 890,48	4 662,71	7 553,19	21 958,28	21 958,28	15 264,51	6 693,77	0.00	15 264,51
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124 144,52	124 144,52
120094-1-01-02	Total	594 204,97	18 660,10	139 901,70	158 561,80	1 838 329,60	1 838 329,60	1 310 185,88	528 143,72	124 144,52	1 434 330,40
120094-1-01-03	Replication and Capacity Strengthened	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	(30,74)	(0,01)	9 879,58	9 879,57	208 008,67	208 008,67	217 918,98	(9 910,31)	0.00	217 918,98
1500	Local travel	27 127,17	(4 590,00)	14 336,05	9 746,05	54 727,59	54 727,59	37 346,47	17 381,12	0.00	37 346,47

1600	Staff Travel	(18,67)	0.00	0.00	0.00	0,00	0,00	18,67	(18,67)	0.00	18,67
1700	Nat.Consult./Staff	(230,47)	0.00	0.00	0.00	40 008,47	40 008,47	40 238,94	(230,47)	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	9 000,00	0.00	0.00	0.00	11 574,68	11 574,68	2 574,68	9 000,00	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	252,98	0.00	0.00	0.00	4 229,59	4 229,59	3 976,61	252,98	0.00	3 976,61
4500	Equipment	39 997,60	0.00	0.00	0.00	40 558,95	40 558,95	561,35	39 997,60	0.00	561,35
5100	Other Direct Costs	(4 967,72)	(2 287,78)	2 374,89	87,11	22 036,13	22 036,13	27 090,55	(5 054,42)	0.00	27 090,55
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55 089,08	55 089,08
120094-1-01-03	Total	71 130,15	(6 877,79)	26 590,52	19 712,73	632 423,86	632 423,86	581 006,03	51 417,83	55 089,08	636 095,11
120094-1-51-01	Management and Monitoring	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
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	300,55	0.00	0.00	0.00	19 047,46	19 047,46	18 746,91	300,55	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
120094-1-51-01	Total	300,55	0.00	0.00	0.00	164 939,06	164 939,06	164 638,51	300,55	15 640,81	180 279,32
120094-1-53-01	Mid-Term and Final Evaluations	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD

1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	34 524,30	34 524,30	9 524,30	25 000,00	0.00	9 524,30
1500	Local 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	1 457,85	1 457,85	1 457,85	0,00	0.00	1 457,85
5100	Other Direct Costs	0,41	0.00	0.00	0.00	496,08	496,08	495,67	0,41	0.00	495,67
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1 090,38	1 090,38
120094-1-53-01	Total	0,41	0.00	0.00	0.00	36 478,23	36 478,23	11 477,82	25 000,41	1 090,38	12 568,20
2000003144	Total	682 199,38	1 282,31	177 024,33	178 306,64	2 855 000,00	2 855 000,00	2 233 606,30	621 393,70	211 763,20	2 445 369,50
120094	USD Total	682 199,38	1 282,31	177 024,33	178 306,64	2 855 000,00	2 855 000,00	2 233 606,30	621 393,70	211 763,20	2 445 369,50

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.

Outputs by Project Component	2022				2023				Year 3				GEF Grant Budget Available (US\$)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Component 1 –POLICY AND REGULATORY FRAMEWORK STRENGTHENED													
Outcome 1: Outcome 1: National Low-Carbon Energy Development Plan developed and tailored initiatives to support SHP in place.													
Output 1.1: Policy framework on RE for productive use reviewed and recommendations to streamline policies/incentive schemes towards a greater use of rural-based SHP proposed.									End of Project : 20 April 2023				USD 16 531,19
Output 1.2: Standardised reference emission levels established									Already 100 % realized				0
Component 2 –PRIVATE LED SHP TECHNOLOGY DEMONSTRATION													
Outcome 2: Construction of SHP based mini-grids for productive use and income generation.													
Output 2.1: Target SHP projects fully prepared for development and co-financing									End of Project : 20 April 2023				USD 28 143, 72
Output 2.2: SHP capacity of 2 MW on preselected sites realized									End of Project : 20 April 2023				USD 500 000 USD
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													
Output 3.1: 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				0
Output 3.2: 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									End of Project : 20 April 2023				USD 51 417, 83
Output 3.3: A Nationally Appropriate Mitigation Action (NAMA) for the SHP sector developed									Already 100 % realized				0
Component 4 – MONITORING AND EVALUATION AND DISSEMINATION CARRIED OUT													
Output 4.0: Project Management													USD 300, 55
Output 4.1: Mid-term and final evaluation carried out; project's progress assessed,													USD 25 000

documented and recommended actions formulated							
Output 4.2: GHG emission reductions from the project monitored and evaluated and carbon registry for the project in place							
TOTAL (USD)							USD 621 393, 29

X. Synergies

1. Synergies achieved:

<p>GEF SGP (Small Grant Project): SHP SAVA Projects will impacts some villages already targeted by GEF SGP projects to improve raising awareness about sustainable management of protected areas. Therefore a joint mission in SAVA with GEF SGP staff occurred to improve communication strategy and further future synergies during the construction phase. In Madagascar GEF SGP is led by UNDP.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>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.</p> <p>ILO (International Labor Organization): Some discussion are ongoing with ILO to make sure construction phase of SHP projects will respect international labor standards.</p> <p>European Union through European Development Fund available for Madagascar and Infrastructure branch. Synergies with regards to quality test for pre stressed electrical concrete poles. The poles analysed by UNIDO/GEF had been installed through a UE SHP project.</p> <p>Finally with USAID, GIZ, European Union, French Development Agency (AFD), World Bank with regards to university technical trainings for students. UNIOD/GEF took the lead to initiate trainings and partners followed.</p> <p>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.</p>
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3. Stories to be shared (Optional)

No particular stories to share
