Independent mid-term review

UNITED REPUBLIC OF TANZANIA

Mini-grids based on small hydropower sources to augment rural electrification in Tanzania

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Contents

Abbreviations and acronyms

CO_2	Carbon Dioxide
CoET-UDSA	College of Engineering and Technology - University of Dar Es Salaam
DOE-VPO	Division of Environment - Vice President's Office
ENE	Energy Branch
EE	Energy Efficiency
EIA	Environmental Impact Assessment
ERP	Enterprise Resource Planning System
ET	Evaluation Team
EVA	UNIDO Office for Independent Evaluation
EU	European Union
EWURA	Energy and Water Utilities Regulatory Authority
FiT	Feed-In-Tariff
FP	Focal Point
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
IEE	Industrial Energy Efficiency
LDCs	Least Developed Countries
LoA	Letter of Agreement
MBO	Management by Objectives
M&E	Monitoring and Evaluation
MEM	Ministry of Energy and Minerals
MHP	Mini-Hydro Power
MoU	Memorandum of Understanding
MTR	Mid-term review
NGO	Non-Governmental Organization
NPM	National Project Manager
O&M	Operation and Maintenance
ODG/EVA	Office of the Director General / UNIDO Office for Independent Evaluation
PAA	Project Administrative Assistant

PC	Project Component
PD	Project Document
PIF	Project Identification Form
PIR	Project Implementation Report
PMC	Project Management Committee
PMIS	GEF Project Management Information System
PMU	Project Management Unit
PPA	Power Purchasing Agreement
PPG	Project Preparation Grant
PRSP	Poverty Reduction Strategy Paper
PSC	Project Steering Committee
PV	Photovoltaic Technology
QAE	Quality at Entry
RBM	Results Based Management
RE	Renewable Energy
REA	Rural Energy Agency
REB	Rural Energy Board
REF	Rural Energy Fund
RRE	Renewable and Rural Energy Unit
SHP	Small Hydro Power
SPPA	Standardized Power Purchase Agreement
SPPT	Standardized Power Purchase Tariff
TANESCO	Tanzania Electricity Company Limited (National Power Utility)
TBS	Tanzania Bureau of Standards
TDTC	Technology Development and Transfer Centre
TOC	Theory of Change
ToR	Terms of Reference
UDSM	University of Dar Es Salaam
UNDAF	United Nations Development Assistance Framework
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
WB	World Bank

Glossary of evaluation-related terms

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

Executive summary

This report presents the findings of the mid-term review (MTR) of the project "Mini-grids based on small hydropower sources to augment rural electrification in Tanzania" (herein referred to as "Project"), implemented by the United Nations Industrial Development Organization (UNIDO) with financing grant provided by the Global Environment Facility (GEF).

An evaluation team of two experts, international evaluation consultant Ms. Iva Bernhardt, and national evaluation consultant Ms. Gisela Ngoo conducted the mid-term review

in the period of December 2014 to February 2015. The review included interviews at UNIDO HQ in Vienna and in the United Republic of Tanzania. The review field mission included visits to two of the seven demonstration project sites of the mini hydro-power projects, namely a field visit to the Andoya Hydro-Electric Power Company and to Kiliflora Company Limited.

The overall project objective is to promote micro / mini hydro-power based mini grids in Tanzania to augment rural electrification.

The objective of the MTR is to assess to what extent the project is achieving the expected results at the time of the mid-term review, i.e. to what extent the project is achieving the expected results at the time of the mid-term review, i.e. to what extent the project has promoted micro / mini hydro-power based mini grids in Tanzania to augment rural electrification.

The review covers the period from March 2012 to January 2015. The project is expected to be extended until December 2017.

Key findings

Design. The project design is rated as **HIGHLY SATISFACTORY**, with its strongest side being strong participation of local stakeholders in project identification. The Project Logical Framework and target indicators were well and adequately developed, and the Specific, Measurable, Achievable, Relevant and Time-bound (SMART) targets allowed proper adaptive management and monitoring of project results.

Relevance. Based on the assessment of full project relevance to local and national energy priorities, policies and strategy of the Government of the United Republic of Tanzania, to GEF's strategic priorities and objectives, and to the GEF focal area of climate change and SP3 - Promoting market approaches to renewable energy, and to UNIDO's mandate, overall project relevance is considered to be **HIGHLY SATISFACTORY**.

Effectiveness. Project effectiveness at time of the mid-term review is rated **as HIGHLY SATISFACTORY** in the light of excellent project implementation course to date, and the tangible results of delivered planned activities/inputs and overreaching of project objectives. Main outputs achieved by the time of the MTR are: Center for Small Hydropower in Tanzania was established and inaugurated in October 2015 at CoET UDSM; study tour for technology transfer and training in turbines manufacturing was conducted in Indonesia in May 2014, where seven institutions were trained and received a license for technology transfer for manufacturing of T15 Crossflow Turbines from ENTEC (one produced turbine by the local Tanzanian trainees

will be installed on one demonstration project site); Feed-In-Tariff for RE sources still in draft and preparation – to be done by March 2015; New updated National Energy Policy (Update of the policy of 2003) will include all RE sources (responsibility of MEM) is being drafted and will be published on MEM‘s website upon commenting of stakeholders; total of 45 projects have been assisted with project preparations stages, and 5 have been actually implemented.; various training courses on Small-Scale Hydro Power Project Development and technical design aspects of SHP performed; two demonstration projects (1MW and 230 KW) in the end-phase of construction; procured equipment for five (5) sites with total capacity of 1.331MW has arrived in Dar Es Salaam.

Efficiency. The mid-term review has concluded that all efforts were undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by PMU and national project partners REA, MEM, VPO-DoE, CoET-UDSM and TANESCO . Even more, the fact that at the time of the mid-term review 51 percent of the co-financing has materialized with US$5,000,322 from the planned US$9,778,500. However, the only minor shortcoming the cost-effectiveness might be affected by the fact that the project implementation will be delayed, even though there was no violation of the financial framework to date. Reviewing the final results from project management and financial management at time of the mid-tem review, the project efficiency is rated **SATISFACTORY (S).**

Sustainability. The overall sustainability rating for this Project at the time of the mid-term review is **LIKELY (L),** which means that there are no risks that affect the dimension of project sustainability. No financial, socio-political, institutional framework and governance, and environmental (ecological) risks are known.

M&E. For all these reasons the **implementation of M&E and use for adaptive management is rated SATISFACTORY (S)**. It is noted that the PM and PMU prepared all necessary reports that provide exhaustive aspects of the periodical achievements of the project with narrative link back to the outcomes elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from IA by writing exhaustive Annual Project Implementation Reviews, however the work plan was not updated accordingly. Both National Project Manager (NPM) from PMU and PM from IA performed oversight of the main activities especially in the phases of implementation and installation of the demonstration projects, and trainings on renewable energy. Proper Monitoring and Evaluation and regular update of the work plan could have minimized the project delay of the project through timely update of the work plan.

Project management has been successfully carried out by the UNIDO Project Manager and Project Management Office (PMU) led by the National Project Manager (NPM) in the United Republic of Tanzania. The rating for Project Coordination and Management is **HIGHLY SATISFACTORY.**

Key conclusions

This project is an example for successful project implementation by being a major pioneer in providing a market environment for internal and external investors that stimulates investments in more and more popular technology of mini grids based on small hydropower sources to

augment rural electrification and therewith cause productive use and support the local energy industry in Tanzania with its seven demonstration project sites with total capacity of 3.331 MW. With the decision of Madope Mini hydropower project to augment the capacity from 1 MW to 1.7 MW, the total capacity built in Tanzania through this project will increase from the planned 3.2 MW to 4.001 MW.

The project is fully relevant to UNIDO by promoting green and clean renewable energy technology, and to the national energy priorities, policies and strategy of the Government of the Tanzania, as well as to the GEF focal area of climate change and SP3 - Promoting market approaches to renewable energy.

The private sector and industries are fully supported by the Government of Tanzania through REA (especially through the Rural Energy Fund) and MEM which are about to pass a new National Energy Policy explicitly considering RE sources, and the new Feed-In-Tariff for RE sources.

The project has facilitated capacity building programme for various groups of stakeholders including individual practising engineers, water basin authorities and academia. Capacity of private institutions has been developed to fabricate micro hydro turbines locally (one turbine produced by local fabricators will be located at the Salala demonstration project), this achievement is expected to widely promote quality installations of micro hydro systems in the country.

At its mid-term, the project implementation has been satisfactory with implementation of major project outputs in line with the project implementation plan. The project has been introduced to the stakeholders who have been very supportive and enthusiastic in engaging on mini hydropower projects in Tanzania, since the project inception in 2012, mini hydropower technology has been a top agenda and the most popular technology with much interests from various internal and external investors. The Rural Energy Agency and other government institutions have also dedicating efforts to the development of mini hydropower projects as one of the key technology expected to make the country achieve its energy development agenda of reaching at least 30% from the current 20% of the electrification rate by 2015 countrywide. The project has facilitated capacity building programme for various groups of stakeholders including individual practising engineers, water basin authorities and academia. Capacity of private institutions has been developed to fabricate micro hydro turbines locally, this achievement is expected to widely promote quality installations of micro hydro systems in the country. Mini hydropower technology centre will serve as a one-stop shop for all issues related to small/mini scale hydropower development in Tanzania. All these achievements have led to the overall project implementation progress to be rated Highly Satisfactory.

Project ratings

Based on the review, the evaluation team has rated the Project with an overall rating of Highly Satisfactory (HS). The summary evaluation of the Project is given in the table below.

Table 1. Summary of project rating and overall ratings table

Criterion	Evaluator's Rating
Attainment of project objectives and results (overall rating) Sub criteria (below)	**HS**
Design	**HS**
Effectiveness	**HS**
Relevance	**HS**
Efficiency	**S**
Sustainability of Project outcomes (overall rating) Sub criteria (below)	**L**
Financial risks	**L**
Sociopolitical risks	**L**
Institutional framework and governance risks	**L**
Environmental risks	**L**
Monitoring and Evaluation (overall rating) Sub criteria (below)	**HS**
M&E Design	**HS**
M&E Plan Implementation (use for adaptive management)	**S**
Budgeting and Funding for M&E activities	**HS**
Project Management	**HS**
UNIDO specific ratings	**HS**
Quality at entry / Preparation and readiness	**S**
Implementation approach	**HS**
UNIDO Supervision and backstopping	**HS**
Overall Rating	**HS**

Key recommendations

Based on the review and findings of this report, the evaluation team prepared several recommendations that can contribute to the achievement of the Project outcomes and outputs and the overall project objective to develop and promote a market environment for investments in mini-grids based on small hydropower sources to augment rural electrification in the United Republic of Tanzania. The recommendation will be separated according to the designees into: recommendations to the Government of the United Republic of Tanzania and Project Management Office (PMU) and recommendations to UNIDO.

Recommendations to the Government of the United Republic of Tanzania and PMU:

1. PMU should include gender mainstreaming as part of the reporting for specific project (example mentioning that out of three Master Students receiving a scholarship from this project two are women).
2. PMU and UNIDO, Center for Small Hydropower Center in Tanzania at CoET UDSM, Tanzania Bureau of Standards, REA and TANESCO should prepare a feasible and sustainable business model for investments in small hydropower projects. REA should take the lead in setting the criteria for any detailed small hydropower investment for <10 MW in terms of security of installation based on best International practices (Example Alternate Hydro Center at IIT Rorkee, India).
3. The Government of Tanzania (EWURA, MEM and REA) should carry-out raising of wider public awareness programs for the new Feed-In-Tariff for Renewable Energy after its completion and passing.
4. The Center for Small Hydropower at CoET UDSM should seek support from REA and other sources post project duration, in case additional funding in order to secure its sustainability is needed.
5. REA, with support from UNIDO should prepare a small communication kit in form of a video and/or mini brochure for demonstrating the effects of mini hydro power as RE sources for direct poverty reduction through rural electrification and productive uses in the rural areas of Tanzania.
6. The East African Centre for Renewable Energy and Energy Efficiency (EACREEE) and the Center for Small Hydropower in Tanzania at CoET UDSM should collaborate together once EACREEE has been established in order to facilitate regional acting of the Center, in order to use the expertise of the Tanzanian Center in Small Hydro Power. It is recommended to formalize their relationship in form of MoU or similar.

Recommendations to UNIDO

1. UNIDO procurement should facilitate the improvement of communication between supplier and investor, i.e. specifications for supplied equipment should be sent in advance of starting the projects, so that investors can prepare the construction works on time. Optimal will be that these specifications must be a requirement of the ToR with the supplier.

2. UNIDO should implement shorter lead time from GEF CEO endorsement to actual start of project implementation or project inception phase as a request from the Government of Tanzania.
3. UNIDO and PMU should introduce a detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments, which will be updated periodically.
4. UNIDO and PMU should introduce a system for the demonstration project partners to share the periodical progress reports that they are obliged to submit to EWURA.

Main lessons learned

The initiative of Andoya of buying electricity from TANESCO and connecting people at a much cheaper price that they pay for the electricity from the diesel and kerosene generators in the surrounding villages in order to acustome people to electricity before start of working of the SHP can be replicated as a best practice. Another best practice in this project was the introduction of the Masters Program in Renewable Energy with specialization in Hydro Power at the CoET UDSM.

Timely disbursement of funds to project activities is vital in making project implementation successful and avoiding project delays.

Implementation of activities may be halted/delayed due to multi-dimensional aspects of different stakeholders involved, such issues like different timelines and institutional procedures can affect timely execution of project activities.

Involvement of stakeholders from the inception phase and conducting due diligence of project stakeholders during the project initiation is important, especially in order to understand the needs of the project developers, and to ensure and create a sense of ownership of the project.

1. Country and project background

1.1. Country background

1.1.1. Geographical coverage and Population

The United Republic of Tanzania (URT) is located in East Africa bordering the Indian Ocean to the East, Mozambique, Malawi and Zambia to the South, Democratic Republic of Congo, Rwanda and Burundi to the west and Uganda and Kenya to the North. The country covers total area of 945,087 Km^2 and consists of two main islands of Unguja and Pemba and a number of small islands. The two main islands are known as Zanzibar with total surface area of 2,654 sq.km i.e. Unguja, the larger of the two islands with an area of 1,666 sq.km while Pemba has an area of 988 sq.km.

The 2012 National Population Census shows that the United Republic of Tanzania has total population of 44.9 million people (43,625,354 million people in Tanzania mainland and Zanzibar 1,303,569 people) with the growth rate of 2.7 percent. Of the total population female constitute 51% while male constitute 49% and majority of population (75 percent) live in rural areas.

On average, Tanzania is sparsely populated with population density of 51 persons per square kilometer; lower significant variation exists across regions. Mainland population density is 49, while population density in Zanzibar stands at 530 and the average household size is 4.8 persons per household.

1.1.2. Recent socio-political developments

Since her independence in 1961, Tanzania has maintained its political stability and is considered a unique case of political stability in the conflict-driven region of East Africa. Its stability is a feature not only of its internal affairs but also of its relations with its neighbours.

Tanzania is a multiparty country, though the ruling party has been in power since independence. This year 2015, Tanzanians will go to their fourth multiparty general elections.

1.2. Economic and political overview

1.2.1. Economy

Tanzania has registered significant progress over the past two decades to achieve and maintain macroeconomic stability and has become one of the best economic performers in Sub-Saharan Africa. According to Bank of Tanzania, economic growth has been about 7 percent since 2000, and the annual GDP per capita was about- US$560 in 2011. Sound macroeconomic policies, market-oriented reforms, and debt relief are among the factors ensured a positive environment for Tanzania's steady economic growth.

The economy of Tanzania depends heavily on the service sector, including tourism. It accounts for nearly half the GDP. Agriculture accounts for 24.6 percent of the GDP and employs two thirds of the work force. Recently, the government has increased spending in agriculture by 7% of its annual budget but still export of such crops as cotton, tobacco, sisal has decreased by 30%. Other key growth sectors are construction, manufacturing and mining.

However, despite of this high economic growth, the percentage of Tanzanians living below the national poverty line (below 1 USD) has remained 36% of the total population and Tanzania is ranked 159th out of 175 countries on the Human Development Index [HDI] by the United Nations which means poverty is still overwhelming.

1.2.2. Energy

Tanzania is gifted with diverse energy sources, these include biomass, hydro, uranium, natural gas, coal, geothermal, solar and wind. The current primary energy supply includes biomass (90%); petroleum products (8%); electricity (1.5%), and the remaining (0.5%) is contributed by coal and other renewable energy sources. More than 80% of energy delivered from biomass is consumed in rural areas. The importation of oil costs about 25% to 35% of the nation's foreign currency earnings.

Tanzania's has total installed electricity generation capacity of 1,583 MW mainly from hydro 561 MW (35 percent), natural gas power plants of 527 MW (34 percent) and liquid(diesel) fuel power plants of 495 MW (31 percent). During the power crisis Tanzania also imports electricity from Uganda, Zambia and Kenya. For instance the drought that occurred in 2010 made the country to import 10 MW from Uganda, 5 MW from Zambia and 1MW from Kenya.

According to Ministry of Energy and Minerals SREP 2013, the per capita electricity consumption is under 100 kWh per year—20 times less than the world average annual consumption and more than 5 times less than that for Sub-Saharan Africa developing countries. Only about 18.4 percent of the country's population has access to grid electricity. Some obtain access through stand-alone solar photovoltaic (PV) systems and mini-hydro grids operated by local nongovernmental organisations (NGOs) and faith-based groups. The first few privately-run mini and micro grids have emerged recently in response to the enabling financing and regulatory framework that the government has put in place.

Demand for electricity is on average growing between 10 percent and 15 percent per annum. To achieve the desired socio-economic transformation, Tanzania aims to increase connection levels to 30 percent by 2015, 50 percent by 2025 and more than 75 percent by 2033. This requires significant investment in generation, transmission and distribution systems.

1.2.3. Transport

Transport in Tanzania includes road, air, rail, and water networks. The road network is relatively well developed and for main roads connecting regions and other neighbouring countries are tarmac. Most roads are passable throughout the year. Commuter rail service is in Dar es Salaam only. There are 28 airports, with Julius Nyerere International being the largest and the busiest.

1.2.4. Government

Tanzania became the United Republic of Tanzania in 1964 when the two governments Tanganyika and Zanzibar merged to one country.

The constitution was enacted in 1977; stipulating structures of the national government along with its powers and functions. Constitutionally, the Government of the United Republic and the

Revolutionary Government of Zanzibar are vested with judicial, executive, legislative and supervisory powers over the conduct of the public affairs.

Tanzania is in the process of reviewing the constitution and draft was completed in June 2013, expected to be final in April this year 2015 before the national election in October 2015.

The official capital of Tanzania is Dodoma, which is located 309 km west of Dar es Salaam. Dar es Salaam is the country's commercial capital and is also the major seaport for the county's serving its landlocked neighbors. Other big urban centres include Arusha, Moshi, Tanga, Mwanza, Morogoro, Mbeya, Iringa, Tabora, Kigoma, Shinyanga and Zanzibar. Administratively, Tanzania has 26 regions, 21 regions in mainland and 5 in Zanzibar.

1.3. Policy and legal framework

1.3.1. Investment climate

Several measures including energy sector reforms have been taken by the Government of Tanzania (GoT) in order to attract investment for increased electricity supply that will meet growing electricity demand. The aim was among others to create a legal and regulatory framework conducive for feasible business.

For instance, the GoT offers special incentives to investors through the Tanzania Investment Centre (TIC), which was established under the Tanzania Investment Act 1997. TIC's mandate includes investment facilitation and promotion, and it is authorised to assist investors to obtain necessary permits, licences, approvals, registration and other matters required. TIC has the authority to grant a project company Strategic Investor Status, where the project company is investing in a priority sector of which energy sector is inclusive. Such incentives include a range of tax benefits, an unrestricted right to repatriate profits and dividends attributable to the investment, protection against nationalization and a right of access to court or arbitration for the determination of the investor's interests and the amount of compensation to which it is entitled.

The 2008 Electricity Act exempt private investor undertaking generation, transmission and distribution activities in rural areas not exceeding 1MW from obtaining a license. This means the investor is not obliged to pay for license fee but rather to provide progress of investment to EWURA.

In addition, for Small Power Producers, EWURA has use a system of regulations, standardized contracts and avoided cost-based non-negotiable tariffs pertaining to private small (under 10 MW) renewable energy power projects to supply TANESCO grid as well as to enable these entities to supply electricity to isolated rural communities directly. EWURA issued Standardized Power Purchase Agreements (SPPA), Small Power Producer (SPP) tariff methodology and tariffs, interconnection guidelines and SPP implementation rules. These enable private entities to invest in renewable power projects for both grid-connected projects and isolated grids. Consequently, nine SPPAs have already been concluded with TANESCO, thus paving the way for further development of rural and small renewable energy generation projects. The SPP tariffs are updated annually, based on TANESCO's avoided cost.

1.3.2. Recent economic development plans

Tanzania is implementing the third short-term (2010 – 2015) series of poverty reduction strategies known as the National Strategy for Growth and Reduction of Poverty (NSGRP II), in Kiswahili "MKUKUTA II". This strategy builds on NSGRP I (2005) and on the Poverty Reduction Strategy Paper of 2000, and is consistent with the aspirations of the Development Vision 2025 developed in 1999. The NSGRP (2010) is MDG-based and has adopted an outcome/results orientation. Under these strategies energy was not among the priority sectors.

In 2013, The Government Tanzania embarked on implementation of 'Big Results, Now' initiative (BRN) to facilitate the achievement of Tanzania's Development Vision 2025 by focusing government efforts on accelerating the attainment of results in six priority areas, namely; i) Energy and natural gas, (ii) Agriculture (iii) Water, (iv) Education (v). Transport (vi) Mobilization of resources.

The BRN put key emphasis on leveraging private sector investment through Private Public Partnerships (PPPs). Under this initiative the ministry of Energy launched two schemes. Firstly, the Power Africa initiative of US$ 7 billion, which will benefit Tanzania and other several Sub Saharan African countries and; Secondly, the Energy Delivery Lab a working group made up of key public and private sector stakeholders. This was launched by Ministry of Energy and Mineral to achieve Big Results Now. The Energy Delivery lab has three-pronged focus as follows:

- Delivering more out of existing assets and phasing out EPP's (Emergency Power Producers);
- Delivering generation, transmission and distribution projects by focusing on execution - prioritizing seven generation projects to deliver 1,310MW in the next three years and seven transmission projects to evacuate power from the new generating plants; and
- Making changes for energy sector financially viable, creating and publishing a roadmap for sector reform and gradually restructuring the national utility (TANESCO).

1.3.3. General renewable energy regulating framework

The important policies, legislation governing the energy and renewable energy sectors in Tanzania include the following:

National Energy Policy, 2003 currently under review: The 2003 energy policy is being reviewed to include all subsector policies. The draft was about to be published in the national website for comment during the mid-term review. Currently the old 2003 policy outlines national broad and specific objectives and remains in power until the newly revised policy is passed. The 2003 policy broad objective is to ensure availability of reliable and affordable energy supplies and use it in a national and sustainable manner in order to support national development goals. Specific objectives includes: (i) enhance the development and utilization of indigenous and renewable energy sources and technologies; (ii) adequately take into account environmental considerations for all energy activities, and (iii) increase energy efficiency and conservation in all sectors. The main elements of the policy are: The development of domestic energy sources, economic energy pricing, encouragement of private sector participation in the energy market, and enhancement of energy efficiency and energy reliability.

Energy and Water Utilities Authority Act 2001 and 2006 were publicized to establish a regulatory authority – Energy and Water Utilities Regulatory Authority (EWURA). The Authority was

empowered to: promote effective competition and economic efficiency; protect the interests of consumers; protect the financial viability of efficient suppliers; promote the availability of regulated services to all consumers including low income, rural and disadvantaged consumers; and enhance public knowledge, awareness and understanding of the regulated sectors

Rural Energy Act 2005 established the Rural Energy Board, Fund and Agency. It is responsible for promotion of improved access to modern energy services in the rural areas of Mainland Tanzania and through the Rural Energy Fund to provide grants to TANESCO for rural grid distribution investments, and to developers of rural energy projects and for related and consequential matters.

Electricity Act 2008: The Electricity Act established a general framework for the powers of the Ministry of Energy and Minerals and EWURA. It defined key parameters for EWURA's tariff setting criteria and procedures, EWURA's criteria for awarding provisional and permanent licenses, EWURA's monitoring and enforcement activities, a requirement for ministerial plans and strategies for rural electrification, dispute resolution procedures and a process for determining possible future reorganization of the electricity sector.

Public Private Partnership (PPP) Act No. 18 of 2010: The Act sets out the responsibilities and obligations of the parties, penalties, remedies, financial management and control requirements, assistance available from public party, and dispute resolution, It established a PPP Coordination Unit within the Tanzania Investment Centre and a PPP Unit in the Ministry of Finance.

Environmental and land policy and legislation influencing renewable energy development include the following: Environmental Management Act, 2004; National Land Policy, Ministry of Lands and Human Settlements Development, 1997; National Environmental Policy 1997.

1.3.4. Renewable energy market barriers (licensing)

The energy market in Tanzania is controlled by the Ministry of Energy and Minerals and regulated by the Energy and Water Authority (EWURA). EWURA awards licences to entities seeking to undertake a licensed electricity activity under the Electricity Act 2008, approves and enforces tariffs and fees of licensees, and approves terms and conditions of electricity supply (including power purchase agreements (PPAs)). EWURA is generally required to consult with the MEM minister who has wide powers in relation to the overall supervision of the power sector. Activities related to the production, transmission and supply of electric energy above 1MW in Tanzania are carried out subject to obtaining the relevant license.

There several market barriers related to regulatory and institutional issues as outlined in the SREP document of 2013. Among the barriers include complex and unclear processes for land use decisions, water rights namely poor catchment management and water use conflicts, environmental regulations (including the role of the designated national authority in supporting the CDM process and EIA licensing), physical infrastructure planning, public private partnerships, taxation regimes and business licensing. Experiences show that the issuance of water and land licenses can take up to 2.5 years; the EIA up to 1.5 years - which too long for investment to take-off.

In addition, import duties related to RE are not clearly defined and clearances are often delayed. Another crucial issue is related to limited financing options coupled by the prevailing offtaker

risk. As the small power producers (SPP) are generally smaller companies with loan repayment obligations, delay in payment which may take up to 5 months is critical. On the other hand New SPPs are having difficulties in reaching financial closure. Commercial banks may hesitate in providing long-term financing due to “Tanesco-risk”

The government agencies and regulators are already taking commendable steps towards addressing most of these issues although more needs to be done especially in demystifying the regulatory framework from the developers’ perspectives.

1.4. Policy and legal framework

Some of policy documents and plans for renewable energies exist in the country Rural Energy Master Plan - under process

- The Energy Master Plan (2009) is now being updated by TANESCO, and should be subject to annual review.
- The Energy Policy (2003): under review
- The Scaling-up Renewable Energy Investment plan, May 2013

1.4.1. Renewable energy policy and framework

The National Energy policy 2003 gives clear indication of need to enhance development and utilization of indigenous and renewable energy sources and technologies. The policy outlines four policy statements to promote renewable energy as follows: (i) Introduce appropriate rural energy development, financial, legal and administrative institutions; (ii) Establish norms, codes of practice, guidelines and standards for renewable energy technologies, to facilitate the creation of an enabling environment for sustainable development of renewable energy sources; (iii) Ensure inclusion of environmental considerations in all renewable energy planning and implementation, and enhance co-operation with other relevant stakeholders and ;(iv) Support research and development in renewable energy technologies. However, this policy lack strategies and laws to govern its successful implementation and instead most of the programmes/projects are ad hock and donor driven.

In May 2013, the government of Tanzania prepared a Scaling-Up Renewable Energy Programme (SREP) investment plan that will guide future investment in renewable energy. This was prepared because Tanzania was selected to be among the sub-Saharan countries to implement the Scaling-Up Renewable Energy Programme (SREP) in Low Income Countries operating under the Strategic Climate Fund, part of the Climate Investment Funds (CIF). The SREP Investment Plan, aim to catalyse the large-scale development of renewable energy to transform the country’s energy sector from one that is increasingly dependent on fossil fuels to one that is more balanced and diversified, with a greater share of renewable energy sources.

The 2005, Rural Energy Act, grant provision for Rural Energy Funds under Rural Energy Agency to provide investments in innovative pilot and demonstration projects and applications for RE energy when development partners make special purpose funds available for that purpose.

1.4.2. Energy efficiency policy and framework

Energy efficiency and conservation is being promoted by the Government of Tanzania and the MEM has an energy efficiency working group that works on labels, standards, course of practice with a focus on electrical equipment and improving the grid system. However, there no clear legal framework for promotion of energy efficiency in the country. Literature on how energy efficiency is being implemented was not readily available for review.

1.5. Project overview

The project was initiated by UNIDO and the Government of the United Republic of Tanzania as part of Tanzania's efforts towards introducing mini-grids based small hydropower sources in order to augment rural electrification. It was designed as a four-year full-size project (FSP) as part of the GEF-4 replenishment cycle. The Project Preparatory Grant (PPG) was approved by GEF in January 2010 and endorsed by GEF Chief Executive Officer (CEO) in November 2011. The Project was officially launched in March 2012. An overview of the Project is given in form of a Project Fact sheet in Table 2.

UNIDO, with a funding grant from GEF, is the Implementing Agency (IA) for the project "Mini-grids based on small hydropower sources to augment rural electrification in Tanzania", with the main objective being "to promote micro / mini hydro-power based mini grids in Tanzania to augment rural electrification".

Table 2. Project Fact sheet

General Information	**Project Title**	**Mini-grids based on small hydropower sources to augment rural electrification in Tanzania**
	GEF ID	**4004**
	UNIDO ID (SAP Grant Number)	**100261**
	Region	**Africa**
	Country(ies)	**United Republic of Tanzania**
	GEF Focal Area(s)	**Climate Change**
	Implementing Agency(ies)	**UNIDO**
	Project Executing Partners	**Ministry of Energy and Minerals, Division of Environment – Vice Presidents Office,** **Rural Energy Agency, Tanzania Electric Supply Company Ltd., College of Engineering and Technology - University of Dar es Salaam and Private sector enterprises**
	Project Size (FSP, MSP, EA)	**FSP**
Milestone Dates	**Project CEO Endorsement/Approval Date**	**07 November 2011**
	Project Implementation Start Date (PAD Issuance Date)	**March 2012**
	Original Expected Implementation End Date **(indicated in CEO**	**31 May 2015**

	Endorsement/Approval document)	
	Revised Expected Implementation End Date (if any)	**March 2016**
Funding	**GEF Grant (USD)**	**US$ 3,350,000**
	GEF PPG (USD) (if any)	**US$ 60,000**
	Total GEF Grant Disbursements at the time of MTR (USD) **Total Expenditures = Commitments + Payments)**	**US$ 2,044,106.91**
	Co-financing (USD) at CEO Endorsement	**US$ 9,778,500**
	Materialized Co-financing at the time of MTR (USD):	**US$ 5,000,322**
	Total Project Cost (USD) **(GEF Grant + Co-financing at CEO Endorsement)**	**US$ 13,128,500**
Evaluations	**Mid-term Review Date**	**January 2015**
	Planned Terminal Evaluation Date	**March 2016**

Based on interviews with stakeholders, the project was identified and developed, in a highly participatory manner, with relevant national institutions and private sector actors involved in renewable energy in Tanzania.

Deadlines and milestones

The information on the main project dates and milestones is shown in Table 3:

Table 3. Milestones and main dates for the GEF-4 RE project in Tanzania

Milestone	Expected Date	Actual Date
Project CEO Endorsement/Approval Date	April 2011	November 2011
Project Implementation Start Date (PAD Issuance Date)	November 2011	March 2012
Original Expected Implementation End Date (indicated in CEO Endorsement/Approval document)	May 2014	May 2015
Revised Expected Implementation End Date (if any)	December 2017	

Milestone	Expected Date	Actual Date
Mid-term review completion	June 2013	January 2015
Terminal Evaluation Date	December 2017	

According to the Project Manager (PM), the project will be extended for nine months. Original expected implementation end date was May 2015, but has been revised to December 2017. As a result of the delayed GEF CEO Endorsement by seven months, the project will be extended to finish the exactly full-size project duration of four years to December 2017, starting to count from the Project Implementation Start date in March 2012. Altogether, the project is achieving its targets by the time of the mid-term review.

Project stakeholders

According to multiple sources involved in the project design phase, a wide range of stakeholders were consulted during the project design. The table 4 below lists the main stakeholders, showing in detail their role in project preparation and implementation.

Table 4. Project stakeholders

Project Stakeholders
Government of the United Republic of Tanzania
PROJECT EXECUTING PARTNERS **Ministry of Energy and Minerals (MEM) of Tanzania**
NATIONAL EXECUTING AGENCY / COUNTERPART **Rural Energy Agency (REA) of Tanzania**
NATIONAL EXECUTING AGENCY / COUNTERPART **Division of Environment – Vice Presidents Office (DoE-VPO)**
NATIONAL EXECUTING AGENCY / COUNTERPART / CO-FUNDER **Tanzania Electric Supply Company Ltd. (TANESCO)**
NATIONAL EXECUTING AGENCY / COUNTERPART / CO-FUNDER **College of Engineering and Technology - University of Dar es Salaam (CoET-UDSA)**
IMPLEMENTING AGENCY **UNIDO**
NATIONAL COUNTERPART / CO-FUNDER **Andoya Hydro Electric Power Company**
NATIONAL COUNTERPART / CO-FUNDER **Behindertenhilfe Neckar-Alb**
NATIONAL COUNTERPART / CO-FUNDER **Kiliflora Company Limited**
NATIONAL COUNTERPART / CO-FUNDER **Tandala Diaconial Center**
NATIONAL COUNTERPART / CO-FUNDER **St. Gertrud Imiliwaha Sister Convent**
NATIONAL COUNTERPART / CO-FUNDER **ELCT Ludilu Parish**

NATIONAL COUNTERPART / CO-FUNDER **Imalinyi Village Cooperative**
NATIONAL COUNTERPART **Energy and Water Utilities Regulatory Authority (EWURA)**
NATIONAL COUNTERPART **Tanzania Bureau of Standards (TBS)**
GEF FOCAL POINT
Private sector dealing with Renewable Energy in Tanzania
Energy professionals and service providers
Training institutions
Rural energy users
Potential energy generators (managers, developers and engineers)

It should be noted that the number of companies that have co-financed the project increased compared to the ones that were mentioned in the project document. The additional companies are: Kiliflora Company Limited, Tandala Diaconial Center, St. Gertrud Imiliwaha Sister Convent, ELCT Ludilu Parish, and Imalinyi Village Cooperative. Additionally, the Andoya Hydroelectric Power Company has increased the co-financing from the planned US$ 2.5 million in the Project Document to US$ 3.7 million in total for the time being. However, as the whole construction phase for the turbines has not finished yet, the exact amount of the Andoya Hydroelectric Power Company co-financing will be able to be stated at the time of the Terminal Evaluation once the project has been completed. Details on the financing and co-financing will be elaborated in the Efficiency chapter.

Project implementation arrangements

UNIDO is responsible for implementing the project, the delivery of the planned outputs and achievement of the expected outcomes. UNIDO is executing the project in collaboration with the concerned Government Ministries: Ministry of Energy and Minerals, Rural Energy Agency and Vice President's Office-Division of Environment, and the stakeholders: Tanzania Electric Supply Company Ltd., College of Engineering and Technology - University of Dar es Salaam and Private sector enterprises.

UNIDO is the GEF Executing Agency for this project. UNIDO is providing assistance in the procurement process for required equipment, in the selection of national and international consultants as well as the subcontractors in accordance with the operational rules and regulations.

UNIDO is also providing assistance on formal GEF procedures that applies to the project execution, including reporting issues and formal channel of correspondence between the project and the GEF secretariat. GEF specialist is providing technical backstopping to the project as deemed necessary.

UNIDO is responsible for:

- The general management and monitoring of the project;
- Reporting on the project performance to GEF;
- Procuring the international expertise needed for delivering the planned outputs under the four project components;
- Designating the national consultant and the programme officer who will be the focal point of the project;
- Coordinating with the project steering committee to review the project every 2 months during the project implementation period;
- Providing administrative support and financial budgetary follow up required for the execution of the project;
- Annual auditing of the project by following GEF procedures;
- Managing, supervising and monitoring the work of the international teams and ensuring that the deliverables are technically sound and consistent with the project requirements.

Rural Energy Agency (REA) is responsible for:

- Constructing the various demonstration sites
- Establishing the national micro / mini hydro technical centre
- Streamlining financing options for micro / mini hydro projects

College of Engineering and Technology (CoET) is responsible for:

- Providing staff support for the national micro / mini hydro technical centre
- Preparing the various training materials targeting different stakeholders
- Building human and institutional capacity in micro / mini hydro, by conducting suitable trainings

Ministry of Energy and Minerals (MEM) is responsible for:

- Providing additional institutional support for the recommendations on FiT for RE projects including micro / mini hydro projects.

Tanzania Electricity Company Limited (TANESCO) is responsible for:

- Publishing the adapted guidelines for micro / mini hydro installation and management.

A Project Management Unit (PMU) has been established within Rural Electrification Agency (REA). The PMU consist of a Project Manager (PM) and the Project Administrative Assistant (PAA). The responsibilities of PMU are as follows:

- Coordination of all project activities carried out by the national experts and other partners by having close association with MEM and CoET;
- Day-to-day management, monitoring and evaluation of project activities as per planned project work;
- Organization of the various seminars and trainings to be carried out under Project Components 2 and 4.

Since the implementation of the project, the PMU has received the necessary management and monitoring support from UNIDO and the monetary support from GEF and counterparts.

A Project Steering Committee (PSC) has been established. This committee has being reviewing progress of project implementation, to facilitate co-ordination among project shareholders and to maintain transparency in ensuring ownership and to provide support for the sustainability of the project.

The PSC is responsible for:

- Guiding the project development strategically in line with the country needs and priorities
- Promoting the partnership among energy stakeholders
- Reviewing the project progress reports

The PSC has a balanced representation from key stakeholders including MEM, which is responsible for policy formulation and execution of energy related matters in Tanzania, REA, which is responsible for promoting rural energy in the country and TANESCO, which is the national power utility and the major electricity generation and distribution company in the country and Division of Environment - Vice President's Office (VPO-DoE), which is the GEF focal point in the country. UNIDO and the CoET, USDM are responsible for facilitating the capacity building activities. The committee is chaired by the GEF Focal point (Operations) and meets twice a year.

A detailed work plan for the entire duration of the project has been developed by UNIDO in collaboration with the PMU, Tanzanian Governments and international teams of experts. The working plan is used as management and monitoring tool by PMU and UNIDO and it is to be reviewed and updated appropriately on a biannual basis.

REA will be the core counterpart in executing the proposed project and will be responsible for carrying out and completing it. REA and MEM, as co-partners will be responsible for:

- Providing in-kind contribution to the project coordination and administrative issues
- Assisting with office space to accommodate the project coordination personnel and giving him/her necessary technical and administrative support.
- Auditing the project voluntarily by following the national legislation, in case it is deemed necessary.

Figure 1 presents a summary of the project implementation arrangement:

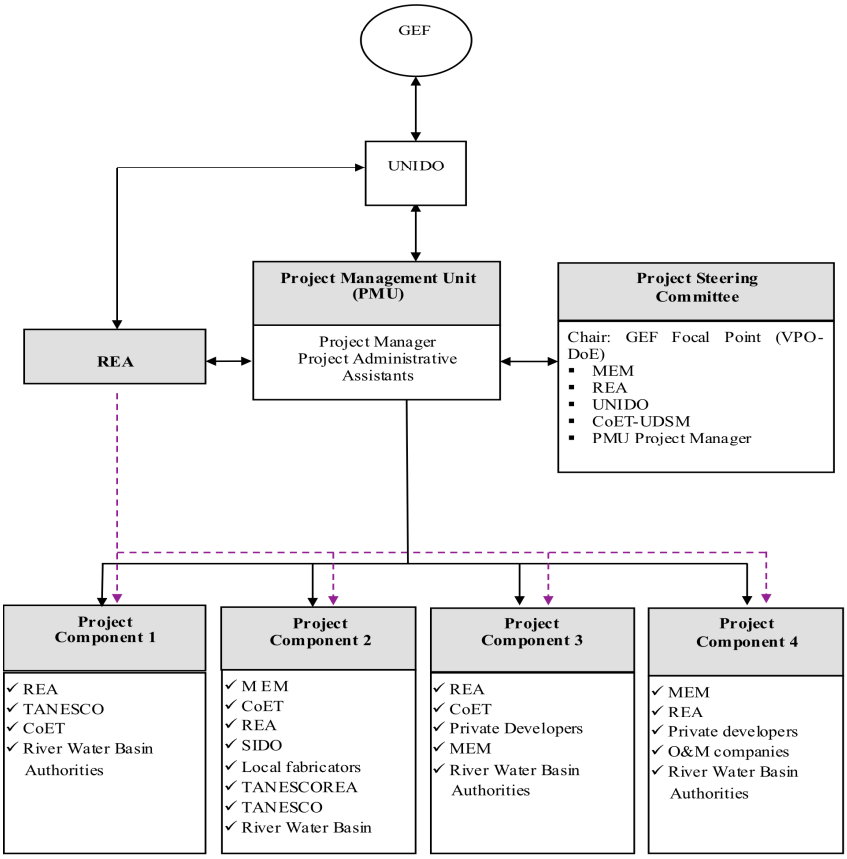


Figure 1 Diagram of project implementation arrangement

Project financial framework

In the Project document, the GEF financing was planned to amount US$ 3,350,000. At the time of the mid-term review, the total Executed Budget (A Term for Disbursements in UNIDO SAP) of the GEF Grant as being presented in the MTR GEF Reporting was US$2,044,131.

The co-financing planned in the project document amounted US$9,778,500. At the time of the mid-term review, the materialized amount of co-financing was US$5,000,322, which is 51 percent of the planned co-financing. The materialized co-financing to date is satisfactory for the mid-course of the project.

Project financial details will be discussed under the chapter Efficiency.

2. Introduction to the mid-term review

According to the GEF Monitoring and Evaluation Policy, Mid-Term Evaluations are mandatory for all GEF Medium Size Projects (MSPs) and Full Size Projects (FSPs). Hence, UNIDO as an Implementing Agency of the GEF, and in accordance with UNIDO Evaluation Policy, an independent mid-term review of the project: "Mini-grids based on small hydropower sources to augment rural electrification in Tanzania" was conducted in the period from 20 December 2014 to 31 January 2015.

2.1 Evaluation scope and objective

The mid-term review covered the duration of the project from its starting date in March 2012 to the mid-term review date in January 2015. The scope of the review includes assessment of project performance and progress against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The overall objective of the review is to assess to what extent the project is achieving the expected results at the time of the mid-term review, i.e. to what extent the project has promoted micro / mini hydro-power based mini grids in Tanzania to augment rural electrification.

The specific objectives of the review are:

- Verification of prospects for development impact and sustainability,
- An analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators,
- Re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters,
- Enhancement of project relevance, effectiveness, efficiency and sustainability by proposing a set of recommendations with a view to on-going and future activities until the end of project implementation,
- Gender mainstreaming, and
- Procurement.

2.2 Review approach

The mid-term review was conducted in accordance with the UNIDO Evaluation Policy and relevant UNIDO and GEF evaluation guidelines and policies. It was carried out as an independent in-depth evaluation using a participatory approach whereby key parties associated with the project were informed and consulted throughout the review.

The evaluation team used different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources: desk studies, literature review, individual interviews, focus group meetings, direct observation, presentations and feedback review.

The methodology was based on the following:

1. A desk review of project documents and relevant country background information:

   (a) The original project document, the inception phase report, monitoring reports (such as progress and financial reports to UNIDO and GEF annual Project Implementation Review (PIR) reports), Project Operational Manual, project annual work plan, output reports and relevant correspondence.

   (b) Notes from the meetings of committees involved in the project (e.g. approval and steering committees).

   (c) Other project-related material produced by the project.

2. Interviews with project management and technical support including staff and management at UNIDO HQ and in the field, staff associated with the project's financial administration and procurement. List of all interviewed persons is given in Annex B.

3. Interviews with project partners including Government counterparts, GEF focal points and partners that have been selected for co-financing as shown in the corresponding sections of the project documents.

4. On-site observation of results achieved in demonstration projects, and interviews with potential beneficiaries of improved technologies. The review field mission included visits to two of the seven demonstration project sites of the mini hydro-power projects, namely a field visit to the Andoya Hydro-Electric Power Company and to Kiliflora Company Limited.

5. Interviews with the relevant stakeholders involved in project management at UNIDO HQ in Vienna and in the United Republic of Tanzania and Project Steering Committee (PSC) and members and the various national and sub-regional authorities dealing with project activities as necessary were conducted.

6.

Evaluation work plan

The "Evaluation Work Plan" included the following steps:

1. Following a desk review of project documentation, a briefing was done by the project manager and the methodology was developed.

2. In the period from 03 October 2014 to 11 October 2014, a field mission was conducted by the international evaluation expert together with the national expert.

3. At the end of the field mission, the evaluation team made a presentation of the preliminary findings and recommendations to the Counterparts and the Project Management Unit (PMU) responsible staff.

4. Following the field mission, the main findings, conclusions and recommendations were presented and discussed with the project manager, evaluation representative and other relevant stakeholders at UNIDO Headquarters.

Evaluation team composition

The evaluation team was composed of one international evaluation consultant acting as a team leader and one national evaluation consultant, contracted by UNIDO.

The evaluation team was supported in its work by the Project Manager at UNIDO, the Project Management Unit (PMU) and the UNIDO Office in the United Republic of Tanzania, the Government of Tanzania, UNIDO Office for Independent Evaluation the UNIDO GEF Coordinator.

2.3 Information sources

Written documents and reports from this project were reviewed in the inception phase at UNIDO Headquarters. Furthermore, relevant project documents were provided by the PMU, the National Project Manager, the Government of Tanzania, The College of Engineering and Technology at the University of Dar Es Salaam (CoET UDSM), The Tanzanian Rural Energy Agency (REA), Ministry of Energy and Minerals (MEM), Tanzania Electric Supply Company Ltd. (TANESCO), Energy and Water Utilities Regulatory Authority (EWURA), Andoya Hydro-Electric Power Company and Kiliflora Company Limited in paper and electronic format in English during the review field mission (List of Documents Reviewed is given in Annex D). Interviews with project stakeholders were held at UNIDO Headquarters and the United Republic of Tanzania during the review field mission (A list of interviewed stakeholders is provided in Annex B). Demonstration projects site visits to two of the seven demonstration project sites of the mini hydro-power projects, namely a field visit to the Andoya Hydro-Electric Power Company and to Kiliflora Company Limited.

2.4 Review limitations

This mid-term review is written solely in English language. As the whole documentation on the project is in English language and all stakeholders were native English speakers, and information was easily accessible, there were no limitations to this review.

2.5 Intended use of the mid-term review report

This mid-term review was conducted in accordance with GEF and UNIDO monitoring and evaluation policies and procedures and in line with United Nations Evaluation Group (UNEG) norms and standards.

The intended users of this mid-term review are the UNIDO Energy Branch (ENE), Government Counterparts, Project Management Unit, and the GEF. If relevant, the mind-term review report may be disseminated to additional stakeholders to share lessons learned and future recommendations.

3. Project assessment

3.1 Project design and relevance

3.1.1 Relevance

The assessment of project relevance takes into consideration the project's contribution to the achievement of national objectives regarding renewable energy in the United Republic of Tanzania, GEF strategic priorities, and the project's relevance to UNIDO's mandate.

The selected project strategy was built on two favourable factors namely: i. the high commitment by the government to the development of renewable energy; and ii. significant interest by the private sector to invest in the energy sector in general as demonstrated by the existence of an independent power producer in the country.

Relevance to national priorities

The Government of Tanzania has placed rural electrification in its agenda. The Government has also established Rural Energy Agency (REA) with the views to promote rural energy services, to facilitate modern energy projects for rural areas and to provide technical support for the developers. In addition, the Government has also established a Rural Energy Board (REB) and a Rural Energy Fund (REF) aiming at rural electrification. On the regulatory side, Standardized Power Purchase Agreement (SPPA) and Standardized Power Purchase Tariff (SPPT) exist for small power producers (SPPs). SPPT is revised on annual basis by the regulatory agency, Energy and Water Utilities Regulatory Authority (EWURA).

The government is also working on the development of Feed-in-Tariff (FiT), which will set a fair and stable ground for the renewable energy (RE) technologies in relation to commercial aspects investments in Tanzania.

As a part of the policy reforms towards promotion of RE, the Government of Tanzania provides exemption on import duty for RE equipment. But, due to the high inflation rate prevailing in the country, the prices of the imported equipment are becoming high. As a result of this, the project developers import RE equipment very rarely and hence to a larger extent, have failed to reap the benefits of import duty exemption provided by the Government.

As of September 2009, Tanzania had a total installed capacity of 961 MW2, out of which, 562 MW is from hydropower. But the estimated hydropower potential of the country stands around 4,700 MW. In some areas like Usambara and Pare mountains as well as in the southern highlands, where many perennial rivers and streams with steep drops are available, there are good possibilities for hydropower generation. In addition to the potential hydro resources, these places are in close proximity to the villages that are without electricity. The proven potential for small hydro power in Tanzania is approximately around 300 to 500 MW, of which only around 24 MW has been tapped due to various constraints.

The energy institutional framework for Tanzania has been undergoing restructuring for the past few years. The aim has been to enhance energy security and electricity access to its population. The National Energy Policy was reviewed in 2003. The policy considers the need to: (i) have affordable and reliable energy supply throughout the country; (ii) reform the market for energy

services and establish an adequate institutional framework; (iii) enhance the development and utilization of indigenous RE sources and technologies; (iv) adequately take into account environmental considerations for all energy activities; (v) increase energy efficiency (EE) and conservation in all sectors; and (vi) increase the energy education and build gender-balanced capacity in energy planning, implementation and monitoring.

The policy had the following specific objectives: (a) to develop the abundant hydroelectric potential available in the country; (b) to reduce the deforestation through efficient use of woody biomass; (c) to promote the RE resources; (d) to promote the EE and conservation; and (e) to develop the human resources for facilitating the development of energy technologies.

According to the current National Energy Policy of the United Republic of Tanzania (2003), the goal of the rural electrification is the widespread improvement in standard of living of the rural population, thus attaining balanced socio-economic growth among all Tanzanians. Underpinning the policy objective is the issue of poverty alleviation, social development and environmental conservation objectives. Small scale industries, agricultural-processing industries and other income generating activities are given primary importance in planning rural programs. In order to accelerate social development in rural areas, schools, educational institutions, heath facilities, water supply, communication and community centres are targeted in rural electrification projects. In addition, rural electrification has an objective of conserving the environment to minimize the impacts of deforestation, climate change, air pollution (indoor & outdoor) and land degradation on mankind development.

In June 2008, the new Electricity Act was passed by the President. This act provides a pivotal role to attract substantial private sector participation in the development of the power sector by creating legal security to the private sector involved in the development of electricity sector.

The Government of Tanzania formed a regulatory body, the Energy and Water Utilities Regulatory Authority (EWURA) which became operational in 2006 with the role for ensuring regulatory oversight to promote private sector investment in the energy sector.

The country by recognizing the importance of supporting the rural energy development, created the Rural Energy Agency (REA) which became operational in 2007 to implement rural electrification programs via the Rural Energy Fund (REF). In the three years of operations, several efforts have been already taken by the agency to promote private sector investment in rural energy technology development in an affordable manner.

The proposed micro / mini hydropower plants of at least 3.2 MW cumulative capacity to be implemented under GEF project, is in coherence with the national policies of Tanzania by promoting RE technologies in the country. This will also be in line with the National Energy Policy of the United Republic of Tanzania (2003) by supplying the generated electricity to mini-grids. By generating the renewable electricity and supplying it to the mini-grid, the project will improve the social and environmental objectives of the policy.

The project will also strengthen and improve the policy and regulatory system for RE, including micro / mini hydropower, by providing incremental support to FiT. The project addresses the efforts required to improve the private sector participation in the micro / mini hydropower projects through various trainings, streamlining the available financing mechanisms, etc. Under the GEF project, transfer of technology to the interested micro / mini hydropower equipment

fabricators will be done to enable local fabrication. This would ensure that similar projects will be replicated in other potential sites. Therefore, it is clear that this project is in line with all the above mentioned government policies and decisions and also fits well within the national priorities of providing access to rural energy through expanded rural electrification in the country.

Relevance to GEF priorities

Furthermore, the relevance to GEF Climate Change focal area's Strategic Program CC 3 – Promoting market approaches to renewable energy is very clear. Through promoting the dissemination of renewable energy technologies, mini-grids in particular, in rural areas as support of rural electrification efforts in the United Republic of Tanzania, the project contributed to promoting market approaches to renewable energy and additionally providing energy for productive uses, which was not foreseen in the project document itself.

Relevance to UNIDO's priorities

The project is in line with UNIDO's mandate, core competences and can benefit from UNIDO's comparative advantage as GEF's implementing agency in the renewable energy and climate change domain. The organizations' mandate is to support inclusive and sustainable industrial development, having strong core competences in the field of green industry and renewable energy for productive uses. According to the project document, this project was mainly intended to use the energy produced by the mini-hydro power plants for rural electrification. However, the evaluation team recognized the clear productive use in expecting to provide power for a flower farm in Kiliflora, as well as productive uses for small businesses through the Andoya mini-hydro power plant. The criteria for preference for choosing the demonstration sites was the potential to use the power for productive uses as main sustainability criteria. This renewable energy project falls under the theme of environment and energy / environmental protection.

Furthermore, it should be noted that the generation of electricity is a large industry itself, and therefore with the installation of mini-grids based on small hydropower sources there is a clear industrial development in Tanzania, which is fully in line with UNIDO's mandate. Only after electricity is available, there is a possibility of broadening the productive use of this electricity by developing the private sector as a second step and consequence of the availability of electricity.

Overall, the Project is consistent with the focal areas/operational program strategies of GEF and is in line with the national development, energy and environmental priorities and strategies of the Government of the United Republic of Tanzania, and UNIDO's mandate.

Based on the assessment of project relevance to local and national energy priorities, policies and strategy of the Government of the United Republic of Tanzania, to GEF's strategic priorities and objectives**,** and to the GEF focal area of climate change and SP3 - Promoting market approaches to renewable energy, and to UNIDO's mandate, **overall project relevance is considered to be HIGHLY SATISFACTORY.**

3.1.2 Design

The assessment of project design assesses the adequateness of the project to clear thematically focused development objectives set by the GEF, the attainment of which can be determined by a set of verifiable indicators. The projects are expected to be prepared in a participatory manner and with contributions of national stakeholders and/or target beneficiaries. It is required to formulate the project based on the logical framework approach, which was the case with this Full-Size Project (FSP).

The project document has been prepared based on results of various studies, assessment of the relevant programmes implemented in the United Republic of Tanzania, consultations with stakeholders, surveys etc..

The UNIDO approach in renewable energy focuses not only on technical improvement and implementation of demonstration projects, but also on improvement in policy, management, investment strategy, operations, and financing. The overall project design is relevant, with its strongest side being strong participation of local stakeholders in project identification. The Logical Framework with its outcomes and outputs, and target indicators are developed adequately (having the measurable element of being a SMART indicator) and they allow for proper adaptive management and monitoring of project results.

Project objectives, outcomes and outputs

The project aims to develop and promote micro / mini hydro-power based mini-grids in Tanzania to supplement the country's effort to increase the access to rural electrification. The project was designed with a goal to reduce Greenhouse Gases (GHG) emissions resulting from the use of traditional carbon intensive energy sources in rural Tanzania. The promoted market-based approaches to micro / mini hydro power based mini-grids will substitute the GHG intensive diesel generators in areas, where there is no electricity to augment rural electrification.

Tanzania possesses substantial proven technical potential for generating power using small-scale hydro power particularly in highland's headwater catchments. The potential for small-scale hydro power accounts for about 300-500 MW, of which, only around 24 MW has been developed so far.

Wide development of micro / mini hydro power has not been realized, despite its potential and available opportunities. This is due to various reasons including lack of proper institutional structure to support the development of small hydro-power schemes, lack of technical expertise, high cost and difficulties in sourcing and importing equipment and lack of local manufacturing capabilities/facilities.

This project therefore aims to address most of these barriers by establishing a platform for the development of small-scale hydro-power in the country. The activities included:

i) conducting detailed feasibility studies for the demonstration sites,

ii) building of capacity for the stakeholders in developing micro / mini hydro-power based mini-grids,

iii) developing viable business model for micro / mini hydropower based mini-grid, and

iv) demonstration of micro / mini hydro-power plants for a cumulative capacity of at least 3.2 MW.

The project was expected to strengthen the policy, regulatory and institutional framework supporting the micro / mini hydro-power based mini-grid systems in Tanzania.

Furthermore, the project was expected to build necessary human and institutional capacities at all levels in order to achieve the scientific, engineering and technical skills and also the infrastructure necessary for the design, development, fabrication, installation and maintenance of micro / mini hydro-power plants.

The proposed micro / mini hydro-power based mini-grids to be setup under the project are expected to bring global benefits by reducing around 335,658 t CO2e directly and around 2,685,185 t CO2e indirectly, which otherwise would have resulted from the use of diesel and kerosene generators, as it is the most common electricity source in Tanzania.

The project consists of four technical project components, and their short overview according to project components, outcomes and outputs is given in table 5.

Table 5. Short status overview of components, outcomes and outputs

1. PD Component 1 (PC1) – "Techno-economic feasibility studies for the identified demonstration sites" should develop site specific details on potential micro / mini hydropower sites available for further development, with the output being to prepare detailed feasibility studies prepared for demonstration plants in the identified potential sites.

2. PD Component 2 (PC2) – "Capacity building of stakeholders in developing micro / mini hydropower based mini-grids" should help develop a strategy to reduce the investment cost of micro / mini hydropower based mini-grids because of the local availability of technical experts and high quality indigenous hydropower equipment. PC2 has four outputs:

2.1 National micro / mini hydropower technical centre established at CoET, UDSM to provide technical support for various technical institutions in Tanzania.

2.2 Technology transferred on local fabrication of micro / mini hydropower equipment.

2.3 Existing guidelines and standards adapted to suit installation and management of micro / mini hydropower plant mini-grids in Tanzania

2.4 Feed-in tariff (FiT) for micro / mini hydropower in place.

3. PD Project Component 3 (PC3): "Viable business model for micro / mini hydropower based mini-grid developed." should strengthen the interest in developing micro / mini hydropower projects increased among the local entrepreneurs, with the outputs being to streamline the existing financing options of REA to benefit the local entrepreneurs interested in micro / mini hydropower.

4. PD Project Component 4 (PC4): "Demonstration of micro / mini hydropower plants." should demonstrate the technical and economic viability of micro / mini hydropower technology, with the output being to implement a number of micro / mini hydropower plants with cumulative capacity of at least 3.2 MW in different locations within the country.

Project risk identification

Project risks are well identified in the Project Document with appropriate mitigation measures.

Participatory identification and preparation of the project

The Project was identified and prepared through cooperation with local stakeholders, and through the cooperation previously established within the United Republic of Tanzania enabling activities supported by GEF (implemented with UNIDO involvement as well). The United Republic of Tanzanian Government and the local project management office adopted the document, showing strong ownership of the project.

Project logical framework

The Project Logical framework approach has been used for the design of activities to implement the project. The logical framework developed for this project is excellent, containing baseline indicators, with well defined SMART indicators and concrete targets.

Based on the analysis given above, the **project design is rated as HIGHLY SATISFACTORY**, its strongest side being strong participation of local stakeholders in project identification. The Logical Framework and target indicators were well and adequately developed, and the Specific, Measurable, Achievable, Relevant and Time-bound (SMART) targets allowed proper adaptive management and monitoring of project results.

3.2 Effectiveness

Project effectiveness assesses to what extent the project outcomes, outputs and long-term project objectives have been achieved.

Overall, the planned activities in this project have been implemented within the periods they were planned for in the project work plan. Table 6 presents a summary of the assessment of project effectiveness per project component, outcome, output, and indicators on the achieved targets, as well as their ratings.

Table 6. Ratings of effectiveness assessment according to project components

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
Component 1: Techno-economic feasibility studies for the identified demonstration sites					
Outcome 1: Site specific details on potential micro / mini hydropower sites available for further development	**Outcome 1: Site specific details on potential micro / mini hydropower sites available for further development**	Detailed techno-economic feasibility studies for the identified 9 demonstration sites	Feasibility studies of identified demonstration sites developed	**1 Review of the existing potential sites (9 in total) have been conducted and the list has been compiled** **2. Feasibility studies and environmental impact studies supported for all the 9 sites completed**	**HS**
Outcome 1: Site specific details on potential micro / mini hydropower sites available for further development	Output 1.1 Detailed feasibility studies and plant designs prepared for the demonstrations in the identified potential sites	Number of feasibility reports of the demonstration sites (cumulative 3.2 MW)	9 feasibility study reports including plant designs for the demonstration sites	Detailed feasibility studies for all the demonstration sites have been completed. The Rural Energy Agency as part of co-financing is undertaking mapping for all mini hydropower sites in Tanzania for creation of mini hydropower atlas for Tanzania	**HS**

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
Component 2: Capacity build¬ing of stakeholders in devel¬oping micro / mini hydropower based mini-grids					
Outcome 2: Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment	**Outcome 2: Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment**	1. Number of trained local planners and experts on micro / mini hydropower based mini-grids. 2. Number of institutions capable of guiding and supporting micro / mini hydropower plant development in future. 3. Number of micro / mini hydropower turbines and controls systems manufacturing facilities operating in the country	1. To strengthen the capacity of at least 100 persons from CoET, experts, planners and other relevant stakeholders to support micro / mini hydropower mini-grids development in the country. 2. To build capacity of TANESCO and River Basin Authorities in developing and managing micro / mini hydropower systems. 3. To transfer technology for facilitating local fabrication of micro / mini hydropower plant equipment to at least 5 interested suppliers	1. Four experts from College of Engineering and Technology (CoET)-University of Dar es Salaam and Rural Electricity Agency (REA) were taken to SHP training/tour in Vienna. Operations of Mini Hydropower Technology Centre at CoET, UDSM is under operation with some formal agreements between the University of Dar es Salaam and UNIDO under final stages. More than 50 persons from CoET, experts, planners and relevant stakeholders were training to support micro/mini hydropower development in the country. 2. Capacity building of river basin authorities will be undertaken by the Small-Hydro Power (SHP) Centre, plan for execution of the programme is completed, and scheduled for February 2014 3. Technology transfer programme for local fabrication of micro turbines is under final stages, agreements between UNIDO and the foreign institution to transfer the technology are under final stages. Fifteen (15) local institutions in which to transfer	HS

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
				skills for equipment fabrication have been identified, the training programme were conducted in 2 phases and held in February 2014.	

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
Outcome 2: Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment.	Output 2.1 National micro / mini hydropower technical centre established at CoET, UDSM to provide technical support for various technical institutions in Tanzania.	Approval received and Centre operating.	To establish the centre, strengthen it with trained personnel and equip with necessary tools and systems for micro / mini hydropower plant development.	Mini hydropower centre has been established at the college of Engineering and Technology of University of Dar es salaam and it is now operational. Official inauguration took place in October 2014.	**HS**
	Output 2.2 Technology transferred for local fabrication of micro / mini hydropower equipment.	1. Number of local fabricators trained and licensed in manufacturing of micro / mini hydropower equipment. 2. Number of locally fabricated turbines used in at least 2 installations of the project.	1. To transfer and adapt micro / mini hydro turbine technology to Tanzania. 2. To train at least 5 interested suppliers.	Technology transfer training has been conducted in May 2014 in Bandug, Indonesia. A total of seven (7) interested suppliers have been trained on fabrication of T-15 cross flow turbines. These suppliers have also been given a license to fabricate these turbines. One of the turbines fabricated by the local indigenous fabricators at their training in Indonesia at Entec of 68 KW will be installed at the Salalai Demonstration project site. The other locally fabricated turbine is used as a demonstration project for the trainees at the CoET UDSM Center for Small Hydropower in Tanzania.	**HS**

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
	Output 2.3 Existing guidelines and standards adapted to suit installation and management of micro / mini hydropower plant mini-grids in Tanzania.	Existing guidelines and standards adapted to suit the micro / mini hydropower development, installation and commissioning in Tanzania	To prepare and disseminate guidelines and standards on installation and management of micro / mini hydropower mini-grid projects.	Draft guideline had been established, the work is in progress to finalise it. The viable Business Model for Rural Mini Hydro Mini Grids in the United Republic of Tanzania will be prepared this year.	**S**
	Output 2.4 Feed-in tariff for micro / mini hydropower in place.	Feed-in-tariff system favouring RE including micro / mini hydropower market available.	To facilitate introduction of feed-in-tariff for micro / mini hydropower systems	Draft guideline had been established, the work is in progress to finalise it. EWURA has established the guidelines and the FiT system, and is now in finalisation phase for comments from stakeholders, and will be done by March 2015.	**S**
Component 3: Developing viable business models for micro / mini hydropower based mini-grid					
Outcome 3: Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	Outcome 3: Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	1. Number of micro / mini hydropower plants developed and invested by local entrepreneurs.	1. To create interest among investors and entrepreneurs in micro / mini hydropower projects of at least 24 MW capacity	Minimum 45 project developers are given knowledge and understanding on development of MHP projects, at least eight local project developers (8MW) have gained an understanding of how to develop projects from financial, legal and management perspectives.	**HS**

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
Outcome 3: Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	Output 3.1 Existing financing options of REA streamlined to benefit local entrepreneurs interested in micro / mini hydropower.	Percentage increase in engagement of local entrepreneurs to develop micro / mini hydropower projects	At least 10 private sector initiatives facilitated for micro / mini hydropower based mini-grids.	The Rural Energy Agency has been facilitating various private sector initiatives on mini hydropower mini grids in Tanzania. REA has been providing matching and performance grants to the private sector to facilitate them from initial stages of the projects to the actual project implementations; a total of 45 projects have been assisted with project preparations stages out of which five have been actually implemented.	**HS**
Component 4: Demonstration of micro / mini hydropower plant based mini-grids					
Outcome 4: Technical and economic viability of micro / mini hydropower technologies demonstrated.	**Outcome 4: Technical and economic viability of micro / mini hydropower technologies demonstrated.**	**1. Number of rural households with access to electricity.** **2. Number of micro / mini hydropower plants in operation.**	**To establish at least 3.2 MW (cumulative) capacity of micro / mini hydropower based mini-grids in rural areas.**	**Seven demonstration sites are in implementation stages, two sites (1MW and 230kW capacity) are under construction, order for procuring equipment for five (5) sites with total capacity of 1.331MW has arrived in the port of Dar Es Salaam. Customs clearance is prepared at the moment and the equipment will be delivered soon to demonstration project sites. Details can be found in chapter effectiveness.**	**S**

Outcomes by Project Component	Outputs	Indicator(s)	Target Level	Evaluation Assessment	Rating (HS/S/MS/ MU/U/HU)
Outcome 4: Technical and economic viability of micro / mini hydropower technologies demonstrated.	Output 4.1 3.2 MW implemented in different locations within the country	Micro / mini hydropower power plants established and running in different sites of Tanzania.	To develop micro / mini hydropower plants within the capacity ranging from 98 kW – 1MW in selected sites.	Seven sites with the range of 68kW to 1MW with a total installed capacity of 3.331 MW are under support of the programme. The electromechanical equipment is being manufactured and will be delivered between October and December 2014. The project implementation is on going; construction, installation and commissioning is expected to be completed between January 2015 to August 2015.	**HS**

For the preparation of the component 1 of the project, and prior to the preparation for the project document for CEO Endorsement, there was a consultation workshop with all concerned stakeholders for renewable energy in the United Republic of Tanzania. After the consultation workshop, nine feasibility studies for the demonstration sites where the mini-hydro power plant can be positioned were made. Out of these nine demonstration sites feasibility studies made, seven were selected, based on project viability, reproducibility, CO2 impact, and technological and financial viability. As these projects were proposed by industry, this ensured to have a strong industry involvement and commitment from the start. The project implementation course to date was excellent, and the tangible results of delivered planned activities/inputs and overreaching of project objectives. The project is rated as such, primarily as a result of implementation of the demonstration projects, and thereby achieving more then 70% of the planned target.

Within component 2, where investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment, the major achievements were the following:

- Four experts from College of Engineering and Technology (CoET)-University of Dar es Salaam and Rural Electricity Agency (REA) were taken to SHP training/tour in Vienna.
- Operations of Mini Hydropower Technology Centre at CoET, UDSM is under operation with some formal agreements between the University of Dar es Salaam and UNIDO under final stages.
- More than 50 persons from CoET, experts, planners and relevant stakeholders were training to support micro/mini hydropower development in the country.
- Capacity building of river basin authorities will be undertaken by the Small-Hydro Power (SHP) Centre, plan for execution of the programme is completed, and done for February 2014.
- Technology transfer programme for local fabrication of micro turbines is under final stages, agreements between UNIDO and the foreign institution to transfer the technology are under final stages.
- Fifteen local institutions in which to transfer skills for equipment fabrication have been identified, the training programme were conducted in two phases and held in February 2014.
- Small Hydro Power (SHP) mini-grids for rural electrification in Tanzania Booklet was issued.
- SHP Centre, Tanzania Booklet was issued.
- Providing a Scholarship for five Masters Students in the Masters Programme for Small Hydropower, which was not in the PD was added as a good practice.
- Signed Letter of Agreement (LoA) between UNIDO and CoET, UDSM for mini hydropower technology centre.
- The Center for Small Hydropower at CoET UDSM inaugurated in October 2014 with the following roles:
    - To coach and train people interested in SHP
    - Give advice in the development of SHP projects in Tanzania
    - Give advice to the licensed producers of turbines in Tanzania
    - Perform quality assurance of the produced turbines
    - They have already fabricated a model of small propeller turbine of 1 KW for learning purposes

The project component 3, where interest in developing micro / mini hydropower projects was to be increased among the local entrepreneurs and the existing financing options of REA were to be streamlined to benefit local entrepreneurs interested in micro / mini hydropower, the major achievements were that the Rural Energy Agency (REA) has been facilitating various private sector initiatives on mini hydropower mini grids in Tanzania. REA has been providing matching and performance grants to the private sector to facilitate them from initial stages of the projects to the actual project implementations; a total of 45 projects have been assisted with project preparations stages out of which five have been actually implemented.

The progress from Project component 4 where technical and economic viability of micro / mini hydropower technologies should have been demonstrated.is visible with the detailed information on the implementation of the Demonstration Project as shown in Table 7.

Table 7. Renewable energy demonstration projects in the United Republic of Tanzania

A: DIRECT EQUIPMENT PROCUREMENT

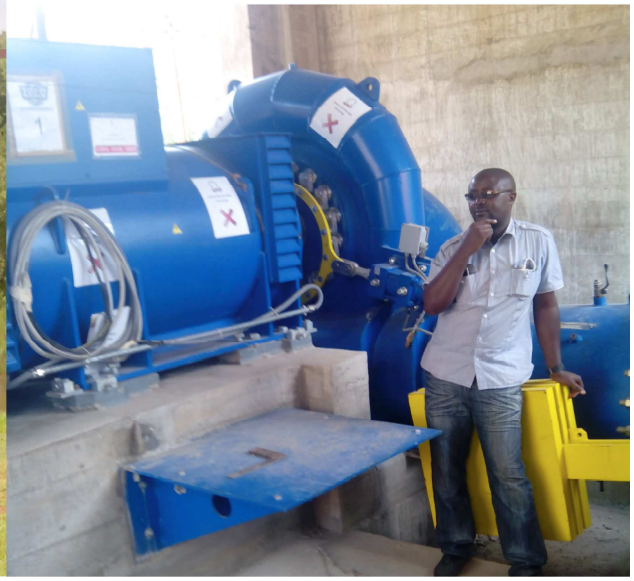
	Location			Electromechanical Equipment specifications							
				Turbine		Generator					
Site Name	Village	District	Region	Type	Shaft Power (kW)	Type	Capacity (kW)	Number of units	Total installed capacity (kW)	Mounting	Amount (USD)
Ijangala	Tandala	Makete	Njombe	Francis HLA551-WJ-42	129	3 phase Synchronous, SF110-8	120	3	360	Horizontal	230,700.00
Mpando	Imalinyi	Njombe	Njombe	Francis HLA551-WJ-50	170	3 phase Synchronous, SF160-10	160	2	320	Horizontal	219,100.00
Lupali	Lupali	Njombe	Njombe	Francis HLA551-WJ-65	366	3 phase Synchronous, SF353-12	353	1	353	Horizontal	194,500.00
Kiliflora	Usa river	Arumeru	Arusha	Turgo XJA-W-56/1*14	230	3 phase Synchronous, SF216-10	230	1	230	Horizontal	134,100.00
				Sub-total (direct equipment procurement)							778,400.00
B: DIRECT SUBSIDY TO PROJECT DEVELOPER											
Andoya	Mbagamad	Mbinga	Ruvuma				500	2	1000		500,000.00
RC Njombe	Lugarawa	Njombe	Njombe				500	2	1000		500,000.00
				Sub-total (direct subsidy)							1,000,000.00
B: DIRECT EQUIPMENT FABRICATION											
Salala	Ludilu	Makete	Njombe				68	1	68		90,000.00
				Sub-total (equipment as part of capacity building programme)							90,000.00
				GRAND TOTAL							**1,868,400.00**

Status: ***December 2014***

The two visited demonstration projects that are under implementation are the following:

1. Andoya mini hydropower Project shown on the figures below:
   - Direct subsidy of the GEF-UNIDO Project
   - Total Capacity to be installed – 2 turbines X 500 kW
   - UNIDO / GEF provides US$500 per KW installed capacity equals US$ 500,000 (8% of total project costs of US$6.5 mill.)
   - 1 turbine of 500 KW is delivered and installed, supplier is awaited for commissioning in February 2015

- 2nd turbine of 500 KW is planned for later on
- The electricity will be used for rural electrification and productive uses for maize and rice mills, saw mills and small business activities in the villages



2. Madope mini hydropower Project:
- Direct subsidy of the GEF-UNIDO Project
- Total Capacity to be installed – 1 turbine X 1 MW
- UNIDO / GEF provides US$500 per KW installed capacity equals US$500,000
- 1 turbine of 1.7MW will be installed during 2016/2017
- The electricity will be used for rural electrification and productive uses for saw mills, and small business activities in the villages

3. Kiliflora mini hydropower Project shown on the picture below:
- Direct procurement of the electromechanical equipment (turbine, generator, control system) of the GEF-UNIDO Project
- Total Capacity to be installed – turbine 230 kW
- UNIDO / GEF provides US$ 134,100 for this equipment, which amounts to 7 % of the total project costs of US$ 2 mill.
- The turbine will be delivered in January 2015, installed, and commissioned approximately until June 2015
- 99% of the electricity during the high season will be used for productive uses of the flower farm, whereas only 10 KW will be used for rural electrification; in the low season more KW can be given to the villages for rural electrification purposes

Details on achievements per project component, outcome, output, containing the quantified and time-bound indicators and targets can be found in Table 6.

Future reporting to GEF

Relevant SMART (especially measurable) Indicators and Target Indicators as they are contained in the Project Logical Framework within the Monitoring and Evaluation system, should be reported to GEF in the future as it was done by the time of the MTR. This reporting can be included in UNIDO Annual Project Implementation Report (PIR) as done to date.

Contribution to achievement of Global Environmental Benefits

Project outputs and outcomes directly contribute to the implementation of the GEF Focal Area on Climate Change, namely to fulfilling the requirements of the 'Kyoto Protocol' unanimously adopted by the United Nations Framework Convention on Climate Change (UNFCCC). The ultimate goal of the project is to reduce energy use related emissions of greenhouse gases (GHG) produced by the energy sector of the United Republic of Tanzania, by reducing around 335,658 t CO2e directly and around 2,685,185 t CO2e indirectly with the seven demonstration projects of total capacity of in the project document planned 3.2 MW capacity (finally these will have 3.31 MW capacity) of mini-hydro power mini-grids built. The project is very likely to contribute to the global environmental and energy benefit of reducing the energy produced by fossil fuels through exchanging it with energy produced from renewable sources, such as wind and solar energy in the case of the demonstration projects within this project.

Catalytic and/or replicable role of the project

The demonstration projects that are part of Outcome 4 of this project are all with high level of replicability. The evaluation team was informed by the Rural Energy Agency (REA) that there

are 45 projects for mini-hydro power plants in Tanzania that have been assisted in the project preparation stages by REA, out of which five projects are under actual implementation. The same clearly exhibit the dissemination and scaling-up effect of this project.

Project effectiveness at time of the mid-term review is rated as HIGHLY SATISFACTORY in the light of excellent project implementation course to date, and the tangible results of delivered planned activities/inputs and overreaching of project objectives. Main outputs achieved by the time of the MTR are: Center for Small Hydropower in Tanzania was established and inaugurated in October 2015 at CoET UDSM; study tour for technology transfer and training in turbines manufacturing was conducted in Indonesia in May 2014, where seven institutions were trained and received a license for technology transfer for manufacturing of T15 Crossflow Turbines from ENTEC (one produced turbine by the local Tanzanian trainees will be installed on one demonstration project site); Feed-In-Tariff for RE sources still in draft and preparation – to be done by March 2015; New updated National Energy Policy (Update of the policy of 2003) will include all RE sources (responsibility of MEM) is being drafted and will be published on MEM‘s website upon commenting of stakeholders; total of 45 projects have been assisted with project preparations stages, and 5 have been actually implemented.; various training courses on Small-Scale Hydro Power Project Development and technical design aspects of SHP performed; two demonstration projects (1MW and 230 KW) in the end-phase of construction; procured equipment for five (5) sites with total capacity of 1.331MW has arrived in Dar Es Salaam.

3.3 Efficiency

The assessment of efficiency should answer whether the project is implemented in a cost-effective way and presents least-cost option. It needs to consider if the project was delayed, and if yes did the delay affect cost-effectiveness. Efficiency also considers adequacy of contributions of government as well as the national executing agency for project implementation.

This subchapter gives an overview on the extent to which the Project has produced the results (outputs and outcomes) within the expected time frame.

The progress of the project was assessed against the existing log frame and corresponding targets and indicators. The way the annual progress report is submitted, it does not indicate the progress against planned timeline of targets.

Details on the progress achieved so far per project component, outcomes and outputs taking into consideration the exact reaching of the targets is given in Table 6, as a table indicating the progress to date against the year target and end project target level for each of the outputs per component.

Table 8 presents the overall cost and financing with co-financing (planned and achieved) in US$ as it was planned for in the Project Document.

Table 8. Disbursement - overall cost and financing (including co-financing):

Project Components/Outcomes	Co-financing (US$)	GEF (US$)	Total (US$)
Technical assessment and mapping of micro / mini hydropower resources in Tanzania / Site specific details on potential micro / mini hydropower sites available for further development.	650,000	200,000	850,000
Capacity building of relevant stakeholders in developing micro / mini hydropower based mini-grids / Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment.	700,000	700,000	1,400,000
Developing viable business models for micro / mini hydropower based mini-grid/ Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	350,000	250,000	600,000
Demonstration of micro / mini hydropower plant based mini-grids / Technical and economic viability of micro / mini hydropower technologies demonstrated.	7,378,500	1,900,000	9,278,500
Project management	700,000	300,000	1,000,000
Total	**9,778,500**	**3,350,000**	**13,128,500**

Source: Project Document

Expected amounts are those submitted by the GEF Agencies in the original project appraisal document. Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

In the Project document, the GEF financing was planned to amount US$ 3,350,000. At the time of the mid-term review, the total Executed Budget (A Term for Disbursements in UNIDO SAP) of the GEF Grant as being presented in the MTR GEF Reporting was US$2,044,131, as shown in Table 9.

Table 9. UNIDO budget execution (GEF funding excluding agency support cost in USD)

Sponsored Class	Amount GEF Grant Disbursed (US$)
1100 - International Experts	71,780.67
1500 - Project Travel	52,458.14
1700 - National Experts	195,277.68
2100 - Subcontracts	536,375.87
3000 - Trainings/Fellowships/Study Tours	38,904.17
3500 - International Meetings	9,910.82
4500 - Equipment	1,121,447.54
5100 - Sundries	17,952.02
TOTAL	2,044,106.91

Source: SAP, November 2014, MTR GEF, PIR

The amount of US$1,306,000 from the GEF Grant is left until project closure. The planned use of the money from the GEF Grant is presented in Table 10, and even more detailed in Table 11 below. This amount will be used for the implementation of the rest of the demonstration projects, for preparing of the Viable Business Model for Rural Mini Hydro Mini Grids in the United Republic of Tanzania, for additional capacity building and training activities, and for Project Management.

Table 10. Planning for disbursement of the GEF Grant until project closure

Outputs by Project Component	GEF Grant Budget Available (US$)
Component 1 – Technical As-sessment And Mapping Of Mini-Hydropower Re-sources In Tanza-nia	78,000
Component 2 – Capacity Build-ing Of Relevant Stake-holders In Devel-oping MHP Based Mini-Grids	237,000
Component 3 –Viable Business Model For Rural Mini Hydro Mini Grid	145,000
Project Component 4 – Demonstrate The Technical And Economic Viability Of Mini Hydro-Power Technolo-gies	630,000
Output 4.1: A number of MHP plants with capacity totaling at least 3.2 MW are designed, devel-oped and commissioned in different areas in the country	630,000
Project Management	216,000
TOTAL	**1,306,000**

Table 11. Detailed planning for disbursement of the GEF Grant until project closure

Outputs by Project Component	GEF Grant Budget Available (US$)
Component 1 – Technical As-sessment And Mapping Of Mini-Hydropower Re-sources In Tanza-nia	
Output 1.1: MHP resource assessment carried out	10.000
Output 1.2: Existing MHP databases updated and map of potential sites developed	68.000
Component 2 – Capacity Build-ing Of Relevant Stake-holders In Developing MHP Based Mini-Grids	
Output 2.1: Capacity of selected national technical institutions such as the University of Dar es Salam enhanced to build local technical capability in MHP technology and rural energy planning	60.000
Output 2.2: Experts and planners are trained in MHP project planning and method-ologies for MHP based mini grid development	35.000
Output 2.3: Capacity for local manufacturing of MHP equipment and components built through transfer of technology and strengthening of local private sector fabrication facilities	100.000
Output 2.4: Quality standards for MHP installation & Management formulated	42.000
Component 3 –Viable Business Model For Rural Mini Hydro Mini Grid	
Output 3.1: Develop sustainability indicators for MHP schemes capable of ensuring sustainability and financial viability of the mini grids	60.000
Output 3.2: Local private sector capacity to undertake MHP projects as viable business venture increased through streamlining existing financing options such as the WB credit line for RE projects and other subsidies provided by the Government	85.000
Project Component 4 – Demonstrate The Technical And Economic Viability Of Mini Hydro-Power Technolo-gies	
Output 4.1: A number of MHP plants with capacity totalling at least 3.2 MW are designed, devel-oped and commissioned in different areas in the country	630.000
Project Management	
a. Periodic convening of PAC meeting	4.000
b. Organization of Project Component 2 trainings	
c. Preparation of TORs & recruitment of evaluation consultant	5.000
d. Conduction of Final Evaluation – 6 months after project completion	20.000
e. Project monitoring and Reporting	87.000
f. Day-to-day coordination, management and monitoring of all project activities	100.000
TOTAL	1.306.000

Concerning the co-financing issue, UNIDO budget and co-financing has no clear view on the co-financing over the years. Namely, the budget breakdown indicates the sourcing of the co-financing over project components, but it lacks information of co-financing per year. The Project implementation relies on co-financing as agreed between Project partners prior to project implementation.

Actual co-financing activities are being provided (different project partners finance and implement various activities), and details on co-financing are showed in Table 12 as actual co-financing and additional leveraged financing.

The co-financing planned in the project document amounted US$9,778,500. At the time of the mid-term review, the materialized amount of co-financing was US$5,000,322, which is 51 percent of the planned co-financing. The materialized co-financing to date is satisfactory for the mid-course of the project.

Table 12. Co-financing and Additional Leveraged Co-financing

Sources of Co-financing [1]	Name of Co-financer	Type of Co-financing[2]	Amount Confirmed at CEO endorsement / approval	Actual Amount Materialized at Midterm
National Government	Rural Energy Agency	Grants	7,000,000	2,160,000
National Government	Ministry of Energy and Minerals	In-kind	36,000	9,000
National Government	College of Engineering and Technology	In-kind	50,000	10,000
Private Sector	Andoya Hydro-Electric Power Company	Cash	2,500,000	2,447,000
Private Sector	Kiliflora Company Limited	Cash	-	283,000
Private Sector	Tandala Diaconical Centre	Cash	-	20,316
Private Sector	St. Getrude Imiliwaha Sisters convent	Cash	-	20,097
Private Sector	ELCT Ludilu Parish	Cash	-	16,970
Private Sector	Imalinyi Village cooperative	Cash	-	33,939
Donor	Behindertenhilfe Neckar-Alb	Cash	112,500	-
UNIDO	GEF Agency	Cash	80,000	
		TOTAL	9,778,500	5,000,322

Least cost option for the demonstration project solution

The five demonstration projects were identified through an open and competitive process through a call for proposals. UNIDO instituted an adjudication committee consisting on UNIDO, the GEF OFP, Ministry of Energy and Minerals representative and representatives of the private sector and REA to select the project to benefit from the grant. For the selected pilot project, a Co-Financing Letter was secured from the company, and they were sealed in the Project Document by GEF. This will be further explained under procurement issues.

Co-financing

Based on the data on co-financing provided by the PM at UNIDO HQs, it is evident that the project has been very successful at mobilizing allocated funds from the national counterparts. At the time of the mid-term review, the co-financing materialized amounted to US$5,000,322 from the planned US$9,778,500 at project closure. This shows that 51 percent of the planned co-financing has emerged, which is satisfactory for the mid-course of the project. The amount of contribution that was committed can be considered as highly satisfactory and it demonstrated high ownership by local stakeholders of the project.

The mid-term review has concluded that all efforts were undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by PMU and national project partners REA, MEM, VPO-DoE, CoET-UDSM and TANESCO. Even more, the fact that at the time of the mid-term review 51 percent of the co-financing has materialized with US$5,000,322 from the planned US$9,778,500. However, the only minor shortcoming the cost-effectiveness might be affected by the fact that the project implementation will be delayed, even though there was no violation of the financial framework to date. Reviewing the final results from project management and financial management at time of the mid-tem review, the **project efficiency is rated SATISFACTORY (S)**.

3.4 Assessment of sustainability of project outcomes

The assessment of sustainability of project outcomes at the time of the mid-term review should explain how the risks to project outcomes will affect continuation of benefits during the project implementation, and if possible to assess, after the GEF project ends, including both exogenous and endogenous risks. Based on GEF evaluation policies and procedures, the overall rating for sustainability cannot be higher than the lowest rating for any of the individual components. Therefore the overall sustainability rating for this Project at the time of the mid-term review is **LIKELY (L), which means that there are no risks that affect the dimension of project sustainability.**

3.4.1 Financial risks

There was a clear co-financing that is materializing as planned by project partner for the project and this has materialized and according to the conditions stated in the Contracts between UNIDO and Demonstration Project Partners / Electromechanical Equipment (Mini-Hydro Power Plants) Partners for the Demonstration Projects. Also the GEF Grant is spent according to plan.

With the above said, **there are no identified financial risks to sustainability, which leads to Likely (L)** sustainability of finances.

3.4.2 Sociopolitical risks

Priority of the Government of the United Republic of Tanzania is to enlarge the level of rural electrification, and to broaden the use of renewable energy sources for electrification purposes. Project stakeholders, including government officials, renewable energy companies, and the broader public, have developed a strong sense of ownership of the projects interventions. The project has provided targeted training and awareness raising on renewable energy to over hundred persons by now.

Therefore there are no risks at the time being that affect socio-political sustainability, which causes **the rating for the sociopolitical sustainability to be Likely (L)**.

3.4.3 Institutional framework and governance risks

With the preparation of the revision of the 2003 National Energy Policy (NEP), which explicitly contains section on Renewable Energy and other supporting mechanisms that would promote Renewable Energy in the United Republic of Tanzania, such as the creation of the Rural Energy Agency (REA) which became operational in 2007 to implement rural electrification programs via the Rural Energy Fund (REF), **there no identified risks that affect institutional framework and governance sustainability, which leads to Likely (L)** sustainability of institutional framework and governance of RE in the United Republic of Tanzania.

3.4.4 Environmental risks

No environmental risks connected to sustainability could be identified related with the project that may jeopardize sustainability of the outcomes, **which means the environmental sustainability is Likely (L)** to be achieved. This is taken into consideration that all the Environmental Impact Assessment (EIA) Permits were obtained for the demonstration projects, and the visited sites have overtaken extra measures for environmental protection, like for example planting trees along the weir and the water canal in order to avoid erosion. It is noted that the possible environmental risks of the final use of the electricity produced by the small hydropower plants depend on the final use of electricity. For instance, the possible environmental risks of water pollution with the fertilizers used in flower production have to be mitigated through the measures given in the Environmental Impact Assessment for the particular production site.

3.5 Assessment of monitoring and evaluation systems and project management

This section assesses the M&E systems in place for the project. The M&E plan describes how the whole M&E system for the project works and includes indicators responsible for collecting them, what forms/tools will be used, and reporting schedules. The M&E plan includes the project logframe (project logical framework), baseline reports, periodic reports, and other documentation such as minutes of meetings, documentation of activities etc..

M&E Design

The PD contains a project M&E plan, outlining specific M&E activities, responsible parties, budgets, and timeframes. It includes the logframe, the annual work plans as well as detailed progress and activity reports. The plan also includes and budgets for a mid-term review and a final project evaluation. The activities outlined in the M&E plan meet GEF minimum standards for M&E, and the budget of US$80,000 is sufficient, however rather low for a full-size project. The PD sufficiently identifies various review and evaluation processes, specific reporting requirements, and responsibilities. Especially it should be noted that this project made use of SMART targets and baseline indicators, which allowed for comprehensive adaptive management, and the same was very advantageous for this mid-term review. Therefore the **M&E design for this project is considered to be HIGHLY SATISFACTORY**.

M&E Implementation

The assessment showed that the Project Manager and Project Management Unit (PMU) prepared very detailed reports that provide exhaustive aspects of the periodical achievements of the project with narrative links back to the outcomes, outputs and targets elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from Implementation Agency (IA) by writing very detailed and comprehensive Annual Project Implementation Reviews (PIRs) to GEF. Both UNIDO PM and PMU performed oversight of the main activities especially in the phases of installation of demonstration projects and trainings. However, the work programme had to be revised due to delay in certain project activities.

The PMU submitted regular project progress reports to UNIDO and PSC. A total of thirteen in-depth reports on technical evaluation and validation of the demonstration projects, the trainings and the training curricula on renewable energy were prepared by the PMU and respective experts in the field. All reports provide complete aspects of the periodical achievements of the project, the narrative link goes back to the outcomes elaborated in the logical framework. PMU also carefully monitored the installation of the demonstration projects. Annual Project Implementation Reviews (PIRs) were regularly undertaken and contained very exhaustive information.

Yet, the project was delayed by nine months. The mid-term review was delayed by even eighteen months of the original planning date from the PD, and was done in January 2015. The terminal evaluation is planned for March 2016.

For all these reasons the **implementation of M&E and use for adaptive management is rated SATISFACTORY (S)**. It is noted that the PM and PMU prepared all necessary reports that provide exhaustive aspects of the periodical achievements of the project with narrative link back to the outcomes elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from IA by writing exhaustive Annual Project Implementation Reviews, however the work plan was not updated accordingly. Both National Project Manager (NPM) from PMU and PM from IA performed oversight of the main activities especially in the phases of implementation and installation of the demonstration projects, and trainings on renewable energy. Proper Monitoring and Evaluation and regular update of the work plan could have minimized the project delay through timely update of the work plan.

Budgeting and funding for M&E activities

The budget provided for M&E of US$80,000 at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation, and the necessary monitoring activities have been undertaken. The **aspect of funding M&E is rated HIGHLY SATISFACTORY.**

Monitoring of long-term changes

At this stage, it is too early to comment on monitoring of long-term changes, and the project is still in the process of preparing the viable Business Model for Rural Mini Hydro Mini Grids in the United Republic of Tanzania. There is an overall ownership of the project by various national institutions and the relevant Ministries of Energy and Minerals, the Rural Energy Agency and

Vice President's Office-Division of Environment within the Government of the United Republic of Tanzania, as well as CoET UDSA and TANESCO.

The preparation of the revision of the 2003 National Energy Policy (NEP), which explicitly contains section on Renewable Energy by the Ministry of Energy and Minerals, and the creation of the Rural Energy Agency (REA) which became operational in 2007 to implement rural electrification programs via the Rural Energy Fund (REF), also demonstrate the right direction in which the project is moving towards embedding renewable energy as part of the national strategy.

Therewith, the **aspect of monitoring of long-term changes for this project is rated HIGHLY SATISFACTORY.**

Project management

Project management has been successfully carried out by the UNIDO Project Manager and Project Management Unit (PMU) led by the National Project Manager (NPM) in the United Republic of Tanzania. The Project Management Office (PMU) was established and placed within the UNIDO Field Office in the United Republic of Tanzania. At the moment, PMU consists only of NPM. A Project Administrative Assistant (PAA) was not hired to date as planned in the project document. According to information from NPM, a PAA will be hired until summer 2015. However, it has to be noted that the PMU has great support from another National Energy Expert working at the UNIDO Field Office in Tanzania.

While the project management unit was not in charge for financial management of the project (all payments and procurement were carried out through UNIDO, or initiated by UNIDO), this aspect did not obstruct project implementation. All resources required from UNIDO were provided in a timely manner. In the light of mid-term review evidence on project management, the project can be rated as **HIGHLY SUCESSFUL** and the note given is **HIGHLY SATISFACTORY.**

3.6 Assessment of processes affecting achievement of project results

3.6.1 Country ownership / drivenness

It was stated during the mid-term review and already elaborated in several sections of this mid-term review report, that the level of ownership of the Government of the United Republic of Tanzania and local stakeholders is extremely high. The Rural Energy Agency (REA) is the national executing partners for the project implementation. A Project Steering Committee (PSC) consisting of representatives of government institutions and of stakeholders and beneficiaries that convenes on a regular basis is of key importance for success of the project. The Chair of the PSC comes from the Vice President's Office-Division of Environment and is at the same time GEF Focal Point in Tanzania, which provides the PSC with additional value. All the members of PMU, interviewed representatives of the Government Agencies and Ministries of the United Republic of Tanzania and public institutions, stakeholders, and private sector representatives express strong ownership of their roles within this project. **The country ownership is rated HIGHLY SATISFACTORY.**

3.6.2 Stakeholder involvement

Involvement of relevant stakeholders, sharing information and consultations is carried out on several levels within the Project. On a managerial and planning level, it is done within the Project Steering Committee (PSC), which is established to provide strategic guidance on the project implementation and facilitation of the coordination of various Government authorities, institutions and the industries. PSC is established with the participation of the key stakeholders and has a number of permanent members coming from numerous relevant stakeholders (Governmental institutions related to the scope of the Project). Overall, there is a very high level of stakeholder involvement in the project.

The project published two brochures as project information material, however, more can be done in terms of informing the public of the project and the possibility to invest in mini-grids based on small hydropower sources to augment rural electrification in Tanzania. There was a positive feedback in the community for this project, as it contributes to the improvement of their life quality and the quality of the environment. **The stakeholders' involvement in the project is rated HIGHLY SATISFACTORY.**

3.6.3 Financial planning

The Project has appropriate financial controls, including reporting and planning, that allows management to make informed decisions regarding the budget and allows for timely flow of funds. UNIDO manages the overall project budget and procures all services required, and as well timely prepares financial reports to the GEF, in accordance to the established UNIDO rules and regulations and applicable GEF requirements.

However, only aggregated data according to Budget Line are available from the GEF Grant as project disbursements as a whole.

Financial audits were not made until this stage of project implementation. All the procurements for the demonstration projects and the trainings so far went smoothly and through the HQ as centralized procurement. More on procurement will be elaborated in the section Procurement issues.

UNIDO was responsible for financing and determination of means from GEF funding and this was done in a responsible and cost-effective manner. **Financial Planning is rated SATISFACTORY.**

3.6.4 Co-financing and project outcomes and sustainability

The Project implementation relies on co-financing as agreed between Project partners prior to project implementation launch.

Although, actual co-financing activities are being delivered (different project partners finance and implement various activities), those are not appropriately reported and for some co-financing no evidence exist. On other hand, the co-financing situation is clear as per source and demonstration project, and it has been duly delivered for the implementation of the

demonstration projects as per ToR and Procurement Contracts from the private and public partners. Details on co-financing are given in the chapter Efficiency.

At the time of the mid-term review, the materialized amount of co-financing was US$5,000,322, from the planned US$9,778,500 at project closure. This shows that 51 percent of the planned co-financing has emerged, which is satisfactory for the mid-course of the project. **The Co-financing and project outcomes and sustainability is rated SATISFACTORY.**

3.6.5 Delays and project outcomes and sustainability

According to UNIDO PM, there is a project extension planned until December 2017. The prevised project closing date in the project document during project design was May 2015. The prime reason for the delay was the installation of the mini-hydropower in Madope, where they planned to increase the capacity from 1MW to 1.7 MW. The implementation start in the PD was marked in November 2011, and the official launching of the project took place in March 2012. Therewith the mid-term review is postponed by eighteen months, and took place in January 2015 instead of June 2013. The terminal evaluation will accordingly take place in December 2017.

3.7 UNIDO's involvement and specific ratings

3.7.1 Preparation and readiness / Quality at entry (QAE)

Numerous quality aspects are highly satisfactory, primarily the clear strategic relevance of the project with highly participatory stakeholder and beneficiary consultation process. Counterpart resources and adequate project management arrangements in place at project entry capacities of executing institution and counterparts properly considered when the project was designed; partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval; project's objectives clear, but not always feasible within its time frame. However, in the project document there is no detailed budget plan for the M&E activities.

Primarily because of the clear strategic relevance of the project with highly participatory stakeholder and beneficiary consultation process, and minor issues with the missing detailed M&E plan, the **Quality at Entry and Readiness for Implementation is rated SATISFACTORY.**

3.7.2 Implementation approach

The implementation approach related to the Project complies with other approaches applied by UNIDO as it is part of Programme aimed at roll out of best renewable energy project implementation arrangement throughout the world.

Evidently, the UNIDO uses a holistic approach that focuses not only on technical improvement, but also on improvement in policy, management, operations, and financing. To ensure sustainability, the Project focuses on developing and promoting a well-functioning market environment that will stimulate investments in nini-grids based on small hydropower sources to augment rural electrification in the United Republic of Tanzania. Thus, is provides replicability of the processes being developed and implemented within the Project.

The Project and its approach promote local ownership and capacity building using a combination of market push via policy and normative interventions including national energy management standards, and at the same time market development through preparation of the Viable Business Model for Rural Mini Hydro Mini Grids in the United Republic of Tanzania, delivery of trainings and capacity building.

Furthermore, the implementation approach was a good example by giving the Rural Energy Agency (REA) overall project coordination responsibility through the PMU for carrying out day-to-day management, monitoring and evaluation of project activities. This has helped to develop a strong ownership of the project, which, together with the committed support from UNIDO's Project Manager led to a highly successful project implementation by now. Excellent collaboration between extremely engaged counterparts: Rural Energy Agency (REA), Ministry of Energy and Minerals (MEM), GEF Focal Point, as well as existing fully functional and collaborative Project Steering Committee (PSC) and the PMU is a key to successful project implementation.

In view of the above, the Implementation Approach is rated Highly Satisfactory (HS).

3.7.3 UNIDO's supervision and backstopping

UNIDO staff provides quality support and advice to the project coming from different UNIDO HQ departments and also hired international consultants bringing the best available knowledge and practice, providing the right staffing levels, continuity and frequency of field visits for the project, identifying problems in a timely manner and providing appropriate response. The rating for UNIDO's supervision and backstopping is primarily based on regular presence of the Project Manager from IA in the country at crucial times of project implementation. It must be noted that the Project Manager did provide regular and dedicated in-country assistance to the PMU, especially in the time of the actual implementation of the demonstration projects. However, the delayed start of implementation of the project, the establishment of the PMU, and the short time planned for implementation of the demonstration projects will all lead to a project delay of nine months. Consequently, the MTR was carried out eighteen months later and therewith fifteen months until the project closure.

UNIDO supervision and backstopping is rated Highly Satisfactory (HS), as during the assessment prevailed the dedicated contribution of the UNIDO project manager, as the project success until now is due to UNIDO's teamwork and support to the PMU.

3.8 Project coordination and management

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

UNIDO is implementing the Project in close consultation with REA, MEM, DPO-VoE, CoET-UDSA and TANESCO and according to the established UNIDO rules and regulations and applicable GEF requirements. The role of UNIDO is to maintain the oversight on the project implementation, manage the overall project budget, procure all services required, monitor the

project implementation, timely prepare financial and progress report and submit them to the GEF and the Project PSC, as well as organize mandatory and non-mandatory evaluations. It also, it supports the Project PSC and the PMU in co-ordination and networking with other related initiatives and institutions in the country. UNIDO manages the implementation by an appointed Project Manager, and as well by mobilizing services of its other technical, administrative and financial branches at UNIDO Headquarters and the PMU in the United Republic of Tanzania, when needed.

UNIDO staff provides quality support and advice to the project, providing the right staffing levels, continuity and frequency of field visits for the project, identifying problems in a timely manner and providing appropriate response.

The roles and responsibilities of all Project partners have been identified from the beginning and outlined in the project design (see Figure 1 of this MTR: Diagram of project implementation arrangement). Each of the partners is aware of its responsibilities and acting appropriately.

The PSC provide strategic guidance on the project implementation and facilitates the coordination of various Government authorities, institutions and the industries. The Chair of PSC comes from the Vice President's Office-Division of Environment and is at the same time GEF Focal Point in Tanzania. To ensure sustainability, strategic relevance and appropriate national coordination, the PSC is established with the participation of the key stakeholders with a concrete mandate.

A Project Management Unit (PMU) manages the project implementation on a daily basis. The PMU is headed by the national project manager. The management team operates in a close network of the direct beneficiaries and involved Tanzanian institutions and other project stakeholders, as well as the private sector involved in mini-hydro power and renewable energy sector in the United Republic of Tanzania. The project management team, under the guidance of UNIDO reports to the Project Steering Committee and work in close coordination with the National technical staff representing partners' organizations.

There were no comments or issues on the overall project management by UNIDO or on the project execution identified by the PSC or during the interviews in the evaluation period.

Project management has been successfully carried out by the UNIDO Project Manager and Project Management Unit (PMU) led by the National Project Manager (NPM) in the United Republic of Tanzania. **The rating for Project Coordination and Management is HIGHLY SATISFACTORY.**

3.9 Assessment of gender mainstreaming

Gender was not considered in the project design. Instance of positive gender mainstreaming is that two out of the three master's students in Renewable Energy at the College of Engineering and Technology at the University of Dar Es Salaam sponsored by the project are women. Furthermore, women are also Members of the Board of Directors of Andoya Hydroelectric Power Company. Kiliflora Company Limited has employed more women than men. In addition two out of ten interviewed Andoya Hydroelectric Power Company clients who are already connected to electricity are female-headed households and small business. This is an indication

that men and women will benefit from the project outcomes, however gender mainstreaming should be carefully monitored, and gender data should be disaggregated, analyzed, and documented.

Gender is in inchoate in the Renewable Energy Sector in the United Republic of Tanzania only now. An example was met at the Rural Energy Agency (REA), which is the main Counterpart in this project. In REA, the training coordinator, who is also a gender focal point is a woman. REA is implementing a gender framework under Energy Sector Management Assistance Program (ESMAP) support.

Generally, the technology projects of installing mini-grids based on small hydropower sources are not gender-specific. However, women will be one of the main beneficiaries of the rural electrification, by being able to use the electricity in their households and for their small businesses.

3.10 Procurement

UNIDO is accountable to the GEF for the management of the funds of the Project, implementing the Project according to the established UNIDO Procurement rules and regulations and applicable GEF requirements. This means managing the overall project budget and procuring all services required, timely preparation of appropriate financial reports and submission to the GEF and the Project Steering Committee.

The procurement for the seven demonstration projects was management differently. For the two demonstration projects: the Andoya mini hydropower project and the Madope mini hydropower project with total capacity of 1,000 kW each, UNIDO provided a direct subsidy from the GEF Grant. UNIDO and GEF provided US$500 per kW installed capacity, which equalled to US$ 500,000 that each of these two demonstration projects have received.

For the four other demonstration projects: Kiliflora (230 kW), Tandala (Ijangala) (360 kW), Mpando (320 kW), and Lupali (353 kW) UNIDO performed direct procurement of the electromechanical equipment (turbine, generator, control system) and control system for small hydro-power plants through an open bidding procedure. The electromechanical equipment was to be delivered on 17 January 2015 at the port in Dar Es Salaam and delivered to all the four mini hydro power project sites accordingly. The total value of the Contract between UNIDO and Hangzhou Nannan Hydropower Development Co Ltd. (HNHD) from P.R. China for the supply of was US$ 778,500. For this contract, the finding is that there is no communication between supplier and investor, which might cause additional delays in project implementation. The investors wish that the specifications for supplied equipment should be sent in advance of starting the projects, so that investors can prepare the construction works on time. Optimal will be that these specifications must be a requirement of the ToR with the supplier.

For the smallest demonstration site in Salala with the mini hydro-power project capacity of 68 kW, the small hydro-power plant will be delivered from Indonesia. This plant was the demonstration plant for the training and technology transfer from Entec. It was constructed by the local Tanzanian fabricators during their training in Indonesia at Entec, and it was part of the project component of local capacity building and technology transfer for local indigenous turbine fabrication to Tanzanian companies.

Procurements related to carrying out training are also done centrally by UNIDO Procurement (lecturers, facilities, stationary, hotel, and other organizational issues) and these are solicited by the PMU locally and then passed on to project management within UNIDO HQ to review the offers, verify any inconsistencies, ensure at least three offers have been selected and make the final recommendation. Then a purchase order for the winning bidder is being issued.

3.11 Overall ratings

The evaluation team rated the project performance as required by GEF and UNIDO Evaluation Policies and Guidelines for conducting Terminal Evaluations. This subchapter summarizes the ratings according to the evaluation criteria given in the ToR: Attainment of Project Objectives and Results, Sustainability of Project Outcomes, Monitoring and Evaluation, and UNIDO specific ratings as specified in Annex A (ToR). The ratings are presented in separate tables, one for each of the categories rated separately and with brief justifications for the rating based on the findings of the main analysis. The overall rating for the project is given in the last table (table 16) and the project has been rated as Highly Satisfactory (HS). The rating system that was applied for each of the criteria is specified in Annex A of this report, as part of the ToR for this mid-term review.

Table 13. Criterion - Attainment of project objectives and results

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Attainment of project objectives and results (overall rating)	No shortcomings were evidenced by the review.	**HS**
Design	The overall project design is relevant. The Logical Framework with its outcomes and outputs, as well as target indicators are developed adequately (having the measurable element of being a SMART indicator) and they allow for proper adaptive management and monitoring of project results. There was a strong participation of local stakeholders in project identification.	HS
Relevance	The project is fully relevant to national energy priorities, policies and strategy of the Government of Tanzania, and to UNIDO promoting industrial development and ISID in the energy sector by promoting local capacity building on SHP and local indigenous manufacturing of turbines. Moreover, the project is fully relevant to the GEF focal area of climate change and SP3 - Promoting market approaches to renewable energy.	HS
Effectiveness	Project effectiveness is highly satisfactory in the light of excellent project implementation course to date. Main outputs achieved by the time of the MTR are: Center for Small Hydropower in Tanzania was established and inaugurated in October 2015 at CoET UDSM; study tour for technology transfer and training in turbines manufacturing was conducted in Indonesia in May 2014, where seven	HS

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Attainment of project objectives and results (overall rating)	No shortcomings were evidenced by the review.	**HS**
	institutions were trained and received a license for technology transfer for manufacturing of T15 Crossflow Turbines from ENTEC (one produced turbine by the local Tanzanian trainees will be installed on one demonstration project site); Feed-In-Tariff for RE sources still in draft and preparation – to be done by March 2015; New updated National Energy Policy (Update of the policy of 2003) will include all RE sources (responsibility of MEM) is being drafted and will be published on MEM's website upon commenting of stakeholders; total of 45 projects have been assisted with project preparations stages, and 5 have been actually implemented.; various training courses on Small-Scale Hydro Power Project Development and technical design aspects of SHP performed; two demonstration projects (1MW and 230 KW) in the end-phase of construction; procured equipment for five (5) sites with total capacity of 1.331MW has arrived in Dar Es Salaam.	
Efficiency	US$ 2.044 mill. from GEF Grant of US$ 3.335 mill. (61%) were spent, and US$ 5 mill. out of planned US$ 9.778 (51%) co-financing have materialized at the time of MTR. Project efficiency is satisfactory as all efforts were undertaken to ensure cost-effectiveness of project implementation. The only minor shortcoming is that the time planned for the implementation of the demonstration projects was too short, and therefore a project extension is recommended, in view of completion of Madope Mini-Hydropower Project.	S

Table 14. Criterion - Sustainability of project outcomes

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Sustainability of Project outcomes (overall rating)	There are no identified financial, socio-political, institutional framework and governance, and environmental risks to sustainability.	**L**
Financial risks	There are no identified financial risks to sustainability, as customer (small businesses are paying for electricity from renewable energy sources 12,000 Tsh per month instead of 222,500-300,000 Tsh per month that they have paid with the diesel generators).	L
Socio-political risks	There are no identified socio-political risks to sustainability.	L

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Sustainability of Project outcomes (overall rating)	There are no identified financial, socio-political, institutional framework and governance, and environmental risks to sustainability.	**L**
Institutional framework and governance risks	There no identified risks that affect institutional framework and governance sustainability.	L
Environmental risks	There are no identified potential risks to environmental sustainability, as all projects have received an EIA approval.	L

Table 15. Criterion - Monitoring and evaluation

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Monitoring and Evaluation (overall rating) Sub criteria (below)	No shortcomings were evidenced by the review.	**HS**
M&E Design	Diverse review and evaluation processes, specific reporting requirements, and responsibilities are sufficiently identified in the Project Document.	HS
M&E Plan Implementation (use for adaptive management)	The Project Manager and Project Management Unit (PMU) prepared all necessary reports that provide exhaustive aspects of the periodical achievements of the project. Proper Monitoring and Evaluation procedures were followed by the Project Manager from Implementation Agency (IA) by writing very detailed and comprehensive Annual Project Implementation Reviews (PIRs) to GEF. Both UNIDO PM and PMU performed oversight of the main activities especially in the phases of installation of demonstration projects and trainings. However, a detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments, which will be updated periodically should be introduced.	S
Budgeting and Funding for M&E activities	The budget provided for M&E at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation, and the necessary monitoring activities have been undertaken.	HS

Project Management	Project management has been successfully carried out by the UNIDO Project Manager and Project Management Unit (PMU) led by the National Project Manager (NPM) in Tanzania.	HS

Table 16. Criterion - UNIDO specific ratings and overall rating

Criterion	Evaluator's Summary Comments	Evaluator's Rating
UNIDO specific ratings	No shortcomings were evidenced by the review.	**HS**
Quality at entry / Preparation and readiness	Many quality aspects are highly satisfactory, primarily the clear strategic relevance of the project with highly participatory stakeholder and beneficiary consultation process. Counterpart resources and adequate project management arrangements in place at project entry capacities of executing institution and counterparts properly considered when the project was designed; partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval; project's objectives are clear, but not always feasible within its time frame, and the M&E plan was not elaborated in detail.	S
Implementation approach	The implementation approach by giving the Rural Energy Agency (REA) overall project coordination responsibility through the PMU for carrying out day-to-day management, monitoring and evaluation of project activities helped to develop a strong ownership of the project, which led to a highly successful project implementation by now, together with the committed support from UNIDO's Project Manager. Excellent collaboration between extremely engaged counterparts: Rural Energy Agency (REA), Ministry of Energy and Minerals (MEM), CoET UDSM, GEF Focal Point. Existing fully functional and collaborative Project Steering Committee (PSC) and PMU.	HS
UNIDO Supervision and backstopping	During assessment of UNIDO's supervision and backstopping prevailed the dedicated contribution of the UNIDO project manager, as the project success to date is due to UNIDO's teamwork and support to the PMU.	HS
Overall Rating		**HS**

RATING FOR ATTAINMENT OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS):	The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
Satisfactory (S):	The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
Moderately Satisfactory (MS):	The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
Moderately Unsatisfactory (MU):	The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
Unsatisfactory (U):	The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
Highly Unsatisfactory (HU):	The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

RATINGS ON SUSTAINABILITY

Likely (L)	There are no risks affecting this dimension of sustainability.
Moderately Likely (ML):	There are moderate risks that affect this dimension of sustainability.
Moderately Unlikely (MU):	There are significant risks that affect this dimension of sustainability.
Unlikely (U):	There are severe risks that affect this dimension of sustainability.

RATINGS OF PROJECT M&E

Highly Satisfactory (HS):	There were no shortcomings in the project M&E system.
Satisfactory (S):	There were minor shortcomings in the project M&E system.
Moderately Satisfactory (MS):	There were moderate shortcomings in the project M&E system.
Moderately Unsatisfactory (MU):	There were significant shortcomings in the project M&E system.
Unsatisfactory (U):	There were major shortcomings in the project M&E system.
Highly Unsatisfactory (HU):	The Project had no M&E system.

ALL OTHER RATINGS

HS	**= Highly Satisfactory**	Excellent
S	**= Satisfactory**	Well above average
MS	**= Moderately Satisfactory**	Average
MU	**= Moderately Unsatisfactory**	Below average
U	**= Unsatisfactory**	Poor
HU	**= Highly Unsatisfactory**	Very poor (Appalling)

4. Conclusions, recommendations and lessons learned

4.1 Conclusions

This project is an example for successful project implementation by being a major pioneer in providing a market environment for internal and external investors that stimulates investments in more and more popular technology of mini grids based on small hydropower sources to augment rural electrification and therewith cause productive use and support the local energy industry in Tanzania with its seven demonstration project sites with total capacity of 3.331 MW. With the decision of Madope Mini hydropower project to augment the capacity from 1 MW to 1.7 MW, the total capacity built in Tanzania through this project will increase from the planned 3.2 MW to 4.001 MW.

The project is fully relevant to UNIDO by promoting green and clean renewable energy technology, and to the national energy priorities, policies and strategy of the Government of the Tanzania, as well as to the GEF focal area of climate change and SP3 - Promoting market approaches to renewable energy.

The project has reached its developmental objective of attracting investment in RE technologies for mini grids based on small hydropower sources.

The private sector and industries are fully supported by the Government of Tanzania through REA (especially through the Rural Energy Fund) and MEM which are about to pass a new National Energy Policy explicitly considering RE sources, and the new Feed-In-Tariff for RE sources.

The project was highly effective in the light of excellent project implementation course to date, with most outputs planned being achieved by the time of the MTR: Center for Small Hydropower in Tanzania was established and inaugurated in October 2015 at CoET UDSM; study tour for technology transfer and training in turbines manufacturing was conducted in Indonesia in May 2014, where seven institutions were trained and received a license for technology transfer for manufacturing of T15 Crossflow Turbines from ENTEC (one produced turbine by the local Tanzanian trainees will be installed on one demonstration project site); total of 45 projects have been assisted with project preparations stages, and 5 have been actually implemented.; various training courses on Small-Scale Hydro Power Project Development and technical design aspects of SHP performed; two demonstration projects (1MW and 230 KW) in the end-phase of construction; procured equipment for five sites with total capacity of 1.331MW has arrived in Dar Es Salaam.

The project has facilitated capacity building programme for various groups of stakeholders including individual practising engineers, water basin authorities and academia.

Capacity of private institutions has been developed to fabricate micro hydro turbines locally (one turbine produced by local fabricators will be located at the Salala demonstration project), this achievement is expected to widely promote quality installations of micro hydro systems in the country.

At its mid-term, the project implementation has been satisfactory with implementation of major project outputs in line with the project implementation plan. The project has been introduced to

the stakeholders who have been very supportive and enthusiastic in engaging on mini hydropower projects in Tanzania, since the project inception in 2012, mini hydropower technology has been a top agenda and the most popular technology with much interests from various internal and external investors. The Rural Energy Agency and other government institutions have also dedicating efforts to the development of mini hydropower projects as one of the key technology expected to make the country achieve its energy development agenda of reaching at least 30% from the current 20% of the electrification rate by 2015 countrywide. The project has facilitated capacity building programme for various groups of stakeholders including individual practising engineers, water basin authorities and academia. Capacity of private institutions has been developed to fabricate micro hydro turbines locally, this achievement is expected to widely promote quality installations of micro hydro systems in the country. Mini hydropower technology centre will serve as a one-stop shop for all issues related to small/mini scale hydropower development in Tanzania. All these achievements have led to the overall project implementation progress to be rated Highly Satisfactory.

4.2 Recommendations

Based on the review and findings of this report, the evaluation team prepared several recommendations that can contribute to the achievement of the Project outcomes and outputs and the overall project objective to develop and promote a market environment for investments in mini-grids based on small hydropower sources to augment rural electrification in the United Republic of Tanzania. The recommendation will be separated according to the designees into: recommendations to the Government of the United Republic of Tanzania and Project Management Office (PMU) and recommendations to UNIDO.

Recommendations to the Government of the United Republic of Tanzania and PMU:

7. PMU should include gender mainstreaming as part of the reporting for specific project (example mentioning that out of three Master Students receiving a scholarship from this project two are women).
8. PMU and UNIDO, Center for Small Hydropower Center in Tanzania at CoET UDSM, Tanzania Bureau of Standards, REA and TANESCO should prepare a feasible and sustainable business model for investments in small hydropower projects. REA should take the lead in setting the criteria for any detailed small hydropower investment for <10 MW in terms of security of installation based on best International practices (Example Alternate Hydro Center at IIT Rorkee, India).
9. The Government of Tanzania (EWURA, MEM and REA) should carry-out raising of wider public awareness programs for the new Feed-In-Tariff for Renewable Energy after its completion and passing.
10. The Center for Small Hydropower at CoET UDSM should seek support from REA and other sources post project duration, in case additional funding in order to secure its sustainability is needed.
11. REA, with support from UNIDO should prepare a small communication kit in form of a video and/or mini brochure for demonstrating the effects of mini hydro power as RE

sources for direct poverty reduction through rural electrification and productive uses in the rural areas of Tanzania.

12. The East African Centre for Renewable Energy and Energy Efficiency (EACREEE) and the Center for Small Hydropower in Tanzania at CoET UDSM should collaborate together once EACREEE has been established in order to facilitate regional acting of the Center, in order to use the expertise of the Tanzanian Center in Small Hydro Power. It is recommended to formalize their relationship in form of MoU or similar.

Recommendations to UNIDO

5. UNIDO procurement should facilitate the improvement of communication between supplier and investor, i.e. specifications for supplied equipment should be sent in advance of starting the projects, so that investors can prepare the construction works on time. Optimal will be that these specifications must be a requirement of the ToR with the supplier.
6. UNIDO should implement shorter leadtime from GEF CEO endorsement to actual start of project implementation or project inception phase as a request from the Government of Tanzania.
7. UNIDO and PMU should introduce a detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments, which will be updated periodically.
8. UNIDO and PMU should introduce a system for the demonstration project partners to share the periodical progress reports that they are obliged to submit to EWURA.

4.3 Lessons learned

The purpose of lessons learned is to bring together any insights gained during the project that can be usefully applied in future projects. Capturing lessons learned from the project implementation may result in more effective and efficient future roll out of project activities and organizational learning. Capturing lessons learned and turning that hindsight into best practices will achieve far greater long-term project success. At this stage will be mentioned also the best practices that were applied during this project, which can be captured and possibly replicated within UNIDO and broader.

The following best practices can be learned from this project:

1. The initiative of Andoya of buying electricity from TANESCO and connecting people at a much cheaper price that they pay for the electricity from the diesel and kerosene generators (around 1/3 of the costs for energy) in the surrounding villages in order to acustome people to electricity before start of working of the SHP can be replicated as a best practice.
2. Best practice in this project was the introduction of the Masters Program in Renewable Energy with specialization in Hydro Power at the CoET UDSM.

The following lessons can be learned from this project:

1. Timely disbursement of funds to project activities is vital in making project implementation successful and avoiding project delays.
2. Involvement of stakeholders from the inception phase and conducting due diligence of project stakeholders during the project initiation is important, especially in order to understand the needs of the project developers, and to ensure and create a sense of ownership of the project.
3. Implementation of activities may be halted/delayed due to multi dimensional aspects of different stakeholders involved, such issues like different timelines and institutional procedures can affect timely execution of project activities.
4. As power generation is a priority for the United Republic of Tanzania, all sources of renewable energy are mostly welcomed by the Tanzanian Government, including small hydropower projects in the rural areas, where they support rural electrification and productive uses for small businesses, which leads to immediate poverty reduction.

Annex A: Terms of reference

Terms of Reference

Independent mid-term review of the UNIDO Project:

Mini grid based small hydropower sources to augment rural electrification

UNIDO Project Nr.: XXURT09X01
UNIDO SAP ID: 100261
GEF Project Number: 4004

AUGUST 2014

Contents

I. Project Background and Overview

1. *Project Summary*

The project "Mini-Grids Based on Small Hydro-power Sources to Augment Rural Electrification" (SAP ID: 100261) aims at developing micro / mini hydro-power based mini-grids in Tanzania to supplement the country's effort to increase the access to rural electrification. It will reduce Greenhouse Gases (GHG) emissions resulting from the use of traditional energy sources in rural Tanzania. Micro / mini hydro power will substitute the GHG intensive diesel generators in areas, where there is no electricity.

Tanzania possesses substantial proven technical potential for generating power using small scale hydro power particularly in highland's headwater catchments. The potential for small scale hydro power accounts for about 300-500 MW, of which, only around 24 MW has been developed so far.

Wide development of micro / mini hydro power has not been realized, despite its potential and available opportunities. This is due to various reasons including lack of proper institutional structure to support the development of small hydro-power schemes, lack of technical expertise, high cost and difficulties in sourcing and importing equipment and lack of local manufacturing capabilities/facilities.

This project therefore aims at addressing most of these barriers by establishing a platform for the development of small scale hydro power in the country. The activities will include:

i) conducting detailed feasibility studies for the demonstration sites,
ii) building of capacity for the stakeholders in developing micro / mini hydro-power based mini-grids,
iii) developing viable business model for micro / mini hydropower based mini-grid, and
iv) demonstration of micro / mini hydro-power plants for a cumulative capacity of at least 3.2 MW.

The project is expected to strengthen the policy, regulatory and institutional framework supporting the micro / mini hydro-power based mini-grid systems in Tanzania.

The project is expected to build necessary human and institutional capacities at all levels in order to achieve the scientific, engineering and technical skills and also the infrastructure necessary for the design, development, fabrication, installation and maintenance of micro / mini hydro-power plants.

The proposed micro / mini hydro-power based mini-grids to be setup under the project are expected to bring global benefits by reducing around 335,658 t CO_2e directly and around 2,685,185 t CO_2e indirectly, which otherwise would have resulted from the use of diesel generators, as it is the most common electricity source in Tanzania.

2. *Project Objective*

The project was designed with a goal to reduce GHG emissions related to the use of carbon intensive energy sources in rural areas in Tanzania. The project is to promote market-based approaches to small hydro-power based mini grids in Tanzania to augment rural electrification.

The project immediate objective is to promote micro / mini hydro-power based mini grids in Tanzania to augment rural electrification.

Output	Output indicators
1. Detailed feasibility studies and plant designs prepared for the demonstrations of the identified potential sites.	Six feasibility studies with plant designs carried out with cumulative capacity of 3,331 kW • Andoya site- 1,000 kW • Lupali-Njombe site- 353 kW • Madope site – 1000 kW • Mpando-Njombe site- 320 kW • Tandala (Ijangala) site- 360 kW • Kiliflora Usa-river (Arusha) site- 230 kW • Salala site – 68 kW
2. National micro / mini hydropower (MHP) Technical Centre established at College of Engineering and Technology (CoET), University of Dar es Salaam (UDSM) to provide technical support for various technical institutions in Tanzania.	The MHP Technical Centre is scheduled for inauguration in mid-September at CoET, UDSM to provide technical support for various technical institutions in Tanzania.
3. Technology transferred for local fabrication of micro / mini hydropower equipment.	Two trainings have already been carried out another training is scheduled for September • 11 Persons from river basin authorities and water offices were trained in Dar es Salaam from 10 -21 February 2014. • 7 persons from various engineering institutions & private companies were trained in T15 cross flow turbine manufacturing at Bandung, Indonesia from 4-25 May 2014.
4. Existing guidelines and standards adapted to suit installation and management of micro / mini hydropower plant mini-grids in Tanzania.	
5. Feed-in tariff for micro / mini hydropower in place.	Cumulative of 2.2 MW Small Hydro Power (SHP) sites under implementation.
6. Existing financing options of Rural Energy Agency (REA) streamlined to benefit local entrepreneurs interested in micro / mini hydropower.	
7. 3.2 MW implemented in different locations within the country.	

3. Project Implementation Arrangements

UNIDO is responsible for implementing the project, the delivery of the planned outputs and achievement of the expected outcomes. UNIDO is executing the project in collaboration with the concerned Government Ministries: Ministry of Energy and Minerals, Rural Energy Agency and Vice President's Office-Division of Environment, and the stakeholders: Tanzania Electric Supply Company Ltd., College of Engineering and Technology - University of Dar es Salaam and Private sector enterprises.

UNIDO is the GEF Executing Agency for this project. UNIDO is providing assistance in the procurement process for required equipment, in the selection of national and international consultants as well as the subcontractors in accordance with the operational rules and regulations.

UNIDO is also providing assistance on formal GEF procedures that applies to the project execution, including reporting issues and formal channel of correspondence between the project and the GEF secretariat. GEF specialist is providing technical backstopping to the project as deemed necessary.

UNIDO is responsible for:

- The general management and monitoring of the project;
- Reporting on the project performance to GEF;
- Procuring the international expertise needed for delivering the planned outputs under the four project components;
- Designating the national consultant and the programme officer who will be the focal point of the project;
- Coordinating with the project steering committee to review the project every 2 months during the project implementation period;
- Providing administrative support and financial budgetary follow up required for the execution of the project;
- Annual auditing of the project by following GEF procedures;
- Managing, supervising and monitoring the work of the international teams and ensuring that the deliverables are technically sound and consistent with the project requirements.

Rural Energy Agency (REA) is responsible for:

- Constructing the various demonstration sites
- Establishing the national micro / mini hydro technical centre
- Streamlining financing options for micro / mini hydro projects

College of Engineering and Technology (CoET) is responsible for:

- Providing staff support for the national micro / mini hydro technical centre
- Preparing the various training materials targeting different stakeholders
- Building human and institutional capacity in micro / mini hydro, by conducting suitable trainings

Ministry of Energy and Minerals (MEM) is responsible for:

- Providing additional institutional support for the recommendations on FiT for RE projects including micro / mini hydro projects.

Tanzania Electricity Company Limited (TANESCO) is responsible for:

- Publishing the adapted guidelines for micro / mini hydro installation and management.

A Project Management Unit (PMU) has been established within Rural Electrification Agency (REA). The PMU consist of a Project Manager (PM) and the Project Administrative Assistant (PAA). The responsibilities of PMU are as follows:

- Coordination of all project activities carried out by the national experts and other partners by having close association with MEM and CoET;
- Day-to-day management, monitoring and evaluation of project activities as per planned project work;
- Organization of the various seminars and trainings to be carried out under Project Components 2 and 4.

Since the implementation of the project, the PMU has received the necessary management and monitoring support from UNIDO and the monetary support from GEF and counterparts.

A Project Steering Committee (PSC) has been established. This committee has being reviewing progress of project implementation, to facilitate co-ordination among project shareholders and to maintain transparency in ensuring ownership and to provide support for the sustainability of the project.

The PSC is responsible for:

- Guiding the project development strategically in line with the country needs and priorities
- Promoting the partnership among energy stakeholders
- Reviewing the project progress reports

The PSC has a balanced representation from key stakeholders including MEM, which is responsible for policy formulation and execution of energy related matters in Tanzania, REA, which is responsible for promoting rural energy in the country and TANESCO, which is the national power utility and the major electricity generation and distribution company in the country and Division of Environment - Vice President's Office (VPO-DoE), which is the GEF focal point in the country. UNIDO and the CoET, USDM are responsible for facilitating the capacity building activities. The committee is chaired by the GEF Focal point (Operations) and meets twice a year.

A detailed work plan for the entire duration of the project has been developed by UNIDO in collaboration with the PMU, Tanzanian Governments and international teams of experts. The working plan is used as management and monitoring tool by PMU and UNIDO and it is to be reviewed and updated appropriately on a biannual basis.

REA will be the core counterpart in executing the proposed project and will be responsible for carrying out and completing it. REA and MEM, as co-partners will be responsible for:

- Providing in-kind contribution to the project coordination and administrative issues

- Assisting with office space to accommodate the project coordination personnel and giving him/her necessary technical and administrative support.
- Auditing the project voluntarily by following the national legislation, in case it is deemed necessary.

Figure 1 presents a summary of the project implementation arrangement:

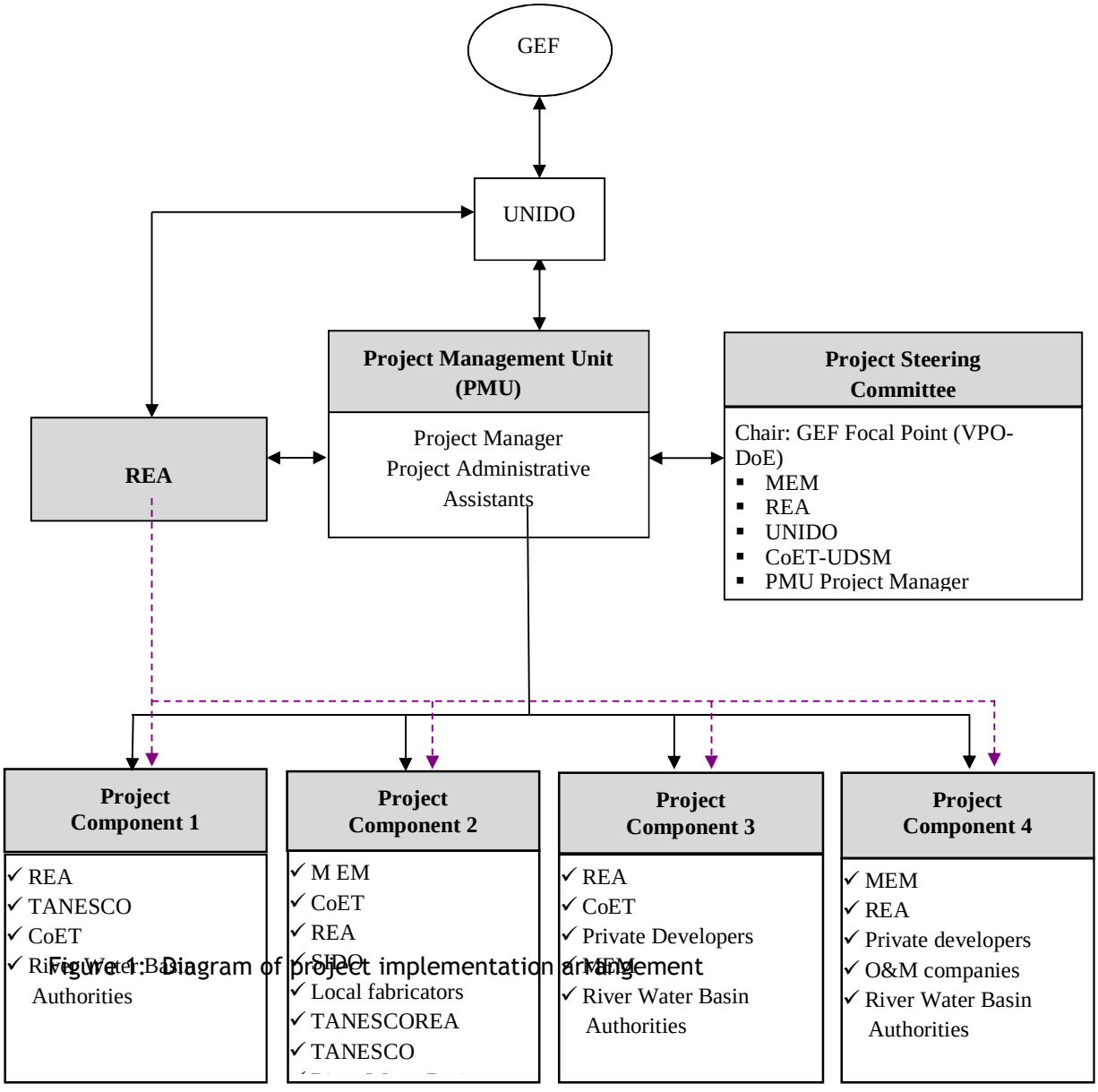


Figure 1: Diagram of project implementation arrangement

4. Budget Information

a) Overall cost and financing (including co-financing):

Project Components/Outcomes	***Co-financing ($)***	***GEF ($)***	**Total ($)**
Technical assessment and mapping of micro / mini hydropower resources in Tanzania / Site specific details on potential micro / mini hydropower sites available for further development.	650,000	200,000	850,000
Capacity building of relevant stakeholders in developing micro / mini hydropower based mini-grids / Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment.	700,000	700,000	1,400,000
Developing viable business models for micro / mini hydropower based mini-grid/ Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	350,000	250,000	600,000
Demonstration of micro / mini hydropower plant based mini-grids / Technical and economic viability of micro / mini hydropower technologies demonstrated.	7,378,500	1,900,000	9,278,500
Project management	700,000	300,000	1,000,000
Total	**9,778,500**	**3,350,000**	**13,128,500**

b) UNIDO budget execution (GEF funding excluding agency support cost in USD):

Budget line	**Item**	**EXECUTED BUDGET in 2013**	**EXECUTED BUDGET in 2014**	**Total Expenditure**
1100	International consultants	15,210.46	16,568.07	31,778.53
1500	Project related travels	4,898.12	41,230.52	46,128.64
1700	National short time consultants	55,358.44	100,244.82	155,603.26
2100	Sub contracts	330,146.90	229,367.63	559,514.53
3000	Trainings/workshop	-	23,145.53	23,145.53
3500	Trainings/workshop	9,910.82	-	9,910.82
4500	Equipment	2,939.04	1,077,376.6	1,080,315.6
5100	Sundries	7,129.80	7087.24	14,217.04

II. Scope and Purpose of the Evaluation

The mid-term evaluation will cover the duration of the project from its starting date in December 2012 to the estimated mid-term evaluation date November 2014. It will assess project performance and progress against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The evaluation team should provide an analysis of the attainment of the main objective and specific objectives under the four core project components. Through its assessments, the evaluation team should enable the Government, counterparts, the GEF, UNIDO and other stakeholders and donors to:

(a) Verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment includes re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter VI.
(b) Enhance project relevance, effectiveness, efficiency and sustainability by proposing a set of recommendations with a view to ongoing and future activities until the end of project implementation.

The key question of the mid-term evaluation is to what extent the project is achieving the expected results at the time of the mid-term evaluation, i.e. to what extent the project has promoted micro / mini hydro-power based mini grids in Tanzania to augment rural electrification.

III. Evaluation Approach and Methodology

The mid-term evaluation will be conducted in accordance with the UNIDO Evaluation Policy, the UNIDO Guidelines for the Technical Cooperation Programmes and Projects, the GEF's 2008 Guidelines for Implementing and Executing Agencies to Conduct Terminal Evaluations, the GEF Monitoring and Evaluation Policy from 2010 and the Recommended Minimum Fiduciary Standards for GEF Implementing and Executing Agencies.

It will be carried out as an independent in-depth evaluation using a participatory approach whereby all key parties associated with the project are kept informed and regularly consulted throughout the evaluation. The evaluation team leader will liaise with the Project Manager on the conduct of the evaluation and methodological issues.

The evaluation team will be required to use different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources: desk studies and literature review, statistical analysis, individual interviews, focus group meetings, surveys and direct observation. This approach will not only enable the evaluation to assess causality through quantitative means but also to provide reasons for why certain results were

achieved or not and to triangulate information for higher reliability of findings. The concrete mixed methodological approach will be described in the inception report.

The evaluation team will develop interview guidelines. Field interviews can take place either in the form of focus-group discussions or one-to-one consultations.

The methodology will be based on the following:

1. A desk review of project documents including, but not limited to:
   - The original project document, monitoring reports (such as progress and financial reports to UNIDO and GEF annual Project Implementation Review (PIR) reports), output reports (case studies, action plans, sub-regional strategies, etc.) and relevant correspondence.
   - Notes from the meetings of committees involved in the project (e.g. approval and steering committees).

2. Other project-related material produced by the project.
3. The evaluation team will use available models of (or reconstruct if necessary) theory of change for the different types of intervention (enabling, capacity, investment, demonstration). The validity of the theory of change will be examined through specific questions in interviews and possibly through a survey of stakeholders.
4. Counterfactual information: In those cases where baseline information for relevant indicators is not available the evaluation team will aim at establishing a proxy-baseline through recall and secondary information.
5. Interviews with project management and technical support including staff and management at UNIDO HQ and in the field and – if necessary - staff associated with the project's financial administration and procurement.
6. Interviews with project partners including Government counterparts, GEF focal points and partners that have been selected for co-financing as shown in the corresponding sections of the project documents.
7. On-site observation of results achieved in demonstration projects, including interviews of actual and potential beneficiaries of improved technologies.
8. Interviews and telephone interviews with intended users for the project outputs and other stakeholders involved with this project. The evaluator shall determine whether to seek additional information and opinions from representatives of any donor agencies or other organizations.
9. Interviews with the relevant UNIDO Country Office and the project's management and Project Steering Committee (PSC) members and the various national and sub-regional authorities dealing with project activities as necessary. If deemed necessary, the evaluator shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.
10. Other interviews, surveys or document reviews as deemed necessary by the evaluator and/or UNIDO EVA.
11. The inception report will provide details on the methodology used by the evaluation team and include an evaluation matrix.

IV. Evaluation Team Composition

The evaluation team will be composed of one international evaluation consultant acting as a team leader and one national evaluation consultant. The evaluation team should be able to provide information relevant for follow-up studies, including evaluation verification on request to the GEF partnership up to two years after completion of the evaluation.

Both consultants will be contracted by UNIDO. The tasks of each team member are specified in the job descriptions attached to these terms of reference.

Members of the evaluation team must not have been directly involved in the design and/or implementation of the programme/projects.

The Project Manager at UNIDO and REA will support the evaluation team. The UNIDO GEF Coordinator will be briefed on the evaluation and equally provide support to its conduct. The UNIDO GEF Coordinator will be briefed on the evaluation.

V. Time Schedule and Deliverables

The mid-term evaluation is scheduled to take place in the period from November 2014 to December 2014. The field mission is planned for December 2014. At the end of the field mission, there will be a presentation of the preliminary findings for all stakeholders involved in this project in Tanzania.

After the field mission, the evaluation team leader will come to UNIDO HQ for debriefing. The draft mid-term evaluation report will be submitted 4-6 weeks after the end of the mission.

VI. Project Evaluation Parameters

The evaluation team will rate the projects. The ***ratings for the parameters described in the following sub-chapters A to K will be presented in the form of a table*** with each of the categories rated separately and with **brief justifications for the rating** based on the findings of the main analysis. An overall rating for the project should also be given. The rating system to be applied is specified in Annexes 1 and 2.

A. Project design

The evaluation will examine the extent to which:

- The project's design is adequate to address the problems at hand;
- A participatory project identification process was instrumental in selecting problem areas and national counterparts;
- The project has a clear thematically focused development objective, the attainment of which can be determined by a set of verifiable indicators;
- The project was formulated based on the logical framework (project results framework) approach;
- The project was formulated with the participation of national counterpart and/or target beneficiaries; and
- Relevant country representatives (from government, industries and civil society) have been appropriately involved and were participating in the identification of critical problem areas and the development of technical cooperation strategies.

B. Project relevance

The evaluation will examine the extent to which the project is relevant to the:

- National development and environmental priorities and strategies of the Government and population of Tanzania, and regional and international agreements. See possible evaluation questions under "Country ownership/driveness" below.
- Target groups: relevance of the project's objectives, outcomes and outputs to the different target groups of the interventions (e.g. companies, civil society, beneficiaries of capacity building and training, etc.).
- GEF's focal areas/operational programme strategies: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies of GEF? Ascertain the likely nature and significance of the contribution of the project outcomes to the wider portfolio of GEF's Focal area of Climate Change, and Operational Program SP3: "Promoting market approaches to renewable energy".
- UNIDO's thematic priorities: Were they in line with UNIDO's mandate, objectives and outcomes defined in the Programme & Budget and core competencies?
- Does the project remain relevant taking into account the changing environment? Is there a need to reformulate the project design and the project results framework given changes in the country and operational context?

C. Effectiveness: objectives and planned final results at the end of the project

The evaluation will assess to what extent results at various levels, including outcomes, have been achieved. In detail, the following issues will be assessed:

- To what extent have the expected outputs, outcomes and long-term objectives been achieved or are likely to be achieved?
- Has the project generated any results that could lead to changes of the assisted institutions?
- Have there been any unplanned effects?
- Are the project outcomes commensurate with the original or modified project objectives?
- If the original or modified expected results are merely outputs/inputs, the evaluators should assess if there were any real outcomes of the project and, if there were, determine whether these are commensurate with realistic expectations from the project.
- How do the stakeholders perceive the quality of outputs?
- Were the targeted beneficiary groups actually reached?
- What outputs and outcomes has the project achieved so far (both qualitative and quantitative results)?
- Has the project generated any results that could lead to changes of the assisted institutions?
- Have there been any unplanned effects?

- Identify actual and/or potential longer-term impacts or at least indicate the steps taken to assess these (see also below "monitoring of long term changes"). Wherever possible, evaluators should indicate how findings on impacts will be reported in future.
- Describe any catalytic or replication effects: the evaluation will describe any catalytic or replication effect both within and outside the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the project's catalytic role.

D. Efficiency

The extent to which:

- The project cost was effective?
- Was the project using the least cost options?
- Has the project produced results (outputs and outcomes) within the expected time frame?
- Was project implementation delayed, and, if it was, did that affect cost effectiveness or results?
- Wherever possible, the evaluator should also compare the costs incurred and the time taken to achieve outcomes with that for similar projects.
- Are the project's activities in line with the schedule of activities as defined by the project team and annual work plans?
- Are the disbursements and project expenditures in line with budgets?
- Have the inputs from the donor, UNIDO and Government/counterpart been provided as planned, and were they adequate to meet requirements?
- Was the quality of UNIDO inputs and services as planned and timely?
- Was there coordination with other UNIDO and other donors' projects, and did possible synergy effects happen?

E. Assessment of sustainability of project outcomes

Sustainability is understood as the likelihood of continued benefits after the GEF project ends. Assessment of sustainability of outcomes will be given special attention but also technical, financial and organization sustainability will be reviewed. This assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. It will include both exogenous and endogenous risks. The following four dimensions or aspects of risks to sustainability will be addressed:

✓ **Financial risks**

- Are there any financial risks that may jeopardize sustainability of project outcomes?
- What is the likelihood of financial and economic resources not being available once GEF assistance ends? (Such resources can be from multiple sources, such as the public and private sectors or income-generating activities; these can also include trends that indicate the likelihood that, in

future, there will be adequate financial resources for sustaining project outcomes.)

- Was the project successful in identifying and leveraging co-financing?

✓ **Sociopolitical risks**

- Are there any social or political risks that may jeopardize sustainability of project outcomes?
- What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?
- Do the various key stakeholders see that it is in their interest that project benefits continue to flow?
- Is there sufficient public/stakeholder awareness in support of the project's long-term objectives?

✓ **Institutional framework and governance risks**

- Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits?
- Are requisite systems for accountability and transparency, and required technical know-how, in place?

✓ **Environmental risks**

- Are there any environmental risks that may jeopardize sustainability of project outcomes?
- Are there any environmental factors, positive or negative, that can influence the future flow of project benefits?
- Are there any project outputs or higher level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits?
- The evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

F. Assessment of monitoring and evaluation systems

✓ **M&E design**

- Did the project have an M&E plan to monitor results and track progress towards achieving project objectives?
- The Evaluation will assess whether the project met the minimum requirements for the application of the Project M&E plan (see Annex 3).

- ✓ **M&E plan implementation.**

The evaluation should verify that a M&E system was in place and facilitated timely tracking of progress toward project objectives by collecting information on chosen indicators continually throughout the project implementation period; annual project reports were complete and accurate, with well-justified ratings; the information provided by the M&E system was used during the project to improve performance and to adapt to changing needs; and the project had an M&E system in place with proper training for parties responsible for M&E activities to ensure that data will continue to be collected and used after project closure. Were monitoring and self-evaluation carried out effectively, based on indicators for outputs, outcomes and impacts? Are there any annual work plans? Was any steering or advisory mechanism put in place? Did reporting and performance reviews take place regularly?

- ✓ **Budgeting and Funding for M&E activities.**

In addition to incorporating information on funding for M&E while assessing M&E design, the evaluators will determine whether M&E was sufficiently budgeted for at the project planning stage and whether M&E was adequately funded and in a timely manner during implementation.

G. Monitoring of long-term changes

The monitoring and evaluation of long-term changes is often incorporated in GEF-supported projects as a separate component and may include determination of environmental baselines; specification of indicators; and provisioning of equipment and capacity building for data gathering, analysis, and use. This section of the evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:

- Did this project contribute to the establishment of a long-term monitoring system?
- If it did not, should the project have included such a component?
- What were the accomplishments and shortcomings in establishment of this system?
- Is the system sustainable—that is, is it embedded in a proper institutional structure and does it have financing?
- How likely is it that this system continues operating upon project completion?
- Is the information generated by this system being used as originally intended?

H. Assessment of processes affecting achievement of project results

Among other factors, when relevant, the evaluation will consider a number of issues affecting project implementation and attainment of project results. The assessment of these issues can be integrated into the analyses of project design, relevance, effectiveness, efficiency, sustainability and management as the evaluators find them fit (it is not necessary, however it is possible to have a separate chapter on these aspects in the evaluation report). The evaluation will consider, but need not be limited to, the following issues that may have affected project implementation and achievement of project results:

a. Preparation and readiness / Quality at entry.

- Were the project's objectives and components clear, practicable, and feasible within its time frame?
- Were counterpart resources (funding, staff, and facilities), and adequate project management arrangements in place at project entry?
- Were the capacities of executing institution and counterparts properly considered when the project was designed?
- Were lessons from other relevant projects properly incorporated in the project design?
- Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval?

b. Country ownership/drivenness.

- Was the project concept in line with the sectoral and development priorities and plans of the country—or of participating countries, in the case of multi-country projects?
- Are project outcomes contributing to national development priorities and plans?
- Were the relevant country representatives from government and civil society involved in the project?
- Did the recipient government maintain its financial commitment to the project?
- Has the government—or governments in the case of multi-country projects—approved policies or regulatory frameworks in line with the project's objectives?

c. Stakeholder involvement.

- Did the project involve the relevant stakeholders through information sharing and consultation?
- Did the project implement appropriate outreach and public awareness campaigns? Were the relevant vulnerable groups and powerful supporters and opponents of the processes properly involved?
- Which stakeholders were involved in the project (i.e. NGOs, private sector, other UN Agencies etc.) and what were their immediate tasks?
- Did the project consult with and make use of the skills, experience, and knowledge of the appropriate government entities, nongovernmental organizations, community groups, private sector entities, local governments, and academic institutions in the design, implementation, and evaluation of project activities?
- Were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process taken into account while taking decisions?
- Were the relevant vulnerable groups and the powerful, the supporters and the opponents, of the processes properly involved?

d. Financial planning

- Did the project have appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds?
- Was there due diligence in the management of funds and financial audits? Did promised co-financing materialize?

- Specifically, the evaluation should also include a breakdown of final actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing.

e. UNIDO's supervision and backstopping

- Did UNIDO staff identify problems in a timely fashion and accurately estimate their seriousness?
- Did UNIDO staff provide quality support and advice to the project, approve modifications in time, and restructure the project when needed?
- Did UNIDO provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

f. Cofinancing and project outcomes and sustainability.

- If there was a difference in the level of expected co-financing and the cofinancing actually realized, what were the reasons for the variance?
- Did the extent of materialization of cofinancing affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

g. Delays and project outcomes and sustainability.

- If there were delays in project implementation and completion, what were the reasons? Did the delays affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

h. **Implementation approach**[1]**.**

- Is the implementation approach chosen different from other implementation approaches applied by UNIDO and other agencies?
- Does the approach comply with the principles of the Paris Declaration?
- Does the approach promote local ownership and capacity building?
- Does the approach involve significant risks?

The evaluation team will rate the project performance as required by the GEF. The ratings will be given to four criteria: Project Results, Sustainability, Monitoring and Evaluation, and UNIDO related issues as specified in Annex 2. The ratings will be presented in a table with each of the categories rated separately and with brief justifications for the rating based on the findings of the main analysis. An overall rating for the project should also be given. The rating system to be applied is specified in the same annex. As per the GEF's requirements, the report should also provide information on project identification, time frame, actual expenditures, and co-financing in the format in Annex 4, which is modeled after the GEF's project identification form (PIF).

I. Project coordination and management

The extent to which:

- The national management and overall coordination mechanisms have been efficient and effective?
- Did each partner have assigned roles and responsibilities from the beginning?

[1] Implementation approach refers to the concrete manifestation of cooperation between UNIDO, Government counterparts and local implementing partners. Usually POPs projects apply a combination of agency execution (direct provision of services by UNIDO) with elements of national execution through sub-contracts.

- Did each partner fulfil its role and responsibilities (e.g. providing strategic support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions…)?
- The UNIDO HQ and Filed Office based management, coordination, monitoring, quality control and technical inputs have been efficient, timely and effective (problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits…)?
- The national management and overall coordination mechanisms were efficient and effective?
- Did each partner have specific roles and responsibilities from the beginning till the end?
- Did each partner fulfil its role and responsibilities (e.g. providing strategic support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions…)?
- Were the UNIDO HQ based management, coordination, quality control and technical inputs efficient, timely and effective (problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits…)?

J. Assessment of gender mainstreaming

The evaluation will consider, but need not be limited to, the following issues that may have affected gender mainstreaming in the project:

To which extent were socioeconomic benefits delivered by the project at the national and local levels, including consideration of gender dimensions?

K. Procurement issues

The following evaluation questions that will feed in the Thematic Evaluation on Procurement have been developed and would be included as applicable in all projects (for reference, please see Annex 7 of the ToR: UNIDO Procurement Process):

- To what extent does the process provide adequate treatment to different types of procurement (e.g. by value, by category, by exception…)
- Was the procurement timely? How long the procurement process takes (e.g. by value, by category, by exception…)
- Did the good/item(s) arrive as planned or scheduled? If no, how long were the times gained or delays. If delay, what was the reason(s)?
- Were the procured good(s) acquired at a reasonable price?
- To what extent were the procured goods of the expected/needed quality and quantity?
- Were the transportation costs reasonable and within budget. If no, pleased elaborate.
- Was the freight forwarding timely and within budget?. If no, pleased elaborate.

- Who was responsible for the customs clearance? UNIDO FO? UNDP? Government? Other?

- Was the customs clearance handled professionally and in a timely manner? How many days did it take?

- How long time did it take to get approval from the government on import duty exemption?

- Which were the main bottlenecks / issues in the procurement process?

- Which good practices have been identified?

- To what extent roles and responsibilities of the different stakeholders in the different procurement stages are established, adequate and clear?

- To what extent there is an adequate segregation of duties across the procurement process and between the different roles and stakeholders?

VII. Reporting

Inception report

This Terms of Reference provides some information on the evaluation methodology but this should not be regarded as exhaustive. After reviewing the project documentation and initial interviews with the project manager the International Evaluation Consultant will prepare, in collaboration with the national consultant, a short inception report that will operationalize the ToR relating to the evaluation questions and provide information on what type of and how the evidence will be collected (methodology). The Inception Report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework ("evaluation matrix"); division of work between the International Evaluation Consultant and National Consultant; mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable[2].

Evaluation report format and review procedures

The draft report will be delivered to UNIDO EVA (the suggested report outline is in Annex 1) and circulated to UNIDO staff and national stakeholders associated with the project for factual validation and comments. Any comments or responses, or feedback on any errors of fact to the draft report provided by the stakeholders will be sent to the Project Manager for collation and onward transmission to the project evaluation team who will be advised of any necessary revisions. On the basis of this feedback, and taking into consideration the comments received, the evaluation team will prepare the final version of the mid-term evaluation report.

The evaluation team will present its preliminary findings to the local stakeholders at the end of the field visit and take into account their feed-back in preparing the evaluation report. A presentation of preliminary findings will take place in Tanzania and at HQ after the field mission.

[2] The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by the UNIDO Office for Independent Evaluation.

The mid-term evaluation report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, exactly what was evaluated, and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Findings, conclusions and recommendations should be presented in a complete, logical and balanced manner. The evaluation report shall be written in English and follow the outline given in Annex 1.

Evaluation Work Plan

The "Evaluation Work Plan" includes the following main products:

Desk review, briefing by project manager and development of methodology: Following the receipt of all relevant documents, and consultation with the Project Manager about the documentation, including reaching an agreement on the Methodology, the desk review could be completed.

Inception report: At the time for departure to the field mission, the complete gamete of received materials have been reviewed and consolidated into the Inception report.

Field mission: The principal responsibility for managing this evaluation lies with UNIDO. It will be responsible for liaising with the project team to set up the stakeholder interviews, arrange the field missions, coordinate with the Government. At the end of the field mission, there will be a presentation of preliminary findings to the key stakeholders in the country where the project was implemented.

Preliminary findings from the field mission: Following the field mission, the main findings, conclusions and recommendations would be prepared and presented in the field and at UNIDO Headquarters.

A draft Mid-term evaluation report will be forwarded electronically to the Project Manager, who will forward the same to the Office for Independent Evaluation and circulated to main stakeholders.

A final Mid-term evaluation report will incorporate comments received.

VIII.Quality Assurance

The Project Manager (PM) will be responsible for managing the evaluation, preparing the terms of reference (TOR) and the job description (JD) of the evaluation consultant(s) on the basis of guidance of UNIDO's Office for Independent Evaluation (ODG/EVA). The PM will forward drafts and final reports to ODG/EVA for review, distribute drafts and final reports to stakeholders (upon review by ODG/EVA), and organize presentations of preliminary evaluation findings which serve to generate feedback on and discussion of evaluation findings and recommendations at UNIDO HQ. Finally, the PM will be responsible for the submission of the final Mid-Term Evaluation Report.

Annex 1 - Outline of an In-Depth Project Evaluation Report

Executive summary

- Must provide a synopsis of the storyline which includes the main evaluation findings and recommendations
- Must present strengths and weaknesses of the project
- Must be self-explanatory and should be 3-4 pages in length

I. Evaluation objectives, methodology and process

- Information on the evaluation: why, when, by whom, etc.
- Scope and objectives of the evaluation, main questions to be addressed
- Information sources and availability of information
- Methodological remarks, limitations encountered and validity of the findings

II. Countries and project background

- Brief countries context: an overview of the economy, the environment, institutional development, demographic and other data of relevance to the project
- Sector-specific issues of concern to the project[3] and important developments during the project implementation period
- Project summary:
  - Fact sheet of the project: including project objectives and structure, donors and counterparts, project timing and duration, project costs and co-financing
  - Brief description including history and previous cooperation
  - Project implementation arrangements and implementation modalities, institutions involved, major changes to project implementation
  - Positioning of the UNIDO project (other initiatives of government, other donors, private sector, etc.)
  - Counterpart organization(s)

III. Project assessment

This is the key chapter of the report and should address all evaluation criteria and questions outlined in the TOR (see section VI Project Evaluation Parameters). Assessment must be based on factual evidence collected and analyzed from different sources. The evaluators' assessment can be broken into the following sections:

A. Design
B. Relevance (Report on the relevance of project towards countries and beneficiaries)
C. Effectiveness (The extent to which the development intervention's objectives and deliverables were achieved, or are expected to be achieved, taking into account their relative importance)
D. Efficiency (Report on the overall cost-benefit of the project and partner Countries contribution to the achievement of project objectives)
E. Sustainability of Project Outcomes (Report on the risks and vulnerability of the project, considering the likely effects of sociopolitical and institutional

[3] Explicit and implicit assumptions in the logical framework of the project can provide insights into key-issues of concern (e.g. relevant legislation, enforcement capacities, government initiatives, etc.)

changes in partner countries, and its impact on continuation of benefits after the GEF project ends, specifically the financial, sociopolitical, institutional framework and governance, and environmental risks)

F. Assessment of monitoring and evaluation systems (Report on M&E design, M&E plan implementation, and Budgeting and funding for M&E activities)
G. Monitoring of long-term changes
H. Assessment of processes affecting achievement of project results (Report on preparation and readiness / quality at entry, country ownership, stakeholder involvement, financial planning, UNIDO support, cofinancing and project outcomes and sustainability, delays of project outcomes and sustainability, and implementation approach)
I. Project coordination and management (Report project management conditions and achievements, and partner countries commitment)
J. Gender mainstreaming
K. Procurement issues

At the end of this chapter, an overall project achievement rating should be developed as required in Annex 2. The overall rating table required by the GEF should be presented here.

IV. Conclusions, Recommendations and Lessons Learned

This chapter can be divided into three sections:

A. Conclusions

This section should include a storyline of the main evaluation conclusions related to the project's achievements and shortfalls. It is important to avoid providing a summary based on each and every evaluation criterion. The main conclusions should be cross-referenced to relevant sections of the evaluation report.

B. Recommendations

This section should be succinct and contain few key recommendations. They should:

- be based on evaluation findings
- realistic and feasible within a project context
- indicate institution(s) responsible for implementation (addressed to a specific officer, group or entity who can act on it) and have a proposed timeline for implementation if possible
- be commensurate with the available capacities of project team and partners
- take resource requirements into account.

Recommendations should be structured by addressees:

- UNIDO
- Government and/or Counterpart Organizations
- Donor

C. Lessons Learned

- Lessons learned must be of wider applicability beyond the evaluated project but must be based on findings and conclusions of the evaluation
- For each lesson the context from which they are derived should be briefly stated

Annexes should include the evaluation TOR, list of interviewees, documents reviewed, a summary of project identification and financial data, and other detailed quantitative information. Dissident views or management responses to the evaluation findings may later be appended in an annex.

Annex 2 - Overall Ratings Table

Criterion	Evaluator's Summary Comments	Evaluator's Rating
Attainment of project objectives and results (overall rating) **Sub criteria (below)**		
Design		
Effectiveness		
Relevance		
Efficiency		
Sustainability of Project outcomes (overall rating) **Sub criteria (below)**		
Financial risks		
Sociopolitical risks		
Institutional framework and governance risks		
Environmental risks		
Monitoring and Evaluation (overall rating) **Sub criteria (below)**		
M&E Design		
M&E Plan Implementation (use for adaptive management)		
Budgeting and Funding for M&E activities		
Project management		
UNIDO specific ratings		
Quality at entry / Preparation and readiness		
Implementation approach		
UNIDO Supervision and backstopping		
Overall Rating		

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits beyond project completion. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability.

Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in either of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on 'M&E Design', 'M&E Plan Implementation' and 'Budgeting and Funding for M&E activities' as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.
Satisfactory(S): There were minor shortcomings in the project M&E system.
Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.
Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.
Unsatisfactory (U): There were major shortcomings in the project M&E system.
Highly Unsatisfactory (HU): The Project had no M&E system.

"M&E plan implementation" will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on "M&E plan implementation."

All other ratings will be on the GEF six point scale:

HS	= Highly Satisfactory	Excellent
S	= Satisfactory	Well above average
MS	= Moderately Satisfactory	Average
MU	= Moderately Unsatisfactory	Below Average
U	= Unsatisfactory	Poor
HU	= Highly Unsatisfactory	Very poor (Appalling)

Annex 3 - GEF Minimum Requirements for M&E[4]

Minimum Requirement 1: Project Design of M&E

All projects will include a concrete and fully budgeted monitoring and evaluation plan by the time of work program entry for full-sized projects and CEO approval for medium-sized projects. This monitoring and evaluation plan will contain as a minimum:

SMART indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management;

SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, indicators identified at the corporate level;

Baseline for the project, with a description of the problem to be addressed, with indicator data, or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation;

Identification of reviews and evaluations that will be undertaken, such as mid-term reviews or evaluations of activities; and

Organizational set-up and budgets for monitoring and evaluation.

Minimum Requirement 2: Application of Project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

SMART indicators for implementation are actively used, or if not, a reasonable explanation is provided;

SMART indicators for results are actively used, or if not, a reasonable explanation is provided;

The baseline for the project is fully established and data compiled to review progress reviews, and evaluations are undertaken as planned; and

The organizational set-up for M&E is operational and budgets are spent as planned.

[4] http://www.thegef.org/gef/sites/thegef.org/files/documents/ME_Policy_2010.pdf

Annex 4 – Required Project Identification and Financial Data

The evaluation report should provide information on project identification, time frame, actual expenditures, and co-financing in the following format, which is modeled after the project identification form (PIF).

I. Project general information:

Project Title	
GEF ID Number	
UNIDO ID (SAP Number)	
Region	
Country(ies)	
GEF Focal Area and Operational Program:	
Co-Implementing Agency(ies)	
GEF Agencies (Implementing Agency)	
Project Executing Partners	
Project Size (FSP, MSP, EA)	
Project CEO Endorsement/Approval Date	
Project Implementation Start Date (PAD Issuance Date)	
Original Expected Implementation End Date **(indicated in CEO Endorsement/Approval document)**	
Revised Expected Implementation End Date (if any)	
Project Duration (Months)	
GEF Grant (USD)	
GEF PPG (USD) (if any)	
Co-financing (USD) at CEO Endorsement	
Total Project Cost (USD) **(GEF Grant + Co-financing at CEO Endorsement)**	
Agency Fee (USD)	

II. Dates

Milestone	Expected Date	Actual Date
Project CEO Endorsement/Approval Date		
Project Implementation Start Date (PAD Issuance Date)		
Original Expected Implementation End Date (indicated in CEO Endorsement/Approval document)		
Revised Expected Implementation End Date (if any)		
Mid-term evaluation completion		
Planned Tracking Tool Date		

III. Project Framework

Project Component	Activity Type	GEF Financing (in $)		Cofinancing (in $)	
		Approved	Actual	Promised	Actual
1.					
2.					
3.					
4.					
5.					
6. Project Management					
Total					

Activity types are:
Experts, researches hired technical assistance, Workshop, Meetings or experts consultation scientific and technical analysis.
Promised co-financing refers to the amount indicated on endorsement/approval.

IV. Co-financing

		Project preparation		Project implementation		Total	
Source of cofinancing	Type	Expected	Actual	Expected	Actual	Expected	Actual
Host gov't contribution							
GEF Agency (ies)							
Bilateral aid agency (ies)							
Multilateral agency (ies)							
Private sector							
NGO							
Other							
Total cofinancing							

Expected amounts are those submitted by the GEF Agencies in the original project appraisal document. Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

Annex 5 – ToR - Job Descriptions

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Evaluation Consultant (Team leader)
Main Duty Station and Location:	Home-based
Mission/s to:	Dar-es-Salaam, Tanzania and travel to potential sites, and Vienna, Austria
Start of Contract (EOD):	20 December2014
End of Contract (COB):	31 January 2015
Number of Working Days:	30

ORGANIZATIONAL CONTEXT *The Office for Independent Evaluation is responsible for the independent evaluation function of UNIDO. It supports learning, continuous improvement and accountability, and provides factual information about result and practices that feed into the programmatic and strategic decision-making processes. Evaluation is an assessment, as systematic and impartial as possible, of a programme, a project or a theme. Independent evaluations provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons learned into the decision-making processes at organization-wide, programme and project level. The Office for Independent Evaluation is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.*

PROJECT CONTEXT *The consultant will evaluate the projects according to the Terms of Reference. S/he will act as leader of the evaluation team and will be responsible for preparing the draft and final evaluation report. S/he will perform the following tasks:*

MAIN DUTIES	Concrete/ measurable Outputs to be achieved	Expected duration	Location

MAIN DUTIES	Concrete/ measurable Outputs to be achieved	Expected duration	Location
Review project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data); determine key data to collect in the field and prepare key instruments (questionnaires, logic models) to collect these data through interviews and/or surveys during and prior to the field missions Assess the adequacy of legislative and regulatory framework in Tanzania	List of detailed evaluation questions to be clarified; questionnaires/ interview guide; logic models; list of key data to collect, draft list of stakeholders to interview during the field missions Brief assessment of the adequacy of the country's legislative and regulatory framework	5 days	Home-based
Briefing with the UNIDO Office for Independent Evaluation, project managers and other key stakeholders at HQ Preparation of the Inception Report	Interview notes, detailed evaluation schedule and list of stakeholders to interview during the field missions Division of evaluation tasks with the National Consultant Inception Report	2 days	Home-based (telephone interviews)
Conduct field mission	Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders in the country at the end of the missions. Agreement with the National Consultant on the structure and content of the evaluation report and the	9 days (including travel days)	Tanzania

MAIN DUTIES	Concrete/ measurable Outputs to be achieved	Expected duration	Location
	distribution of writing tasks		
Present overall findings and recommendations to the stakeholders at UNIDO HQ (incl. travel)	Presentation slides, feedback from stakeholders obtained and discussed	3 days	Vienna, Austria, UNIDO HQs
Prepare the evaluation report according to TOR Coordinate the inputs from the National Consultant and combine with her/his own inputs into the draft evaluation report	Draft evaluation report	6 days	Home-based
Revise the draft project evaluation reports based on comments from UNIDO Office for Independent Evaluation and stakeholders and edit the language and form of the final version according to UNIDO standards	Final evaluation report	5 days	Home-based
Total		**30 days**	

REQUIRED COMPETENCIES

Core values:
1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:
1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):
1. Strategy and direction
2. Managing people and performance
3. Judgment and decision making
4. Conflict resolution

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in environmental science, engineering or other relevant discipline like developmental studies with a specialization in renewable energies, industrial energy efficiency and/or climate change.

Technical and Functional Experience:
A minimum of seven years practical experience in the field of environment and energy, including evaluation experience at the international level involving technical

cooperation in developing countries. Exposure to the needs, conditions and problems in developing countries.

Languages: Fluency in written and spoken English is required.

Absence of Conflict of Interest:
According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the Office for Independent Evaluation.

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	**National Evaluation Consultant**
Main Duty Station and Location:	**Home-based**
Mission/s to:	**Dar-es-Salaam, Tanzania and travel to potential sites**
Start of Contract (EOD):	**1 November 2014**
End of Contract (COB):	**31 January 2015**
Number of Working Days:	**21**

ORGANIZATIONAL CONTEXT *The Office for Independent Evaluation is responsible for the independent evaluation function of UNIDO. It supports learning, continuous improvement and accountability, and provides factual information about result and practices that feed into the programmatic and strategic decision-making processes. Evaluation is an assessment, as systematic and impartial as possible, of a programme, a project or a theme. Independent evaluations provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons learned into the decision-making processes at organization-wide, programme and project level. The Office for Independent Evaluation is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.*

PROJECT CONTEXT *The consultant will evaluate the projects according to the Terms of Reference under the leadership of the Team Leader (International Evaluation Consultant). S/he will act as leader of the evaluation team and will be responsible for preparing the draft and final evaluation report. S/he will perform the following tasks:*

MAIN DUTIES	Concrete/ measurable Outputs to be achieved	Expected duration	Location

Review project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data…); in cooperation with Team Leader: determine key data to collect in the field and prepare key instruments (questionnaires, logic models…) to collect these data through interviews and/or surveys during and prior to the field missions Assess the adequacy of legislative and regulatory framework in Tanzania	List of detailed evaluation questions to be clarified; questionnaires/ interview guide; logic models; list of key data to collect, draft list of stakeholders to interview during the field missions Brief assessment of the adequacy of the country's legislative and regulatory framework	3 days	Home-based
Briefing with the evaluation team leader, UNIDO project managers and other key stakeholders Assist in setting up the evaluation mission agenda, coordinating meetings and site visits Assist the Team Leader in the Preparation of the Inception Report	Interview notes, detailed evaluation schedule and list of stakeholders to interview during the field missions Division of evaluation tasks with the National Consultant Inception Report	3 days	Home-based (telephone interviews)
Conduct field mission	Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders in the country at the end of the mission. Agreement with the International Consultant and Team Leader on the structure and content of the evaluation report and the distribution of writing tasks	7 days (including travel days)	Tanzania
Prepare inputs to the evaluation report according to TOR and as agreed with Team Leader	Draft evaluation report	6 days	Home-based
Revise the draft project evaluation reports based on	Final evaluation report	2 days	Home-based

comments from UNIDO Office for Independent Evaluation and stakeholders and edit the language and form of the final version according to UNIDO standards			
Total		21 days	

REQUIRED COMPETENCIES

Core values:
1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:
1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):
1. Strategy and direction
2. Managing people and performance
3. Judgement and decision making
4. Conflict resolution

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in environmental science, engineering or other relevant discipline like developmental studies with a specialization in renewable energies, industrial energy efficiency and/or climate change.

Technical and Functional Experience:
A minimum of five years practical experience in the field of environment and energy, including evaluation experience at the international level involving technical cooperation in developing countries. Exposure to the needs, conditions and problems in developing countries. Familiarity with the institutional context of the project in Ministry of Energy and Minerals, Rural Energy Agency is desirable.

Languages: Fluency in written and spoken English is required.

Absence of Conflict of Interest:
According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the Office for Independent Evaluation.

Annex 6 –Project Logical Framework

Project Strategy		Objectives verifiable indicators				
		Indicator (quantified and time-bound)	**Baseline**	**Target**	**Source of verification**	**Risks and assumptions**
Goal	To reduce GHG emissions related to the use of carbon intensive energy sources in rural areas in Tanzania.	1. Percentage increment in use of micro / mini hydropower based electricity by rural population. 2. Percentage Increment in CO_2e emission reductions (t CO_2e).	1. Only 2% of rural population has access to grid electricity. 2. CO_2 emission due to diesel based local power generation.	A cumulative of 3.2 MW micro / mini hydropower based mini-grids installed during the project duration (2011-2015).	1. Physical verification of the projects in operation. 2. End of project M&E report.	1. Continuous support of relevant government departments and private investors are in place. 2. Policies are in place.
Objective of the project	To promote micro / mini hydropower based mini grids in Tanzania to augment rural electrification.	1. Number of MWs of micro / mini hydropower based mini-grids in operational. 2. Number of locally fabricated micro / mini hydropower equipment and accessories. 3. Number of institutions and entrepreneurs available for developing micro / mini hydropower plants. 4. FiT for RE including	1. Only 2% of rural population has access to grid electricity. 2. No local fabricators available for micro / mini hydropower equipment. 3. Lack of technical capacity (human and institutional). 4. Weak policy and regulatory	1. 3.2 MW (cumulative capacity) of micro / mini hydropower plants with mini-grids established. 2. At least 5 institutions and 5 entrepreneurs available for developing micro / mini hydropower plants. 3. FiT for RE including small/micro / mini hydropower plants established.	1. Physical verification of the implemented projects. 2. Physical verification of the fabrication units. 3. Published FiT rates for micro / mini hydropower mini-grids.	1. Sustained support of the Government (through different policies), REA, all project participants and project investors. 2. Interested local fabricators available.

Project Strategy		Objectives verifiable indicators				
		Indicator (quantified and time-bound)	**Baseline**	**Target**	**Source of verification**	**Risks and assumptions**
		small/micro / mini hydropower plants in place.	regime.			
Outcome 1	Site specific details on potential micro / mini hydropower sites available for further development.	1. Detailed techno-economic feasibility studies for the identified 9 demonstration sites..	1. Lack of detailed studies for the demonstration sites.	1. Feasibility studies of identified demonstration sites developed.	1. Feasibility study reports.	Continuous support of Government agencies, national utility and the private sector.
Project Component 1: Techno-economic feasibility studies for the identified demonstration sites						
Output 1.1	Detailed feasibility studies and plant designs prepared for the demonstrations in the identified potential sites.	Number of feasibility reports of the demonstration sites (cumulative 3.2 MW).	No feasibility studies exist for the micro / mini hydropower plants development.	To undertake feasibility studies of demonstration sites.	9 feasibility study reports including plant designs for the demonstration sites.	Sustained private and Government support upon agreed project activities.
Outcome 2	Investment cost of micro / mini hydropower based mini-grids reduced because of the local availability of technical experts and high quality indigenous hydropower equipment.	1. Number of trained local planners and experts on micro / mini hydropower based mini-grids. 2. Number of institutions capable of guiding and supporting micro / mini hydropower plant development in future. 3. Number of micro / mini hydropower turbines and controls systems manufacturing	1. No sufficient local knowledge exists on developing, implementing and managing the micro / mini hydropower projects. 2. Inadequate institutional capacity exists in the country. 3. Micro / mini	1. To strengthen the capacity of at least 100 persons from CoET, experts, planners and other relevant stakeholders to support micro / mini hydropower mini-grids development in the country. 2. To build capacity of TANESCO and River Basin	1. Number of trained persons. 2. Number of institutions capable of guiding and supporting micro / mini hydropower plant. 3. Physical verification of operating personnel in the power plant.	1. Sustained private, institution and Government support upon agreed project activities. 2. Interest of local fabricators.

Project Strategy		Objectives verifiable indicators				
		Indicator (quantified and time-bound)	**Baseline**	**Target**	**Source of verification**	**Risks and assumptions**
		facilities operating in the country.	hydropower turbines and control systems are imported.	Authorities in developing and managing micro / mini hydropower systems. 3. To transfer technology for facilitating local fabrication of micro / mini hydropower plant equipment to at least 5 interested suppliers.	4. Training materials. 5. Training evaluation report. 6. Number of trained fabricators. 7. Physical verification of the manufacturing facilities.	
Project Component 2: Capacity building of stakeholders in developing micro / mini hydropower based mini-grids						
Output 2.1	National micro / mini hydropower technical centre established at CoET, UDSM to provide technical support for various technical institutions in Tanzania.	Approval received and Centre operating.	Insufficient technical capacity exists in various institutions on micro / mini hydropower systems.	To establish the centre, strengthen it with trained personnel and equip with necessary tools and systems for micro / mini hydropower plant development.	1. Physical verification. 2. Government reports. 3. End of project M&E report.	Continuous support of the participating technical institutions, private sector and Government of Tanzania.
Output 2.2	Technology transferred for local fabrication of micro / mini hydropower equipment.	1. Number of local fabricators trained and licensed in manufacturing of micro / mini hydropower equipment. 2. Number of locally	All hydropower equipment imported.	1. To transfer and adapt micro / mini hydro turbine technology to Tanzania. 2. To train at least 5 interested suppliers.	1. No. of trained fabricators 2. License certificates 3. Training evaluation report	Interest of local fabricators and investors.

Project Strategy		Objectives verifiable indicators				
		Indicator (quantified and time-bound)	**Baseline**	**Target**	**Source of verification**	**Risks and assumptions**
		fabricated turbines used in at least 2 installations of the project.			4. No. of trained persons 5. Physical verification	
Output 2.3	Existing guidelines and standards adapted to suit installation and management of micro / mini hydropower plant mini-grids in Tanzania.	Existing guidelines and standards adapted to suit the micro / mini hydropower development, installation and commissioning in Tanzania	No guidelines and standards exist for micro / mini hydropower installation and management. Current focus is on large hydropower plants only.	To prepare and disseminate guidelines and standards on installation and management of micro / mini hydropower mini-grid projects.	1. Guidelines on project development, installation and commissioning. 2. Government reports.	Continuous support of Government, close collaboration of TANESCO and TBS.
Output 2.4	Feed-in tariff for micro / mini hydropower in place.	Feed-in-tariff system favouring RE including micro / mini hydropower market available.	No market based systems favouring RE including micro / mini hydropower exists in the country.	To facilitate introduction of feed-in-tariff for micro / mini hydropower systems	Communiqué of regulatory authority.	Sustained collaboration among Government, micro / mini hydropower training centre, relevant institutions and private stakeholders.
Outcome 3	Interest in developing micro / mini hydropower projects increased among the local entrepreneurs.	1. Number of micro / mini hydropower plants developed and invested by local entrepreneurs.	1. Low interest from private entrepreneurs to engage in micro / mini hydropower development.	1. To create interest among investors and entrepreneurs in micro / mini hydropower projects of at least 24 MW capacity	1. Number of investors. 2. Business models developed. 3. Physical verification of the operating power	Interest of local entrepreneurs.

Project Strategy		Objectives verifiable indicators				
		Indicator (quantified and time-bound)	**Baseline**	**Target**	**Source of verification**	**Risks and assumptions**
					plants	
Project Component 3: Developing viable business models for micro / mini hydropower based mini-grid						
Output 3.1	Existing financing options of REA streamlined to benefit local entrepreneurs interested in micro / mini hydropower.	Percentage increase in engagement of local entrepreneurs to develop micro / mini hydropower projects.	Low interest from private entrepreneurs to engage in micro / mini hydropower project development.	At least 10 private sector initiatives facilitated for micro / mini hydropower based mini-grids.	1. Project progress reports. 2. End of Project survey.	Sustained support of Government and the private stakeholders.
Outcome 4	Technical and economic viability of micro / mini hydropower technologies demonstrated.	1. Number of rural households with access to electricity. 2. Number of micro / mini hydropower plants in operation.	Only around 2% of the rural population has access to grid electricity.	To establish at least 3.2 MW (cumulative) capacity of micro / mini hydropower based mini-grids in rural areas.	1. Physical verification. 2. Report of commissioning.	Sustained support of Government and private stakeholders.
Project Component 4: Demonstration of micro / mini hydropower plant based mini-grids						
Output 4.1	3.2 MW implemented in different locations within the country.	Micro / mini hydropower power plants established and running in different sites of Tanzania.	Currently only 5 MW of the potential 250 MW micro / mini hydropower exist.	To develop micro / mini hydropower plants within the capacity ranging from 98 kW – 1MW in selected sites.	1. Physical verification of the implemented projects. 2. Performance monitoring report 3. Site visit / seminar. 4. Seminar material, leaflets, various publications and website.	1. Sustained support of the Government. 2. Sustained investor support to visit the project while in operation and data collection.

Annex 7 – UNIDO Procurement Process

UNIDO Procurement Process
-- Generic Approach and Assessment Framework –

1. Introduction

This document outlines an approach and encompasses a framework for the assessment of UNIDO procurement processes, to be included as part of country evaluations as well as in technical cooperation (TC) projects/programmes evaluations.

The procurement process assessment will review in a systematic manner the various aspects and stages of the procurement process being a key aspect of the technical cooperation (TC) delivery. These reviews aim to diagnose and identify areas of strength as well as where there is a need for improvement and lessons.

The framework will also serve as the basis for the "thematic evaluation of the procurement process efficiency" to be conducted in 2015 as part of the ODG/EVA work programme for 2014-15.

2. Background

Procurement is defined as the overall process of acquiring goods, works, and services, and includes all related functions such as planning, forecasting, supply chain management, identification of needs, sourcing and solicitation of offers, preparation and award of contract, as well as contract administration until the final discharge of all obligations as defined in the relevant contract(s). The procurement process covers activities necessary for the purchase, rental, lease or sale of goods, services, and other requirements such as works and property.

Past project and country evaluations commissioned by ODG/EVA raised several issues related to procurement and often efficiency related issues. It also became obvious that there is a shared responsibility in the different stages of the procurement process which includes UNIDO staff, such as project managers, and staff of the procurement unit, government counterparts, suppliers, local partner agencies (i.e. UNDP), customs and transport agencies etc..

In July 2013, a new "UNIDO Procurement Manual" was introduced. This Procurement Manual provides principles, guidance and procedures for the Organization to attain specified standards in the procurement process. The Procurement Manual also establishes that "The principles of fairness, transparency, integrity, economy, efficiency and effectiveness must be applied for all procurement transactions, to be delivered with a high level of professionalism thus justifying UNIDO's involvement in and adding value to the implementation process".

To reduce the risk of error, waste or wrongful acts and the risk of not detecting such problems, no single individual or team controls shall control all key stages of a transaction. Duties and responsibilities shall be assigned systemically to a number of individuals to ensure that effective checks and balances are in place.

In UNIDO, authorities, responsibilities and duties are segregated where incompatible. Related duties shall be subject to regular review and monitoring. Discrepancies, deviations and exceptions are properly regulated in the Financial Regulations and Rules and the Staff Regulations and Rules. Clear segregation of duties is maintained between

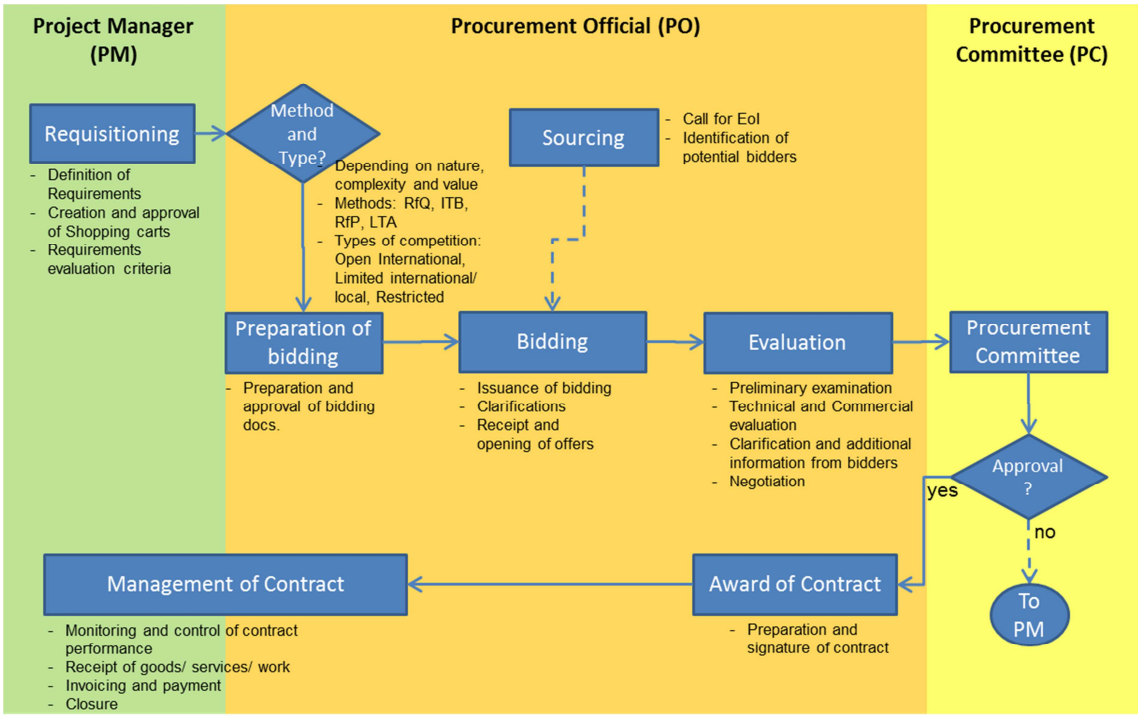
programme/project management, procurement and supply chain management, risk management, financial management and accounting as well as auditing and internal oversight. Therefore, segregation of duties is an important basic principle of internal control and must be observed throughout the procurement process.

The different stages of the procurement process should be carried out, to the extent possible, by separate officials with the relevant competencies. As a minimum, two officials shall be involved in carrying out the procurement process. The functions are segregated among the officials belonging to the following functions:

- Procurement Services: For carrying out centralized procurement, including review of technical specifications, terms of reference, and scope of works, market research/surveys, sourcing/solicitation, commercial evaluation of offers, contract award, contract management;
- Substantive Office: For initiating procurement requests on the basis of well formulated technical specifications, terms of reference, scope of works, ensuring availability of funds, technical evaluation of offers; award recommendation; receipt of goods/services; supplier performance evaluation. In respect of decentralized procurement, the segregation of roles occur between the Project Manager/Allotment Holder and his/her respective Line Manager. For Fast Track procurement, the segregate on occurs between the Project Manager/Allotment Holder and Financial Services;
- Financial Services: For processing payments.

Figure 1 presents a preliminary "Procurement Process Map", showing the main stages, stakeholders and their respective roles and responsibilities. During 2014/2015, in preparation for the thematic evaluation of the procurement process in 2015, this process map/ workflow will be further refined and reviewed.

Figure 1: UNIDO Procurement Process Map



3. Purpose

The purpose of the procurement process assessments is to diagnose and identify areas for possible improvement and to increase UNIDO's learning about strengths and weaknesses in the procurement process. It will also include an assessment of the adequacy of the 'Procurement Manual" as a guiding document.

The review is intended to be useful to managers and staff at UNIDO headquarters and in the field offices (project managers, procurement officers), who are the direct involved in procurement and to UNIDO management.

4. Scope and focus

Procurement process assessments will focus on the efficiency aspects of the procurement process, and hence it will mainly fall under the efficiency evaluation criterion. However, other criteria such as effectiveness will also be considered as needed.

These assessments are expected to be mainstreamed in all UNIDO country and project evaluations to the extent of its applicability in terms of inclusion of relevant procurement related budgets and activities.

A generic evaluation matrix has been developed and is found in Annex B. However questions should be customized for individual projects when needed.

5. Key Issues and Evaluation Questions

Past evaluations and preliminary consultations have highlighted the following aspects or identified the following issues:

- Timeliness. Delays in the delivery of items to end-users.
- Bottlenecks. Points in the process where the process stops or considerably slows down.
- Procurement manual introduced, but still missing subsidiary templates and tools for its proper implementation and full use.
- Heavy workload of the procurement unit and limited resources and increasing "procurement demand"
- Lack of resources for initiating improvement and innovative approaches to procurement (such as Value for Money instead of lowest price only, Sustainable product lifecycle, environmental friendly procurement, etc.)
- The absence of efficiency parameters (procurement KPIs)

On this basis, the following evaluation questions have been developed and would be included as applicable in all project and country evaluations in 2014-2015

- To what extent does the process provide adequate treatment to different types of procurement (e.g. by value, by category, by exception…)

- Was the procurement timely? How long the procurement process takes (e.g. by value, by category, by exception…)

- Did the good/item(s) arrive as planned or scheduled? If no, how long were the times gained or delays. If delay, what was the reason(s)?

- Were the procured good(s) acquired at a reasonable price?
- To what extent were the procured goods of the expected/needed quality and quantity?
- Were the transportation costs reasonable and within budget. If no, pleased elaborate.
- Was the freight forwarding timely and within budget?. If no, pleased elaborate.
- Who was responsible for the customs clearance? UNIDO FO? UNDP? Government? Other?
- Was the customs clearance handled professionally and in a timely manner? How many days did it take?
- How long time did it take to get approval from the government on import duty exemption?
- Which were the main bottlenecks / issues in the procurement process?
- Which good practices have been identified?
- To what extent roles and responsibilities of the different stakeholders in the different procurement stages are established, adequate and clear?
- To what extent there is an adequate segregation of duties across the procurement process and between the different roles and stakeholders?

6. Evaluation Method and Tools

These assessments will be based on a participatory approach, involving all relevant stakeholders (e.g. process owners, process users and clients).
The evaluation tools to be considered for use during the reviews are:

- **Desk Review**: Policy, Manuals and procedures related to the procurement process. Identification of new approaches being implemented in other UN or international organizations. Findings, recommendations and lessons from UNIDO Evaluation reports.
- **Interviews**: to analyze and discuss specific issues/topics with key process stakeholders
- **Survey to stakeholders**: To measure the satisfaction level and collect expectations, issues from process owners, user and clients
- **Process and Stakeholders Mapping**: To understand and identify the main phases the procurement process and sub-processes; and to identify the perspectives and expectations from the different stakeholders, as well as their respective roles and responsibilities
- **Historical Data analysis from IT procurement systems**: To collect empirical data and identify and measure to the extent possible different performance dimensions of the process, such as timeliness, re-works, complaints, ..)

An evaluation matrix is presented in Annex A, presenting the main questions and data sources to be used in the project and country evaluations, as well as the preliminary questions and data sources for the forthcoming thematic evaluation on Procurement process in 2015.

ANNEX A: Evaluation Matrix for the Procurement Process

No.	Area	Evaluation Question	Indicators[5]	Data Source(s) For Country / Project Evaluations	Additional data Source(s) For Thematic Evaluation of procurement process in 2015.
	Timeliness	- Was the procurement timely? How long the procurement process takes (e.g. by value, by category, by exception…)	(Overall) Time to Procure (TTP)	• Interviews with PMs, Government counterparts and beneficiaries	• Procurement related documents review • SAP/Infobase (queries related to procurement volumes, categories, timing, issues) • Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Interviews with Procurement officers
		- Did the good/item(s) arrive as planned or scheduled? If no, how long were the times gained or delays. If delay, what was the reason(s)?	Time to Delivery (TTD)	• Interviews with PM, procurement officers and Beneficiaries	
		- Was the freight forwarding timely and within budget? If no, pleased elaborate.			
		- Was the customs clearance timely? How many days did it take?		• Interviews with PMs, Government counterparts and beneficiaries	

[5] These indicators are preliminary proposed here. They will be further defined and piloted during the Thematic Evaluation of UNIDO procurement process planned for 2015.

No.	Area	Evaluation Question	Indicators[5]	Data Source(s) For Country / Project Evaluations	Additional data Source(s) For Thematic Evaluation of procurement process in 2015.
		- How long time did it take to get approval from the government on import duty exemption	Time to Government Clearance (TTGC)	• Interviews with beneficiaries	
	Roles and Responsibilities	- To what extent roles and responsibilities of the different stakeholders in the different procurement stages are established, adequate and clear?	Level of clarity of roles and responsibilities	• Procurement Manual • Interview with PMs	• Procurement related documents review • Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Interviews with Procurement officers
		- To what extent there is an adequate segregation of duties across the procurement process and between the different roles and stakeholders?		• Procurement Manual • Interview with PMs	
		- How was responsibility for the customs clearance		• Procurement Manual • Interview to PMs • Interviews with local	

No.	Area	Evaluation Question	Indicators[5]	Data Source(s) For Country / Project Evaluations	Additional data Source(s) For Thematic Evaluation of procurement process in 2015.
		arranged? UNIDO FO? UNDP? Government? Other?		partners	
		- To what extent were suppliers delivering products/ services as required?	Level of satisfaction with Suppliers	• Interviews with PMs	
	Costs	- Were the transportation costs reasonable and within budget. If no, pleased elaborate.		• Interviews with PMs	• Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Interviews with Procurement officers
		- Were the procured goods/services within the expected/planned costs? If no, please elaborate	Costs vs budget	• Interview with PMs	
	Quality of Products	- To what extent the process provides adequate treatment to different types of procurement (e.g. by value, by category, by		• Interview with PMs	• Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Interviews with Procuremen

No.	Area	Evaluation Question	Indicators[5]	Data Source(s) For Country / Project Evaluations	Additional data Source(s) For Thematic Evaluation of procurement process in 2015.
		exception…)			t officers
		- To what extent were the procured goods of the expected/needed quality and quantity?.	Level of satisfaction with products/services	• Survey to PMs and beneficiaries • Observation in project site	
	Process / workflow	- To what extent the procurement process if fit for purpose?	Level of satisfaction with the procurement process	• Interviews with PMs, Government counterparts and beneficiaries	• Procurement related documents review • Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Procurement related documents review • Evaluation Reports • Survey to PMs, procurement officers, beneficiaries, field local partners. • Interviews with Procurement officers
		- Which are the main bottlenecks / issues in the procurement process?		• Interviews with PMs, Government counterparts and beneficiaries	
		- Which part(s) of the procurement process can be streamlined or simplified?		• Interview with PMs	

Annex B: List of persons met (interviewees)

Name	Title	Agency / Institution	Date / Location
Mr. Jossy Thomas	Project Manager / Industrial Development Officer, Renewable and Rural Energy (RRE), Energy Branch (ENE)	UNIDO	January 7, 2015 Vienna, Austria
Mr. Alex Eruwa	Procurement Officer	UNIDO	January 6, 2015 Vienna, Austria
Mr. Diego Masera	Unit Chief, Renewable and Rural Energy (RRE), Energy Branch (ENE)	UNIDO	February 4, 2015 Vienna, Austria
Mr. Koffi Edme	Unit Chief, Africa Programme	UNIDO	February 4, 2015 Vienna, Austria
Mr. Bashir Conde	Industrial Development Officer, Africa Programme	UNIDO	February 4, 2015 Vienna, Austria
Mr. Immanuel Michael	National Project Coordinator Energy & Environment	UNIDO	January 9, 2015 Dar es Salaam, Tanzania
Mr. Gerald Runyoro	National Programme Officer	UNIDO	January, 20 2015 Dar Es Salaam, Tanzania
Mr. Victor Akim	Energy and Environment consultant	UNIDO	January, 20 2015 Dar Es Salaam, Tanzania
Mr. Frank Msae	Finance Expert	UNIDO	January, 20 2015 Dar Es Salaam, Tanzania
Ms. Asha Hango	Senior Project Assistance Officer	UNIDO	January, 20 2015 Dar Es Salaam, Tanzania
Ms, Begileki Grace	National Programme Officer CNPC-SECO	UNIDO	January, 20 2015 Dar Es Salaam, Tanzania
Dr Isac	Coordinator for center	College of	January 9, 2015

Name	Title	Agency / Institution	Date / Location
Legondo	for small hydropower in Tanzania	Engineer and Technology (CoET) in University of Dar Es Salaam.	Dar es Salaam, Tanzania
Mr. Wakati R. Mwaruka	Coordinator of SHP Centre in Tanzania	College of Engineer and Technology (CoET) in University of Dar Es Salaam.	January 9, 2015 Dar es Salaam, Tanzania
Mr. Shija Mzobora		College of Engineer and Technology (CoET) in University of Dar Es Salaam.	January 9, 2015 Dar es Salaam, Tanzania
Mr. Raphael L Matheo Isingo	Senior Lecturer (Reg. Chemical Engineering) and Manager , Technology Development and Transfer Center	College of Engineer and Technology (CoET) in University of Dar Es Salaam.	January 9, 2015 Dar es Salaam, Tanzania
Mr. Eng Bengiel H. Msofe	Director Technical Service	Rural Energy Agency (REA)	January 9, 2015 Dar es Salaam, Tanzania
Mr. Alex Andoya	Director	Andoya Hydro Electric Power Company Limited (AHEPO)	January 11, 2015 Mbinga- Songea, Tanzania
Mr. Eng Godfrey Gondwe –	Senior Engineer	Andoya Hydro Electric Power Company Limited (AHEPO)	January 11, 2015 Mbinga- Songea, Tanzania
Mrs Janneth Mhagame Andoya	Member of the Board	Andoya Hydro Electric Power Company Limited (AHEPO)	January 11, 2015 Mbinga- Songea, Tanzania

Name	Title	Agency / Institution	Date / Location
Mr. John Mumawe	Accountant	Andoya Hydro Electric Power Company Limited (AHEPO)	January 11, 2015 Mbinga- Songea, Tanzania
Mr. John Nathanael Ndunguru	Electricity user	Lifakala village	January 11, 2015 Mbinga- Songea, Tanzania
Ms. Desiderial Donate –	Electricity user (Female headed household)	Lifakala village	January 11, 2015 Mbinga- Songea, Tanzania
Ms Eliza Milinga	Electricity user	Mbangamao Village	January 11, 2015 Mbinga- Songea, Tanzania
Gervas Matamila,	Electricity user	Kilimani Village	January 11, 2015 Mbinga- Songea, Tanzania
Heri Mapunda	Electricity user	Kilimani Village	January 11, 2015 Mbinga- Songea, Tanzania
Beligna Mapunda	Electricity user	Kilimani Village	January 11, 2015 Mbinga- Songea, Tanzania
Mr. Julius Ningu	Director of Environment Department and GEF focal Pont	Vice President Office	January, 13 2015. Dar Es Salaam Tanzania
Edward Ishengoma,	Assistant Commissioner New and Renewable Energy	Ministry of Energy and Minerals	January, 14 2015 Dar Es Salaam, Tanzania
Mkoma Masanyiwa,	Renewable energy assistant comissioner	Ministry of Energy and Minerals (MEM)	January, 14 2015 Dar Es Salaam, Tanzania
Mr. Styden Rebangira	Renewable energy assistant comissioner	Ministry of Energy and Minerals (Ewura)	January, 14 2015 Dar Es Salaam, Tanzania
Isdory Fitwangile	Senior Engineer- Renewable Energy	Energy and Water Utilities Regulating	January, 14 2015 Dar Es Salaam,

Name	Title	Agency / Institution	Date / Location
		Authority (Ewura)	Tanzania
Ng'anzi Juma	Principal Commercial Officer- Electricity	Energy and Water Utilities Regulating Authority (Ewura)	January, 14 2015 Dar Es Salaam, Tanzania
James Luchagula	Principal Engineering	Tanzania Electric Supply Company (TANESCO)	January, 15 2015 Dar Es Salaam, Tanzania
Stanslaous Kizzy	Principal Engineer	Tanzania Electric Supply Company (TANESCO)	January, 15 2015 Dar Es Salaam, Tanzania
Samwel Kessy	Principal Engineer	Tanzania Electric Supply Company (TANESCO)	January, 15 2015 Dar Es Salaam, Tanzania
Abdalah Chikolo	Masters Student	University of Dar Es Salaam	January, 15 2015 Dar Es Salaam, Tanzania
Amanda Chigomelo	Masters student	University of Dar Es Salaam	January, 15 2015 Dar Es Salaam, Tanzania

Annex C: Evaluation matrix

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
1.PROJECT RELEVANCE **To what extent are the project objectives and expected outcomes relevant to global, national and local development and environment strategies and priorities? i.e. Are the project objectives, outputs and outcomes with significance to:**				
(a) GEF focal area of climate change?	What are the project objectives, outputs and outcomes?	• Performance of the project against the planned targets as shown in the logical framework.	Document review	Project Logical Framework of Action
	Are the Project objectives, outputs and outcomes narrating the GEF climate change focal area?	• Existence of clear relationship between the Project objectives and the GEF climate change focal area	Document review	Project documents, GEF focal area strategies and documents UN-Policies and standards
	How is the market approach in promotion of renewable energy relevant to GEF climate change focal area?	• Evidence of values added in the GEF climate change focal areas.	Document Review	Project document
(b) Other donors who co-financed the project	How does the donor support to the project complement each other? Was the GEF funding support not addressed by other donors until now? / How does it fill the gaps?	• Degree to which Project is coherent and complementary to other donor programming • Is there co-ordination and complementarity between donors	Document review Interviews	Documents from other donors Other donor reps Project documents
(c) UNIDO Thematic priorities	Is the project in-line with UNIDO's thematic area?	• Objectives are consistent with UNIDO policies and lessons learned	Document review	UNIDO policies
(d) Address energy and development	• What are the national strategies and priorities in energy sector and development?	• Existence of clear relationship between the project objectives and outcome and the government	Document review	Project documents and reviews, national energy policies

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
related challenges of Tanzanian government	• How is the project contributing to realization of such priorities and strategies?	policies and priorities		
(e) Needs of target groups	• Who are the project target beneficiaries? Were all identified? • What are the needs of target beneficiaries? • How is the project meeting the needs of target groups?	• Insights of target beneficiaries, including energy practitioners, project developers, government planners, fabricators, men and women in the project sites	Interview	Project stakeholders
	How is the project involving target beneficiaries?	• Level of participation of target beneficiaries in the project identification, implementation and monitoring	Document review	Project document, Project progress reports
(f) Changing environment i.e. does the project require any amendment to be in line with changes in the country and operational context	• Were there any amendments to project since its design to date? • If so, why and with what consequences? • Is the Project on track to meet its targets? • What lessons have been learned? • Which recommendations, if any, can be made based on the mid-term review to ensure the Project is on track to meet its targets?	• Number of amendments made to project design	Desk review Interviews	Project management documents UNIDO staff

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
2. EFFECTIVENESS **To what extent were results at various levels, including outcomes, achieved?**				
(a) Attainment of project objectives and outcomes	• Which project milestones have been achieved towards intended objectives? • What have been the positive and negative outcomes in the target area since the beginning of the project? • What have been the positive and negative outcomes to the target beneficiaries (men and women) since the beginning of the project? • Which lessons have been learned by the project? • To what extent are the lessons attributed to the project?	• Percentage of achievement of objectives • Project intended and un-intended outputs • Existence of documented lessons and reflection the project	• Document review	Project progress report Project monitoring reports
(b) Attainment of Project impacts	• What planned and unplanned impacts of the project? • How are the impacts tracked? • Was the Project team aware of results based management/ adaptive management processes as originally set out in the Project design during implementation and were the same applied? • Has there been evidence of	• Evidence of changes been realized by beneficiaries • Existence of results based management/ adaptive management processes • Examples of modification and changes made in the project implementation	• Document review • Meetings with Project Management Team (PMT) and beneficiaries	• Project M&E framework • PMT • Beneficiaries

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
	flexibility in Project management? • Have any changes been made in response to the results based management/ adaptive management processes? • If so, (a) which changes were made, (b) for what purpose, and (c) with what results?			
Stakeholder inclusiveness and collaboration	• Who are the Project stakeholders and partners? • To date, has Project implementation been inclusive of the relevant stakeholders and collaboration between different partners identified in the Project strategy? • What means have been employed to ensure inclusiveness? (give concrete examples) • Are there stakeholders groups that the Project strategy failed to identify? If so, (i) which ones and (ii) why? • What are the opinions of stakeholders and target beneficiaries in relation to project outputs outcomes and impacts	• Extent to which the implementation of the Project has been inclusive of relevant stakeholders and collaboration between partners	Interviews	Stakeholders

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
	How are the project partners fulfilling their roles and responsibilities?	• Evidence of timely delivery of the roles and responsibilities	Interview	Project Management Unit
Lessons learned	• Are there any reasons behind the extent of performance of the project? What are they?	• Existence of catalysts and bottlenecks to the performance of the project	Review	Project progress reports
3. EFFICIENCE **The extent to which results have been delivered with the least costly resources possible**				
(a) How and did the project outputs and outcomes deliver with least cost possible	To what extent do the project inputs (time, human and financial resources) were adequate and proportional with the realized outputs, outcomes? (i) Were the required funds in place when needed for implementation of activities? (ii) Were the non-financial resources (e.g. competent and skilled staff, facilities) available by the time needed for implementation of activities • If (i) and (ii) above were not in places which? And which measures were taken to address the situation? • Are there relevant partnerships for quality outputs?	• Overall investments (funding, time, other resources) • Extent to which level of co-financing has occurred compared to that planned • Timeline for implementation and completion of activities • Existence of memorandum of understanding for service delivery	• Financial document review • Interview with PMT • Contracts and Memorandum of understanding	• Project documents and reviews, other relevant docs • Project management team • Partners and stakeholders
(b) Are the project operations	• Was the quality and quantity of administrative and technical support by UNIDO HQ adequate	• Timely and adequate support from UNIDO HQ	• Interview with the project management team	• Project management team

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
cost-effective and relative to the outputs, and achieved results	and timely? • Are the project activities in line with the schedule of activities as defined by the project work plan? If not, why? • Was the least cost options sought and applied during project implementation?	• Existence of effective communication systems • Percentage of implemented against planned activities • Perceptions as to cost-effectiveness of program	• Document review • Interview with stakeholders	• Project Logical Framework LFA • Project stakeholders
(c) Does the project management structure portray the cost effective and efficiency nature of project execution?	• How appropriate and effective are Project's management structure and staffing profile in realizing a relevant, effective, and efficient Project? What changes, if any, are needed to Project's organizational structure and staffing profile to carry out its mandate?	• Evidence of clear roles and responsibilities for operational and management structure • Degree of fulfilment of goals according to results framework (over evaluation period) • Client/Stakeholder satisfaction with Project staff	• Document review • Review • Interview	• Project documents and reviews, other relevant docs • Project partners, beneficiaries and stakeholders
(d) Is the project exercising an appropriate management accountability , monitoring and evaluation system	• How effectively has Project management accountability been exercised, and how well is M&E built into programming and strategy to strengthen accountability?	• Number and type of mechanisms or systems in place for holding Project management accountable for their roles and responsibilities	• Interviews	• Project-selected management
		• Examples of incidents when accountability measures or systems revealed mismanagement	• Interviews	• Project-selected management, staff
		• Percentage of budget spent on	• Desk review	• Project documents and

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
		M&E systems		reviews, other relevant docs
		• Evidence of use of M&E/reporting information to o make management decisions/adaptive management o inform strategy o inform programming or planning o others	• Interviews	• Project-selected management, including former Project program managers
		• Frequency of reporting, updating, or use of M&E systems for accountability purposes	Interviews	Project-selected management, including former Project directors,
4. SUSTAINABILITY **How likely is that the project will continue to deliver benefits after the GEF funding?**				
Financial risks	• Are there financial sustainability risks faced by the project? • If yes, what are they? • Are the mitigation strategies or other financing options identified and implemented? • If not, why and if yes what were the measures?	• Evidence/quality of sustainability strategy • Evidence/quality of steps taken to ensure sustainability • Evidence of likely commitments to support sectors beyond the end of the Project	Review	• Project progress report • Financial reports • Project management staff, stakeholders and beneficiaries.
Main sustainability risks	• What are the main risks to the expected sustainability of the benefits? • What are the mitigation measures	- Assumptions and risk assessment adequate - Mitigation measures identified and effected	• Document review • Discussions/ Meetings	• Project document and logical framework • Government counterparts

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
	to minimize the risks?			
5. MONITORING AND EVALUATION SYSTEMS				
Does the project have workable M&E framework?	• To what extent does the project have an effective monitoring, reporting and evaluation framework including measurable indicators, systematic and regular processes for collecting data, and feedback processes to facilitate decision making and learning?	• Project evaluation framework including indicators: o at the activity level measurable (achievable, reportable, timely, specific)	Review of documents	Project monitoring and Evaluation framework
		• Existence of mechanisms to receive feedback and make informed decision available	Review of documents	Project progress reports Monitoring and Evaluation framework
	• If the project has M&E framework does it include plan for tracking project impact after the project period?	• Existence of long-term impact monitoring framework • Existence of links of feedback mechanisms to government or other relevant monitoring and evaluation systems e.g. with rural electrification and poverty reduction	Review of documents Interview	Monitoring and Evaluation framework stakeholders
	• Is the M&E adequately funded and in a timely manner?	• Evidence of fund disbursement for M&E activities	Review of documents	Financial reports

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
6.GENDER MAINSTREAMING **The extent to which socioeconomic benefits delivered by the project at national and local level consider gender dimensions**				
How is gender integrated in the project? (This criteria will be assessed throughout the evaluation assignments)	• Are gender and other social issues integral part of the project cycle? • Were gender needs for men and women identified? • Are there adequate resources (funds, methodologies, skills etc.) for mainstreaming gender available? • Is M&E framework gender inclusive?	• Gender analysis in project documents • Gender disaggregated data available	Document review	Project documents Monitoring reports
	What are the project positive and negative effects on women and men?	Evidence of women and men benefitted or not benefited from access to project opportunities and from project budget allocation	Review and Interview	Project monitoring reports Financial reporting Project staffing Project target beneficiaries
7. PROCUREMENT ISSUES **To what extent the procurement process abide to UNIDO procurement guidelines?**				
Was the procurement process in-line with UNIDO procurement guidelines?	• Was the procurement of goods and services fairly, efficient, effective, timely and transparent to the expected standards? • Was the procured process timely and cost effective? • Is the quality of the procured goods to the extent required?	• Evidence of efficient and timely delivery of project outputs	Review	Project goods and services delivery reports
Project	• How are project lessons	• Project reports outlining lessons	Document review	Project progress reports

Criteria/Issues	Questions	Indicators	Data Collection /Analysis Methods	Sources of Information
lessons	captured? • Are the lessons and outcomes shared among the stakeholders	• Communication strategies existing and implemented		

Annex D: Bibliography / Documents reviewed

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