



THE UNITED REPUBLIC OF TANZANIA
NATIONAL AUDIT OFFICE



**PERFORMANCE AUDIT REPORT ON THE IMPLEMENTATION
OF RURAL ELECTRIFICATION PROGRAMME**

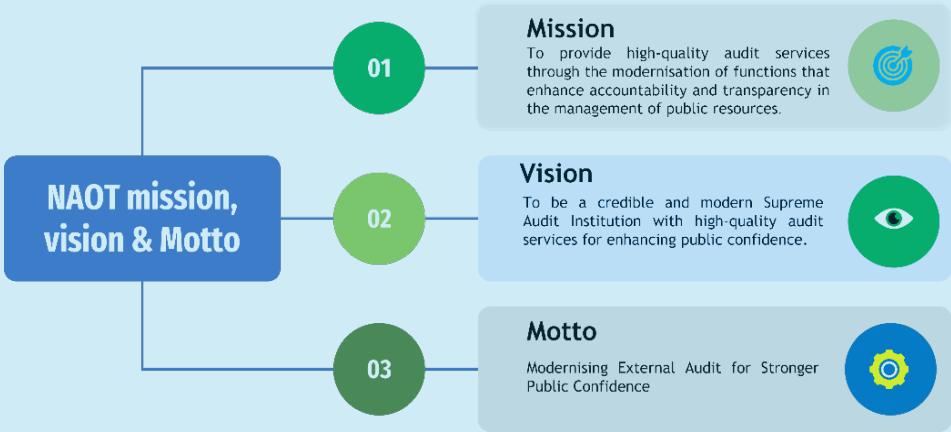


CONTROLLER AND AUDITOR GENERAL
MARCH 2023



About National Audit Office

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PREFACE



Section 28 of the Public Audit Act CAP 418 [R.E 2021] gives mandates to the Controller and Auditor General to carry out Performance Audit (Value-for-Money Audit) to establish the economy, efficiency and effectiveness of any expenditure or use of resources in the Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs) and Public Authorities and Other Bodies which involves enquiring, examining, investigating and reporting, as deemed necessary under the circumstances.

I have the honour to submit to Her Excellency Hon. Dr. Samia Suluhu Hassan, the President of the United Republic of Tanzania, and through her, to the Parliament of the United Republic of Tanzania, the Performance Audit Report on the Implementation of Rural Electrification Projects. This is a Sida funded programme implemented by Rural Energy Agency (REA).

The report contains findings of the audit, conclusions and recommendations that focused on implemented activities in different programme components. The management of REA was given the opportunity to scrutinize the factual contents and comments on the draft report. I wish to acknowledge that the discussions with Management of REA were very useful and constructive.

My Office may carry out a follow-up audit at the appropriate time regarding the actions taken by REA in relation to the recommendations given in this report.

I would like to appreciate the commitment of my staff and cooperation accorded to my audit team by the respective Accounting Officer and his staff, which has facilitated the timely completion of the audit.

Charles E. Kichere
Controller and Auditor General
The United Republic of Tanzania
March, 2023

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LIST OF ABBREVIATIONS

AG	: Attorney General
AG	: Attorney General
APP	: Annual Procurement Plan
BoQs	: Bill of Quantities
BTIP	: Backbone Transmission Investment Project
BTIP - VEI	: Backbone Transmission Investment Project - Village Electrification Initiatives
CAG	: Controller and Auditor General
CAP	: Chapter
CBO	: Civil Based Societies
CEA	: Chief External Auditor
CIP	: Certificate of Interim Payment
CTs	: Current Transformers
DFID	: Department for International Development
DLP	: Defect Liability Period
DMDT	: Directorate of Marketing Development & Technologies
DSs	: Disconnecting Switches
EEP	: Electrical Engineering Portal
EIA	: Environmental Impact Assessment
EMP	: Environmental Management Plan
ESIA	: Environmental and Social Impact Assessment
FSs	: Feasibility Studies
GBP	: Great Britain Pound
GCC	: General Conditions of Contract
GIS	: Geographic Information System
GMGs	: Green Mini-Grids
GPN	: General Procurement Notice
HS&E	: Health, Safety and Environment
HT	: High Tension
IRR	: Internal Rate of Return

KPIs	: Key Performance Indicators
Kv	: Kilovolt
kVA	: Kilo-volt-amperes
LGAs	: Local Government Authorities
LT	: Low Tension
LV	: Low Voltage
M&E	: Monitoring and Evaluation
MoE	: Ministry of Energy
MoFP	: Ministry of Finance and Planning
MV	: Medium Voltage
NAOT	: National Audit Office of Tanzania
NEMC	: National Environmental Management Council
NPV	: Present Net Value
O&M	: Operation and Maintenance
PCC	: Project Completion Certificate
PDs	: Power Distributors
PE	: Procuring Entity
PMU	: Procurement Management Unit
PPA	: Public Procurement Act
PPR	: Public Procurement Regulations
PPRA	: Public Procurement Regulatory Authority
PV	: Photovoltaic
PVC	: Polyvinyl Chloride
QPR	: Quarterly progress Report
RAP	: Resettlement Action Plan
RBF	: Result Based Financing
REA	: Rural Energy Agency
REF	: Rural Energy Fund
SCC	: Special Condition of Contracts
SE4ALL	: Sustainable Energy for All
SEK	: Swedish Krona
Sida	: Swedish International Development Cooperation Agency
TA	: Trust Agent

TANESCO	: Tanzania Electricity Supply Company Limited
TBS	: Tanzania Bureau of Standards
TIN	: Taxpayers' Identification Number
ToR	: Terms of Reference
TZS	: Tanzanian Shillings
UK	: United Kingdom
URT	: United Republic of Tanzania
USD	: United State Dollar
VAT	: Value Added Tax
VEI	: Village Electrification Initiative



EXECUTIVE SUMMARY

Background Information

The Government of Tanzania entered into an agreement with the Government of Sweden on 30 March 2016 for a duration of five years starting from 2015/16 to 2019/20 for the implementation of rural electrification programme. According to the Programme Document, the overall objective of the rural electrification programme was to increase access to modern energy services in rural areas of Mainland Tanzania, for sustainable socio-economic development and poverty alleviation.

The programme has three projects namely: Backbone Transmission Investment Project - Village Electrification Initiative (BTIP - VEI), Densification Round IIA Project, and Renewable Energy Projects for Off-Grid areas.

The objective of the audit was to assess whether REA has efficiently and effectively managed the implementation rural electrification programme so as to ensure sustainable access to energy and improved livelihood of the rural population.

The Audit covered the entire country. However, data were collected from Eighteen (18) regions where rural electrification programme have been implemented. The Audit used three methods of data collection, namely: *Document Reviews, Interviews and Physical Verifications* of the ongoing and completed works.

The Audit covered the period of five financial years, starting from 2015/2016 to 2019/2020. This was the period when Rural Electrification Programme Projects were carried out as per the signed agreement between Sida and the Government of Tanzania.

Main Audit Findings

Major Audit Findings on Backbone Transmission Investment Project - Villages Electrification Initiative

(a) Planning and Designing Stage of the BTIP-VEI Projects

The Feasibility Studies did not include 20% of the Villages Covered by the Project

The Audit noted that on average 20% of the villages covered by the Backbone Transmission Investment Project - Village Electrification Initiative (BTIP-VEI) (Lot 2, Lot3, Lot 4 and Lot 5) were not part of the villages covered by the feasibility studies conducted in 2016. Dodoma had the highest percentage of villages that were not covered in the feasibility study at (22%), followed by Iringa (20%), then Shinyanga (15%) and Singida (12%).

The additional number of villages was due to variations raised during the project implementation. For instance, some of the pre-identified/targeted villages had been already supplied with the electricity from other electrification initiatives. This happened due to inadequate coordination between REA and TANESCO during the planning of BTIP-VEI, where such villages that were already covered by TANESCO's development strategy were not communicated to REA.

It was further noted that, despite knowing the risks associated with the location of Mtera substation above a waterway tunnel, REA did not ensure that the feasibility study was conducted. As a result, this eventually caused difficulties during project execution as the existence of the rocky ground in the area required the use of special excavation methods.

Furthermore, it took 6 months to complete excavation of the rock during construction of civil works. The delay additional cost amounting to USD 108,000 for the payment related to the personnel's wages for the extra excavation work on the Mtera substation.

(b) Findings on the Procurement Management

The audit noted that, to a large extent, REA complied with the requirements of the provisions in the Public Procurement Act, 2011 (PPA, 2011), Public Procurement Regulations (PPR, 2013) as amended in 2016 and Programme Documents of 2015. However, the Audit Team identified areas for further improvement, regarding the management of procurement processes, which include:

Absence of Some of the Pre-qualification Procurement Proceeding Documents for BTIP-VEI Project

The Audit noted that, the procurement proceeding documents such as pre-qualification applications for Tender AE/008/2014-15/HQ/G/8 LOT 1-5 were missing. The management of REA explained that, most of the documents which were 5+ years old, of which pre-qualification document for this tender was stored in REA offices which are located in Upanga archive in Dar es Salaam. The management also added that, the document was stolen, and the incident was reported to the appropriate authorities.

Through the review of a letter with Ref No. AB.47/191/03/100 dated 3rd March, 2022 from REA and the letter with Ref No. SBR/BA/I/VOL.VIII/121 from Salander Bridge Police station in Dar es Salaam dated 19th February, 2022, the audit confirmed the incident as both letters showed that the documents were stolen on 15th February, 2022.

Due to the absence of the prequalification proceeding documents, the auditors were limited to conduct a thorough assessment of the compliance to the procurement laws and regulations. This also affected the transparency aspect as far as the procurement is concerned. Hence, there was no assurance to whether the pro qualification proceedings adhered to PPA, 2011 and PPR, 2013.

(c) Finding on the Contract Management

Delay in the Completion of Mtera Substation by 3 years, 9 months and 14 days

Through the review of Addendum for extension of time between REA and the contractor M/S SUNIR of April 2021, the audit noted that REA extended the contract at Mtera hydropower plant (Lot 1) for 8 months from 14th March, 2021 until 13th November, 2021. The project was expected to commence on 12th March, 2017 and was expected to be completed on 12th March, 2019. However, until the date of site visit on 20th December, 2022, the project was at 92% completion. This indicates a delay of 1379 days i.e. (3 years 9 months and 14 days).

Delays in clearing materials from the port of Dar es Salaam was the main contributing factors for the observed delay in the project completion. As a result, REA incurred TZS 775,761,344.16 billion as demurrage charges for the intention of facilitating the achievement of project objective.

Non-Replacement of 37 Burnt Wooden Poles Estimated to Cost TZS 11,100,000

The Audit noted that the approved wooden poles that were intended to be used in the Lot 2 project were burnt to the point that they did not meet the required quality standards. However, REA did not provide assurance regarding the replacement of 37 burnt wooden poles for lot 2 project.

It was also noted that there was schedule for materials inspection and auditing equipment that was not used for a long time, and some materials were burnt while being stored at Mtera.

Furthermore, despite the records showed that Factory Acceptance Tests and Site Acceptance Tests were conducted on samples of poles as per the contract, and all of them passed, during verification at the site, the audit noted that there were excessive cracks on some wooden poles.

(d) Extent of Attainment of Objective and Impact of BTIP-VEI Project

REA Attained 31% of the Targeted Numbers of Customers for 4 Lots (Lot 2, 3, 4 and 5)

The audit reviewed the completion certificates and progress reports of the REA's BTIP-VEI project and found that only 31% of the initial planned 23,000 customers were connected to electricity, with the highest connection rate of 47% in Lot 2 and the lowest of 25% in Lot 3.

However, there was a discrepancy in the reported number of connected customers, such as duplication of meter numbers and customer names in Lot 3 and Lot 4. Based on the available data, the actual number of customers connected in Lot 2 was 2,663 and 2,499 in Lot 3. REA Management indicated that the rate of customer connection is determined by the willingness and readiness of the customers to do wiring in their premises and payment of TZS 27,000. Low willingness of customers was contributed by ineffective conducted customer awareness on the electrification.

80% of the Customers /Beneficiaries of the Project were Satisfied

Moreover, the customer satisfaction survey conducted to various beneficiaries of the project, it was found that, 80% of the respondents, agreed that the project had improved their villages and living standards, while 16% did not agree and 4% were unsure. The beneficiaries declared that the presence of electricity had a positive impact in their lifestyle and economic activities.

Findings for Rural Electrification Densification Program Round II A

(a) Project Planning and Design for the Execution of Rural Electrification Densification II A

The audit noted that planning for rural electrification was not adequately conducted due to the following;

Feasibility Study for the Densification IIA project was not Conducted

The audit noted that, REA did not conduct a feasibility study for the densification II A project. Instead, they relied on available information and

a survey conducted in collaboration with TANESCO in 2016 to identify partially electrified villages with high demand for electricity. However, they did not consider the changing technological and situational factors that may affect the project. The inadequate establishment of the actual electricity needs resulted in uncertainty in the final economic analysis and feasibility study report, and the project was implemented without identifying the actual demand for electricity.

Inadequately Conducted Soil Investigation for Densification IIA Project

The audit noted that, REA did not conduct soil investigation or soil property testing and thus wooden poles were installed on different types of soil, including black cotton soil and clay soil, without knowing whether the soil was suitable for pole installation. The audit also noted that, REA did not have a mechanism to ensure that the compaction around the pole foundation had been attained to hold the installed wooden poles. This could compromise the quality of accepted poles and weaken the poles' foundation.

(b) Procurement of Contractor for the Execution of Rural Electrification Densification II A

Improper Evaluation for Pre-qualification of Firms

The audit noted that, 14 contractors were disqualified for not meeting the annual cash flow requirements. However, upon the review of the tender documents, the Audit noted that, the Evaluation Committee's definition of annual cash flow was inaccurate. The Evaluation Committee considered cash and cash equivalent as at the end of financial year in the cash flow statement as the annual cash flow. As a result, three firms were unfairly disqualified. The audit is of the view that improper assessment of financial capability attributed to the disqualification of three qualified firms unnecessarily.

(c) Contract Management for Execution of Rural Electrification Densification II A

The audit noted the following gaps with regards to contract Management for densification II A.

Delayed Engagement of the Project Supervisor for the Average of 247 days from the Effective Date

The audit noted that, there was a delayed engagement of the project supervisor on average for 247 days from the effective date of project execution across all six lots. The delays were noted to be higher in Lots 5 and 6, where projects delayed more than 258 days, while the least case scenario was noted in Lot 1, where the delay was 229 days after the contract effective date which was due to inadequate planning by REA. On this, specifically, it was noted that REA did not forecast the need for engaging project supervisors prior to project execution. Given this situation, the execution of the project in terms of the project quality was at risk.

Delayed Project Completion

The audit noted that, there was a delay in project completion of Lot 3, 5 and 6 for a period between 266 and 274 days above the planned completion time. However, this was contributed by the inadequate enforcement by REA on the requirement for submission of revised work programme, being a key tool for managing the project time.

REA Accepted Substandard Poles and 12 Transformers with Load Loss Higher than the Maximum Tolerance Level

The Audit found that, contrary to Clause 23.1 of the GCC, Factory Acceptance Test (FAT) tests witnessed by the TANESCO and Contractors' personnel and the Delivery Note of transformers, REA accepted 12 out of 23 sampled transformers that did not meet the required specifications (S21 specification) issued by TANESCO for transformers' load losses.

It was further found that, for the 10m medium size pole, the specification S11 required the top diameter to be min. 155mm and max. 175mm, but out of 450 poles sampled, inspected and tested 20 poles were found to be out of the required diameter as they were ranging from 140mm to 145mm. In addition, for 11m medium size poles, the top diameter required was min. 160mm and max. 180mm. However, out 100 poles sampled, inspected and tested, 45 poles were found to have the diameter ranging from 130mm to 150mm, and such range of size was out of the required diameter of min. 160mm and max. 180mm.

The consequence of using and accepting sub-standard materials/facilities in the distribution network could be shortage of the design period including highly needed major maintenance of poles, involving both replacement and rectification of such poles within a short period after the completion of the project. The acceptance of sub-standard transformer in the distribution line could lead to loss of the electric energy through heat loss and reduction of the required design life of the transformer which will eventually involve major maintenance.

Expected Target of Number of Customers' Connections were not Attained

The audit team noted that among the nine (9) regions that were covered by the project, eight (8) out of nine (9) regions did not meet their planned customers' connections. As of December 2022, the project only connected 52.11% of customers, which was equivalent to 51,425 out of 98,689 in all nine (9) regions for six (6) lots. It was further noted that the observed performance was a result of inadequate emphasis on customers' connections which was supposed to be done by TANESCO and REA.

Beneficiaries of Densification IIA Project were Satisfied

The audit noted from responses of various groups on level of satisfaction that 76 percent of social service providers; 66 percent of small businesses; 78 percent of small industries and workers; and 71 percent of house holders and individual beneficiaries were all satisfied positively with densification II A project.

Findings for the Implementation of Renewable Energy

(a) Findings on Planning for the Renewable Energy Projects

Inadequate Planning of Time, Cost and Quality of the Renewable Energy Projects

Through the review of the contract between REA and the Project Developers, the Audit Team noted that there was inadequate planning in terms of establishing the time for the project completion. The time fixed for all 13 Project Developers was 4 years regardless of the scope, nature and location of the project.

On how the contract was prepared, the Audit Team noted that the Project Developers did not include technical specifications for civil work or materials to be procured. As a result, there were cases where substandard materials were used.

The Audit Team further found that, plans to secure the grant offered to Project Developers were inadequate. This was evidenced by the absence of performance securities during the 2nd and 3rd payment instalment. That means, the 2nd and 3rd payments were at very high risk in case the Project Developer underperformed. For example, the case of Power Electronics that did not meet the number of customers' connections after the 1st and 2nd payments.

Designs Prepared by the Project Developers were neither Reviewed nor Approved by REA

The Audit Team found that there were challenges in the preparation of the designs for the implementation of village electrification program under RBF. However, the review of the Trust Agent Progress Reports indicated that, the Trust Agent did not review any design prepared by the Project Developers.

During site visit, the Audit Team noted that the Project Developers did not have technical specifications for implementation of the project. In this aspect, there were no any means to address issues related to statements of testing requirements, operations and maintenance (O&M) manuals, and acceptance criteria for the safety and functionality of all subsystems of the projects.

(b) Finding on Procurement of Project Developers

11 out of 13 Developers were Awarded Grants without Submitting Feasibility Studies

Operating Guidelines on Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids Application process stage two require the Developers that successfully pass Phase one screening are invited to submit Feasibility Study Reports.

The audit noted that 11 out of 13 developers, equivalent to 97%, were considered as qualified for grants without having feasibility Study reports. This happened despite the fact that feasibility study report attachment was among the factors for the Project Developer to be responsive for being awarded a contract. Consideration for grants to developers who did not submit the feasibility study reports would have significant risks to the viability of the implemented Green Min and Micro grid projects in aspects such as financial, social, economic, political, environmental and Technical.

(c) Findings on Contract Management

Delay in the Commencement of the Construction Works

Review of the Project Files on the implementation of the agreement showed that, there were delays in the commencement of the construction works. It was noted that the projects' commencement had delays that ranged from 13 to 160 days from the time when each contract was signed. Through the review of Projects' Progress Reports, the audit noted that delays in the commencement of contracts were due to delay in submission of the requirements such as advance payment guarantee from the Bank and submission of Environmental Clearance from NEMC. As a result of such delays in the commencement of the project was the failure on the part of the community targeted to timely realize benefits derived from the supply of electricity power.

Lack of Quality Control and Assurance Plan to Ensure Project Sustainability after Completion

The Audit Team noted that, REA did not have quality control¹ and quality assurance plan on the electrification projects that could ensure effective sustainability of the project during the operation phase after project completion. As a result, REA did not assess level of performance and sustainability of the project.

¹Since the main purpose of the quality control process was to ensure that the project meets the actual requirements of the client, as part of quality management focused on fulfilling quality requirements

Lack of assessment of the level of performance to the connected customers was due to the fact that REA relied on the outcomes of the project in terms of number of connections made and not evaluation of level of performance of electricity power connected to customers.

REA did not Effectively Conduct Completion, Closure and Commissioning of Projects

Review of Project Verification Reports prepared by the Trust Agent and Project Completion Certificates showed that, nine (9) out of thirteen (13) projects were completed, while the remaining four (4) projects were still on - going. The audit noted that, the completed projects were inadequately closed and commissioned. This was due to the fact that, verifications conducted during the commissioning were only based on the number of customers' connections, and there was no assessment on the level of performance of the power supplied.

(d) Finding on Sustainability of the Project

Only 20% of households connected to the Green Min and Micro Grid

According to the programme document SIDA and DfID Financial Support to the Rural Energy Fund (REF), required REA to improve electricity access for at least 430,000 peoples (86,000 households) through green mini and micro-grids. Since, the Rural Energy Agency (REA) was required to improve access to electricity for at least 86,000 households, the same number of electrical accesses was to be realized to the rural areas of Tanzania, including villages in the Islands and those on the main land.

Through the review of the project completion reports, the Developers' request for financial project payments and Call Reports for the ad hoc visit Paid for Verification to Connected customers under Result Based Financing Program, the Audit Team noted that, REA through the use of Developers managed to connect 17,302 households to Green Mini and Micro grid electricity. This number was equivalent to 20% of the agreed target of connecting 86,000 households living in the rural Tanzania.

46% of Communities were Satisfied with the Implemented Green Min and Micro Grids Project

About 46% of social service providers indicated that the provision of Green Min and Microgrid was satisfactory, while 56% of small industries showed that they were satisfied with the provision of electricity. In addition, 40% of households were reported to be satisfied with the provision of rural electrification through the Green Min and Microgrid program, and 35% of small business owners indicated being satisfied with the provision of electricity from developers.

Findings on Monitoring and Evaluation of the Ministry of Energy

The Ministry of Energy did not Execute Monitoring, Evaluation, and Performance Reporting roles as Expected

The audit noted that, there was no Monitoring and Evaluation (M&E) at the Ministry level which was conducted to Sida Funded Rural Electrification Projects, rather the monitoring was done internally by REA through a hired Trust Agent. Despite being among the project objectives, the conducted monitoring and evaluation did not assess such issues as the project sustainability to meet the demand of the community.

The Ministry of Energy (MoE) received the monitoring and evaluation reports from REA. However, the Ministry did not conduct verifications to confirm issues presented in the Monitoring and Evaluation Reports. Lack of M & E was partly due to non-allocation of funds in the budget by the Ministry to conduct the Monitoring and Evaluation of the Sida funded rural electrification project

REA Achieved 56% of the Overall Programme Outputs

The audit found that, in overall REA achieved 56% of the intended outputs for the rural electrification programme. The highest achievement was noted for the BTIP-VEI project with a 79% achievement, while the lowest was in the Renewable Energy project, REA achieved 20% of the targeted outputs.

For the BTIP-VEI project, REA achieved 100% of its outputs for villages connected, kilometres of medium and low voltage, and number of

transformers installed. However, the performance for the number of customers connected and ready boards were 67% and 25% respectively, this is due to low customer willingness and ineffective awareness campaigns. Also, for the Densification IIA Project, REA achieved an average of 69% of the project outputs, whereby only 41% of the number of customers connected.

The lowest achievement was noted in the Renewable Energy Project, whereby it achieved only 20% of the planned outputs. Low performance was attributed to inadequate planning and delayed implementation of the Green and Micro Grids projects for two years.

General Audit Conclusion

The audit concludes that, rural electrification programme has increased access to electricity to Rural Communities and the living condition of the beneficiaries. As of December, 2022, 11,044 customers, equivalent to 31% of the intended 23,000 customers, have been connected to the electricity grid. Additionally, REA has connected 17,302 households to the Green Mini and Micro grids, equivalent to 20% of targeted 86,000 households. The provision of electricity has extended to important public institutions such as schools, health centres, dispensaries, government offices, mosques and churches. Despite the improvement made, the audit noted that REA has not adequately managed the implementation of rural electrification programme.

The Rural Electrification projects are not adequately planned, designed and supervised when such issues relating to time, cost, and quality are considered in order to facilitate the provision of electricity to the intended the rural users. Inadequate planning, procurement, designing, and execution of rural electrification pose a risk for sustainable electricity in the rural areas where the projects were implemented. This was validated due to the noted challenges; such as variations, extensions of times, additional costs and non-compliance with the quality requirements. The sustainability of rural electrification programme implemented by REA is questionable due to the fact that, some of projects were not properly handed over and others are not functioning.

Likewise, the payments to the contractors, consultants and project developers did not adhere to the rural electrifications contract documents. Further, REA has not adequately managed the quality of the projects such as the workmanship and quality of the procured and constructed projects

as a result of inadequate supervision of the technical and financial management for consultancy services.

Audit Recommendations

The Management of Rural Electrification Agency EA is urged to:

- (a) Ensure feasibility study reports are comprehensive and cover all required parameters;
- (b) Device a quality control mechanism to ensure that all designed works and specification are reviewed, approved and adhered to before commencement of its implementation so as to reduce unnecessary variations and poor quality of works;
- (c) Ensure that in future for the case of executing similar projects, it institutes and implements a comprehensive and effective awareness campaign through establishing a framework for the campaign, developing risk assessment criteria, engaging local stakeholders and decentralizing the campaign activity to lower levels;
- (d) Ensure the contractors use transformers and poles with the appropriate capacity and quality to meet the specifications so as to meet the expected output; and
- (e) Ensure availability and adherence to safety and operational guidelines to ensure the safe operation and proper performance of the transformers to enhance their sustainability.
- (f) Enable project developers to prepare operational and maintenance plans;
- (g) Conduct an assessment on the sufficiency and sustainability of electricity supply services delivered to connected customers; and
- (h) Ensure timely implementation of Grant projects in Off-grid-Renewable Energy Projects.

To Improve Monitoring and Evaluation of the Rural Electrification Programme

- (a) The Ministry of Energy should enhance its plan to ensure that rural electrification programme is effectively monitored, and corrective actions are timely taken to achieve programme objective.



CHAPTER ONE

INTRODUCTION

1.1 Background

The adoption by the Government of the 2030 universal access target, calls for an expansion of the rural electrification effort in general and of private sector involvement in particular. Responding to the target, the Rural Energy Agency (REA) was established under Section 14 of the Rural Energy Act No.8 of 2005 as an autonomous institution under the Ministry of Energy and became operational in October 2007. This was also one among the programmes for implementation of the National Energy Policy of 2003.

REA is entrusted to oversee administration of the Rural Energy Fund (REF) on behalf of Rural Energy Board (REB). Other responsibilities of REA are to facilitate, coordinate and promote/encourage investments and development of improved energy projects and activities in the rural areas.

The Government of Tanzania entered into an agreement with the Government of Sweden on 30th March, 2016 for a duration of five years that was to be implemented with effect from 2015/16 to 2019/20. During the signing of the Agreement, the Government of Sweden was represented by the Swedish International Cooperation Agency (SIDA) and the Government of Tanzania was represented by the Ministry of Finance and Planning (MoFP).

Following this agreement, from 2015 to 2019, the government through REA was expected to receive SEK 600 million (USD 72 million) grant to be injected to the Rural Energy Fund (REF); and from DFID's £30 million (USD45 million or SEK390 million) grant, earmarked to support private investments in "Green Mini-Grids" (GMGs); which Sweden agreed to administer on behalf of the British government.

Compared to the 2008-2014 Swedish assistance to REA/REF, two major changes were introduced. First, different from the previous Swedish assistance, two separate financing windows were opened, one for on-grid electrification and the other one for private sector renewable energy investments; whereby all £30 million (DFID) funds were channelled to the later. The higher visibility of the private sector investments in rural

energy was reflected also in REA's creation of a specific private sector unit, namely the *Directorate of Market Development and Technologies (DMDT)*.

Second, REA also applied the Result-Based Finance (RBF) modality not only, as before, in off-main grid rural electrification to co-finance private investment, but also to the main grid expansion and densification projects, which are financed by REA and handed over to TANESCO. Under this modality, Sida /DFID funds were to be drawn accordingly as per connected customer formula to co-finance projects with funds received from the national budget.

1.2 Motivation for the Audit

Swedish International Cooperation Agency (Sida) saw a need for conducting a performance audit, which focused on assessing the entities' efficiency, effectiveness and economy in using the resources.

In this regard, NAOT was given the task to conduct performance audit on the Implementation of Rural Electrification programme implemented by REA and other entities. The Performance Audit was conducted to the programme in order to identify areas for further improvements in future engagements on the same area.

Article 14.6 of the Specific Agreement between Sida and the Government of Tanzania allows additional audits apart from financial audits, processes or activities performed by REA on a sample basis. Further, in accordance with Public Finance Act, 2001, the NAO has the responsibility for the audit of all government organizations including donor funded programmes that include Rural Electrification programmes.

1.3 Design of the Audit

This part covers the main and specific audit objectives, scope, methods of data collection and analysis and assessment criteria.

1.3.1 Overall Audit Objective

The objective of the audit was to establish whether REA has efficiently and effectively managed the implementation of rural electrification programme so as to ensure sustainable access to energy and improved livelihood to the rural population.

Specific Audit Objectives

In order to address the main audit objectives; five specific objectives were set. Specifically, the Audit aimed at assessing whether:

- a) Planning for the implementation of rural electrification projects were adequately done;
- b) Procurement activities of rural electrification programmes were conducted in compliance with the stipulated procurement laws and regulations;
- c) Contracts for rural electrification projects were adequately managed;
- d) Funds for rural electrification projects were adequately managed in accordance with the financing agreement and financial guidelines; and
- e) Rural electrification programme attained the rural electrification intended results that are impactful and sustainable.

Detailed audit questions and sub-questions are presented in **Appendix 2**.

1.3.2 Audit Scope

The main audited entity was the Rural Electrification Agency (REA), which is responsible for the overall programme management, monitoring and reporting. The Audit Team visited TANESCO Headquarters, Regional and District Offices while visiting the Regions where the rural electrification projects were implemented. The reason for visiting such offices was that the selected projects were implemented through TANESCO Offices.

The audit specifically covered all three programme subcomponents supported by Sida, namely; Densification Round IIA Project, Village Electrification Initiative along the Backbone Transmission Investment Project (BTIP - VEI) and Renewable Energy Projects for Off-Grid areas. This was done in order to measure the results and impact that each sub-programme/projects had to rural community towards access to sustainable energy and improved livelihood.

Further, the audit focused on the results of electrification projects such as improved electricity access to rural households, accelerated access to high quality solar PV-systems in more remote areas of Tanzania, increase of private sector investments in renewable off-grid and mini-grids by use of various financial instruments, cost effectiveness of the attained results of rural electrification projects and monitoring and evaluation on the results of the programmes.

Moreover, the audit assessed planning for the implementation of rural electrification programme such as adequacy of project initiation, feasibility studies, environmental management plans and design of the respective projects.

In addition, under the procurement, the focus was on the adequacy of the preparation of procurement plans, prequalification of bidders and appropriateness of the selected procurement methods. It also assessed the effectiveness of evaluation of tenders, negotiations and post-qualification of bidders. Similarly, adequacy of preparation of contracts and adherence to the awarding processes were covered.

In addition, the audit focused on contract management of rural electrification projects such as the effectiveness in time management, cost control of the projects, quality assurance system, commissioning and closure of the implemented rural electrification projects.

Lastly, regarding the management of fund for rural electrification programme, the assessment mainly focused on the adequacy of fund utilization as per objective, adequacy and efficiency of disbursed programme funds, as well as the effectiveness and efficiency of the payment made during project execution.

The audit covered the entire country. However, data were collected from Eighteen (18) regions where rural electrification projects have been implemented. The audit covered a period of five financial years starting from 2015/16 to 2019/20, which was the period when Rural Electrification Projects were carried out as per the signed agreement between Sida and the Government of Tanzania. However, the information on the implementation of project for the period of 2022/2023 was also collected.

1.3.3 Assessment Criteria

The assessment criteria were extracted from the program appraisal document, contracts, laws and regulations. The summary of the criteria is as presented in **Table 1.1**.

Table 1.1: Summary of the Audit Criteria

Audit Objective	Detailed Audit Criteria	Source of the Criteria
Adequacy of planning for the implementation of rural electrification program	REA is supposed to ensure that the planning for the rural electrification is adequately conducted by ensuring that feasibility studies, design, environmental impact assessments are adequately conducted and receive necessary approval before commencement of the projects.	According to Project document for Sida/DFID financial Support to the Rural Energy Fund (REF) of 2015,
Extent of Compliance to the Procurement Law and its regulations and other procurement guidelines to achieve and in a cost effective manner	REA is supposed to adhere to public procurement laws and other guidelines that guide the procurement of constructed projects so as to ensure fair, competitive, transparent, and non-discriminatory and value for money procurement of constructed projects.	Public Procurement Act, 2011 revised 2016 and PPR of 2013 as amended in 2016.
Management of Contracts for the implemented Rural Electrification Projects	REA is required to ensure that the construction works are completed in a timely manner and in accordance with the	Regulation 5 (2, c) of the Public Procurement Regulations, 2013

Audit Objective	Detailed Audit Criteria	Source of the Criteria
	<p>procuring entity's priorities</p> <p>REA is required to direct the Contractor to institute a quality assurance system for demonstrating compliance with the requirements of the contract. The system shall be in accordance with the details stated in the contract.</p> <p>Also, REA is supposed to ensure that all payments made with regards to Rural Electrification Projects adhere to the General and Specific Conditions of Contracts (GCC & SCC, or any provided guideline) and payments are supposed to be paid contractually.</p>	<p>Clause 4.9.1 of the General Conditions of Contract of the Standard Tendering document issued by PPRA in 2022</p>
<p>Management and utilization of programme funds for implementation of rural electrification projects</p>	<p>Swedish contribution shall be disbursed on semi-annual instalments as per indicative schedule.</p> <p>Fund provided by Sweden are required to be paid in instalments upon receipt and approval of written payment requests including both the Swedish & DFID contribution signed by the Government of Tanzania.</p> <p>The Government of Tanzania was required to maintain an appropriate financial management system for the programme in accordance with National Legislation and Public</p>	<p>The Article 4.2 of the Specific Agreement between the Government of Tanzania and Government of Sweden, 04th December, 2015</p> <p>The Article 6.2 of Specific Agreement between the Government of Tanzania and Government of Sweden,</p> <p>The Article 7.1 of the Specific Agreement between the</p>

Audit Objective	Detailed Audit Criteria	Source of the Criteria
	Financial Management System	Government of Tanzania and Sida of 4 th December, 2015)
Cost effectiveness towards attainment of program results, impact and sustainability of the program	<p>Program was to achieve the following:</p> <ul style="list-style-type: none"> • Increase electricity access for at least 735,000 people (147,000 households), of which 430,000 (86,000 households) through green mini and micro grids; • Accelerate access to high quality solar PV-systems to over 900,000 people (188,000 households) in more remote areas of Tanzania; and • Increase of private sector investments in renewable off-grid and mini-grids by use of various financial instruments. 	According to Program Appraisal Document

Source: Auditors' Analysis, 2022

1.3.4 Sampling, Methods for Data Collection and Analysis

The Audit Team used different sampling techniques and methods for data collection and analysis, as detailed here under:

(i) *Sampling Methods*

The audit covered REA projects funded jointly by Sida and DIFD since DIFD agreed that Sida would manage/supervise projects financed by Sida and DIFD. Since each of the projects has been implemented in different Regions, the audit team purposively covered a total of 18 Regions where the identified projects were implemented. These include Njombe, Manyara, Iringa, Kagera, Morogoro, Singida, Lindi, Mtwara, Tabora, Ruvuma, Mwanza, Tanga, Mara, Shinyanga, Kilimanjaro, Dodoma, Mbeya and Pwani.

However, since 4 regions implemented more than one project, physical verification was done in 14 Regions namely: Njombe, Mwanza, Kagera, Lindi, Kilimanjaro, Pwani, Tanga, Shinyanga, Morogoro, Iringa, Dodoma, Singida, Tabora and Mbeya. The 14 regions were purposively selected due to the fact that they were the Regions where all the 3 projects, namely; Densification Round IIA Project, Village Electrification Initiative along the Backbone Transmission Investment Project (BTIP-VEI) and Renewable Energy Projects for Off-Grid areas, were implemented. The regions were visited through TANESCO's regional Offices, so as to measure the implementation of the projects and obtain reasons for deviation or success of the projects.

(ii) Selection of District Offices and Villages

Furthermore, two TANESCO District Offices from each selected region making a total of 22 districts were covered; and 3 villages from each district were visited for verification purposes. The districts and villages were selected based on the level of implementation. The level of implementation categorised as High, Medium and Low in respect of percentage of completion of the entire project as it was considered during the selection of districts and villages for visits.

First, all districts were categorized based on the level of implementation (mainly percentage of completion). In this case, districts with more than 70% completion were categorized as High; those with completion status that ranged from 50% to 70% ($50\% < X < 70$) were ranked as medium; while those districts with a completion status less than 50% were ranked as Low.

Therefore, the audit sampled 451 villages, 30 hamlets and respective projects that were visited during data collection at Ministry of Energy and REA level. Names of districts and villages visited are presented in **Appendix 3** of this report.

(iii) Selection of the Villages to be Covered

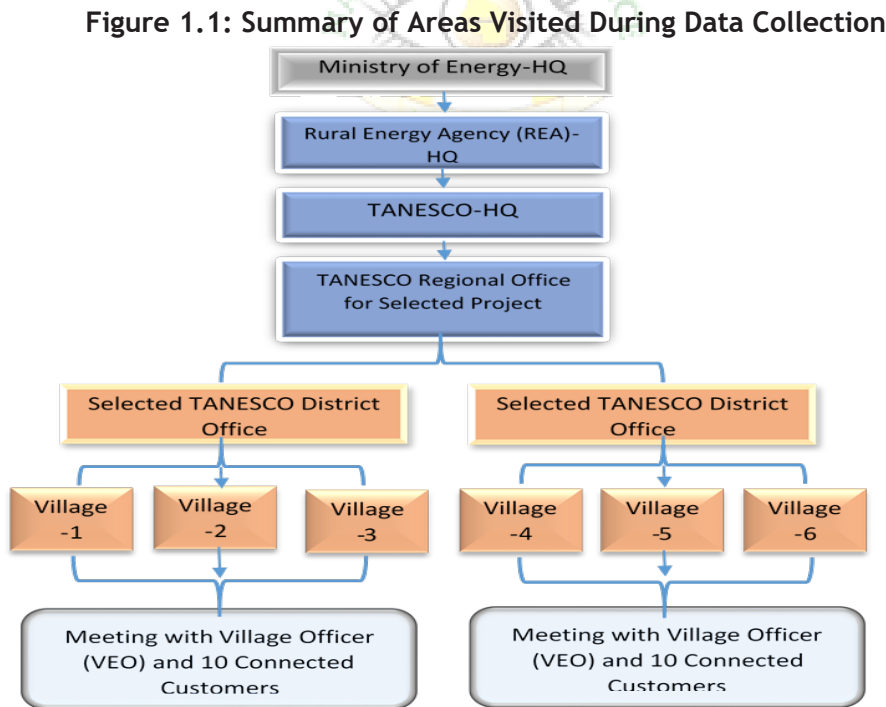
In each district, three villages were selected based on the performance whereby at least one, high, medium and low performing villages were selected. The 451 villages were purposively selected for physical verifications so as to provide an overview of the project implementation.

Further, in the selection of villages, the audit team considered the availability of various categories of beneficiaries of the project that include Social Service Providers, Small Business Owners, Small Scale Industries, and beneficiaries i.e., households/individuals. The names of selected villages were discussed and agreed with the Officials of the respective districts.

(iv) Sampling of the Villagers for Interviews

In order to establish the level of satisfaction on the implementation of the project, the audit interviewed 10 connected customers from each of the selected villages that were selected randomly covering different categories of the beneficiaries. The beneficiaries included the social service providers (schools, hospitals, churches, mosques), small businesses owners, small-scale industries, and households and individuals.

Figure 1.1 presents a summary of areas visited during the Audit and the levels or entities covered during data collection.



Source: Auditors' Analysis (2022)

1.4 Methods for Data Collection

To come up with adequate conclusions and recommendations with supporting evidence, three methods for data collection, namely; *document review*, *interviews* and *physical verifications* were used. Data were collected at REA Head-Office for the purpose of reviewing the projects' files and conducting interviews with the officials responsible for managing the projects that were supported by Sida.

Data were also collected at the Ministry of Energy to obtain information on the roles of the Ministry as an overseer of energy related projects in the country. Further, the audit team visited TANESCO Head -Office to introduce the audit and to collect information. TANESCO was responsible for the supervision of the contractors of the implemented projects. It was further noted that the team visited projects implemented in TANESCO Regional and District Offices.

a) Document Reviews

Various documents were reviewed from the Ministry of Energy, REA and TANESCO. The document reviews intended to gain comprehensive and reliable information on the implementation of the rural electrification programme. This helped the Audit Team to identify the risks/impact and possible causes and thereafter be able to gather evidences and come up with clear findings and recommendations.

Documents reviewed covered the financial years from 2015/16 - 2019/20 and included plans, performance reports, verification and monitoring reports. Category of documents reviewed and reasons thereof are detailed in ***Appendix 3***.

b) Interviews

To respond to the audit questions and provide adequate conclusions against the audit objective, interviews were conducted for the purpose of obtaining more information on the practices of the TANESCO, REA and Sida in the implementation of the rural electrification project. Interviews also were used to get clarifications on the information obtained through document reviews made. List of the officials who were interviewed,

including the reasons for interviewing them, is presented in the *Appendix 4*.

c) Physical Verifications

The Audit also conducted site visits to the areas where the project was implemented to physically inspect and observe the actual work that has been done and ascertain the quality and workmanship of the executed works as stipulated below:

Construction and Quality of Work

- Observe the alignment, height, and depths of electric poles;
- Confirm the types of electric poles used;
- Check spacing of electric poles if are as specified;
- Verify requirement of electrical equipment provided to beneficiaries if were as per specifications, quality and quantity required;
- Verify the size of electric cables used;
- Confirm types of post used and if were as per specifications;
- Check the output if is/are as per original design (in KVs); and
- Verify types of materials used if were as required in the BoQs and specification.

Scope of Planned Works to be Executed

- Verify whether intended works to be executed was effectively completed as per planned in terms of Kilometres and locations destined to the targeted beneficiaries;
- Confirm the number of Transformers installed if were as per the design; and
- Verify whether the electricity supplied to intended villages.

Environmental, Social, Safety and Health Issues

- Conduct visual observation of environment and compare with environmental requirements;
- Verify if there is emergence response to the substations (fire rescue requirements) e.g. fire extinguishers;

-
- Verify whether all worker wear PPEs (for ongoing projects); and
 - Confirm whether, the storage of electric poles is properly done as required (Check if surplus poles) or stranded on site.

1.5 Methods for Data Analysis

The Audit used various techniques to analyse the qualitative and quantitative data collected during the execution of the audit. The quantitative data analysis for this audit included the use of all data sets from the sampled projects, as indicated in **Section 1.3** above:

The following methods were used to analyse collected data:

(a) Analysis of Qualitative Data

Content analysis techniques were used to analyse qualitative data by identifying different concepts and facts that originated from interviews or document reviews and categorised based on their assertions.

The extracted concepts or facts were either tabulated or presented as they were to explain or establish relationship between different variables originating from the audit questions.

The recurring concepts or facts were quantified depending on the nature of data portrayed.

The quantified information (concepts/facts) were then summed or averaged in spreadsheets to explain the facts, determine the extent or establish the relationship between different variables.

(b) Analysis of Quantitative Data

Quantitative information and data with multiple occurrences were tabulated in spread sheets to develop point data or time series data and relevant facts were extracted from the figures that were obtained. The tabulated data were summed, averaged, or proportioned to extract relevant information and relationships from the figures.

Sums, averages and percentages were presented using various types of graphs and charts depending on the nature of the data that are used to explain facts for point data or establish trends for time series data. Other quantitative information/data with a single occurrence were presented as they are in the reports by explaining the facts they assert.

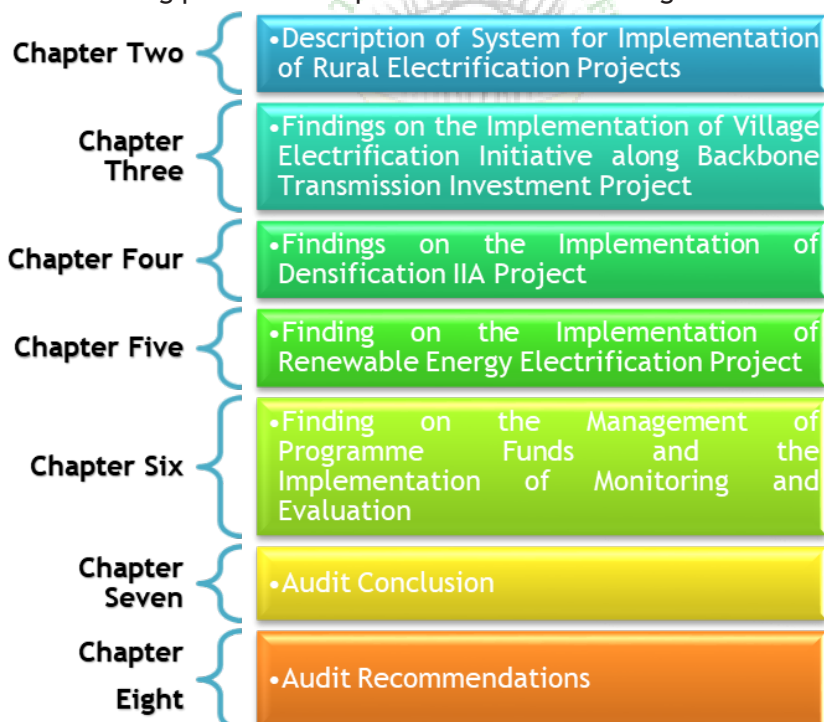
1.6 Standards Used During the Audit

The audit was conducted in accordance with the International Standards for Supreme Audit Institutions (ISSAIs) on performance auditing issued by the International Organization of Supreme Audit Institutions (INTOSAI).

These standards require that the audit is planned and performed in order to obtain sufficient and appropriate evidence so as to provide a reasonable basis for the findings and conclusion based on audit objectives.

1.8 Structure of the Report

The remaining part of the report covers the following:



CHAPTER TWO

SYSTEM FOR IMPLEMENTING RURAL ELECTRIFICATION PROGRAMME

2.1 Introduction

This chapter describes the system for implementing rural electrification programme. It covers project description, components of the program, the key actors and responsibilities, legal and institutional set-up, including the processes for planning and implementation of the rural electrification projects funded by Sida. The chapter also presents the resources for the implementation of the program.

2.2 The Overall Objectives of the Programme

According to the Programme Document, the overall objective of the rural electrification programme was to increase access to modern energy services in the rural areas of Mainland Tanzania, for sustainable socio-economic development and poverty alleviation. Specifically, the projects aimed to promote and enable efficient energy production, procurement, transportation, and distribution of electricity to all people in Mainland Tanzania in an environmentally sound manner and with due regard to gender issues.

According to the Programme Document, the specific objectives of the programme were to:

- Increase electricity access for at least 735,000 people (147,000 households), of which 430,000 people (86,000 households) through provision of infrastructure for green mini and micro grids;
- Accelerate access to high quality solar Photovoltaic (PV)² to over 900,000 people (188,000 households) in more remote areas of Tanzania; and
- Increase involvement of private sector investments in the renewable off-grid and mini-grids by use of various financial instruments.

²Electricity from the energy of the sun

2.3 Specific Projects' Components Supported by Sida Phase II

The programme has three projects (Sub-components), namely:

- a) Village Electrification Initiative along the Backbone Transmission Investment Project (BTIP - VEI);
- b) Densification Round IIA Project; and
- c) Renewable Energy Projects for Off-Grid areas.

Brief description for each project is as explained below:

2.3.1 Village Electrification Initiative along the Backbone Transmission Investment Project (BTIP - VEI)

The project started in March and May 2018 with a scope of electrifying 115 villages and 6 hamlets in Iringa, Dodoma, Singida, Tabora and Shinyanga regions and extension of Mtera 220/33kV, 2x10MVA substation. It aimed to enhance rural electrification to connect 30,350 initial customers. The project cost was TZS 58.04 billion. As of 30th June, 2020, TZS 47.9 billion were paid, in which TZS 28.98 billion was from the Government of Norway and TZS 18.96 billion from the Government of Sweden. The remaining cost for Mtera substation and retention monies for distribution works were paid by the Government of Sweden contribution. Currently, a total of 16,790 out of 30,350 initial customers have been connected in all villages and hamlets as planned.

2.3.2 Densification Round IIA Project

Densification Round IIA project involved electrification of 1,103 hamlets in Nine regions of Kilimanjaro, Dodoma, Tabora, Shinyanga, Mwanza, Pwani, Tanga, Mbeya and Singida. The project was financed by the Governments of Norway, Sweden and the European Union at a cost of **USD 61 Million**, expected to connect 69,079 customers for the period of 12 months.

2.3.3 Renewable Energy Projects for Off-Grid Areas

Projects under this component were implemented to enhance rural electrification in the Islands which are far from the national grid. The Government of Sweden contributed **SEK 100 Million** to support green

mini-grids projects in the islands. With this regards, REA continued to supervise 13 projects with a total capacity of 9.635 MW, 2,020 customers and 120 villages. Out of the 120 villages, 19 villages are located in the islands. The total investment cost was **USD 42.21 Million** and REA contributed a total of **USD 10.805 Million** through Results-Based Financing (RBF) for all projects.

Table 2.1 provides a summary of project information for the four sub-programmes including projects executed for particular programme:

Table 2. 1: Brief Summary of the Programme Information for Each Sub-Project

Name of the project	Scope/target of the project	Regions covered by the project and to be selected for audit	Total number of regions selected for each project	Project estimated cost (TZS)	Source of fund/Project Financier
Densification Round IIA Project	<ul style="list-style-type: none"> • 1,103 hamlets in Nine (9) regions • Connect 69,079 customers for a period of 12 months 	9 Regions Kilimanjaro, Dodoma, Tabora, Shinyanga, Mwanza, Pwani, Tanga, Mbeya and Singida	9	TZS 140.727 billion	Governments of Norway, Sweden and the European Union
Village Electrification Initiative along the Backbone Transmission Investment Project (BTIP - VEI)	<ul style="list-style-type: none"> • Electrifying of 115 villages and 6 hamlets • Extension of Mtera 220/33kV, 2x10MVA substation to enhance rural electrification to connect 30,350 initial customers 	5 Regions Iringa, Dodoma, Singida, Tabora and Shinyanga	5	TZS 58.04 billion	Government of Norway and Government of Sweden

Name of the project	Scope/target of the project	Regions covered by the project and to be selected for audit	Total number of regions selected for each project	Project estimated cost (TZS)	Source of fund/Project Financier
Renewable Energy Projects for Off-Grid areas	<ul style="list-style-type: none"> Enhance rural electrification in areas that are far from the national grid including Islands Supervise 13 projects with a total capacity of 9.635 MW, 2,020 customers, and 120 villages Electrifying 71 unelectrified islands 	12 Regions Njombe, Manyara, Kagera, Morogoro, Singida, Lindi, Mtwara, Tabora, Ruvuma, Mwanza, Tanga and Mara.	1	TZS 24.3 billion	Government of Sweden

Source: Auditors' Analysis of Information Extracted from the Development Partners Support to REF-Annual Progress Report 2019/20

Table 2.1 above shows the densification projects which were implemented in nine (9) regions, namely; Kilimanjaro, Dodoma, Tabora, Shinyanga, Mwanza, Pwani, Tanga, Mbeya and Singida. **Table 2.1** also shows the Village electrification project was implemented in five (5) regions, namely; Iringa, Dodoma, Singida, Tabora and Shinyanga. Moreover, **Table 2.1** depicts the renewable energy projects which were implemented in twelve (12) regions, namely; Njombe, Manyara, Kagera, Morogoro, Singida, Lindi, Mtwara, Tabora, Ruvuma, Mwanza, Tanga and Mara.

2.4 Governing Laws and Guidelines for the Implementation of Rural Electrification Programme

The programme of rural electrification which is executed by Rural Energy Agency in collaboration with other key actors is guided by the following laws and regulations:

- The Rural Energy Act, 2005
- Rural Energy Masterplan (2020 - 2030)
- Tanzania Electricity Act, 2008
- REA Strategic Plan, 2021/22 to 2025/26
- Rural Energy Prospectus, 2013 - 2022

2.5 Key Actors and their Roles in Project Implementation

The key actors involved in the implementation of rural electrification projects include Ministry of Energy, TANESCO and REA representing Government of Tanzania, and Swedish International Development Agency (SIDA) representing the Government of Sweden. However, the implementation of rural electrification projects involved other stakeholders like Trust Agent, Project Developers, Contractors, Consultants and Local Government Authorities.

According to financing agreement on the implementation of the project, the roles of each actor is as described hereunder.

2.5.1 Ministry of Energy

The Ministry of Energy through Rural Electrification Agency (REA) was an implementing agency of the rural electrification project. The Ministry of Energy is responsible in the development of energy sector, specifically on the urban and rural electricity programs. In the implementation of rural electrification, the Ministry was responsible for monitoring and evaluation of the project implementation to ensure its sustainability.

2.5.2 Tanzania Electric Supply Company Limited

The Tanzania Electric Supply Company Limited (TANESCO) was the implementing agency, responsible for the procurement of Consultant and Contractors as well as for the execution of the projects. The Company generates, purchases, transmits, distributes and sells electricity. TANESCO owns most of the electricity generating, transmitting and distributing facilities in Tanzania Mainland with an estimated population of over 50 million. Moreover, for the implementation of rural electrification, TANESCO was responsible to:

- a) Supervise execution and technical assistance during project implementation;
- b) Ensure standard of quality and compliance with the best industry practice;
- c) Receive the project from Agency after completion for ownership, operational and maintenance in accordance with technical specifications; and
- d) Seek approval from the agency for any change order, variations, change of design, and any change in respect to original contracts.

2.5.3 Rural Energy Agency

The Rural Energy Agency (REA) is established by the Act of the Parliament as an autonomous Agency. Its main role is to promote and facilitate improved access to modern energy services in rural areas of Mainland Tanzania and to provide grants and subsidies to developers of rural energy projects. Functions of REA, for the sake of this audit, include:

- a) To act as the executive body and secretariat to Rural Energy Board, keep all records of the affairs and the meetings of Rural Energy Fund and ensure implementation of its decisions and directives;
- b) To prepare application procedures, guidelines, selection criteria, standards and terms and conditions for grants and submit to Rural Energy Board for approval;
- c) To select projects for evaluation and contract suitably qualified persons to evaluate their social and economic impacts;
- d) To recommend to Rural Energy Board projects for approval;

-
- e) To prepare proposals to Rural Energy Board for additional means and sources of finance to be used for the benefit of rural energy service provision;
 - f) To facilitate provision of technical assistance to qualified developers by the use of private entities related to technical design, management, financial analysis, project finance and sound business practices;
 - g) To facilitate preparation and appraisal of projects applying for grants; and
 - h) To facilitate the preparation of bid documents for projects to be competitively tendered to prospective developers.

2.5.4 Swedish International Development Agency

SIDA was mainly responsible for financing of the project. Sida approved in total a maximum of SEK 600,000,000 to finance the project. Furthermore, SIDA was responsible for undertaking evaluation part of the project to check the sustainability of the implementation of rural electrification project.

2.5.5 Trust Agent

Section 23(1) of the Rural Energy Act, 2005 empowers the Board to appoint a Trust Agent (TA). The Trust Agent is responsible for monitoring implementation of REF supported projects and disbursement of grant payments from the Fund to the project developers; and ensuring that pre-conditions set by the Board for making grant payments are met by the project developers. The Trust Agent contract provides minimum number of professional staff/experts that must be available for effective execution of the Trust Agent functions.

The minimum qualifications and experience of professional staff are provided in the contract and change in subsequent contracts depending on the change in volume and nature of funded projects. The Rural Energy Act, 2005 provides details on the scope of services and financial management role of the Trust Agent. The Trust Agent is required to set up all aspects of the financial management system for the Rural Energy Fund and has the

overall responsibility for disbursements and monitoring usage of grants and support from the Rural Energy Fund.

2.5.6 Other Key Stakeholders

Other key stakeholders who directly involved with the project implementation are elaborated here under;

a) Project Developers

These are companies or persons who use their expertise and resource to plan and execute the electrification project. They are financially supported by the Rural Energy Fund with provision of technical assistance to qualified project developers (planning, preparation of projects prior to application for grant, and pre-investment studies for projects).

b) Contractor

The company or firm which actually executes the contract after signing the contract with REA. A company or firm is responsible to implement the project based on the technical specifications with guidance and directions from consultant and REA.

c) Consultant

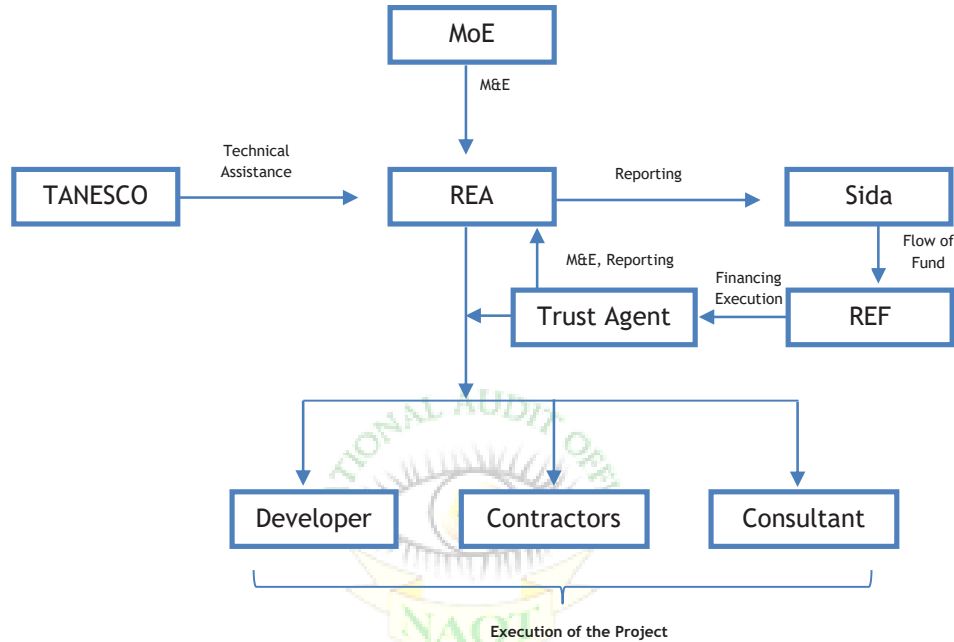
Is the Project Manager/Engineer who actually coordinates the implementation process on behalf of the client, who is REA. Consultant protects the benefit of client or Employer by ensuring that the project is implemented within scope and completed with the given time and cost, including the prescribed quality.

d) Local Government Authorities

Local Government Authorities play a critical role of coordination between the project implementers and the beneficiaries from the lower level. This is conducted by ensuring permitted friendly working environment and building awareness to the beneficiaries about the project.

The coordination of roles and responsibilities of the key actors on the implementation of the rural electrification is presented the **Figure 2.1** below.

Figure 2.1: Relationship between Key Actors for the Implementation of Rural Electrification



Source: Auditors' Analysis from the roles and responsibilities of Key Actors, 2022

2.6 Financing of the Programme

Under this programme, the plan was to spend new Swedish SEK 600 million contribution to the REF for the period 2015-2019. Out of the Swedish funding, SEK 500 million was to be used for on-grid electrification while the remaining SEK 100 million and the GBP30 million were expected to focus on supporting the private sector led renewable energy investments. The Swedish contributions were expected to be provided to REA and channelled through the REF.

The overall objective of the proposed programme is to contribute to the Tanzanian Government's aim to reach the UN initiative for *Sustainable Energy for All* (SE4ALL) ambition of universal (100%) access by 2030².

Further, an amount equivalent of roughly 10% of the Swedish financing and 20% of the DFID funds were set aside for different supporting activities, including technical assistance, capacity development, community mobilisation, project preparation, transaction advice, etc.

Although the budget was expected to remain flexible within each window, a tentative breakdown was made as follows: All Swedish funds for on-grid electrification were allocated to the On-Grid Window, except SEK 5million, which was to be used for annual audits, M&E and independent verification.

The funds channelled through the Private Sector Window were divided as follows:

- a. 80% of the UK funds to be used for investment financing and 20% for project preparation, community/CBO mobilisation, market development and other activities led by REA;
- b. 90% of the Swedish funds were allocated to investments and 10% to investment support activities.

This tentative budget breakdown depended on the Programme progress and development, and it was subject to the annual consultations between REA, Sweden and UK. **Table 2.2** presents a summary of planned budget for each component/project.

Table 2.2: Planned Budget to Implement Three Projects

Program Budget	SEK (Millions)	TZS (Millions) ³
On-Grid Window		
BTIP Village Electrification	120	30,692.40
Southern Highlands Village Electrification	120	30,692.40
RBF TANESCO Densification (\$400/connection)	20	5,115.40
RBF REA Greenfield Densification (\$750/connection)	40	10,230.80
Total On-Grid	300	76,731.00
Private Sector Renewable Window		
RBF for mini and micro grids	300	76,731.00
Sub-total investment finance	300	76,731.00
Grand Total	600	153,462.00

Source: REA Program Document



³The applicable exchange rate between Swedish Krona (SEK) to Tanzania Shilling (TZS) is 255.77 TZS/SEK being an average exchange rate in the year 2016.

CHAPTER THREE

AUDIT FINDINGS ON THE PROVISION OF ELECTRICITY TO RURAL COMMUNITIES UNDER VILLAGE ELECTRIFICATION INITIATIVE ALONG BACKBONE TRANSMISSION INVESTMENT PROJECT

3.1 Introduction

This chapter presents findings on the contract for providing electricity to the rural communities under Village Electrification Initiative along Backbone Transmission Investment Project. The chapter also presents both project information and audit observation. Details of the findings in respect to Village Electrification Initiative along Backbone Transmission Investment Project are presented in the sub-sequent sections of this chapter.

3.2 Contract Data

3.2.1 Contract Data for the Construction of Lot 1

The Contract for Supply and Installation of 220/33 kV Substation Extension at Mtera Hydropower had the following information as presented in Table 3.1:

Table 3.1: Construction of Substation Extension at Mtera Hydropower

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.1
Contract Name:	Contract for Supply and Installation of 220/33 kV Substation Extension at Mtera Hydropower Plant (Lot 1)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Hifab Oy, In Association with EM Consultants LTD
Contractor:	Iran Power & Water Equipment & Services Export Co. (SUNIR)
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 3,234,831 (VAT exclusive)
Contract Signing Date:	17 th March, 2017
Commencement Date:	13 th September, 2017
Contract Delivered	17 Months

Contract Item	Description
Period:	
Planned Completion Date	12 th March, 2019
Status at the Time of this Audit	On-going
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total contract price
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	The contractor agrees to supply spare parts for a period of five (5) years

Source: Auditor's Analysis of the Contract for the Supply and Installation of 220/33 kV Substation Extension at Mtera Hydropower Plant (Lot 1) and Consultant's Progress Reports

3.2.2 Contract Data for the Construction of Lot 2

The Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Iringa Region (Lot 2) had the information as presented in **Table 3.2**.

Table 3.2: Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Iringa Region (Lot 2)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.2
Contract Name:	Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Iringa Region (Lot 2)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Hifab Oy, In Association with EM Consultants LTD
Contractor:	Nakuroi Investment Company Limited
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 3,432,199.18 and TZS 2,066,092,059.26
Contract Signing Date:	10 th March, 2017
Commencement Date:	24 th May, 2017
Contract Delivered Period:	18 Months
Planned Completion Date	23 th November, 2018
Status at the Time of this Audit	On-going
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total contract price
Performance Security	15%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable
Guarantee Test of the Facilities	Within Four Weeks (4) from the date of completion

Source: Auditor's Analysis of the Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Iringa Region (Lot 2) and Consultant's Progress Reports

3.2.3 Contract Data for the Construction of Lot 3

The Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Dodoma Region (Lot 3) had the information as presented in **Table 3.3**.

Table 3.3: Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Dodoma Region (Lot 3)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.3
Contract Name:	Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Dodoma Region (Lot 3)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Hifab Oy, In Association with EM Consultants LTD
Contractor:	OK Electrical & Electronic Service Limited
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 6,221,741.75.18 and TZS 3,073,741,042.70
Contract Signing Date:	10 th March,2017
Commencement Date:	24 th April,2017
Contract Delivered Period:	16 Months
Planned Completion Date	23 th November,2018
Status at Time of this Audit	Completed
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable
Guarantee Test of the Facilities	Within Sixty (60) days from the date of completion

Source: Auditor's Analysis of the Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Dodoma Region (Lot 3) and Consultant's Progress Reports

3.2.4 Contract Data for the Construction of Lot 4

The Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Singida Region (Lot 4) had the following information as presented in **Table 3.4**.

Table 3.4: Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Singida Region (Lot 4)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.4
Contract Name:	Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Singida Region (Lot 4)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Hifab Oy, In Association with EM Consultants LTD
Contractor:	Nakuroi Investment Company Limited
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 4,506,528.04 and TZS 2,559,101,393.63 (VAT Inclusive)
Contract Signing Date:	xx March, 2017
Commencement Date:	24 th 05, 2017
Contract Delivered Period:	16 Months
Planned Completion Date	23 th September, 2018
Status at Time of this Audit	On-going
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total contract price
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable
Guarantee Test of the Facilities	Within Sixty (60) days from the date of completion

Source: Auditor's Analysis of the Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Singida Region (Lot 4) and Consultant's Progress Reports

3.2.5 Contract Data for the Construction of Lot 5

The Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Tabora and Shinyanga Regions (Lot 5) had the following information as presented in **Table 3.5**.

Table 3.5: Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Tabora and Shinyanga Regions (Lot 5)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.5
Contract Name:	Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Tabora and Shinyanga Regions (Lot 5)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Hifab Oy, In Association with EM Consultants LTD
Contractor:	OK Electrical & Electronic Service Limited
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 4,063,207.38 and TZS 2,268,608,737.50
Contract Signing Date:	-/-/2017
Commencement Date:	24 th April, 2017
Contract Delivered Period:	16 Months
Planned Completion Date	24 th November, 2018
Status at Time of this Audit	On-going
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total contract price
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable

Source: Auditor's Analysis of the Contract for Supply and Installation of MV and LV Distributions Networks and Consumer Connection in the Tabora and Shinyanga Regions (Lot 5)) and Consultant's Progress Reports

3.2.6 Contract Data for the Provision of Consultancy Services

The Contract for Project Consultant for Providing Electricity to Rural Communities Initiative (VEI) under the Backbone Transmission Investment Project (BTIP) had the following information as presented in **Table 3.6**.

Table 3.6: Project Consultant for Providing Electricity to Rural Communities Initiative (VEI) under the Backbone Transmission Investment Project (BTIP)

Contract Item	Description
Contract Number:	AE/008/2013-14/HQ/G/C/1
Contract Name:	Contract for Project Consultant for Providing Electricity to Rural Communities Initiative (VEI) under the Backbone Transmission Investment Project (BTIP)
Employer:	Rural Energy Agency (REA)
Consultant:	Hifab Oy, In Association with EM Consultants LTD
Contract Price:	EUR 1,714,910.00 (excluding local taxes, except for VAT on local purchases of goods and services) plus USD 889,741.50 (including all local taxes)
Contract Price after addendum 1:	EUR 161,033 (excluding local taxes) and USD 267,832 (including local taxes)
Contract Signing Date:	26 th March, 2014
Contract Signing Date for addendum 1:	27 th July 2017
Commencement Date	26 th March, 2014
Commencement Date after addendum 1:	27 th July 2017
Completion Date:	31 st December 2017
Completion Date after addendum:	30 th May 2017
Status at Time of this Audit	On-going
Advance payment	10% of the contract value in the contract currency shall be made within thirty (30) days after the effective date
Interest rate	1% above the lending rate of commercial banks in the countries of the contract currencies
Taxes	The Client warrants that consultant and personnel shall be exempt from all taxes in Tanzania, including corporate and individual income tax, VAT, import duty, excise duty and any related charges (with the exception of: income tax for local companies, income tax for national personnel, and VAT expenditures/purchases of goods and services made in Tanzania).
Third party motor vehicle liability	With minimum coverage of USD 500,000

Contract Item		Description
insurance		
Professional insurance	Liability	With minimum coverage equals to the contract amount

Source: Auditor's Analysis of the Contract for Project Consultant for Providing Electricity to Rural Communities Initiative (VEI) under the Backbone Transmission Investment Project (BTIP)

3.3 Planning and Designing of the BTIP-VEI Projects

This part assessed the planning and designs of the project prior to its implementation. Under this component REA activities were assessed based on the adequacy of the project planning covering preparation of feasibility study, the adequacy of preparation of the BoQs, adherence to the specifications and extent of compliance with the detailed project design. However, the audit noted the following weaknesses:

3.3.1 REA Implemented the BTIP- VEI Project without Having a Concept Note in Place

Para 3.1.2 of the Public Investment Project Preparation- Operational Manual, February, 2015 requires that, all government bodies and private sector which initiate any project to prepare a "Project Concept" in order to allow preliminary screening of the project. Additionally, Para 2.2 of the Guidelines for Project Planning and Negotiations for Raising Loans, Issuing Guarantees and Receiving Grants reveal that, the concept note for the identified project is supposed to be screened, owned and endorsed by the sector ministry before being submitted to the institution responsible for national planning.

Through the review of the planning document, the audit did not find the evidence which indicated whether REA prepared a concept note of the BTIP-VEI project prior to conducting feasibility study.

In responding to this observation, the Management of REA indicated that the overall project concept was prepared by TANESCO under Back Bone Project 400kv, and that the component for Village electrification was transferred to the Agency for implementation.

Regarding to aforesaid respond, REA did not avail the evidence of the concept note that was prepared by TANESCO which included Village electrification. Further, the management did not provide evidence indicating the aspects that were covered in the concept note related to the village electrification component.

Absence of the developed concept note resulted into duplication of efforts, overlapping of activities and unnecessary destruction of the existing infrastructure during implementation of the respective project.

3.3.2 The Feasibility Studies did not Include the Villages Covered by the BTIP-VEI Project

According to Para 3 of the Design Report (Final Draft of November 2012), and the Project Report of 21st June, 2006, REA was supposed to conduct a study and develop a design for the transmission and distribution of electrical infrastructure to be constructed.

Through the review of the BTIP Feasibility Study Reports the Audit found that, REA conducted two Feasibility Study Reports, whereby the first feasibility study covered 91 villages, and the second one covered 51 villages. Both two feasibility study reports covered four lots (Lot 2, Lot 3, Lot 4 and Lot 5).

However, the feasibility studies that were conducted did not include all villages that were covered during the project implementation, as indicated in **Table 3.7**.

Table 3.7: Villages Not Included by Feasibility Study

Name of the Region/Lot	Total Number of Villages Covered during the Implementation (N)	Villages that were not part of the Feasibility Studies	Percentage (%) of Villages not Included in the Feasibility Study
Lot 2 - Iringa	25	5	20
Lot 3 - Dodoma	36	5	22
Lot 2 - Singida	41	6	12
Lot 4 - Shinyanga	13	2	15

Source: Auditors' Analysis of Feasibility Study Reports and Completion Certificates (2022)

Table 3.7 indicates that Dodoma had the highest percentage of villages that were not covered in the feasibility study at (22%), followed by Iringa (20%), then Shinyanga (15%), and Singida (12%).

The interview with officials from REA revealed that the additional number of villages was due to variations raised during the project implementation. For instance, some of the pre-identified/targeted villages had been already supplied with electricity from other electrification initiatives. This was normally done during implementation when other villages were covered through other TANESCO's development initiatives without notifying REA on their project implementation status.

However, the Officials could not provide the evidence to support their explanations. Thus, inadequate coordination between REA and TANESCO at the time of planning and implementation phase for BTIP-VEI, was the main cause.

Failure to determine the actual situation in the ground led to the additional villages and additional project costs since the baseline information needed during the design for those villages were not pre-determined in the respective feasibility study reports.

3.3.3 REA Did Not Ensure that Geotechnical Survey at Mtera Substation was Undertaken prior Execution of the Extension Project

Para 4.2 (iii) of the Public Investment Management - Operational Manual, 2015 provides that, the implementing agency (for this case REA) shall prepare feasibility study reports for the projects which are sensitive, of high risk or those which incorporate state-of-the-art technology. The same manual details that, project feasibility study is a critical stage of the project cycle since it provides a comprehensive review of all aspects of the project before taking a final decision about its viability.

Additionally, Para 9 Technical Guideline for the development of Small-hydropower plants' design, SHP/TG 002-3: 2019⁴ reveals that, the engineering geological investigation of the power plant area should be carried out according to the accuracy of two different design stages: pre-feasibility study and the feasibility study.

The guideline details that, it is necessary to investigate the engineering geology conditions and the main engineering geology problems in the power plant area such as morphological characteristics of the topography and geomorphology of the plant area; formation lithology as well as the cause composition material and distribution of the overburden of the plant area; main geologic structure of the plant area, the development position, type, occurrence, scale and composition materials of the fracture zone; physical and geological phenomena such as the weathering degree of the rock mass, unloading, landslide, collapse and debris flow in the plan area and slope stability of the plant.

Despite the fact that TANESCO and REA already knew that, the substation is located above the waterway tunnel and risks associated, the reviewed project files, revealed that, REA did not ensure geotechnical study at Mtera substation was undertaken. This led to the difficulties during the execution of the project as the contractor noted that the ground of Mtera substation was completely rocky which required special methods for excavation such as the use of chemical materials and explosive methods. However, due to the existence of energized substation nearby, it was not possible for the

⁴United Nations Industrial Development Organization (UNIDO)

contractor to use the explosion method. Also, the rocks were so hard in a way that could not even react to the chemical materials.

As a result, the contractor took 6 months to complete excavation of the rock while it was required to be 6 months of 220 kV switchyard civil works which is a considerable long time. The challenges were evidenced through the review of the letter with Ref.No.99/1135/155043 dated 22nd June, 2020. Further, this additional work led the contractor to request an additional cost amounting to USD 108,000 to manage the payment related to the personnel's wages for the extra work on excavation of Mtera substation, which has not been approved by REA.

According to the aforementioned letter it was noted that, the reason for not conducting the feasibility study that included the geotechnical aspects was overreliance of the site visit during the bidding time. As a result, REA lacked sufficient information necessary to adequately understand the basic technical specifications which were supposed to be established in advance for the preliminary design.

3.4 Findings Related to the Procurement Aspects

This part presents the findings on the performance of procurement process. It covers compliance with procurement laws and regulations at all stages, starting from planning to the award of the contract. This involves assessment of the process of formulation of the Evaluation Committee, effectiveness of Tender Board in executing its duties based on the recommendations made by the Evaluation Committee.

The audit noted that, to a large extent TANESCO and REA complied with the requirements of the provisions in the Public Procurement Act, 2011 (PPA, 2011), Public Procurement Regulations (PPR, 2013) as amended in 2016 and Programme operational guideline. The compliance was noted in the areas such as planning for procurement, pre-qualification proceedings, tendering process, negotiation proceeding and contracting.

However, the Audit Team identified areas for further improvement, regarding the management of procurement processes, which include:

3.4.1 Invitation of Tender Pre-Qualification for Lot 2 and 5 was not Advertised in the International Newspaper

First schedule of PPR, 2013 requires the Procuring Entity to advertise through Journal, tender portal, PE website, one local newspaper and international newspaper.

From the analysis of Tender invitation proceedings, it was noted that for lot 3 and 4 REA complied with the requirements. The review of international re-invitation for tender No. AE/008/2015-16/HQ/G/8-Lot 1, Lot 2 and Lot 5 for Villages' Electrification Initiative (VEI) along the Backbone Transmission Investment Project (BTIP), it was noted that, the tender was advertised through General Procurement Notice (GPN) which appeared in Daily Newspaper of 1st August, 2016 and REA website www.rea.go.tz .

The Audit found that, despite the fact that the tender was supposed to be advertised internationally, the invitation was not advertised in the appropriate foreign or international publications or professional or trade journals.

It was further noted that, REA sent the invitation direct to 38 tenderers without allowing other tenderers to compete by advertising the invitation to tender through the national publication instead of the international publication.

The impact of not advertising tender in the appropriate foreign or international publications or, professional or trade journals was limiting the competent tenderers from participating in tendering.

The management of REA explained that the invitation was sent direct to 38 tenderers because they were shortlisted following the pre-qualification process. Once firms are pre-qualified, Procuring entities are not required to advertise the invitation for tenders but rather issue an invitation letter to the firms pre-qualified. This is evidenced by the Tender board minutes which approved the 38 pre-qualified firms.

3.4.2 Absence of Some of the Pre-qualification Procurement Proceeding Documents for BTIP-VEI Project

Sub-regulation 15(7) of PPR 2013, requires the procurement records under this regulation be kept for a period of not less than five years from the date of completion of the contract and may be made available within a reasonable time during that period to the Minister and the Controller and Auditor General, the Authority or any other officer authorised by the Accounting Officer; provided that where special circumstances demand such records may be kept for not less than seven years.

However, the Audit noted that, the procurement proceeding documents such as pre-qualification applications for Tender AE/008/2014-15/HQ/G/8 LOT 1-5 were missing. The management of REA explained that, most of the documents which are 5+ years old, of which there were the pre-qualification documents for this tender which were stored in REA Offices located at Upanga. The management also added that, the documents were stolen, and that incidence was reported to the appropriate authorities.

The audit also confirmed this via the review of Letter with Ref No. AB.47/191/03/100 dated 3rd March, 2022 from REA showing the documents which were stolen and the letter from Salander Bridge Police station dated 19th February, 2022 with Ref No. SBR/BA/I/VOL.VIII/121 which showed documents were stolen on 15th February, 2022.

Absence of procurement documents limited the auditor from conducting thorough assessment of the compliance to procurement laws and regulations. It also affected the transparency aspect as far as the procurement process was concerned.

3.4.3 REA Entered into Contract with Ambiguity Signing Date

Regulation 115(6) of the Public Procurement (Amendment) Regulations, 2016, reveals that, the Accounting Officer shall furnish the Authority with the name of the client, date of entering into contract and contract amount for publication in the journal and Tenders Portal.

According to the review of the contracts document entered between REA and the companies subjected to the BTIP-VEI projects, the audit team noted

that, REA did not adequately manage the contracts to ensure that they adhered to the provision of Regulation 115(6). For example, on the aspect of inserting signing date of the contracts, this was only done to one (1) contract out of five (5) contracts REA entered with the companies subjected to BTIP-VEI projects. Additionally, through the review of the consultant performance reports and contractors' certificates of completion of the contracts, the audit noted that, to a large extent, they revealed the signing date of the contracts into their reports, however, the challenge was that they did not match. The Audit Team further analysed all contracts' documents, consultant's progress reports and the completion certificates of the projects as detailed in **Table 3.8**:

Table 3.8: Signing Date of the BTIP-VEI Projects

Lot Number	Signing date according to the contract	Signing date according to the completion time	Signing Date according to the consultant documents
Lot 1	17/03/2017	-	17/03/2017
Lot 2	-/-/2017	10/03/2017	10/03/2017
Lot 3	-/-/2017	06/02/2017	10/03/2017
Lot 4	-/-/2017	19/12/2019	-/03/2017
Lot 5	-/-/2017	-	-

Source: Audit's Review of the BTIP-VEI Contracts' Documents, Consultant's Progress Reports and Completion Certificates

Table 3.8 provides that the signing date of the contract documents for the Lot 1 revealed the full details such as date, months and the year of contract, lot 2 up to Lot 5 revealed only year of the contract. For the case of the signing date for the consultant's monthly reports and the completion certificate reports of the Lot 2 up to Lot 4, there were not matched dates, while for the case of the Lot 1 and lot 5, there were not certificates of completion.

Through the Interview with REA legal official, it was noted that, the dates for Lot 2 to Lot 5 were forgotten to be filled even though the contracts were signed on the same day. The contradiction of the signing date has led the audit to analyze the signing dates with that confusion.

3.5 Findings Related to the Contract Management

This part reports audit findings on the contract management covering time, quality and cost aspects. It also covers disbursement and utilization of project funds, environment, social, safety and health management as well as human resources issue. Further, the findings cover progress of works, quality control and quality assurance procedures, compliance with provisions of contract documents, and compliance to contractual staffing requirements.

In general, the management of the contract, especially on the management of the quality of work was satisfactory. For example, the audit revealed that compliance with the specifications and standards of the equipment and machinery to be installed REA and TANESCO adhered to the inspection (FAT and SAT) of the equipment prior to its installation. Payments to contractors were largely made according to the payment schedule as specified in the contracts.

Furthermore, to a large extent, the management of Environment, social and health was undertaken by REA for example, health centers and schools were connected with electricity and no noticeable, tree cutting was noted in the project areas. However, there were weaknesses noted that are associated with the contract management, which include:

3.5.1 Uncertainty of the Commencement Date of the Works

According to the review of the project performance report it was noted that, REA did not commence implementation of the project on time. The Audit made the analysis on the attainment of the effective date and the commencement date, as detailed in (i) and (ii) hereunder:

(i) Delay to Effective Date

Clause 3.1 pertaining to the conditions for effective date shows that, the effective date shall be determined on the date when all of the following conditions have been fulfilled:

- (a) The contract agreement has been duly executed for and on behalf of the employer and the contractor;

-
- (b) The contractor has submitted to the employer the performance security and the advance payment guarantee;
 - (c) The Employer has paid the Contractor the advance payment; and
 - (d) The employer has paid the contractor the advance payment.

Furthermore, Article 3.2 shows that, if the conditions listed under Clause 3.1 are not fulfilled within two (2) months from the date of the contract notification due to the reasons not attributed to the contractor, the parties may discuss and agree on an equitable adjustment to the contract price and the time for completion and/ or other relevant conditions of the contract.

Upon review of the signed contract document, it was noted that, out of the five (5) contracts, only Lot 1 contract had dates of signing the contract. According to the Interviews made with REA officials, it was noted that, the responsible officials had forgotten to write the date when the contracts were signed. Thus, the absence of a reliable contract signing date made the Auditors to fail to establish the delay in effective and commencement.

Review of the performance reports prepared by the Consultant, revealed that there was a delay from the targeted contract effective date of 17th April, 2017 to actual affective date per Lots, which is contrary to Article 3.1 of the contracts. The detailed analysis of the delays in the effective dates is shown in **Table 3.9**:

Table 3.9: Delay in Reaching Effective Date

ITEM / LOT	Contract Signing Date	Contractors' performance Guarantee (TZS & USD)	Contractors' Advance Payment (TZS & USD)	Contractors' Receipt of Advance Payment (TZS & USD)	Date for Operable Letter of Credits	Contract Effective Date	Delay in Reaching Effective Date
		Submittal Date					
LOT1	March 17, 2017	12 th April, 2017	19 th June, 2017	26 th July, 2017	13 th Sept, 2017	13 th Sep, 2017	146
LOT2	March 10, 2017	03 th March, 2017	27 th April, 2017	23 th May, 2017	24 th May, 2017	24 th May, 2017	37
LOT3	March 10, 2017	09 th March, 2017	16 th April, 2017	25 th May, 2017	25 th May, 2017	25 th May, 2017	8
LOT4	March, 2017	03 th March, 2017	27 th April, 2017	23 th May, 2017	24 th May, 2017	24 th May, 2017	37
LOT5	-	14 th March, 2017	16 th April, 2017	25 th May, 2017	25 th May, 2017	25 th May, 2017	8

Source: Consultant's Performance Reports (2022)

Table 3.9 shows that, there were delays in the effective dates of the work ranging from 8 to 146 days from the targeted date of 17th April, 2017. The Audit Team noted that, there was no any evidence to justify of the effective date due to delay contrary Clause 3.2. The delays would warrant discussions on possible adjustments to the contract prices and time for completion.

Furthermore, as far as Clause 3.1 is concerned, the Audit Team acknowledged that, there is the provision of contract which insisted each party should use its best effort to fulfill the above condition for which it is responsible as soon as possible. Nevertheless, the Audit team noted that, the factor contributed to the delay of the effective date was absence of the accurate time estimate and time schedule. A delay in the effective date of work led to the project being subjected to the time overrun and cost overrun from the signing date to effective date.

(ii) Delay to Commence Work

Clause 7 of the Special Condition of Contract (SCC) and Clause 8.1 of the GCC of the all contracts of the BTP requires, the Contractor to commence the work on the facilities within thirty (30) days from the effective date.

Review of performance reports prepared by the Consultant and Contractor noted that, information regarding the commencement dates of the BTIP projects was not captured. Interviews with REA Officials indicated that, all the projects commenced on time. However, the Audit did not get any evidence to support this assertion. Due to lack of information about the commencement date the audit failed to assess the adherence to the agreed time targets.

3.5.2 The BTIP -VEI Projects were not Timely Completed

Regulation 5 (2) (c) of the Public Procurement Regulations, 2013 requires the procuring entity to ensure that the construction works are completed in a timely manner in accordance with the procuring entity's priorities.

According to the review of the correspondence file it was noted that, all BTIP- VEI projects delayed in completion as presented in (i) and (ii) hereunder;

(i) Delayed Completion of Lot 1

According to Clause 8.2 of the General Conditions of Contract, the contractor shall attain completion of the facilities (or of a part where a separate time for completion of such part is specified in the contract) within the time stated in the SCC (17 months). However, REA did not ensure that the project was completed on time as it was expected to be completed within seventeen (17) months.

Review of the Addendum for extension of time between REA and M/S SUNIR by April, 2021 noted that, REA extended the contract at Mtera hydropower plant (Lot 1) for 8 months from 14th March, 2021 until the 13th November, 2021.

However, audit found that, up to December, 2022 the time of this audit the project was not completed which delayed for three (3) years and nine (9) months. The delays were associated with Delays in obtaining VAT exemption, which limited the clearance of construction materials at ports of entry, and the COVID-19 pandemic.

Although the contract was extended, contractor did not manage to execute the project within the granted time. Because the banker of the contractor (M/s Sunir) stopped business relations, it limited the contractor's ability to perform any transaction while physical progress the contractor performance was at 89%.

Due to the aforementioned situation, on 15th March, 2022, REA, M/s Sunir, and SHULTZ-NET signed a tripartite agreement for the completion of pending activities for the contract of supply and installation of 220/33kV, 2x10MVA substation extension at Mtera. However, the audit did not find evidence that REA sought advice from relevant authorities with regards to the factors that led to the breakdown of business relationships between the banker and contractor prior to deciding to enter into a tripartite agreement.

The audit found that, despite having a tripartite agreement, M/s SUNIR Company still working under the umbrella of M/s SHULTZ-NET Limited, as evidenced through a review of the letter with Ref: No.AG134/171/100/171 dated 26th September, 2022 from REA to Commissioner General of Immigration, where REA requested a one year multi-visa for M/s Sunir's eight key personnel to come to Tanzania to perform contractual obligations for the aforementioned projects as provided in the contract.

Further, the delay in getting exemption documents resulted in delayed clearance of some shipped cargoes which led to demurrage charges at the port, this made REA to incur the loss of the approximately TZS 775,761,344.16 as the cost for clearing overstayed project materials at the port of Dar es Salaam.

Through site visit conducted on 20th December, 2022 to verify the status of executed works, it was observed that, the project was not completed as shown in **Photo 3.1** and **3.2**.



Photo 3.1: Status of supply and installation of 220/33kV, 2x10MVA Substation Extension at Mtera Hydropower Plant (“the Facilities”).



Photo 3.2: Components of Power Transmission Towers

The project was expected to commence on 12th March, 2017 and was expected to be completed on 12th March 2019. However, until the date of site visit, that is 20th December, 2022, the project was not yet completed. This was equivalent to a delay of 1379 days i.e. (3 years 9 months and 14 days). At this time the progress made was 92%.

This implies that REA did not meet the intended objective of Mtera southern direction up to Izazi and Mtera northern direction up to Mloda and connections to customers along the line.

(ii) Delay in Completion for Lot 2,3,4 and 5 Projects

According to the review of the contract documents and completion certificates of the BIP-VEI projects Lot 2, 3, 4 and 5, the audit noted that, BIP-VEI projects were delayed as detailed in **Table 3.10:**

Table 3.10: Delay of the Completion of Time

Lot Number	Specific location	Signing date	Anticipated Completion time	Date of Completion from the Certificate of Completion	Number of Days for the Delays
Lot 2	Iringa	10/03/2017	10/08/2018	09/09/2019	395
Lot 3	Mpwapmwa	06/02/2017	06/06/2018	28/09/2021	1210
	Bahi		06/06/2018	01/10/2018	117
	Chamwino		06/06/2018	01/04/2019	299
	Dodoma Urban		06/06/2018	01/10/2018	117
Lot 4		10/03/2017	10/07/2018	30/07/2019	385
Lot 5	Shinyanga and Tabora	06/02/2017	06/06/2018	25/06/2018	19

Source: Auditor's analysis of the contract documents and certificates of completion (2022)

The delays were caused by late commencement of the projects and the challenges of managing the time schedule of the project that was issued by the contractors. This further delayed service delivery to the relevant community.

3.6 Findings Related to the Quality Management

In this part the Audit assessed whether REA had effective quality assurance and quality control system to ensure quality of executed works that met the prescribed standards and specifications. The result of the assessment revealed the following:

3.6.1 REA and TANESCO did not adequately provide Warning Plates on Wooden Poles

Para 21 of the Specification S36 pertaining to warning and identification plates of July, 2011 requires, danger plates to be affixed to every pole at a height of 2.5m above the ground level. The plates are supposed to be attached to the wood pole with four 30mm by 3mm galvanized nails. The nail heads are required to be flat and round with a minimum diameter of 8mm.

During the site visit, the audit noted that, REA did not adequately to insert the warning and identification plates on the wooden poles of LV and MV.

The following pictures show the sampled wooden poles that did not have warning and identification plates.



Photo 3.3: Wooden poles which did not have warning plates and the barbed wires.

Furthermore, it was observed that, REA did not adequately provide the barbed wires on wooden poles to prevent vandalism which happened through climbing on the wooden poles.

It was also noted that, apart from the observed inadequacy for the poles not being fitted with barbed wires and warning plates, there were the reported cases of villagers being involved in stealing some of the equipment installed on the sites. Actually, the absence of barbed wires on the poles made the poles and the items on them prone to vandalisms, due to lack of deterrent effect of the wire.

3.6.2 Inadequate Management of the Burnt Project Materials

Through the review of the project reports and internal memos and the observation made during the site visit, the audit team noted that, there were incidences of the burnt project materials which were not replaced in order to serve the intended purpose. The details of the burnt project materials are as presented in (a) and (b) hereunder:

(a) REA did not ensure the Replacement of 37 Burnt Wooden Poles for Lot 2 Project

During the visit at Iringa store, the audit observed that, the approved to be used wooden poles that remained during the Lot 2 project period were burnt by fire to the point that the poles did not correspond with the required quality. The burnt wooden poles are as seen in Photo 4.4 below.



Photo 3.4: The Burnt Wooden Poles at Tagamenda Store, Iringa Region

Interviews with TANESCO staff noted that, the reason for not replacing the wooden poles, up to the time of audit was that, the contractor did not hand over all the remaining wooden poles, so TANESCO was still waiting for the handover period. Through the same interview it was noted that, those burned poles at Isimani village were brought to the TANESCO Regional Office store as part of the evidence.

The management of REA indicated that, all materials that were not installed were contractor's responsibility. Therefore, the Agency is not liable with those materials. However, REA was responsible to make sure that contractor replaced those materials by considering that, materials were disbursed by REA. Not replacing 37 burnt materials had the implication to the cost overrun.

(b) Burnt Project Materials at Mtera Substation

According to the review of the REA internal Memo dated 28th December, 2021 it was noted that, there were the burnt project materials at Mtera substation extension project. Additionally, through the review of the REA internal Memo dated 16th September, 2022, it was reported that there were materials that had gone through inspection and auditing, however, such materials were further reported to be unused for a long time, and some of them were those which were burnt and stored at Mtera. The equipment included GIS panels and Accessories, Control and protection panels with accessories, power cables with accessories, 220kV DS and PDs with accessories, 220kV circuit breaker with accessories, 229kV CTs with accessories, overheat materials with accessories and Transformers with accessories.

Nevertheless, through the review of the correspondence file, the audit team did not find inspection reports of the burnt project materials and there was no any evidence which mentioned the names or specifications of the burnt materials. Furthermore, the audit team did not find justification on the how those burnt projects materials were expected to be replaced. As a result, the Audit Team failed to assess the specification of the burnt materials and their replacements.

3.6.3 REA did not Ensure Replacement of the Poles that had Excessive Cracks

Para 12.0 of the Specification S 11 Wood Poles and Block of August, 2016 pertaining to the Prohibited Defects requires poles to be free from rot, cracks and defects that may reduce the strength of the pole, render it difficult to climb or make it visually unacceptable. Elliptical poles were not supposed to be accepted.

Review of the inspection report of wooden poles used for rural electrification along BTIP project in Lots 3 (Dodoma) and Lot 5 (Tabora and Shinyanga) of October, 2018, the audit noted that, excessive cracks on 547 poles of 9m medium, 27 poles of 10m stout, 204 poles of 12m stout and 23 poles of 13m stout for Lot 5. For Lot 3, 90 poles of 9m medium, 22 poles of 12m stout and 9 poles of 13m stout that make a total of 121 poles had excessive cracks.

The audit noted that, Factory Acceptance Tests and Site Acceptance Tests for all poles by sampling the poles was carried out as per contract and the released results were that the poles passed the tests. The following photos show excessive cracks on the wooden poles.

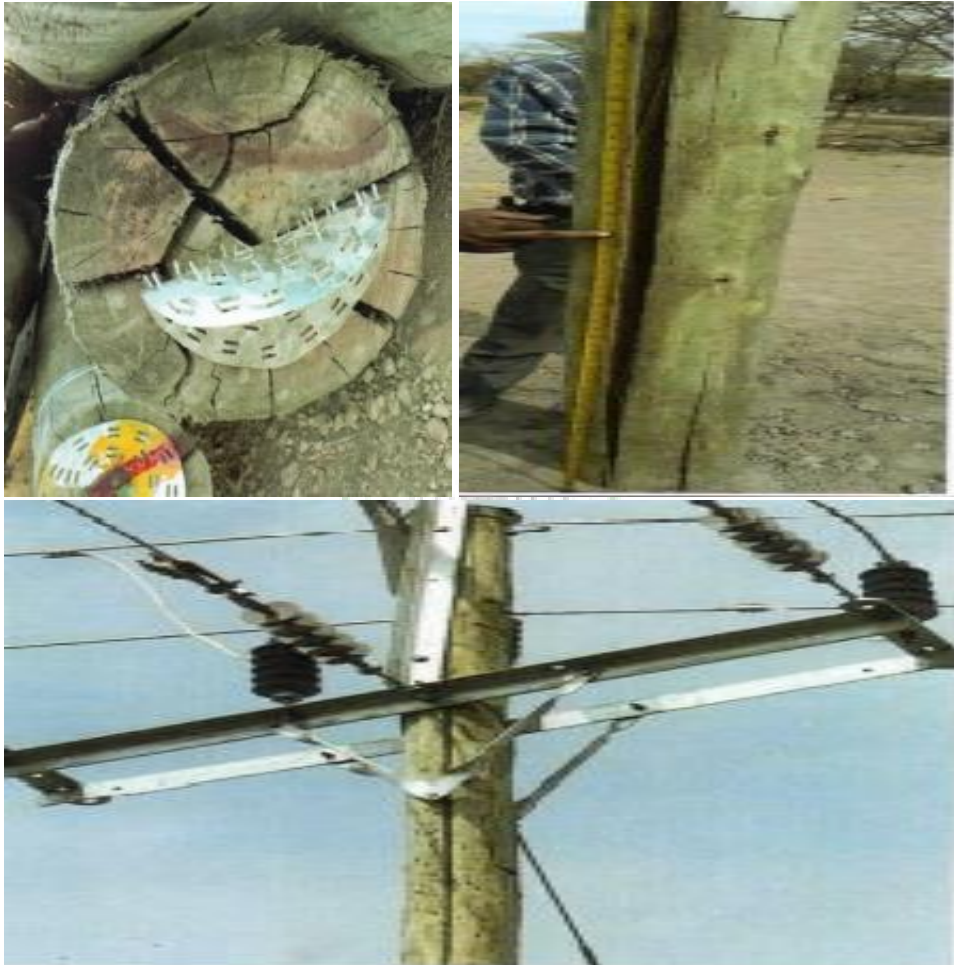


Photo 3.5: Show the Excessive Cracks on the Wooden Poles

Through the review of the inspection report, the audit acknowledges that, the manufacturer agreed to replace the wooden poles that developed cracks even when they arrived at the site. Nevertheless, up to the time of this audit, there was no evidence that showed that the cracked wooden poles were replaced to comply with S11.

According to the same inspection report, it was noted that the factors that contributed to excessive cracks of the wooden poles were ineffective quality control system during poles production which, resulted in the supply of poles which had high moisture content and when erected on site they continued to dry and eventually cracked.

3.6.4 Installation of Transformers that did not Match with Design Specifications

According to the Medium Voltage 33kV line Transformer Distribution in the Iringa region under Backbone Transmission Investment Project Lot-2, it was indicated that the line required was supposed to have 33kV, and the Transformers that were to be installed had to be 33kV. Additionally, the drawings indicated that the Transformer installed at Kipaduka Centre was 100 kV.

During the site visit, it was noted that in some areas, the type of transformers that were installed were different from the required specifications as stated in the Design. The noted differences are shown in Table 3.11:

Table 3.11: Difference in Design and Installed Transformers

Location/Village	Type of Transformer indicated in Design	Type of Transformer Installed	Remarks
Kipaduka Centre	100kVA (33/0.4kV)	50kVA (33/0.4kV)	Replaced new Transformer with lower capacity
Kinyali	50kVA (33/0.4kV)	50kVA (11/0.4kV)	Same capacity, but the line has 11V
Mbweleli	50kVA (33/0.4kV)	50kVA (11/0.4kV)	Same capacity, but the line has 11V
Mnadani Centre	100kVA (33/0.4kV)	100kVA (11/0.4kV)	Same capacity, but the line has 11V
Mnadani Dispensary	25kVA (33/0.4kV)	25kVA (11/0.4kV)	Same capacity, but the line has 11V
Izazi	100kVA (33/0.4kV)	100kVA (11/0.4kV)	Same capacity, but the line has 11V
Izazi Water Pump	50kVA (33/0.4kV)	50kVA (11/0.4kV)	Same capacity, but the line has 11V

Location/Village	Type of Transformer indicated in Design	Type of Transformer Installed	Remarks
Makuka Centre	100kVA (33/0.4kV)	100kVA (11/0.4kV)	Same capacity, but the line has 11V
Makuka Dispensary	25kVA (33/0.4kV)	25kVA (11/0.4kV)	Same capacity, but the line has 11V

Source: Auditor's Analysis's of the Design Report and Progress Reports (2023)

Table 3.12 indicates that the Transformer installed at the Kipaduka center had 50 kV instead of 100kV, as shown in the drawing. For other villages, the transformers installed had 11 kV capacity instead of 33 kV.

The Audit Team's verifications conducted from 26th to 31st of December 2022, found transformers at the TANESCO warehouse in the Iringa region, as shown in **Photo 3.6** below.



Photo 3.6: Transformers found at TANESCO's Regional Office's Warehouse

The interviews with Officials from TANESCO and REA revealed that the replacement of eight 33kVA transformers with 11kVA transformers was due to delayed completion of the expansion of the Mtera substation (Lot 1). If the expansion of the Mtera substation was completed on time, the line would be energized to 33kV, and the transformers installed would be of 33kV. Thus, due to the delays, both REA and TANESCO opted to use 11kV transformers with the plan to change them when the Mtera expansion is completed.

It was noted that this happened due to the urgency of need for electricity in those villages and noting that the source of supply for 33KV was not completed at the time of completion of installation of all other infrastructures in Lot 2. Further, having noted that the contractor had already procured all transformers with specification of 33KV, the Agency approved installation of 11KV transformer through letter with Ref. No. AG 134/157/19/Vol./66 (Annex 3) whereas, the contractor was instructed to exchange with TANESCO.

However, the management did not provide evidence indicating timelines for replacement of the transformers. Also, the explanation of the Agency did not indicate who will incur the cost for the wear and tear and cost for the replacement of transformers.

3.6.5 Improper Workmanship for Backbone Transmission Investment Project (BTIP) in Kishapu District

Best practices require electrical cable to be free of sagging. Also, inspection of electrical infrastructures is supposed to be conducted regularly. Physical verification completed distribution lines revealed that cables were sagging at Negezi village in Kishapu District. Furthermore, during interviews with villagers at Negezi village, it was noted that the sagged cables had been in that state for several days without rectification. Also, connection to one of the buildings was not done properly. According to the interviews, the villager reported the issue to TANESCO Kishapu, however, no action was taken up to time of this audit.



Photo 3.7: Cable close to ground and easily reachable. Photo taken on 29th December, 2022 at Negezi village Kishapu

The cause for sagged of electrical cable was caused by poor workmanship of contractor and poor supervision which may cause accidents.

3.6.6 REA did not Ensure Presence of the Technical Expert from Power Transformers' Manufacturer during Installation and Commissioning at Site

According to the worldwide best practice, particularly as detailed from Electrical Engineering Portal (EEP)⁵, it was noted that, based on the power- and large distribution transformers' installation and commissioning should preferably be performed by the supplier/ manufacturer or in close cooperation with the supplier/ manufacturer.

⁵<https://electrical-engineering-portal.com/installation-commissioning-power-transformers-hints-experience>

According to the review of the letter with Ref. No. DMD (1)/PC-ZTK/BTIP/REA/16 dated 22nd April, 2021, it was noted that, 220x33kV, 2x10MVA power transformers delivered since July 2020 and scheduled for installation and commissioning. The Audit Team was not availed with the evidence of the presence of the technical expert(s) from the supplier/manufacturer of power transformers delivered for substation extension at Mtera Hydro power plant during installation and commissioning as far as warrants of power transformers were concerned for smooth implementation of the projects.

Nevertheless, the Audit Team did not find the justification from the manufacturer/supplier issued authorization letter to M/S SUNIR instructing to proceed without his presence, with the meaning that, M/S SUNIR should be responsible for any defects for the power transformers that may happen and all consequences if anything will happen after the end of the defect liability period.

The Management of REA indicated that, through the kickoff meeting held on 5th August, 2022, it was agreed that, during installation, testing and commissioning of the transformers the manufacturers' expert will be available at the site. However, review of the submitted evidence of the minutes that was held on 5th August, 2022, the audit team noted that, minutes were not signed by the contractor, client and consultant, to justify that this was the agreement. Further, the audit noted that the transformers were already installed in the absence of the manufacturer's technical representative.

The absence of manufacturer's technical representative is a risk to REA, since in case of any defects happen during installation or operation of the power transformer the warrant would not be valid.

3.7 Findings Related to Cost Control

In this part, the Audit Team evaluated whether funds for project implementation were set aside, there were variations for payments made, payments were warranted and approved by the relevant authorities or project manager, whether payments were made as per conditions itemized in the signed contract. Alike, we assessed whether the payments were done

timely as agreed, retention deducted accordingly and price adjustments complied with conditions in the contract. The result of the assessment is as presented below:

3.7.1 Lot 2 Project had Variations

Review of the project document noted that, the project had variations that led to an increase in the project cost. **Table 3.12** details the values noted in the BoQs.

Table 3.12: Additional Materials

Materials with additional quantities	Original BOQ (Numbers)	Addition after Survey	Additional cost USD
Wooden Pole 10 m Stout (MV/LV H-Structure Substation Shorter Pole)	37	80	11,171.20
Wooden Pole 12 m Stout (MV Angle & T-off & Terminal Poles Outside Villages)	1,723	10	1,838.50
Wooden Pole 13 m Stout (MV/LV H-pole Substation Poles)	32	20	6,067.20
Wooden Pole 12 m Medium (MV Straight Line Poles Outside Villages)	1,202	10	1,297.70
Wooden Pole 13 m Medium (MV + LV Joint Straight-Line Poles in Villages)	31	10	1,929.50
Wooden Pole 15 m Stout (MV Angle & T-off & Terminal Poles)	-	6	2,318.18
Wooden Pole 15 m Stout (MV/LV H-pole Substation Poles)	-	4	1,545.45
33 kV Intermediate Assembly	1,728	80	8,880.00
33 kV Intermediate Double Circuit Assembly	-	10	1,665.00
33 kV Section Assembly	18	20	3,552.00
33 kV Angle Assembly...-10 deg Single Pole	274	10	1,110.00
33 kV Angle Assembly 10 - 60 deg H - Pole	439	14	1,554.00
9m Wooden Poles	2,517	270	24,105.60
ABC Intermediate Assembly, up to 30 deg angle	952	270	1,498.50
Total			68,532.83

Source: Auditors' Analysis from Schedule No. 1 & 2 Materials Requirements and Price schedules - Iringa Lot 2, 2022

Key

(-) Means not applicable

Table 3.12 indicates that, the addition of materials after a survey conducted by the contractor of the Lot 2 project. The factor contributed was that REA did not update survey of the project area. As a result, this led to the total additional cost which was USD 68,532.83 for additional materials, equivalent to about TZS. 160 million.

The Management of REA explained that, the modality of the project is Turnkey project is that the quantities in a signed contractor are normally indicative and that the variations may emanate from the increased demand of electricity. Depending on availability of funds, the Agency carters the need by providing additional scope in pursuit of regulations on the variations of up to 15% are allowed.

The Management further added that, the actual quantities were established upon completion of detailed survey and design, and thus all variations undergo formal procedures for approval including addendum signing.

3.9 Findings Related to the Environmental Management

This part covers audit findings relating to Health, Safety and Environmental (HS&E) aspects of the Project. The audit assessed specific HS&E aspects; adequacy of the Project's Environmental Impact Assessment (EIA); Suitability of the Environmental and Social Management Plan (ESMP) in mitigating environmental risks; Implementation of the ESMP and Compliance with the National HS&E regulations and contractual obligations. Below are the specific findings:

3.9.1 Commencement of the BITP Project without EIA Certificate from NEMC

Section 81(2) of the Environmental Management Act, 2004 requires EIA to be carried out before the commencement or financing of a project. Also, Para 3.5.6 of the Final Project Document requires an Environmental and Social Impact Assessment (ESIA) before the project is implemented.

Review of the submitted waiver request to NEMC, noted that, the request was waiver for the electrification of 51 villages that were remaining from

the plan of electrification of 97 villages. However, during the implementation, the number of villages was added to 120 while the waiver was issued for only 51 villages.

Furthermore, the issued waiver had conditions that required Contractors, during execution, to prepare Environmental Management plans and Environmental Monitoring reports; the Audit Team noted that neither Environmental Management Plans nor Environmental Monitoring Reports were prepared during project implementation.

Interviews with REA officials, revealed that during the implementation of the TANESCO's 400 kV transmission line project from Iringa via Dodoma and Singida to Shinyanga project, ESIA and environmental issues was undertaken. Leaving out environmental and health issues during project implementation could have led to environmental pollution and the spread of diseases in the areas where the project was undertaken.

3.9.2 The Consultant did not Review ESIA Report

According to the terms of reference for consulting services on the project engineering, supervision and management of the BTIP-VEI project, the Consultant had to review the ESIA report accordingly (based on the 2010 BITP-ESIA) and submit a reviewed ESIA report to REA.

Interview with officials from REA, revealed that, the Consultant did not manage to review the report as the contract required.

The reasons for ESIA reviews were to ensure that the contractors appropriately executed the recommended environmental proposals and safeguarded for the projects. This was not achieved since there were neither plans nor reports that were prepared.

3.10 Findings on the Extent of Attainment of BTIP-VEI Project Goals and Its Sustainability

This part presents finding on the achievement of the objective for connecting electricity under BTIP-VEI Project. The findings focused on the effectiveness on connecting electricity to customers, level of satisfaction on

the project implementation to customers and sustainability of the BTIP-VEI projects.

The audit recognizes the efforts made by REA and TANESCO to ensure that the targeted goals are achieved. This is due to the reason that the BTIP project was done by completing kilometers of electrical transmission and distribution route, to a large extent customers were satisfied with the services for being connected to electricity and the sustainability of the projects for the most part is satisfactory, for example considering the environmental sustainability for the most part, REA has been able to attain based on the requirement of the laws and regulations.

Nevertheless, there were weaknesses noted that are associated with the attainment of goals, which include:

(a) Level of Connection of Electricity to Customers

This part presents finding on the achievement of the objective for connecting electricity under BTIP-VEI Project. To a large extent, REA managed to connect customers but audit noted the following weaknesses:

(i) Achievement of the Target on the Connection of Electricity to Customers

This part presents finding on the achievement of the objective for connecting electricity to customers under the BTIP-VEI Project. It was noted that, REA managed to connect customers and achieved the connection target by 31% as detailed below: -

REA attained its 31% of its targets for numbers of Customers for 4 Lots (lot 2, 3, 4 and 5) at the time of the Completion of the Project Time

Para 3.3.3 of the Revised Final Draft Program Document, namely Sida and DfID Financial Support to the Rural Energy Fund (REF), Tanzania dated 8th June, 2015 showed that, BTIP-VEI expected 23,000 initial customers to be supplied with electricity from this investment.

According to review of the completion certificate and consultant progress reports, REA did not manage to attain the initial planned number of the

customer connection of about 23,000 customers. However, up to January 2023, the time of this audit, there were 11,044 customers connected to electricity under this BTIP-VEI project. This achievement is equivalent to 31% of its target. This implies that, 24,178 customers equivalent to 69% of customers were not connected as shown in **Table 3.13** which provides the details of the customers' connections for each Lot.

Table 3.13: Percentage of Unconnected Customers as of January, 2023

Lot Number	Number of Targeted Customers Per Scope	Actual Number of Customers Connected	Percentage of Customers Connected	Number of Unconnected customers (N)	Percentage of Un-Connected (%)
Lot 2	6,328	2,970	47	3,358	53
Lot 3	10,027	2,687	27	7,340	73
Lot 4	11,591	2,921	25	8,670	75
Lot 5	7,276	2,466	34	4,810	66
Total	35,222	11,044	31	24,178	69

Source: Auditor's Analysis of the Completion Certificates and Consultant's Progress Reports (2023)

Table 3. 13 elaborates in detail that the number of planned customers per scope was high compared to the initial planned as revealed in the project document. Despite that, REA was able to connect 31% for overall scope of the relevant Lot. The highest connection rate of 47% was recorded in Lot 2 and the lowest was 25% achieved in Lot 3. The percentage of unconnected customers was 69%.

Nevertheless, according to the review of the names and their associated meter numbers of Lot 3 and Lot 4 that were availed to the audit team, it was noted that, despite Table 3.14 showing that there was good customer connection performance, the Audit Team found that, there was duplication of meter numbers in the list of connected customers and connected was not matched with the reported number in progress reports and certificates of completion. This means that the reported number of 11,044 customers was incorrect. **Table 3.14** present the analysis of repeated meters.

Table 3.14: Status of the Duplicated Meter Numbers

Lot number	Customers connected per submitted names and meter numbers	Duplicated customers(N)	Actual connected customers (N)
Lot 2	2,970	307	2,663
Lot 3	2537	38	2,499
Lot 4	-	-	-
Lot 5	-	-	-

Source: Auditors' Analysis' of the Aailed Name of Customers Connected and Associated Meter Numbers (2023)

Table 3.14 shows that, based on the aailed data which depicted names of the customers connected with their corresponding meter numbers in Lot 2 and Lot 3 only, there were duplication of meters numbers and customer names. **Table 3.14** above also indicates that the actual number of customers connected with electricity was 2,663 for Lot 2 and 2,499 for Lot 3.

According to the interviews with REA and TANESCO staff, it was noted that, the reasons for not reaching the initial number of customers to be connected under REA project period was the low response of the villagers to connect the electricity and the contractor's delivered time expired. Based on the same interview, it was noted that, TANESCO continued with the connection of the customers after the contractors' hand over of the projects.

Through the observation that was made during the Site visit and the interviews that were held with the villagers, it was noted that, to a large extent, the need for electricity was great as detailed in the summary of identified challenges from electricity project beneficiaries /customers as detailed in **Table 3.15** of this report.

In responding to this observation, it was noted that REA Management indicated that the rate of customer connection is determined by the willingness and readiness of the customers to do wiring in their premises and payment of TZS. 27,000 which resulted from inadequate customer awareness on the electrification. However, the audit noted that another reason for not attaining the target was that, REA did not effectively conduct awareness campaigns to motivate the villagers to register for connection of electricity. Also, REA did not assess the effectiveness of the awareness strategies so as to identify alternative strategies for achieving the project objective.

The Management also indicated that, despite the fact that by the time of issuance of the completion certificates the percentage of attainment of target was 31%, by 13th September, 2017, 24,011 out targeted 35,391 customers (equivalent to 61.7%) were connected. However, the increment of percentage of attainment of target was out of the audit scope.

(ii) Uncertainty of the Usage of the Connection Materials which were Left Unused

Based on the completion certificates and the equipment handover report, and goods acceptance certificate reports, it was found that, at the end of the contract between REA and the contractors who were engaged in the BTIP-VEI projects, there were the project equipment remaining that were earmarked for potential customers who were not connected. These were handed over to TANESCO. However, the usage of the equipment was uncertain as there was no evidence showing that TANESCO managed to use the equipment in the respective project areas and the electricity connection fees at TZS 27,000.

According to the review of the progress reports and handover certificates, there were 24,178 remaining unconnected energy meters, equivalent to 68% of the planned connections, which were handed over to TANESCO. TANESCO officials, when interviewed, indicated that TANESCO had a plan to complete the connection of the remaining customers to reach the beneficiaries.

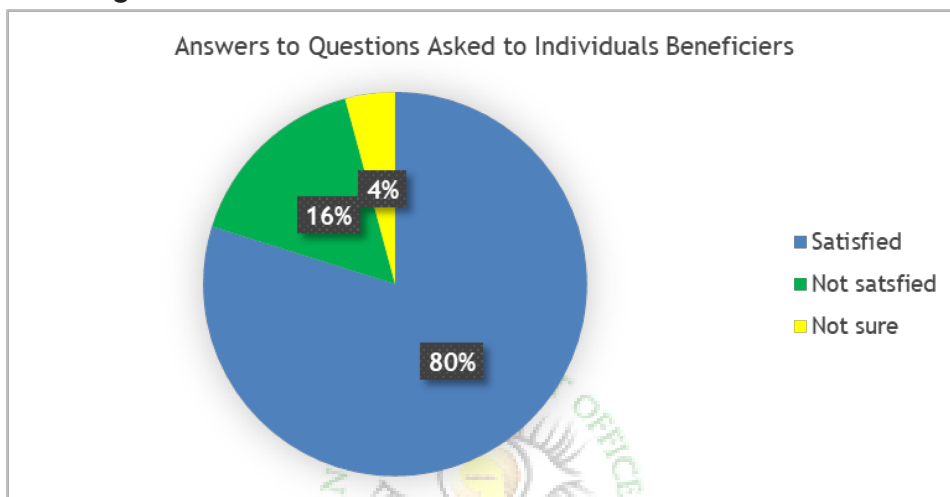
(b) Level of Satisfaction on the Project Implementation

This section contains information from a site visit that assessed the level of satisfaction of people who were connected to electricity, as well as the challenges they faced during the project implementation. Responses from various groups on level of satisfaction revealed that, 805 of individual beneficiaries; 80% of social service providers; 82% of small industries owner and 76% of small businesses owners showed to have positively benefited from the project as detailed in the following sub-sections below:

(i) Level of Satisfactions of Individual Beneficiaries

217 respondents as individual beneficiaries were given the opportunity to express their view and opinions on the benefit of distribution line project. Their responses are summarized in **Figure 3.1** below.

Figure 3.1: Levels of satisfaction of individual Beneficiaries



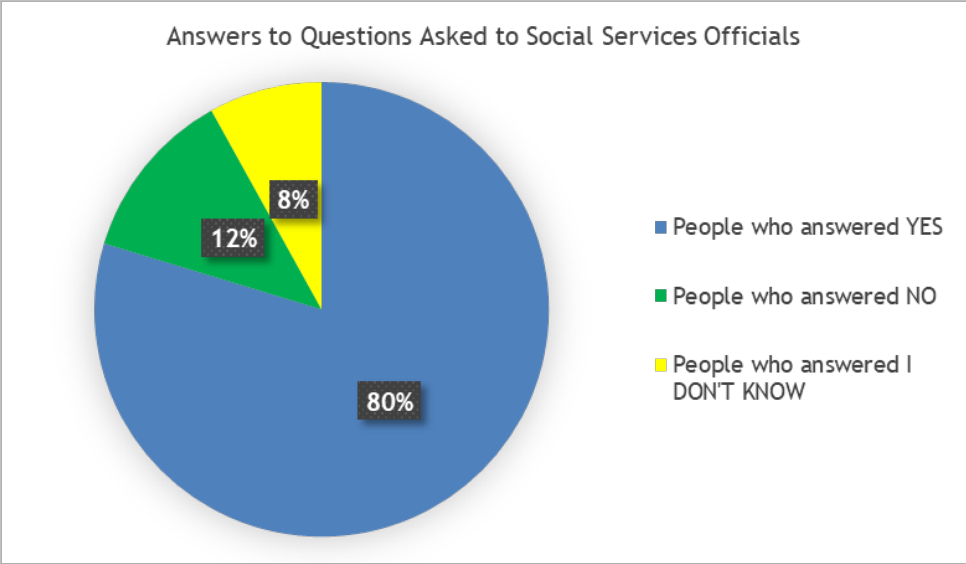
Source: Assessment of Survey findings from Individual beneficiaries' free opinions, December 2022

Figure 3.1 shows that 80% of respondents agreed that electricity project improved their villages and living standards, 16% did not agree and 4% they did not know if the project had any positive or negative impact to their living standard. In addition, there were views and challenges which the respondents experienced from the project as elaborated in this Chapter.

(ii) Level of Satisfactions of Social Services Providers/Workers

This involved officials from social services such as Schools, Hospitals, Mosques and Church, in this category, 87 respondents were given the opportunity to express their view and opinions on the achievement, satisfaction and benefit of distribution line project. Their responses are summarized in **Figure 3.2**.

Figure 3.2: Evaluation Information from Social Service Providers



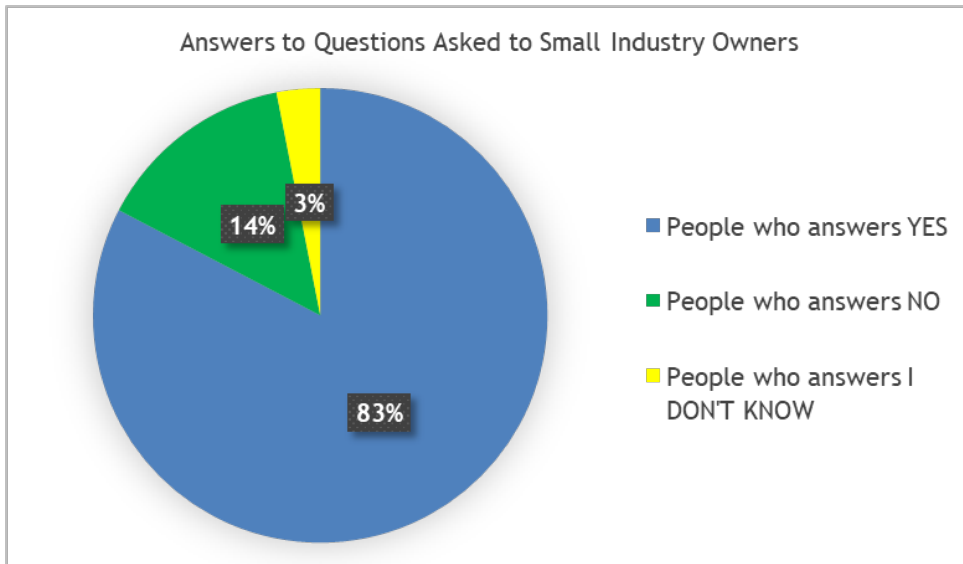
Source: Auditors' Assessment of survey findings from social services provider, December 2022

Figure 3.2 shows that 79.7% of social service provision officials agreed that the presence of electricity project has positive impact to their services while 12.26% of social service official said that electricity has no positive impact to their services and 8.1% responded that they did not know if electricity project has either positive or negative impact to their projects. Despite the differences in the levels of satisfaction, the respondents had their own views, opinions and complaints on the challenges they are facing while using electricity.

(iii) Level of Satisfactions of Small Industry Owners

This category involved 62 small industry owners who were among the people connected to the distribution line. They were given the chance to express their opinions on the benefits of the project. Their responses are summarized in **Figure 3.3**.

Figure 3.3: Evaluation Information from Small Industry Owners



Source: Assessment of survey findings from small industry owner's opinions, December 2022

Figure 3.3 shows that 83% of respondents agreed that the supply of electricity improved their industries, 14% responded that electricity has no any positive impact to their business and 3% said that they did not know if electricity has either positive or negative impact to their business

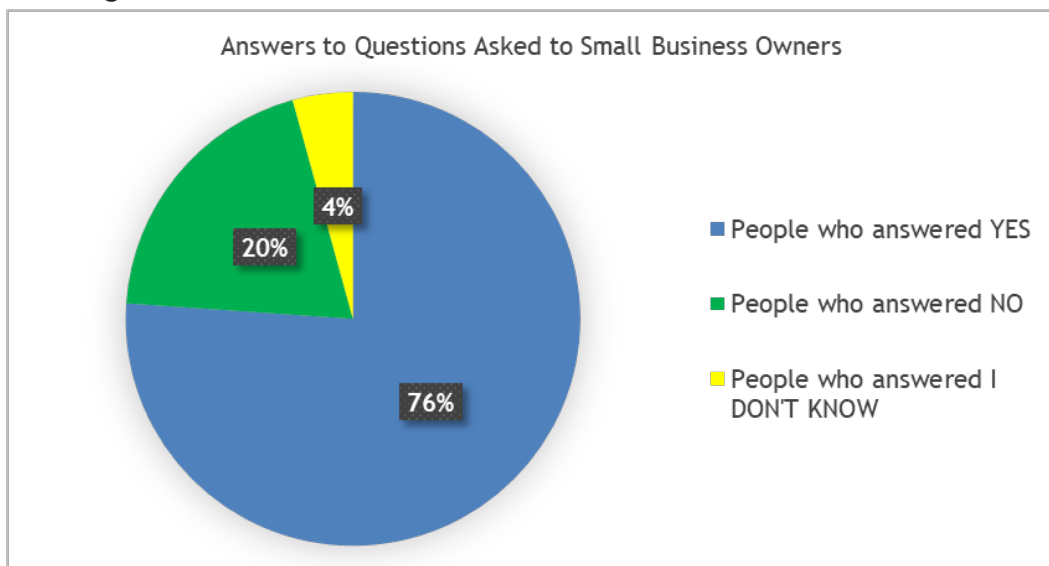
However, they had their views, opinion and complaints on the challenges they are facing while using electricity as summarized in **section 3.10.b(v)**.

(iv) Level of Satisfactions of Small Business Owners

In this category, 107 electricity beneficiaries who owned and ran small businesses who were connected to the distribution line were given the chance to express their view on the impact of the electricity project to their business.

Their responses are summarized in **Figure 3.4** and the details are presented in the Table which is appended as Appendix 10 whose summary was used to develop **Figure 3.4**, which shows the graphical presentation of the analyzed data.

Figure 3.4: Evaluation Information from Small Business Owners



Source: Assessment of survey findings from small business Owner's Opinions, December 2022

Figure 3.4 above shows that 76% of small business owners agreed that the supply of electricity to their businesses has led to improvement of their business and their lives in general, 20% responded that presence of electricity to their business has no any positive impact to their business and 4% responded that they did not know if the electricity which is connected to their business has either positive or a negative impact to their business.

Further, small business owners had their views, opinion and complaints on the challenges they are facing while using electricity as summarized in Table 3.16.

(v) Challenges Encountered while using electricity by the respondents who are connected to electricity

During survey respondents from 21 villages were given chance to express their views and challenges observed during implementation of the project and while using electricity. Table 3.15 shows the summary of the number of identified challenges.

Table 3.15: Summary of Beneficiaries / customers views and challenges Regarding the Projects

Challenges and Opinion	Number of respondents
Beneficiaries are very thankful for electricity which they are connected to, but they are experiencing frequently power outages. Mostly without any information from TANESCO in most cases such power outages lead to damage of electronic appliances such as Television, Computers and Radio	194
In addition to set Tariff tax of 1,000/= has been added, in flat rate without any information and without considering the nature of the structure and their income, people who own a storey structure and people who own traditional thatched house are being charged the same rate of tax	25
Electricity project did not cover all places in the villages as some houses, business places, industries and neighborhoods are not connected to electricity thus missing electricity benefits	134
Education for better electricity consumption is not provided to consumers	10
Customer's claims that their Transformer has low capacity to cover the needs of the whole village, as the result, when corn grinding machines are operating, they cause low voltage and sometimes outage.	8
Customers claim that electricity connection charges should remain at TZS 27,000 which is affordable for each and every Tanzanian.	10
During the time of emergency TANESCO usually does not respond quickly	10
Electricity has largely contributed to increase in their income so it should be sustained	50
Online request of electricity connection is a big challenge especially in villages. So, they are proposing use of hardcopy forms to fill for new applications.	12
Due to electricity outage, the healthcare facilities do not continuously attend patients especially at night. This mostly affects maternal health services in the villages	20
Number of Respondents	473

Source: Customer's opinions and Auditor's analysis, 2022

Tables 3.15 indicates that the majority of customers (i.e., about 41% of the respondents) experienced frequent power outages mostly without any

information. This damaged their electronic appliances. Also, Table 3.15 shows that Electricity project did not reach all areas in the villages as some houses, business places, industries and neighbourhoods are not connected to electricity thus missing electricity benefits.

(c) Level of Sustainability of the Projects

Finding Related to the Sustainability of the Projects

This part presents finding on the sustainability of the projects by assessed fundamental requirement for sustainability, namely; technically sustainable, economically sustainable, environmentally and social ethical sustainability under BTIP-VEI Project. Audit noted the following observations:

(i) Uncertainty of the Technical Sustainability for the BTIP-VEI Project

According to the review of the projects' files of Lot 1,2,3,4 and 5, the audit team noted that, there was uncertainty of the technical sustainability of the projects. This implication goes to the availability of services that was not satisfactory, for instance there was areas that were reported with poor workmanship, safety problems, poor performance of transformers and poor poles as detailed in the aforesaid findings which needed emergence response and daily operation services. Uncertainty of technical sustainability is due to the fact that, the projects have not been officially handed over to TANESCO, so up to time of this audit there was no availed evidence on operation and maintenance manual prepared by the contractors.

For the period in which the BTIP-VEI projects have been delayed to officially handed over, the audit team noted that, there was no justified agreement between TANESCO and REA on how operation services and maintenance would be done. This raised the doubt on the sustainability of the projects.

(ii) Economic, Environmental and Social Sustainability

Environmental and social sustainability attributed to the positive impacts. Upon site visit, project files and document review, it was noted that, natural resources and ecosystem of the areas where the project was implemented was not disturbed. It was revealed that there was no incidence

of tree cutting in the project areas where HT lines and distribution lines pass. This observed none environmental degradation is due to the nature of the projects.

Additionally, the Audit team acknowledged the positive impacts of the projects based on the self-employment opportunities such as opening salon businesses, TV shows, welding machines, posho mill machines, etc.

Furthermore, the supply of electrical power in the villages has enabled the development of entrepreneurial works by extending hours of working, since they can now work even at night because their premises have been provided with electrical lights. These benefits cut across from those who grew up using solar systems to those who did not have electricity at all. According to the interview with villagers, it was noted that, those businesses have increased their income.

On the other hand, electricity has reached to schools, health centers, dispensaries, government offices, mosques and churches. According to the interviews with villagers, it was noted that social services have improved including the learning environment in specific schools and students currently get good time to study as well as teachers who have enabled to prepare lessons in such improved environments. Generally, the government services have improved due to the presence of electricity.

3.11 Project Completion and Closure Stage

This is a stage where all the Project activities are finalised, and the project has reached a stage of delivering the intended services.

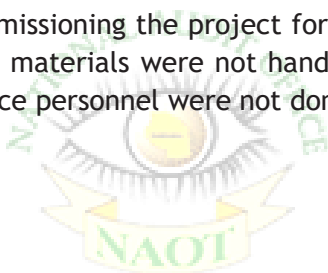
Lack of Commissioning for Backbone Transmission Investment Project (BTIP) in the Singida Region

Clauses 25.1.1 and 25.1.2 of General Conditions of Contract require commissioning of the facilities or any part thereof to be commenced by the Contractor immediately after issuance of certificate of completion by the Project Manager. Also, the Employer is supposed to supply the operating and maintenance personnel and all raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for commissioning.

Through the Review of Project File, it was noted that the project was not yet commissioned up to time of this Audit (December, 2022). On the other hand, the completion certificate with Ref. No. AE/008/2015-16/HQ/G/8.4 dated 30th July, 2019 was granted to Contractor M/S NAKUROI INVESTMENT CO. LTD 3 years back. Therefore, the issuance of the certificate of completion had passed 3 years without the project being commissioned.

The reasons for not commissioning the project were that the contractor failed to provide as built drawings for the project and that the Auto-recloser fixed around Ikungi District Commissioner's Office was defective and was supposed to be replaced with the new Auto-recloser one. During the interview with the TANESCO Engineer, it was revealed that the commissioning of the Auto -recloser was provided for Ikungi District was not successful.

The impacts for not commissioning the project for about three (3) years are as follows: the remained materials were not handed over to Employer, and operating and maintenance personnel were not done as per contract.



CHAPTER FOUR

FINDINGS ON THE DENSIFICATION ROUND IIA PROJECT

4.1 Introduction

This Chapter presents findings related to performance of REA and TANESCO on the Densification Round IIA Project component that comprises of 6 Lots. The findings cover aspects of planning, procurement, contract management, funding and sustainability of the project. Details are presented in the following subsequent sections.

4.2 Contract Data

4.2.1 Contract Data for the Construction of Lot 1

Supply and Installation of LV Distribution Networks and Consumer Connections in the Dodoma Region had the following information as presented in Table 4.1.

Table 4.1: Supply and Installation of LV Distribution Networks and Consumer Connections in the Dodoma Region

Contract Item	Description
Contract Number:	AE/008/2018-19/HQ/G/7 Lot1
Contract Type:	Supply and Installation of LV Distribution Networks and Consumer Connections in the Dodoma Region
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s Derm Electrics (T) LTD
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 19,417,428.13 and TZS 9,935,785,833.56
Contract Signing Date:	01/10/2020
Commencement Date:	On Effective date (06/04/2021)
Contract Delivered Period:	12 Months

Contract Item	Description
Planned Completion Date	01/04/2022
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	The contractor agrees to supply spare parts after 6 months

Source: Auditor's Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in the Dodoma Region and Consultant's Progress Reports

4.2.2 Contract Data for the Construction of Lot 2

The Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Singida and Tabora Regions (Lot 2) had the following information as presented in **Table 4.2**

Table 4.2: Supply and Installation of LV Distribution Networks and Consumer Connections in the Singida and Tabora Regions (Lot 2)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/7 Lot 2
Contract Type:	Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Singida and Tabora Regions (Lot 2)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s Sengerema Engineering Group Ltd
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 1,607,865.12 and TZS 9,752,944,000.00
Contract Signing Date:	13/08/2020
Commencement Date:	(24/05/2017)
Contract Delivered Period:	8 Months
Planned Completion Date	06/11/2021
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	15%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	6 Months

Source: Auditors' Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in Singida and Tabora and Consultant's Progress Reports

4.2.4 Contract Data for the Construction of Lot 3

The Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Pwani and Tanga Regions (Lot3) had the following information as presented in **Table 4.3**.

Table 4.3: Supply and Installation of LV Distribution Networks and Consumer Connections in the Pwani and Tanga Region (Lot 3)

Contract Item	Description
Contract Number:	AE/008/2018-19/HQ/G/7 Lot3
Contract Type:	Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Pwani and Tanga Regions (Lot 3)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s Sengerema Engineering Group Ltd
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 2,743,196.85 and TZS 12,735,499,120.00
Contract Signing Date:	13/08/2020
Commencement Date:	On effective date (15/03/2021)
Contract Delivered Period:	8 Months
Planned Completion Date	10/11/2021
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable
Guarantee Test of the Facilities	6 Months

Source: Auditor's Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in Pwani and Tanga and Consultant's Progress Reports

4.2.4 Contract Data for the Construction of Lot 4

The Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Kilimanjaro Region (Lot 4) had the following information as presented in **Table 4.4**.

Table 4.4: Supply and Installation of LV Distribution Networks and Consumer Connections in the Kilimanjaro Region (Lot 4)

Contract Item	Description
Contract Number:	AE/008/2014-15/HQ/G/8.4
Contract Type:	Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Kilimanjaro Region
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s DERM ELECTRIC (T) LTD
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 550,740.60 and TZS 7,714,267,228.48
Contract Signing Date:	13/10/2020
Commencement Date:	On effective date (06/04/2021)
Contract Delivered Period:	8 Months
Planned Completion Date	02/12/2021
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	Not Applicable
Guarantee Test of the Facilities	6 Months

Source: Auditor's Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in the Kilimanjaro Region and Consultant's Progress Reports

4.2.5 Contract Data for the Construction of Lot 5

The Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in Mbeya Region (Lot 5) had the following information as presented in **Table 4.5**.

Table 4.5: Supply and Installation of LV Distribution Networks and Consumer Connections in the Mbeya Region (Lot 5)

Contract Item	Description
Contract Number:	AE/008/2018-19/HQ/G/7 Lot 5
Contract Type:	Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in the Mbeya Region (Lot 5)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s SAGEMCOM ENERGY & TELECOM TANZANIA LIMITED
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 880,076.97 and TZS 28,354,190,752.52
Contract Signing Date:	01/10/2020
Commencement Date:	On effective date (08/03/2021)
Contract Delivered Period:	9 Months
Planned Completion Date	03/12/2021
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	6 Months

Source: Auditor's Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in the Mbeya Region and Consultant's Progress Reports

4.2.6 Contract Data for the Construction of Lot 6

The Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in Mwanza and Shinyanga Regions (Lot 6) had the following information as presented in Table 4.6.

Table 4.6: Supply and Installation of LV Distribution Networks and Consumer Connections in Mwanza and Shinyanga Regions (Lot 6)

Contract Item	Description
Contract Number:	AE/008/2018-19/HQ/G/7 Lot 6
Contract Type:	Contract for Supply and Installation of LV Distribution Networks and Consumer Connections in Mwanza and Shinyanga Regions (Lot 6)
Employer:	Rural Energy Agency (REA)
Employer's Representative:	Tanzania Electric Supply Company Limited (TANESCO)
Contractor:	M/s SAGEMCOM ENERGY & TELECOM TANZANIA LIMITED
Financier	Norway, Sweden and Government of Tanzania
Contract Price:	USD 390,949.09 and TZS 8,846,530,152.72
Contract Signing Date:	01/10/2020
Commencement Date:	On effective date (08/03/2021)
Contract Delivered Period:	8 Months
Planned Completion Date	03/11/2021
Defect Liability Period (DLP)	12 months
Advance payment	10% of the total CIP amount
Performance Security	10%
Condition of the Performance Security	Unconditional guarantee from a reputable bank
Liquidated Damage	0.1% per day (Maximum deduction for liquidated damages is equal to the Performance Security quoted)
Scope of Facilities (Spare Parts)	6 Months

Source: Auditor's Analysis of the Contract for the Supply and Installation of LV Distribution Networks and Consumer Connections in Mwanza and Shinyanga Regions and Consultant's Progress Reports

4.3 Adequacy of Planning and Designing for Densification Round IIA Project

The Audit assessed the effectiveness and efficiency of activities undertaken by REA during planning and designing stage of Densification IIA Project. These include conducting feasibility study, availability and adequacy of Environmental Impact Assessment, awareness campaign and project design.

The analysis made by the Audit revealed that REA made adequate efforts in planning and designing of the Densification IIA Project. However, the audit noted the following weaknesses which indicate that the Densification Round IIA Project was not adequately planned before embarking to its implementation. This is as detailed below:

4.3.1 Feasibility Study for Densification Round IIA Project was not Conducted

Section 4.2.1 of Public Investment Management - Operational Manual stipulated that, Feasibility Studies (FS), should be conducted to examine the extent to which the project is able to meet the financial, economic, and social criteria set for investment expenditures.

Also, best practice in construction industry requires the feasibility study to be conducted before the preparation of project document to determine whether the project is worth pursuing, to provide a detailed plan for the successful completion of the project. Further, the feasibility study helps in making a decision about whether or not to pursue a project, and is an input for preparation of project document that provided guides to the project team in the execution of the project.

The interview with REA Project Coordinator, revealed REA did not conduct the feasibility study, instead REA opted to prepare the project document for the densification II A project using the information that was available without taking into consideration that with time and technology the situation might have been changed. Additionally, REA responded that they did not plan to conduct the feasibility study on the project because this was the extension of the project which was originally done by TANESCO, and at the moment REA just extended the present service.

Further, through the review of the project document, it was found that REA in collaboration with TANESCO conducted a survey in 2016, and identified villages that were partially electrified and were having high demand for electricity. However, the information gathered through the survey could not justify replacement of feasibility study, as the survey only captured the number of beneficiaries leaving other aspect which could have been useful in planning and development of project document. But the audit noted that REA did not consider conducting the feasibility study, this implied that REA did not prioritize feasibility study at the planning stage. The absence of feasibility study led to the followings:

(a) Inadequate Establishment of Needs Before Project Implementation

Though the review of the project addenda, it was found that, during project implementation, high demands for electricity were noted which triggered the need for increasing the scope. The reason for this was that the demands for densification was established in 2016 and project implementation started in 2020. Due to the fact that time had elapsed, there was a need for REA in collaboration with TANESCO to update the project document to ensure that the actual needs for electricity were reflected in the project document prior to implementation. However, a project document was not updated to accommodate the actual needs at the time of implementation in 2020. **Table 4.7** shows the additional works as a result of the increased demand for electricity connection for all Five Lots.

Table 4.7: Noted Additional Works Due to Change in Demand during the Implementation

Contract Lots	Description of Additional works	Variation amount	
		USD	TZS
Lot 1: Addendum 2	195km LV line 1 distribution Transformer and 7,645 customers	2,189,075.14	953,004,757.95
Lot 2: Addendum 2	109.8km LV line, 2016 customers and 55 transformers	369,550.08	2,265,143,814.4
Lot 3: Addendum 2	165.88km LV line, 84 transformers, and Connection of 5,653 customers	758,830.77	3,496,330,120.00
LOT4: Addendum 1	Connecting 1112 Customers	1,184.23	382,471,458.54
Lot 5	Connecting 22 hamlet	167,290.79	4,862,212,049.65

Source: Auditors' Analysis of Issued Addenda on Additional Works for Densification IIA Project (2023)

Table 4.7 above shows the additional works that were noted during the project implementation. The reason given for the additional works was high demand for electrification which were as revealed during the project implementation, though the numbers of customers mentioned in addendum were not identified before issuing the addendum.

(b) Uncertain Final Economic Analysis for Actual Requirements of the Project

REA did not conduct the economic analysis to assess the possible cost alternatives by analysing the Internal Rate of Return (IRR) and Present Net Value (NPV). However, this makes the project stakeholders not to be certain in estimating the possible outcomes and understanding the key drivers of uncertainty so as to make more informed decisions about whether to proceed with a project or not.

4.3.2 NEMC recommendations Concerning Environmental Management were not Addressed

Section 81(2) of the Environmental Management Act, 2004 requires EIA to be carried out before the commencement or financing of a project in order to identify potential environmental and social risks that may be of concern

during the implementation of the project so as to allow appropriate design and take appropriate measures to mitigate potential environmental and social impacts.

Further, Para 3.5.6 of the Final Project Document requires REA to conduct an Environmental and Social Impact Assessment (ESIA) before project is implemented.

Interviews with Officials from REA, it was noted that, REA through letter BC143/213/01/01/Vol. I/16 of 07th August, 2017 requested no objection from NEMC concerning ESIA preparation. Although, no objection was granted, REA was required to prepare EMP to be used during the implementation of the project.

Through the interviews held with the Regional Project Engineers, it was noted that environmental issues at site were not reported. Reporting of the environmental issues at site could assure compliance to the requirement of environmental laws such as correct disposal of wastes that were generated in the site.

Further, the audit noted that the recommendations issued by the NEMC were implemented as detailed below:

Non-Engagement of the Environmental Expert in the Project

Letter with reference number NEMC/HQ/EIA/06/0020/Vol. I/04 of 05/10/2017 from NEMC required REA to procure the environmental expert for the preparation and guidance of the EMP to be used to control wastes.

Despite this requirement, the audit noted that, REA did not procure an Environmental expert to guide on the environmental issues such as correct management of the wastes produced at site. Also, it required that, guidelines for environmental management to be prepared as there was a risk that the construction materials as well as construction wastes were not well managed during the implementation of the project.

Similarly, the Management agreed with the auditors' observations and indicated that as part of continuous improvement in future projects based on previous stakeholders' recommendations and audits, this has been

addressed in the current Densification 2B and the coming Densification 2C projects, also REA III Round 2 projects.

4.3.3 Inadequate Awareness Campaign Conducted to the Society

Para 3.5.5 of the Project Document, states that, the programme shall collaborate with the Local Government Authorities to conduct an awareness campaign and market development.

Review of the work plan for the implementation of the project revealed that, the external risk identified on the implementation of the project was rural people's resistance to the change, and accept new energy technologies and the necessary awareness campaigns on new energy technologies.

Although, interviews held with the REA Officials indicated that the REA in collaboration with TANESCO officials conducted awareness campaign to the communities, no any schedule that was prepared for the implementation. Also, there were no awareness reports, plans and schedules availed to auditors for verification. Inadequate awareness campaigns were contributed by the following issues:

- (a) Lack of Schedules for Awareness Campaigns:** Awareness campaign was not adequately planned, there was no clear schedule of activities to determine the objectives of the campaign, the target audience, the key messages to be communicated, and the activities that will be undertaken to achieve the objectives, consequently, campaigns were disorganized, inconsistent and ineffective.
- (b) Lack of Detailed Work Plans for the Project Items:** Review of the approved annual budgets for the FY 2014/15 to 2021/22 noted that, the budget was well prepared for the implementation of advertising, promotion and publicity. However, REA did not develop detailed activities for the implementation of the item. The audit acknowledges that REA prepared the budget for advertising, promotion, and publicity activities but the work plans did not mention the activity for conducting awareness campaigns. **Table 4.8** presents the budget.

Table 4.8: Allocated Budget for the Implementation of Advertisement, Promotion and Publicity

Financial Year	Budgeted Amount (TZS)	Amount allocated for Awareness Amount (TZS)
2014/15	423,000,000	Not stated
2015/16	804,100,000	Not stated
2016/17	707,500,000	Not stated
2017/18	527,000,000	Not stated
2018/19	638,300,000	Not stated
2019/20	476,500,000	Not stated
2020/21	964,000,000	Not stated
2021/22	1,400,000,000	Not stated

Source: REA Annual Work plans, 2014/15-2021/22

Table 4.8 shows that in each year, REA managed to budget for advertisement, promotion and publicity but did not specifically allocate funds for conducting awareness campaign.

Lack of Awareness Campaign Framework: The audit noted that there was no awareness campaign framework that could be used as a blue print to govern its implementation. This contributed to inability of REA to fast track its performance on awareness to the final stakeholders. This denies a chance to consumers to obtain improved quality of life, economic growth, improved health and safety, and environmental benefits.

Lack of Risk Assessment Criteria: The audit noted that awareness campaign to the electricity users was done randomly and on adhoc due to unavailability of risk assessment criteria to identify areas and requirements on which to put efforts. Also, this may lead into lack of contingency planning in the event that risks are realized during the awareness campaign and lead to both delays and unexpected costs.

However, there may be a greater risk of exposure to unexpected or unforeseen risks that can impact the success of the awareness campaign accompanied with poor resource allocation that may lead into lack of clarity around the resources needed to effectively implement the awareness campaign. This can lead to over- or under-allocation of resources, which can impact the success of the project.

Non-Engagement of Local Stakeholders: The audit through the interview with the REA official noted that there was inadequate engagement of the local authorities' stakeholders prior to commencement of the campaign to enable them to be familiar with different categories of community behaviours, and thus it could enable them on the preparation of proper education and awareness campaigns. Stakeholders may have valuable insights and perspectives that can inform the design and implementation of the awareness campaign. Without engagement, these opportunities may be missed, leading to suboptimal outcomes.

Non-Decentralization of the Activity at Lower Level: The audit noted that the awareness campaigns were conducted directly from REA headquarters. Despite the fact that REA contained several projects in almost every region, they could have proposed a decentralised methodology to regional and district offices for the effective outcomes.

The review of the contract between REA and TANESCO did not mention how they were going to be involved during the awareness campaign whereby the execution of the programme was only to provide the technical assistance, and thus it would lead to missed opportunity to lower-level implementers and stakeholders for ensuring that awareness campaigns provide the best outcome.

None follow-up on the Education Provided: The audit noted that despite the awareness provided to the community still there was a gap of knowledge to the community due to infrequently capacitation on the new society. It was further noted that there is a need for the communities to be frequently provided with the awareness so as all the constructed infrastructures are well managed and protected by the surrounding communities.

The audit noted the acts of theft occurred in most of the constructed infrastructures to such equipment as transformer, including the earthing cables which were also stolen.

4.3.4 Inadequate Conduct of Soil Investigation for Densification IIA Project

The audit assessed the adequacy of the geotechnical investigation for the project and noted that, REA did not conduct soil investigation /soil property

testing despite being one of the requirements in the TANESCO Technical Specifications.

The TANESCO technical specifications stated, REA must make the necessary soil investigations to find the suitable soil with Maximum soil temperature 30°C and soil thermal resistivity nature soil, dry 2,0 oCm/W.

The audit noted that wooden poles were installed on the different types of soils that include black cotton soil and clay soil without knowing the soil is suitable for installation of poles. Through the Interviews held with the TANESCO Regional Project Engineer, it was found that no soil test conducted to provide assurance on the properties of soil used to surround the foundation of the wooden poles.

The interview with the Project Engineer revealed that, REA developed treatment procedures such as application of soil bio-deteriorators to counter any effect to the soil, but there was no evidence for the protection of poles from soil effect. This indicates that REA did not prepare the procedures for soil test on its suitability to react to the pole characteristics in terms of soil temperature, soil thermo resistivity and its dryness characteristics.

On other hand, the audit noted that, REA did not have any mechanism to ensure that the compaction around the pole foundation has been attained to hold still the installed wooden poles. Additionally, REA did not confirm that they inspected on the application of soil Bio deteriorators to the wooden poles as it was supposed to be supervised to monitor its quality and quantity

This may put into risk the quality of the accepted wooden poles in terms of their own strength and also, the poles foundation may be weak due to effect of wind and self-weight of the pole.

4.4 Findings Related to the Procurement of Contractor

This section presents finding about Tender No. AE/008/2018-19/HQ/G/7 for Densification Projects II (A) for Supply and Installation of Medium and Low Voltage Lines, Distribution Transformers and Connection of Customers in Mainland Tanzania.

The Audit Team noted that, to a large extent, TANESCO and REA complied with the requirements of the provisions in the Public Procurement Act, 2011 (PPA, 2011), Public Procurement Regulations (PPR, 2013) as amended in 2016 and Programme Operational Guideline.

The audit noted weaknesses in the procurement as detailed below:

4.4.1 Significant Variation between Estimated and Awarded Value of Procurement - TZS 137 billion lower than the Estimate

Regulation 69(1) of Public Procurement Regulations GN.446 of 2013 requires Procuring Entity (PE) to forecast its requirements for goods, services and works as accurately as is practicable with particular reference to services or activities already programmed in the annual work plan and included in the annual estimate.

The review of Annual Procurement Plan (APP) for 2018/19 for the Implementation of Densification Projects II (A) for Supply and Installation of Medium and Low Voltage Lines, Distribution Transformers and Connection of Customers indicated that REA estimated cost for the implementing the project was TZS 254.8 billion. However, review of Awarded contracts found that the total awards amounted to TZS 117 billion less than the estimated value for TZS 137.8 billion as indicated in Table 4.9.

Table 4.9: Variation between Planned and Awarded Contracts

Lot No.	Concerned Region(s)	Estimated Costs in TZS 'Billion'	Awarded Contracts in TZS 'Billion'	Variation in TZS 'Billion'	Variation in (%)
Lot 1	Dodoma	55.5	48.6	6.9	12
Lot 2	Kilimanjaro	62.5	8.6	53.9	86
Lot 3	Mbeya	64.1	25	39.1	61
Lot 4	Mwanza and Shinyanga	18.8	7.5	11.3	60
Lot 5	Pwani and Tanga	10.9	13.8	-2.9	-27
Lot 6	Singida and Tabora	43	13.5	29.5	69
Total		254.8	117	137.8	54

Source: Auditors' Analysis of APP of 2018/19 and Awarded Contracts (2023)

Table 4.9 shows that there were overestimates for five lots ranging from 12% to 86% except for lot 5 which was underestimated by 27%.

The audit noted that, overestimation was attributed by the reason that REA did not estimate the cost of this project by benchmarking with the previous completed projects of similar nature. This might cause the Officials not to strive to achieve value for money in each procurement undertaken in terms of price as per stipulated specifications.

4.4.2 Improper Evaluation for Pre-qualification of Firms

The review of prequalification evaluation report indicates that 14 contractors were disqualified for the reasons including not meeting the requirement of annual cash flow. However, review of submitted tender document revealed that the Evaluation Committee considered cash and cash equivalent as at the end of financial year in the cash flow statement as the annual cash flow, while the balance at the end of financial year is not the annual cash flow of any entity.

On 12th October, 2018, Tender Board through its Circular Resolution approved prequalification document for tender No. AE/008/2018-19/HQ/G/7. The procurement was grouped into six (6) lots.

Further, on 19th October, 2018, REA advertised and issued prequalification document, whereas the deadline was on 14th November, 2018. On 12th November, 2018 Evaluation team was appointed. The prequalification proposals were opened as planned with the total number of 40 proposal responded.

On 3rd December, 2018, PMU submitted the recommendations to Chairperson of Evaluation committee. The submitted prequalification report indicated that 12 out of 40 contractors (*equivalent to 30%*) submitted prequalification document qualified to be shortlisted.

Regulation 6(2) of Public Procurement Regulation, 2013 requires a Procuring Entity not to deny pre-qualification, if required, to a firm for reasons other than legal capacity, financial capability and experience to successfully perform the contract.

Clause 4.9 of GITA in the tender document indicated that the financial capabilities of the contractors were accessed by considering annual turnover and cash flow as shown in **Table 4.10**.

Table 4.10: Indicates Minimum Annual Turnover and Cash flow for each Lot

Lot	Annual Turnover (USD)	Cash Flow (USD)
1	9,030,800	1,880,500
2	5,022,200	1,000,100
3	4,493,000	900,000
4	2,600,000	550,280
5	5,900,300	1,200,700
6	2,555,400	530,700

Source: Auditors' Analysis of requirement in the Tender Document for the respective Lots, 2023

As seen in **Table 4.10** and based on the misinterpretation by the Evaluation Committee on the concept of annual cash flow:

- a) Two Contractors, namely; M/s Nakuroi Investment Company Limited; and M/s OK Electrical and Electronics Services LTD were disqualified for not attaining annual cash flow only; and
- b) Electro-Mechanical Agencies Co. Ltd was disqualified for not attaining Annual Cash Flow and had provided four staff only and with no details as required. However, Clause 4.12 of GITA in the tender required to provide four staff which was done but without details. However, Regulation 6(2) of Public Procurement Regulation GN. 446 of 2013 has not included reason associated with personal capabilities can be a base for disqualification of firm at the pre-qualification stage.

Hence, the three (3) aforementioned firms were unreasonably disqualified. In addition, 11 firms, among other reasons, were disqualified for reason associated with Annual Cash flow. In total, 14 out of 28 disqualified firms at least were for reasons associated with annual cash flow.

Interview with REA officials revealed that, REA could not award tender to a firm which was not financial capable and cash and cash equivalent balance at the end of financial year can demonstrate financial capability of the firm.

The audit is of the view that improper assessment of the financial capability of the firm, attributed to disqualification of three qualified firms unnecessarily. As the three firm were disqualified specifically for not meeting annual cash flow; and the other 11 firms were also disqualified, among other reasons, were associated with annual cash flow.

4.4.3 Invitation and Evaluation Shortlisted Firms was properly Done

On 18th April, 2019, the Royal Norwegian Embassy issued no objection to tender densification. On 7th May, 2019, the shortlisted suppliers were invited and the deadline for submission was on 18th June, 2019. Tender was opened on 3rd July 2019, 11 out of 12 bidders who were shortlisted procured the tender document whereas 10 submitted their bid documents. On 18th July, 2019, evaluation team was formed. The Audit noted that, it took 2 weeks for AO to form the evaluation committee from the deadline of submission and tender Opening. This prolonged the duration for the procurement process. The readout price for the submitted tender was as shown in Table 4.11.

Table 4.11: Readout Price for Densification Projects II (A)

Name of the Firm	Lot	Bid Price	
		TZS	USD
M/s Derm Electrics (T) Limited	1	10,759,885,157.45	20,544,104.06
	2	5,799,699,587.00	8,302,440.25
	3	3,893,760,352.25	7,512,942.83
	4	8,359,533,929.84	648,476.51
	5	8,359,533,929.84	11,771,919.19
M/s EDM Network Ltd & Rumuli Engineering & Live line Engineering Ltd	1	8,521,196,172.85	16,277,698.19
	2	3,151,354,940.49	5,478,496.24
	5	4,152,408,486.41	7,058,579.56
M/s EDM Network Ltd & Easytech Company Limited	3	3,151,354,940.49	5,478,496.24
	4	1,260,771,352.78	2,301,798.12

Name of the Firm	Lot	Bid Price	
		TZS	USD
	6	1,336,215,253.24	2,091,762.64
M/s Sengerema Engineering Group Ltd	2	11,508,473,920.00	1,932,417.67
	3	10,907,411,420.00	2,389,586.85
	4	5,151,888,732.00	576,000.48
	5	15,690,956,780.00	1,818,640.78
	6	4,593,066,574.00	330,875.78
M/s SAGEMCOM Energy & Telecom	1	46,783,826,735.49	1,686,050.05
	2	18,115,418,394.06	667,300.44
	3	16,918,351,108.48	688,595.45
	4	7,261,293,602.26	267,234.18
	5	24,004,864,150.20	712,786.18
	6	6,992,718,230.89.0 0	246,890.92
M/s China Gezhouba Group M/s Company Limited	1	45,419,111,215.00	2,062,450.00
	3	16,894,842,927.00	1,387,100.00
	4	7,059,441,777.00	718,151.00
M/s Jilin Province Electrical Co Ltd	1	-	41,535,848.0 6
	6	-	5,176,051.15
M/s Namis Corporate Ltd	2	15,713,310,962.53	2,409,026.05
	3	15,098,832,668.54	2,994,091.43
	4	7,063,196,870.11	826,394.55
	5	19,823,530,642.37	2,962,467.54
	6	6,386,067,995.39	903,620.80
M/s Mf Electrical Engineering Ltd & M/s Emec Engineering Limited	6	6,525,947,900.00	1,006,264.00
	2	1,347,713,377.96	6,772,380.48
	3	2,047,254,828.41	6,306,858.35
	4	902,634,644.62	2,601,264.26
	5	1,942,021,367.81	7,388,331.95
	6	786,651,299.10	2,333,898.42

Source: Auditors' Analysis of Record Readout Price (2022)

Table 4.11 shows the list of firms which submitted tender documents during the procurement of contractors for densification projects II (A).

Further, the review of final evaluation report found that at the preliminary stage, all bidders were successfully and qualified for detailed evaluation stage. During detail evaluation, four bidders, namely; EDM Network Ltd & Rumuli Engineering & Live line Engineering Ltd; China Gezhouba Group

Company Limited; Jilin Province Electrical Co Ltd; and Namis Corporate Ltd were disqualified due to various reasons as stated in **Table 4.12**.

Table 4.12: Reasons for Disqualification of Each Bidder at Detailed Stage

Bidder	Reason for Disqualification
M/s EDM Network Ltd & M/s Rumuli Engineering & Live line Engineering Ltd;	Work program not thorough and complete. Only indicated mobilization schedule and time for completion not indicated
M/s China Gezhouba Group Company Limited	Test reports for Transformers and wood poles were not submitted; and Guaranteed technical specifications for drop out fuse cut-outs and poles were not submitted.
JM/s ilin Province Electrical Co Ltd	Guaranteed technical specifications for Surge arresters, drop out fuse cut-outs and poles were not submitted as well its test reports,
M/s Namis Corporate Ltd	Routine test for Transformer, type test for surge arrester, type test for drop out fuse cut out and routine test for ABC conductors.

Source: Auditors' Analysis of Record Readout Price (2023)

After correction of Arithmetic Errors, Discount and computations made the following bidders were recommended for award as indicated in **Table 4.13**

Table 4.13: Recommended for the Awards

Lot	Bidder	Evaluated Price (VAT Inclusive)		Total in TZS
		USD	TZS	
Lot 1- Dodoma	M/s Derm Electrics (T) Limited	20,389,969	10,743,743,920	57,179,980,251
Lot 2- Singida & Tabora	M/s Sengerema Engineering Group Ltd	1,932,415	11,508,549,440	15,909,444,292
Lot 3-Pwani & Tanga	M/s EDM Network Ltd & Easytech Company Limited	6,339,386	4,662,396,559	20,533,848,229
Lot 4- Kilimanjaro	M/s EDM Network Ltd & M/s Easytech Company Limited	2,710,895	1,487,713,330	8,348,933,729

Lot	Bidder	Evaluated Price (VAT Inclusive)		Total in TZS
Lot 5-Mbeya	M/s Sengerema Engineering Group Ltd	2,143,166	15,691,013,420	20,571,873,998
Lot 6-Mwanza & Shinyanga	M/s Emec Engineering Limited	2,754,014	1,697,611	6,008,969,331

Source: Auditors' Analysis of Evaluation Reports (2023)

On 24th July, 2019, REA communicated with M/s Sengerema Engineering group and Electrical Engineering Limited for errors correction. On 8th August, 2019, PMU's review to the evaluation committee was issued, on 13th August, 2019 the evaluation committee responded to all raised concerns by PMU.

On 9th September, 2019, REA sought advice from PPRA on treatment of minor deviation as reported by the evaluation committee. On 13th September, 2019 PPRA advised REA to submit tender document and evaluation report.

On 8th October, 2019, REA requested Bidders to extend bid validity period to 4th January, 2020. On 7th November, 2019, post qualification team was appointed for Sengerema Engineering Group Ltd and MF Electrical Engineering Ltd.

21st October, 2019, M/s MF Electrical requested REA to review the post qualification process. On 18th November, 2019, the final pre-qualification report was submitted. The review of the report indicated that M/s Sagemcom Energy & Telecom and hence, qualified and recommended for award of Lot 1-Dodoma Region and Lot 4 - Kilimanjaro; and M/s MF Electrical was disqualified because cash balance at the end of financial year as reported in financial statement is not the same as in original bank statements. Also, on specific Supply Experience on similar projects and annual turnover and cash flow.

On 30th January, 2020. Royal Norwegian Embassy complained after noting the intention of re-evaluation whereas the embassy thought that re-evaluation was unnecessary as it would increase the cost of evaluation as

well as delay in the project implementation. On 17th February, 2020, new evaluation team was composed.

28th February, 2020, re-evaluation report was submitted, the outcome for preliminary stage and detailed evaluation was the same as for the report. The report recommended the following contractors to be awarded as indicated in **Table 4.14**.

Table 4.14: Recommended for the Awards

Lot	Bidder	Evaluated Price (VAT Inclusive)	
		USD	TZS
Lot 1-Dodoma	M/s Derm Electrics (T) Limited	20,553,434.57	10,759,883,510.17
Lot 2-Singida & Tabora	M/s Emec Engineering Limited in JV with Dynamic Engineering and system company Limited	7,401,449.27	2,354,937,680.74
Lot 3-Pwani & Tanga	M/s Sengerema Engineering Group Ltd	2,389,586.85	10,907,298,140.00
Lot 4-Kilimanjaro	M/s EDM Network Ltd & M/s Easytech Company Limited	2,710,895.41	1,487,713,330.09
Lot 5-Mbeya	M/s Sengerema Engineering Group Ltd	2,143,166.74	15,691,013,420.00
Lot 6-Singida and Tabora	M/s EDM Network Ltd & M/s Easytech Company Limited	2,468,292.79	1,576,734,294.68

Source: Auditors' Analysis of Evaluation Reports

On 17th April, 2020, post qualification team for M/s Derm Electrics (T) Limited. On 28th April, 2020, the team submitted report, M/s Derm Electrics (T) Ltd was successful and the recommendation was that the tender to be awarded to M/s Derm Electrics (T) Ltd.

On 28th April, 2020, Post Qualification evaluation report for M/s Derm Electrics (T) Ltd was appointed. 11th May, 2020, negotiation team for M/s Derm Electrics (T) Ltd was appointed. On 12th May, 2020, negotiation plan for Sengerema na Sagemcom was reapproved. The approved negotiation plan was as for previous tender.

On 15th May, 2020, REA requested no objection for Re-evaluation report, post qualification report and negotiation for tender No AE/008/2017-

18/HQ/G/7 lot 1-6 for rural electrification densification programme Round IIA.

On 14th July, 2020, tender board through circular resolution approved the extension of bid validity period. On 15th July, 2020, the Embassy of Sweden did not provide no objection and provided four (4) recommendations to REA.

- a) It's unclear whether a margin of preference applied during the evaluation;
- b) Evaluation error identified during re-evaluation seems to be discrepancies;
- c) Additional calculation errors have been found in the re-evaluation;
- d) Procurement process disregards the guidance from PPRA, failure to tender the required scope justifies rejection of tender during preliminary examination: and
- e) Embassy of Sweden recommended REA to communicate with PPRA for clarification.

On 20th July, 2020, REA provided response to the recommendations given to Embassy of Sweden. On 29th July, 2020 REA requested the bidders to extended bid validity period. Bid validity period was extended to 31st August, 2020.

Furthermore, on 18th August 2020, PPRA with the letter with ref. EA.8/116/50/30 clarified to REA that quoting less quantity than required was major deviation.

On 25th August, 2020, tender board through circular resolution approved for Lot 1-6 as in **Table 4.15**.

Table 4.15: Contracts Awarded

Awards	Amount (TZS)
M/s Derm Electrics (T) Limited	57,516,885,241.19
M/s Sengerema Engineering Group Limited	15,953,377,795.82
M/s Sengerema Engineering Group Limited	16,403,891,300.63
M/s Derm Electrics (T) Limited	10,247,132,393.03
M/s Sagemcom Energy & Telecom Tanzania Limited	30,260,392,785.54
M/s Sagemcom Energy & Telecom Tanzania Limited	8,921,521,908.96

Source: Auditors' Analysis of Contracts awarded for Densification Project II (A), 2023

4.4.4 REA Submitted Draft Contract for Vetting prior Completion of the Procurement Process

Regulation 2(1) (a) of Public Procurement Regulation GN. 121 of 2016 requires any formal contract arising out of the acceptance of tender whose value is one billion Shillings and above shall be vetted by the Attorney General.

However, through the review of procurement file, the audit found that on 26th August, 2020, REA submitted the draft contract to AG for vetting. It is further indicated that the submitted draft was incomplete to be vetted by Attorney General.

- a) There was not acceptance at that moment;
- b) No-Objection from the financier yet received;
- c) Tender Board was in process of approving the re-evaluation report; and
- d) Intention to award letters was yet issued.

In addition, the Audit found that on 4th September, 2020, a letter for intention to award was issued to all bidder whereas on 8th September, 2020, Attorney General Advice REA to complete the procurement process prior submission of draft contract for vetting.

On 16th September, 2020, AG vetted contracts for lot 1-6, after resubmission of complete contract. Earlier, AG rejected to vet the contract prior completion of procurement process. This delayed the procurement process for 13 days.

4.5 Findings Related to Contract Management

The Audit assessed the effectiveness of REA to manage contract for the Densification project for both the Contractor and Consultant and noted the following anomalies, which indicate inadequate contract management to ensure efficient execution of Densification IIA Project.

4.5.1 Delays in Engaging the Project Supervisors for an Average of 247 days from the Effective date of Project Execution

Clause 8.1 of the GCC of the works contract requires the contractor to commence works of the facilities within the period specified in the SCC which is the effective date for determining the completion date.

Article 3.2 of the work contract for supply and installation of LV distribution networks and customer connection requires if the conditions listed under 3.1 (as listed hereunder) are not fulfilled within two months from the contract notification date, the parties shall discuss and agree on an equitable adjustment to the contract price and the time for completion and/or other relevant conditions of the contract. The conditions listed under 3.1 are:-

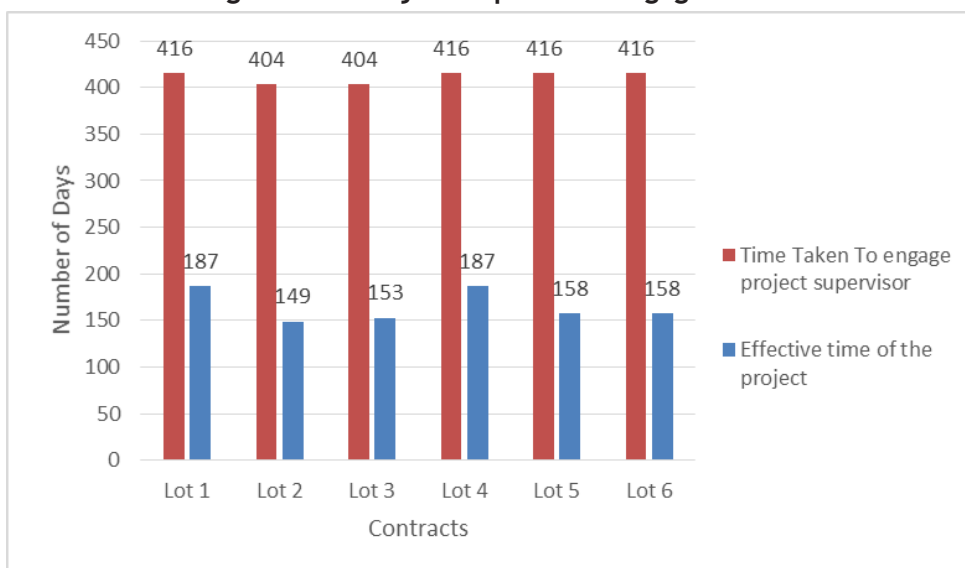
- a) The contract agreement has been signed for and on behalf of the Employer and the Contractor;
- b) The contractor has submitted to the Employer the performance security and advance payment guarantee; and
- c) The employer has paid the contractor the advance payment.

This means that, REA was expected to ensure the consultant/project Supervisor is engaged before the effective date of the contract.

The Audit Team noted that the Project Supervisors for all 6 Lots were engaged after effective dates of the contractors to commence execution of the construction works.

The average time taken for engagement of project supervisors has been noted to be 412 days as shown in **Figure 4.1**.

Figure 4.1: Project Supervisor Engagement



Source: Contractor submission of the APG and PG, contractor and consultant signed contracts

Figure 4.1 above shows that it took the average of 247 day for the consultant to be engaged in the project. However, the worst-case scenario was noted to be in Lot 5 and 6 for more than 258 days while the least case scenario in Lot 1 which took more than 229 days after the contract effective date. This makes an average time of 247 days to all Contracts.

Additionally, REA responded that TANESCO is considered as the core stakeholder to accommodate the service provision and to it they relied to engage it in the preparation of the project initiation and essentials but not as a consultant. Thus, basing on the ongoing project implementation they decided to have contract agreement to have roles and responsibilities distributed for the clear project implementation.

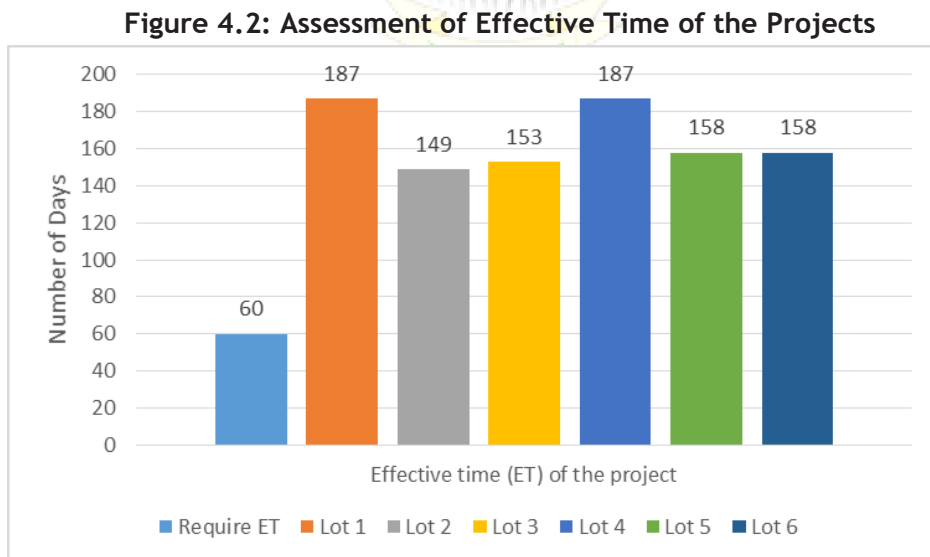
- (i) **Lack of effective planning and scheduling:** This was found to be the factors that contributed to delay in engaging the Project Supervisors. This is despite the fact that TANESCO, as a stakeholder and government agency, REA did not require a lengthy period to engage them.

- (ii) **Late engagement of the Project Supervisors partly contributed to unsatisfactory quality of the executed project work:** Such quality issues may include safety matters, equipment failure, ultimately and lower level of service delivery to customers without being properly supervised by TANESCO.

4.5.2 Delayed in Commencement of the project from the Effective Time Stated in the Contracts

Clause 3.1 of the contract document defines the effective time as the time of completion of the facilities to be determined from the following conditions which include submission of performance security and Payment of Advance payments. Also, it has been stated that, the execution of work should start after 60 days from the signing date of the contract, termed as effective date.

However, the Audit noted that there was a prolonged time for the contract to be effective for all 6 lots beyond the required time as shown in **Figure 4.2:**



Source: Auditors' Analysis from the Correspondence Files (2022)

Figure 4.2 above shows that all the 6 lots have exceeded the effective date set, whereby Lot 1 and Lot 4 have experienced the prolonged time of 127 days equivalent to 4 months from the required effective time. Despite that, all the lots have been late. It has been noted that Lot 2 has the least prolonged timeline by 89 days beyond the set threshold for effective date.

The causes for delay were contributed by:

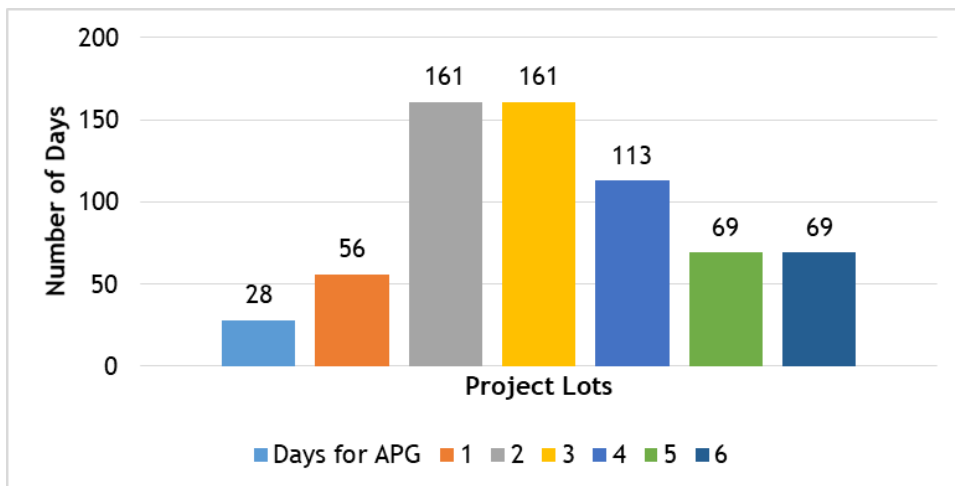
(i) Delay in Submission of the Advance Payment Guarantee

The Audit Team noted that a delay in submission of advanced payment guarantee for all 6 Lots was among the causes for the delays in commencement of the project from the planned effective contract time.

This is despite the fact that the contracts for all 6 Lots as stated in Clause 13.2 of the General Condition of the Contract that the Contractor is required within twenty-eight (28) days of the notification of contract award, to provide a security in an amount equal to the advance payment.

The analysis of the dates for the submission of Advance Payment Guarantee revealed that all 6 Lots took more time beyond the required submission days as shown in **Figure 4.3**.

Figure 4.3: Time Take for Submission of Advance Payment Guarantee



Source: Auditors' Analysis from Procurement Files and Submission Dates of Advance Payment Guarantee (2023)

Figure 4.3 above shows that two projects experienced the extreme days beyond the required submission days that went up to 132 days beyond the required days for submission of Advance Payment Guarantee. As a result, the days were accumulated into the delay of effecting the contracts commencement which eventually led to delayed project completion.

(ii) Prolonged Documentary Credit to Contractors

The Audit noted that it took an average of 80 days after the submission of advance payment guarantee by the contractors as shown in Table 4.16 below.

Table 4.16: Time Taken to Make Advance Payments to the Contractors Before the Start of the Project

Lot	Submission of Advance Payment Guarantee	Effective Date	Time Taken to Submit Documentary Credit as Part of Process (Days)
1	10/11/2020	06/04/2021	147
2	23/02/2021	11/03/2021	16
3	23/02/2021	15/03/2021	20
4	06/01/2021	06/04/2021	90
5	23/11/2020	08/03/2021	105
6	23/11/2020	08/03/2021	105
Average			80

Source: Auditors' Analysis from Correspondence files (2022)

Table 4.16 shows that the contractors successfully submitted the advance payments guarantee to REA but there was the contractual requirement that they were required to fulfil so as mark the commencement of the projects.

It was noted that the extreme time was noted to be in Lot 1 contract which took 147 days equivalent to 4 months and 27 days for documentary credit issuance which eventually led to exceeded time for officially commencement of the project.

However, the delay in commencing work had an impact on the timely completion of the works at the facilities with time variations that contributed to the extension of time.

4.5.3 Delayed Project Completion

Clause 8.2 of the GCC of the works contracts requires the contractor to attain completion of the facilities (or of a part where a separate time for completion of such part is specified in the contract) within the time stated in the SCC or within such extended time to which he/she is entitled under GCC Clause 40 thereof.

The Audit noted that 3 out of 6 contracts experienced a delay in completion as indicated in **Table 4.17**, and they were not completed up to the date of this audit as shown in **Table 4.17**.

Table 4.17: Extent of Delay in Project Completion

Lot	Original project completion	Date of Audit	Delay in Project completion	Remark of Implementation
1	31/08/2022	30/12/2022	0	No delay
2	30/03/2022	30/12/2022	0	No delay
3	31/03/2022	30/12/2022	274	Delayed
4	31/03/2022	30/12/2022	0	No delay
5	10/04/2022	30/12/2022	264	Delayed
6	08/04/2022	30/12/2022	266	Delayed

Source: Auditors' Analysis from Projects Progress Reports (2023)

Table 4.17 shows that among the three delayed project completions as per the contract requirements, namely; Lot 3, 5 and 6 took between 266 and 274 days above the planned completion time.

The Audit noted that this has been contributed by the inadequate enforcement by REA on the requirement for submission of revised work programme, which is a key tool for managing the project time.

This is despite the fact that Clause 18.4 and 40 of General Condition of Contract emphasize much on the requirement for the Contractor to update and revise the programme as and when appropriate or when required by the Project Manager, but without modification in the times for completion given in the SCC and any extension granted in accordance with GCC Clause 40.

According to the cited GCC clauses, the Project Manager was expected to show the sequence in which it proposes to design, manufacture, transport, assemble, install and pre-commission the Facilities, as well as the date by which the contractor reasonably requires that the Employer shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Contract in accordance with the programme and to achieve completion.

However, the Audit noted that the submitted revised programme of work was not renewed after the expiry of the original one. This has been putting the project supervisors in a difficult situation (at zonal, regional and district level) to track the progress of the contractors.

4.5.4 Delays in Approving the Submitted Variations for Lot 6

The Audit reviewed variation order issued in this project. There were only 1 documented claim from the contractor, which was initiated by REA whereby the requested contractor through the letter AG 143/289/06/38 of 01st March, 2022 titled 'Submission of the Revised Bill of Quantities' for approval. The audit noted that it took about 290 days for REA to act on the submitted Bill of Quantities, and due to this delay the Contractor decided to implement the addition works without having an approval and addendum of contract.

On the other hand, through the interview held with the contractor, it was noted that delay of timely completion of work was attributed to the delay of effecting Interim Payments and availability of materials for installation specifically for the abroad purchased materials.

Delay on the completion of the project had implication of delay on the achievement of the project objectives of village electrification and customer connection.

4.5.5 REA did not Comply with the Original Plan of Scope

According to Para 7.4 of the National Electrification Program Prospectus on the project supervision during the construction phase, it is required that, REA to monitor the achievement of the electrification Programme objectives as it will help to identify potential weaknesses in the design or execution of the electrification program and allow making necessary corrections.

The Audit noted that there was additional scope during the project implementation, but REA did not ensure that it completed first the planned scope so as to be certain the extent to which the infrastructures met the intended objective. This could have allowed REA to assess its weaknesses and correct them for project sustainability. **Table 4.18** shows the changes of the additional scope for each lot.

Table 4.18: Change of Scope of the Project

Contract (Lot)	Original Scope (Number of Customers)	Revised Scope (Number of Customers)	Additional Scope (Number of Customer)
1	28,749	36,394	7,645
2	11,602	14,163	2,561
3	16,481	18,570	2,089
4	2,968	4,080	1,112
5	15,973	20,038	4,065
6	3,852	4,332	480
To tal	79,625	97,577	17,952

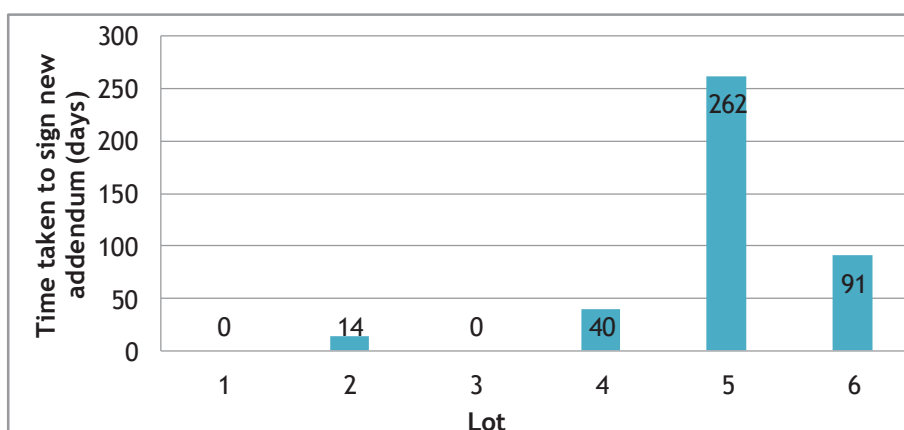
Source: Auditors' Analysis from the Project Progress Report (2023)

Table 4.18 shows that more consumers were added from the initial scope, totalling 17,952 customers, despite the fact that the nature and capacity of the infrastructures remained the same as specified in the planning. Hence, REA, in collaboration with TANESCO, could stick to the original target in order to analyse the project's performance and sustainability in relation to the anticipated number of customers.

4.5.6 Delayed in Signing the Addendum

The Audit noted that there was a delay in signing the renew of the contract especially that of extension of time as shown in **Figure 4.4**:

Figure 4.4: Signing of the contract



Source: Auditors' Analysis of Contracts Signed and Addendum for the Contracts, 2022

Figure 4.4 above shows that, only two contracts were timely signed for their renewal of contract before the expiration of the original contract to keep the contract alive. However, the rest of the contracts (Lot 2, 4, 5 and 6), it was noted that they were delayed in signing the addendum, and the audit noted that for Lot 5, it took up to 262 days for the renewal of the original contract to be signed and this was considered as the extreme case scenerio.

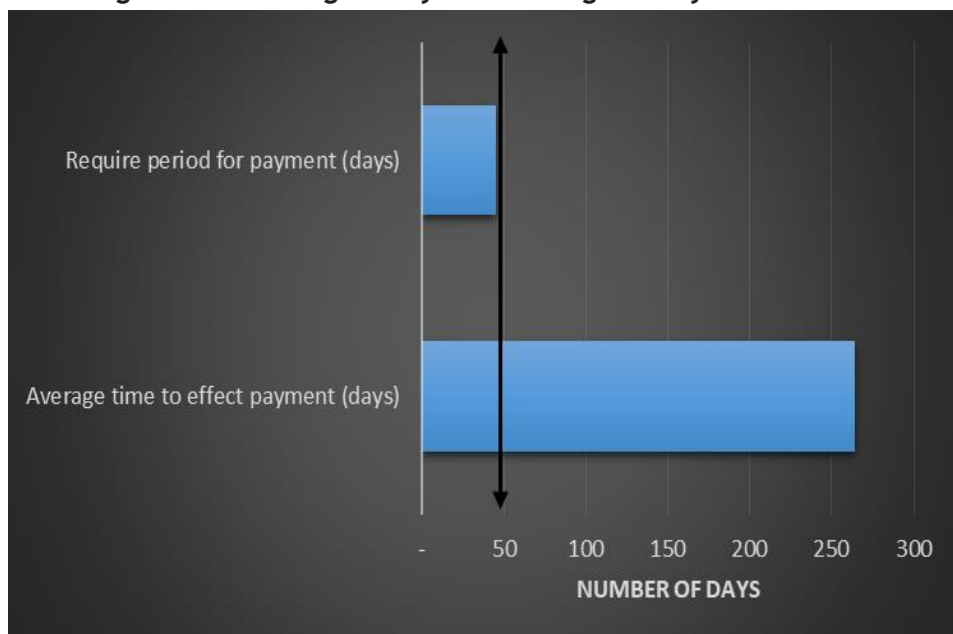
Through the interview with the Project Engineer, it was noted that this was contributed by not aligning the plan to the timely renewal of the project contract.

4.5.6 Delay in Payment of Contractors

Appendix I (g) of the contract document on payment procedures states that, the Employer shall pay the Contractor the amounts certified by the Project Manager within 45 days of the date of each certificate.

Through the review of IPCs raised, the Audit noted that there was a delay in effecting the payments for all Six lots as shown in Figure 4.5 below.

Figure 4.5: Average Delay in Effecting the Payments of IPCs



Source: Auditors Analysis of payments Records (2023)

Figure 4.5 above shows that REA took an average of 264 days to effect payment which is far above the set time of 45 days after the approval of certificate.

The delay in issuing payments was contributed by:

(i) Lack of Effective/Proper Process for Implementation of Payments

The analysis made from the date of receipt of the request for payment, revealed that after TANESCO had issued no objection to the payments, REA did not establish any internal methodology to review the request for payment by the contractor.

However, the audit noted that despite the fact that TANESCO had entered the contract with REA for supervision of the project, its obligations to the project did not state how the project supervisor should determine the claim for payment. Also, there was lack of timeframe established to the project supervisor to assist REA on the review so as it might have issued payments

on time. This contributed into affecting the contractor's financial performance, as a result it made the project to delay in completion.

(ii) Payment's procedures were not aligned with the Funding Procedures

The Audit noted that the payments of the IPCs raised by the contractor was not aligned with the financing procedures stated. The audit team further noted that the payment procedure stated was 10% of the total CIP amount as advance payment against receipt of the invoice, 80% of the FOB amount upon delivery to the site within 45 days after receipt of the invoice and shipping documents, 5% of the CIP amount upon issue of the completion certificate, within 45 days after receipt of the invoice and 5% of the CIP amount upon issue of the Operational Acceptance Certificate, within 45 days after receipt of the invoice.

Despite that, the financing agreement stated that the disbursement of funds shall be on quarterly basis upon submission of the work plan by REA which is different from the aligned schedule by the contract terms of payment. The insolvency of one party in the payment chain could cause severe impacts to parties down the contractual chain.

4.5.7 Inadequate Management of Quality of Executed Works for Densification IIA Project

The Audit conducted the visit at site to assess the quality of the installed infrastructures and noted that there was inadequate quality of the installed infrastructures. The followings were the anomalies that were noted at the site.

(a) Delay in renewal of the Performance Security

According to Clauses 13.3.1 of GCC the contractor is supposed to provide the performance security equivalent to 10% of the contract in 28 days after the notification of award, and also provide a security for the due performance of the contract in the amount stated in the contract.

The reviewed correspondences and analysis of validity of the performance security of the project, indicates that, performance securities of 2 out of 6

contracts for Densification IIA had not been timely renewed to the date of the audit as mentioned in **Table 4.19**. They took more than 2 months to be renewed where it was noted to be in Lot 1 and Lot 4.

Table 4.19: Status of the Performance Guarantee of the Contracts

Lot	Delay in Renew of Performance Security (days)
Lot 1	76
Lot 2	0
Lot 3	0
Lot 4	76
Lot 5	2
Lot 6	-2

Source: Auditors' Analysis from Contracts Performance Guarantee (2023)

Operating under the un-renewed performance security has been caused by the following factors.

(i) Not Updating the Programme of Work

According to Section 18.2 of GCC the contractor was required to submit to the project manager the programme of work within 28 days of signing the contract and shall update and the revised programme of work as when appropriate or as required by the project manager.

The Audit Team reviewed the programme of work submitted by the contractor to the project manager and noted that they were not revised and updated to align to the extension of time provided that could allow the contractor and the project manager with an alert to renew the contract performance security.

(ii) Inadequate Enforcement of the Contract Terms by Project Developer (TANESCO)

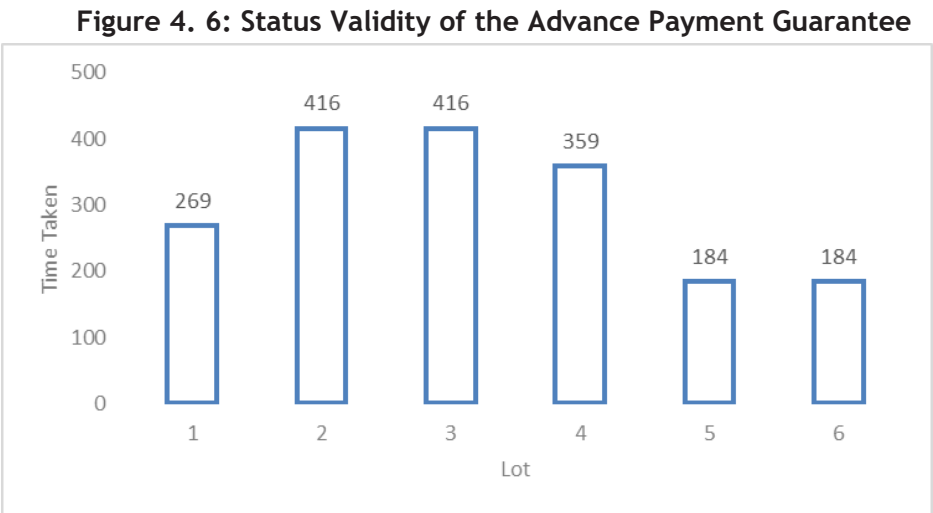
The Audit noted that the contract between TANESCO and REA did not state clearly on how the Project Manager shall supervise the project securities as they are supposed to be valid until the end of the contract.

This led to risk of project quality security of the project in terms of the contractor’s performance when a non-performance occurs during the noncovered period by the performance security it may lead into disputes.

(b) Expired Advance Payment Securities

According to Clause 13.2 of GCC the contractor shall provide security in an amount equal to the advance payment calculated from the contract sum and shall be returned upon fulfilled recovery of the advance payments.

The Audit Team reviewed the correspondence/ project files to assess the validity of the advance payment security of the project and identified that the advance payments securities submitted by the contractors for all 6 contracts were not renewed as detailed in **Figure 4.6:**



Source: Auditors’ Analysis from Payment Records for Contractors (2023)

Figure 4.6 above shows that the advance payments to the time of the audit had been not renewed for an average time of 304 days where by the extreme situation was noted in Lot 2 and Lot 3 whereby, they took 416 days and also the least situation was noted in Lot 5 and Lot 6 whereby, they took 184 days.

Despite the fact that the advance payment guarantees for the contracts had expired, the advance payments recovery was noted to be lowest in Lot 1 attained as shown in **Table 4.20**.

Table 4.20: Advance Payment Recovery

Lot	% Recovery of the Advance Paid in TZS	% Recovery of the Advance Paid in USD	Status of the Project completion up to December, 2022
1	88	3	96
2	93	100	81
3	93	100	81
4	100	100	95
5	84	100	80
6	84	100	72

Source: Auditors' Analysis from Payment Records for Contractors (2023)

Table 4.20 shows that REA managed to recover the advance payment paid in USD currency in Lot 1 for only 3% while the status of the project implementation was 96% of execution. But for the rest of the contracts, REA needed to ensure that they managed well the advance payment recovery as per the required conditions of contracts.

(c) Transformer Installation Package was not Comprehensive

The assessment of completeness of the transformer package revealed that there were incomplete installed transformers' components, as shown in **Photo 4.1**.

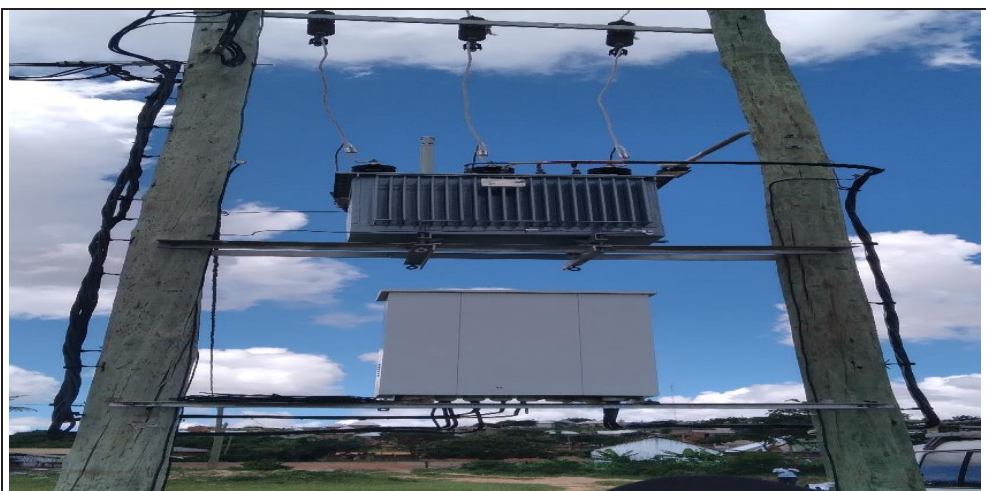


Photo 4.1: Showing that transformer did not have the items billed in the contract document at Nyida Village in Shinyanga Rural as taken by the Auditor on 18th January, 2023

The summary of the missing transformer items is as summarized in **Table 4.21**.

Table 4.21: Summary of Anomalies noted for the Installed Transformers

Item	Observation	Remarks
2.01.17	Absence of Barbed wire	Noted in all visited sites
2.01.22	Concrete backfilling	This item was not done
2.01.4	Danger/Hatari lacked	Supplied plates did not display the message
2.01.25	Earth Slat PVC for earthing	The constructed PVC for the protection of earthing does not provided security to earth rod

Source: Auditors' Analysis from the site visit (2023)

Table 4.21 shows the missing and noted discrepancies for the inspected transformers which was conducted at Nyinda Village in Shinyanga Rural. This was caused by inadequate enforcement of the contract requirements by the project supervisor to ensure that all the installations required were in place.

Moreover, it was noted that the regular maintenance and theft of the transformer items could lead into the failure to attain the required objectives. Furthermore, it was observed that, the installed voltage control box was easily reachable and hence easily affected due to contact.

(d) Installed Transformers of Low Capacity

The Audit reviewed the minutes of the site meeting dated 11th December, 2021 held between the contractor, project supervisor and project coordinator at Shinyanga region and noted that there was a proposal submitted by the contractor on the capacity of the project infrastructure in relation to the number of users. It was raised that the users were not sufficient to the intended capacity as shown in **Table 4.22:**

Table 4.22: Transformers with Capacity Overload

Original transformer	50KVA	100KVA	200KVA
Number	12	5	2
Proposed transformer for change	To 100KVA	To 200KVA	To 315KVA
Number	5	6	8

Source: Auditors Analysis of Site Meetings (2023)

Table 4.22 shows that 19 transformers were noted to have lower capacity but there was no approval for change of the capacity by REA. It was noted that 12 transformers with 50KVA, 10KVA and 200KVA were proposed to be replaced by 100KVA, 200KVA and 315KVA but they were not approved by REA despite the fact that the contractor provided the technical proposal that was not responded by the employer.

The Audit Team noted that in 19 hamlets where at risk on the installed transformers that they could not meet the expected objectives as the number of users were underestimated during the planning stage. Thus, the contractor proposed through site meeting No. 02/2021 of 11th February, 2021 concerning the changes of transformer and REA did not respond to it showing that TANESCO shall accommodate early transformer maintenance at shorter period of time than expected. This was caused by inadequate forecast to project potential number of users that could affect the community around in terms being attracted by the benefits of using electricity.

Further to that, it was indicated that this could lead into early demand for maintenance by TANESCO to replace the low voltage transformers so as to accommodate the potential number of users. Also, users could experience

the insufficient electric supply due to over loaded transformers with respect to the number of users.

(e) REA Accepted Substandard Poles and 12 Transformers with Load Loss Higher than the Maximum Tolerance Level

Clause 23.1 of the GCC requires the contractor at his own expenses to carry out test /and or inspection of goods and any part of the facilities as specified in the contract at the place of manufacture /and or on the site as witnessed by the employer and the project manager or their representatives.

According to TANESCO specification for distribution pole mounted transformer (S21) of 2019, the maximum sum total of the transformer losses, measured at full load operation, unity power factor and rated voltage shall not exceed the specified values. Transformers with losses exceeding the specified values shall be rejected.

According to TANESCO specification for wooden pole and block (S11) of 2017, specification of general technical requirements for 33kV, 11kV and LV networks, the poles would have to conform to the dimensional requirements as specified in S11.

Review of Factory Acceptance Test (FAT) results of transformers conducted under the presence of the TANESCO and Contractors' officials, the audit noted that, REA accepted 12 out of 23 sampled transformers that did not meet the required specifications (S21 specification issued by TANESCO) for transformer load losses as described in **Table 4.23** and **Appendix 2**.

Table 4.23: Acceptance of 12 Transformer with Load Loss than the Maximum Tolerance Level

Transformer	Serial No.	Rating (kVA)	Load loss Pk(W)	Specification (W)[1]	Remark
50 kV,33/0.4kV	E19-50/337	50	1221	1150	Exceed
50 kV,33/0.4kV	E19-50/33-335	50	1220	1150	Exceed
50 kV,11/0.4kV	E19-50/33-334	50	1199	1150	Exceed

Transformer	Serial No.	Rating (kVA)	Load loss Pk(W)	Specification (W)[1]	Remark
100 kV,11/0.4kV	E19-200/33-054	200	3325	2900	Exceed
50 kV,33/0.4kV	E19-100/33-185	100	1979	1800	Exceed
50 kV,33/0.4kV	E19-100/33-182	100	2012	1800	Exceed
100 kV,33/0.4kV	E19-100/33-179	100	2040	1800	Exceed
100 kV,33/0.4kV	E19-50/33-342	50	1245	1150	Exceed
100 kV,33/0.4kV	E19-50/33-340	50	1210	1150	Exceed
100 kV,33/0.4kV	E19-50/33-338	50	1129	1150	Exceed
50 kV,11/0.4kV	TX017132	50	1214.72	1100	Exceed
100 kV,11/0.4kV	TX016354	100	2066.88	1750	Exceed

Source: Auditors' Analysis of FAT Results (2022)

Table 4.23 indicates that 12 transformers were accepted with load loss that exceeds the tolerance acceptable level as per the specification S21 of TANESCO.

The installation usage of sub-standard transformer in the distribution line can lead to loss of the electric energy through heat loss and reduction of the required design life of the transformer with major maintenance. This also implied that REA made a payment equivalent to TZS 125,568,200 for 12 sampled, tested and accepted transformers which did not meet the specified quality.

Furthermore, the review of the Factory Acceptance Test (FAT) of the electric pole for the medium and stout classes, the audit noted that there was non-compliance with the requirement of the specification S11 of TANESCO for the top diameter as follows:

- (i) For the 10m medium size pole, the specification S11 requires the top diameter to be min. 155mm and max. 175mm. However out 450 poles sampled, inspected and tested 20 poles were found to be out of the required diameter as they were ranging from 140mm to 145mm.

-
- (ii) Also, For the 11m medium size pole, the specification S11 requires the top diameter to be min. 160mm and max. 180mm. However out 100 poles sampled, inspected and tested 45 poles were found to be out of the required diameter as they were ranging from 130mm to 150mm.

The usage and installation of sub-standard materials/facilities in the distribution network could lead to shortage of the design period and highly major maintenance of pole replacement and rectification within short period after the completion of the project. This also implied that REA made a payment equivalent to TZS 15,187,500.00 for 45 sampled and tested poles which did not meet the specified quality.

(f) Installation of the Low Voltage Electric Cables with Poor Workmanship

According to Specification S01 - General Technical Requirements of 33kV, 11kV and LV Network of TANESCO technical specification it is stated that for the conductor clearance the following minimum clearances shall be obtained at erection conditions where the conductor temperature is taken to be 25 degrees Celsius.

During the site visit conducted by the Audit team, it was noted that Low voltage cables requirements were not met as specified in the TANESCO construction quality for installation of low voltage cables.

Photo 2 below shows that the installed conductor for low voltage distribution of electricity which has been subjected and installed in contact with the rock in Ngedu Village in Shinyanga rural District Council.



Photo 4.2: show that the low voltage conductor which is in contact with the big rock in Ngedu Village as taken by the Auditor on 27th December, 2022

Photo 4.2 above shows that this situation has been contributed by the inadequate identification of the obstacles and proper identification of the alternative routes for the installation of the line cables.

Furthermore, the Audit found that the noted anomalies were contributed by the following factors: -

(a) Ineffective Quality Control and Assurance Plan

General Technical Requirements for Medium and Low Voltage Network of TANESCO 2019, states that *the Contractor shall plan, execute and document quality control and assurance throughout the project according to the project quality manual. The contractor's supervision activities are part of the quality assurance. The quality assurance is to be specified in the tender.*

However, based on the interview and data collection at REA, the audit noted that for the 4 out of 6 lots under the densification projects, quality control and assurance plans were not in place. **Table 4.23** presents the detail in respect to this situation.

Table 4.23: Existence of Quality Control Plan

Lots	Contractor	Quality Assurance Plan
Lot 1	M/s Derm Electrics (T) Ltd	No
Lot 2	M/s Sengerema Engineering Group Limited	Yes
Lot 3	M/s Sengerema Engineering Group Limited	Yes
Lot 4	M/s Derm Electrics (T) Ltd	No
Lot 5	M/s Sagemcom Energy & Telecom Tanzania Ltd	No
Lot 6	M/s Sagemcom Energy & Telecom Tanzania Ltd	No

Source: Quality Assurance Plans from Contractor (2022)

Table 4.23 shows that only 2 out of 6 lots had quality assurance plans. To the large extent, this was attributed to inadequate supervision work to ensure efficiency in the methodology of each executed work as it was supposed to be documented in the quality control and assurance plans.

Absence of quality control and assurance plans triggered inadequate workmanship and substandard of the executed work as described in the Section below since there was neither quality control nor assurance plan to be effectively followed.

The Audit Team conducted an analysis on the effectiveness of the quality control and assurance to assess the effectiveness of its management. Also, the Audit Team conducted an analysis on the inspection set to be conducted on the supplied equipment and installed infrastructures to verify if there were defects in the procedures to ensure that the quality of work was ensured. The following were the reasons for the ineffective quality management.

(a) Delayed submission of the Quality Control and Assurance Plan by the contractors

Based on the general technical requirements for medium and low voltage network of TANESCO 2019 which states that *the Contractor shall plan, execute and document quality assurance throughout the project according to the project quality manual. The contractor's supervision activities are part of the quality assurance. The quality assurance is to be specified in the tender.*

The audit team reviewed the correspondence files to assess the establishment of the quality control and quality assurance plan of the project and noted that the contractors were delaying in submission of the quality control schedule.

The project supervisors were supposed to conduct the inspection of the supplied tools and also the installed infrastructures for the electricity but during their survey and inspection they did not conduct follow up to remove the rejected materials and equipment from site. This was caused by the following factors:-

(i) Delays in approval of design

Through the review of submitted drawings by the contractors, it was noted that the average time taken for the design drawing to be approved was 180 days until the final approved for commencement of work.

The interview with the project officials, it was noted that this situation was contributed by delays in approval of the submitted design. The officials stated that when the submitted design was approved on time the contractor could prepare the workplan schedule early so as to reflect the actual situation at site.

(ii) Site meetings were not fully conducted

The Audit Team noted that the site meetings between REA, TANESCO and the contractors were not effectively done as planned. Although the site meetings were planned to be conducted at least once every month, it happened that there were only three meetings that were conducted annually. The agreement between them was that they were required to have alternating site meetings on monthly basis, but this was not successfully managed. The performance of conducting monthly site meeting was only 25%.

It was noted that the contractor and the project supervisors regarded the idea of handling site meetings of two regions by alternating in each region as being of low priority. Lack of smoothness in conducting site meetings had implication on the project implementation and impaired the smooth coordination of the project supervision in the two regions for the purpose of

discussing the progress of the project. Thus, it contributed to delay in completion of the project.

4.5.8 Inadequate Quality Testing Tools Prior to Inspection

Clause 23.1 of the GCC requires the contractor at his own expenses to carry out test /and or inspection of goods and any part of the facilities as specified in the contract at the place of manufacture /and or on the site as witnessed by the employer and the project manager or their representatives. Clause 23.6 of the GCC requires the contractor to rectify or replace such good or part of the facilities upon failure of any test or inspection.

According to the review of the correspondence files, the joint inspection conducted by the contractor and TANESCO to assess the accuracy of procedures of inspection of quality for goods and noted that the inspection of Lot 2 - Tabora Region was conducted using the uncalibrated voltage test machine as it was reported in inspection test report conducted in 26th January, 2021. It was noted through test report of January, 2021 at M/S Everwell Cables & Engineering that the delivery of conductors to the client done and accepted by TANESCO with anomalies i.e. they were accepted despite that there was noted uncalibrated voltage test machines. This puts at risk of affected performance of electric conductivity and possible early maintenance of the infrastructures.

4.5.9 Inadequate Documentation of Instructions to Contractors

According to Regulation 5 (2, a) of the Public Procurement Regulations, 2013 requires public officers and members of tender boards to ensure that building works procured are of satisfactory quality and also, the system shall be in accordance with the details stated in the contract. The Project Manager shall be entitled to audit any aspect of the system.

The Audit reviewed the correspondence files on the management of communication among the parties of the contract and noted that the contractor was not adequately issued with instructions.

The projects supervisors at the regional level and district level only issued instruction to contractors to rectify the defects noted during the instruction

but they did not document the rectification made. This was contributed by inadequate preparation of contract document for supervision that gave guidance on how to monitor and report the rectifications to be made to the defects occurred. Also, it was noted that no progress report was prepared by the project supervisors to give the clear picture to the employer. This denied a chance to the project manager and the project engineer to have assurance on the rectification made to the noted defects.

4.5.10 Unsatisfactory Workmanship of the Implemented Works

According to Clause 9.1 of the GCC of the works contract requires the contractor to design, manufacture (including associated purchases and/or sub-contracting), install and complete the facilities with due care and diligence in accordance to the contract.

Based on the Quarterly report on the management of the Rural Energy Fund of June 2022, the audit noted various defects on the distribution infrastructure such as: vandalism of earth wire, substandard connection of cables, cracks on wooden poles. Also, during the site inspection on the implemented projects the audit noted such defects.

In addition to that, it was noted that presence of defects with poor workmanship was caused by inadequate supervision of the work by the consultant and usage of substandard installation materials during the implementation of the project, and consequently the defects are likely to be identified during completion of the project.

The extent of sustainability of the project is a subject to good workmanship and good materials used. Poor workmanship can lead to cost of regular maintenance of the infrastructures and unreliable provision of electricity with questionable sustainability of the project in the future.

4.6 REA Managed Well the Cost of the Project

The audit reviewed the management of scope and cost of the project whether they were smoothly managed to avoid the cost overrun of the project and noted that the projects were still in place as mentioned in **Table 4.25**.

Table 4.24: The Status of the Balance of the Project Fund

Lot	Total Contract Balance in TZS Equivalent
1	9,898,201,197
2	2,721,632,490
3	8,014,082,771
4	1,431,832,072
5	11,567,427,864
6	4,806,004,816
Balance	38,439,181,210

Source: Auditors' Analysis on the Project Payment Progress (2022)

Table 4.25 above shows that the project funds were well managed by ensuring that there is a balance of project fund amounting TZS 38,439,181,210 and further the following anomalies were noted.

4.6.1 REA did not Manage Well the Recovery of the Retention Money

According to Clause 27 of GCC the contractor warrants that facilities shall be free from defects in the design, engineering, materials and workmanship of the goods supplied and executed works.

The Audit Team reviewed the correspondence for retention money management to assess its effectiveness and noted that the retention money for USD package was well managed but the deduction for TZS package was not well managed as shown in Table 4.26 below. Since the amount withheld did not guarantee that it could accommodate the amount for rectification of defects.

Table 4.25: Retention money recovery

LOT	Retention Money to be withheld (TZS)	Retention Money withheld (TZS)	Retention Money not withheld (TZS)	Percentage of the Retained Amount	Project Status
1	898,278,107	553,975,380	344,302,727	38%	DLP
2	975,294,400	868,860,900	106,433,500	11%	DLP
3	924,356,900	782,188,400	142,168,500	15%	On going
4	733,309,182	779,246,740	0	0%	DLP
5	2,349,197,870	1,972,835,294	376,362,576	16%	On going
6	684,171,823	576,331,189	107,840,634	16%	On going

Source: Auditors analysis from payment records

Table 4.26 shows that 3 out of 6 projects were in defect liability period and still they did not deduct all of the amount of retention which was expected to be withheld. The amount of money not recovered by REA was TZS 1,077,107,937, equivalent to 16% of the required Retention Money.

This was contributed by the following aspect:

(i) Failure to enforce the contract requirements by Project Developer (TANESCO)

The audit team reviewed the contract between the project developer (TANESCO) and REA to assess the delegated assessment of the project securities. The contract between TANESCO and REA did not state clearly on how the project manager shall supervise the project securities as they are supposed to be valid until the end of the contract.

Actually, this could lead to the loss of the security of the project in terms of the contractor's performance, in case the misconduct happened during the non-covered period by the advance payment security which could lead into disputes.

4.6.2 Execution of the Projects without the Extension of Time

The audit team reviewed the management of validity of the contract from the signed original contract, the renewed contract and granted extension of time by REA and noted that extended period for execution of the project expired while the projects were not in completion stage for commissioning as shown in **Table 4.27** below. The audit conducted an analysis and noted that for all 6 contracts, REA delayed to approve the extension of time by an average of 246 days (8 Months).

Table 4.26: Execution of Project out of Contracts

Contract	Expiry date of the Last extension of time	Date of Audit	Delays on renewal of Contract (Days)	Status as of date of Audit
Lot 1	31/08/2022	31/12/2022	122	DLP
Lot 2	30/03/2022	31/12/2022	276	DLP
Lot 3	31/03/2022	31/12/2022	275	Ongoing
Lot 4	31/03/2022	31/12/2022	275	DLP
Lot 5	10/04/2022	31/12/2022	265	Ongoing
Lot 6	08/04/2022	31/12/2022	267	Ongoing

Source: Auditors' Analysis from the project contracts (2022)

Table 4.27 above shows that all 6 contracts were previously granted with extension of time but the granted time ended while 3 of the projects were in Defect Liability Period (DLP) and 3 of the projects were ongoing projects which were not yet in practical completion stage. The highest delay in provision of the extension of time was in Lot 2 which took 276 days without it. This was caused by: -

Non- Submission of the renewal application by the contractor

According to section 40.2 of the general condition of contract, it states that the contractor is required to submit the claim for extension of time to the project manager. The Audit Team noted that the contractors did not submit the request for extension of time prior to expiration of original contract and the project manager did not initiate the process for renewal of the contract period. This resulted into delay in issuing the addendum so as to keep the contracts on alive.

4.6.3 Change of Village Electrification from the Planned Scope

Basing on the original scope of work it was estimated to serve the purpose for the specific quantities. Also, REA basing of the financing agreement it was planned to avoid any delay shall be required as stated in Article 19 of the financial agreement which describes the end of the financing shall be 30th June, 2021.

Clause 7.1 of the GCC (Scope of Facilities) requires that unless expressly limited in the Technical Specification the contractor is obligated to execute

the works as set forth in the scope of work and supply by the employer to the contract agreement.

The audit identified that the original scope of the electrification project was significantly altered from the proposed one in, 2018. The initial scope included the electrification of areas that included utilities such as LV line, transformers and end to the designated customers in the designated project area. The increase in the scope for village electrification has been noted through the addenda proposed and signed by REA and further, it has been detailed in **Table 4.28** below.

Table 4.27: Change of Contract Sum due to Reallocation of Village Electrification Scope

Lot	Initial Scope			Revised (Original + Additional) Scope			Difference		
	LV line (km)	Transformer	Customer	LV line	Transformer	Customer	LV line (km)	Transformer	Customer
1	1915	263	28749	2110	264	36394	195	1	7645
2	602.7	167	11602	711	222	14163	108.3	55	2561
3	505	192	16481	587.4	276	18570	82.4	84	2089
4	292.8	44	2968	301.9	44	4080	9.1	0	1112
5	738	111	15973	888.6	113	20038	150.6	2	4065
6	242	45	3852	290.6	62	4332	48.6	17	480
Total	4295.5	822	79625	4889.5	981	97577	594	159	17952

Source: Original Developed Scope, 2018 and signed addenda for the Project (2023)

Table 4.28 shows that the change of scope from the original proposed one which increased the total of 594km of Low Voltage Lines, 159 transformers and 17,952 customers. Despite the fact that the project was set with the known budget as granted by the project financier, the increase of scope was noted to an average of 19% from the original scope of work to be executed.

The increase in project scope was contributed by the following factors:

(i) Inadequate Coordination between REA and TANESCO

According to the Table 50 of Tanzania rural energy master plan for rural electricity supply plan, volume 2, it is describing the responsibilities for the execution of the rural electrification and also it has been stated that REA in collaboration with TANESCO should team up for program planning.

Lack of coordination between REA and TANESCO delayed the implementation of the densification project, so TANESCO did not provide information for the village electrification that could guide REA in re-planning for the areas that were already included in the TANESCO plans.

The lack of coordination among the key stakeholders was contributed by inadequate of REA to be proactive to gather more information so as to establish the actual need of service against the budget by the financier.

(ii) Delays in Project Implementation

The review of the project implementation for electrification In the rural areas it was noted that there were delays in the projects implementation. It was noted that REA took 2 years to commence the projects from the required date of the project commencement. That is, the projects started in 2020 instead of 2018, after the scope verification was established.

The change in scope resulted in several negative implications, including:

(i) Increased costs: The change in scope resulted in increased costs, as the project team now needed to undertake additional assessments and planning to determine the feasibility of electrifying of the excluded areas. This led to an increase in the overall project costs, which could have been avoided had the project been initiated as planned. Thus, it was noted that project inflation was expected to keep up with regards to time as they were required to execute the more quantity with the constant budget set between REA and the financier.

(ii) Delayed project completion: The change in scope also led to delay in project completion, as the project team now needed to undertake additional assessments and planning to determine the feasibility of electrifying of the excluded areas. This further delayed the benefits of

electrification to the affected households and commercial areas as the number of customers increased.

According to progress report of November 2022, there was slow pace of customer connection equivalent to the average of 52.11% of the progress for densification 2A that led to the presence of unconnected customers after project completion and handing over the project to TANESCO. This could lead to attraction of vandalism and presence of electricity pilferages in installation and connection for the remaining customers, resulted from inadequate emphasis for customer's connection as supposed to be done by TANESCO and REA.

4.7 Inadequate Compliance to Environmental, Social and Safety Requirements

The Audit Team assessed the environmental management established to ensure that health, safety and environmental issues were addressed during the project implementation and noted the following issues.

4.7.1 Absence of Environmental and Social Impact Assessment

Section 82 of Environmental Management Act, 2004 requires the conduct of EIA prior to the commencement or financing of the project. Procedures for carrying out the EIA, identified under the EIA and Audit Regulations, 2005 (as amended by the Environmental Management (Environmental Impact Assessment and Audit) (Amendment Act, 2018).

The audit noted that the through letter BC 143/213/01/01/Vol. I/16 of 07th August, 2017 that REA requested for environmental guidance regarding the electric supply in rural area concerning environmental issues.

It was noted that through the letter with NEMC/HQ/EIA/06/0020/Vol. I/04 of 05/10/2017 from NEMC, REA received no objection concerning environmental negative effect on the project. Thus, REA did not have any environmental impact mitigations to attain.

Furthermore, the council stated the conditions to be implemented during the implementation of the project including the following: -

-
- (i) Environmental Management Plan (EMP) established should be implemented during the execution phase.
 - (ii) Also, it was supposed that project implementing entity (contractor) to provide the environmental expert at the site to guide the project during the environmental aspects stated in EMP.

Following the requirement issued by NEMC on the implementation of the EMP that an environmental expert was supposed to be appointed to guide EMP during implementation, the audit team reviewed series of the site meetings to trace the availability of the environmental respective experts for all Lots 1, 2, 3, 4, 5, 6 and noted that there was no any environmental expert noted during the site meetings. This implies that the environmental experts were not procured for the assignment.

This was contributed by inadequate consideration to enforce the availability of environmental expert during procurement stage. The categories of staff that were procured during procurement stage did not include environmental experts and among the submitted request of staff by contractors during tendering process did not mention the requirement for an environmental expert. Consequently, this could lead into inadequate implementation of the environmental management plan (EMP) during the project implementation.

4.7.2 Inadequate Compliance to Health and Safety Requirement

Health and safety were not adequately addressed during project implementation.

Clause 6.7 of the PPRA condition of Contract for Medium and Larger Works, 2022 requires Contractor to take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics

Through site visit, the audit team assessed the availability of health and safety measures during the project implementation for all contracts, and

noted that they were not adequately attained as summarized in Table 4.29 below:

Table 4.28: Coverage of health and safety issues at site for six contracts

Contract	Medical Staff	First Aid Facilities	Sick Bay	Ambulance Service
Lot 1	X	V	x	x
Lot 2	X	V	x	x
Lot 3	x	V	x	x
Lot 4	x	V	x	x
Lot 5	x	V	x	x
Lot 6	x	V	x	x

Source: Site Visit Analysis (2023)

Key:

v- Available

x- Not available

Table 4.29 above shows that in all six contracts the contractors managed to have only first aid facilities that could help to provide the emergence services to the workers when they get injured but there was no any stationed operator who was the expert to operate emergence issues.

Despite the fact that they managed to facilitate the first aid facilities, they did not have medical Staff, Sick Bay and Ambulance Service to the fatal injured workers.

Reasons for Inadequate Compliance with Health and Safety Requirement include the following:

(a) Specifications were not enforced during tendering process

The audit noted that the specifications for the execution of the project did not mention the adequacy of the health and safety issues to be attained to ensure the health and safety of workers are secured.

The interview with the project engineer noted that REA did not adequately put required weight to the health and safety issues on the project implementation.

(b) Project managers from REA did not engage their experts

The audit noted that through the interview with environmental officer from REA that they were not adequately engaged during the project implementation to conduct monitoring of safety and health issues at site. The audit noted that REA staffing level did not contain safety and health manager to assist an entity during monitoring of the project.

This could lead into occurrence of the fatality and injuries of workers during the implementation of the project.

Consequences for Inadequate Compliance with Health and Safety Requirement include the following: -

Increased risk of accidents and injuries: Failure to comply with health and safety requirements increased the risk of accidents and injuries in the workplace. This could result in employee downtime, increased medical costs, and reduced productivity.

Also, through the interviews with REA officials, regional and district officers for the supervision of the project implementation, it was noted that there was no any record for the injuries and accidents as required by section 3.16 of the technical specifications of the Supply and Installation of LV Distribution Networks and Consumer Connections Volume 2. The noted technical specifications state the duties of the responsible environmental officer, among others, is to report on the incidents concerning with health and safety issues.

4.7.3 Unavailability of Health and Safety Manual to Project Manager

Clause 6.7 of the PPRA condition of Contract for Medium and Larger Works, 2022 requires the Contractor to submit to the Project Manager for Review a health and safety manual which has been specifically prepared for the works, the site and other places (if any) where the Contractor intends to execute the Works.

The Audit Team reviewed the correspondence files to identify whether there was any manual for health and safety issues that was prepared by the

procuring entity. The outcome of that review revealed that there was no manual that was prepared to guide adequacy of the project implementation.

Moreover, the Audit interviewed the Project Manager and environmental officer to identify whether REA considered to provide manuals for the implementation. Regarding this aspect, it was noted that REA does not have manuals for guiding the implementation of health and safety issues for the projects.

This has been caused by the following aspects:

(a) Un-coverage of safety and health issues by Prospectus

The review of National Electrification Program Prospectus prepared by Norad (financier) it shows that it did not cover direction on planning and implementation of the safety and health issues.

Eventually during the preparation of the project necessary documents, REA benchmarked the Prospectus prepared by Norad, thus the prepared guidelines could not effectively guide the establishment of proper health and safety manuals.

(b) Uncover-age of safety and health issues by master plan

The review of Tanzania Rural Energy Master Plan noted that it did not cover direction on planning and implementation of the safety and health issues. Eventually during the preparation of the project necessary documents, REA benchmarked, and guidelines did not effectively guide them to what extent they could establish proper health and safety manuals.

(c) Contractor did not establish the safety management framework

According to Para 3.16 of TANESCO technical specifications, the Contractor is required to establish a safety organization for management of all safety related issues during the construction and operation of works, including safety of third party. The safety requirements applicable in Tanzania as per Section 62 of Occupational Health and Safety Act, 2003 and the contractor's own health and safety policy shall apply and cover all his sub-contractors and employees.

The audit team noted that even though there was no enforcement from the client that health and safety manuals should be in place, the contractors did not put any initiative to improve securities to all workers in case of injuries and accidents by providing manuals at site.

4.7.4 Inadequate HIV/AIDS and Covid-19 Awareness to Contractors

Clause 6.7 of the PPRA condition of Contract for Medium and Larger Works, 2022, the Contractor shall conduct a COVID-19 and an HIV/AIDS awareness program via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the COVID-19 and HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist the affected individuals.

Through the interviews which were held with the project officials from REA, the Audit Team noted that HIV/AIDS awareness campaign was not adequately conducted. The auditors further noted that there was no toolbox meeting that would be there to facilitate awareness on the health issues. The toolbox meeting was included in the environmental Management Plan showing the proposed coverage of the health issues.

This has been caused by the following issues: -

(a) Contractor did not provide the Quality Assurance Procedure

The audit team noted that the inadequate coverage of the health and safety issues was contributed by non-submission of the quality assurance procedures for the project implementation contrary to section 3.16 on Health, Safety and Environmental Policy. The Policy requires the Contractor's safety procedures to be incorporated in his quality assurance (QA) activities and specified in detail in either a separate document or QA procedures.

This is one of the requirements of the specification that the procedures shall be subject to the Project Manager's approval before the Contractor commences his works at the site. Regarding this aspect, it was noted that the Quality Assurance plan was not in place at the commencement of the

project. It was further noted that there was no enforcement on the submission by the project manager prior to project commencement.

(b) Irregular Reporting of the Project Progress

The audit team noted that the contractor did not submit the progress reports to the project manager as per requirements that it should include the environmental issues. This was contrary to section 3.16 of specifications for execution of works that among the duties of the responsible environmental officer is to submit monthly reports on environmental, health and social issues to the project management unit. Such reports should be included in the Contractor's monthly progress report and submitted even if there are no incidents to report. The basis for the reports shall consist in actions, decisions and observations from the construction sites, either through direct observation or through the reporting of subcontractor's environmental officer.

This hinders the project manager on the capacity to monitor the provision of HIV/AIDS and other health issues at the site.

4.7.5 No Report for the Accidents and Injuries

Clause 6.7 of the PPRA condition of Contract for Medium and Larger Works, 2022, to the Contractor shall send, to the Project Manager, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Project Manager may reasonably require.

The Audit Team requested for the progress report to verify the reporting of the incidences and injuries that did or did not occur during the project implementation. The reporting of the incidences could be used to track the weakness that led into injuries at site.

The interview with the project engineer noted that the contractor did not develop narrative project progress reports as required and that was contrary to the conditions of contracts requirements.

This was contributed by inadequate set mechanism for preparation of narrative progress reporting whereby REA used on one developer to prepare for the overall REA projects' progress reports that generalize all issues. This actually leaves a room for incomplete preparation of incidence reporting that occurs at the site.

4.8 Inadequate Management of Funding Aspect

The audit team assessed whether REA established the proper management of funding for the project implementation and noted the following anomalies.

4.8.1 Delay in submission of Annual Work Plan and Budget to Sida by REA

For REA to be entitled for subsequent payments, it was supposed to fulfil the reporting requirement including Annual Work Plan and Annual Budget that should be submitted to Sweden latest by 15th March each year (Article 6.9 of the Specific financing Agreement between Government of Sweden and the Government of Tanzania, 04th December, 2015).

However, Review of Bi-annual meetings held between REA and Energy Development Partners Group revealed that REA has been delaying in submitting Annual Work plan and Budget to Donors. The Annual Work Plan and Budget are normally expected to be presented and discussed in the Bi-annual meetings. Table 4.30 presents extent of delayed in the presentation of Annual Work plan and Budget by REA to Donors for the reviewed period contrary to the agreement between the parties.

Table 4.29: Extent of Delay in Submission of Annual Work plan and Budget to Donors

Financial year	Required date of submission	Actual date presented	Delays (months)
2018/19	15 th March, 2018	05 th June, 2018	3
2019/20	15 th March, 2019	Data not provided	Not known
2020/21	15 th March, 2020	Data not provided	Not known
2021/22	15 th March, 2021	Data not provided	Not known
2022/23	15 th March, 2022	27 th May, 2022	2

Source: Minutes of Semi-annual meeting between REA, Energy Development Partners Group, Ministry of Finance and Planning and TANESCO held on June, 2018 and May, 2022

Table 4.30 indicates that, REA delayed to present the Annual Work Plan and Budget to Development Partners including Sida for the financial years 2018/19 and 2022/23 for three to two months respectively. While for the remaining three financial years from 2019/20 to 2021/22, the submission status for each year was not known, since evidence was not availed to the Audit Team by REA for verification.

Delayed presentation of Annual Work plan and Budget to Development Partners was attributed to delayed completion in the preparations of the entire documents by REA for the reviewed period. Consequently, REA delayed to request funds from Sida due to delayed presentation of Annual Work plans and Budget as illustrated in **Table 4.30**.

4.8.2 Timely Disbursement of Funds by Sida

The financier was required to disburse funds on semi-annual instalments as per indicative schedule under Article 4.2 of Specific Agreement between the Government of Tanzania and Government of Sweden signed on 04th December, 2015.

Interviewed Senior Officials from REA stated that Sida, being one of the Donor to Rural Electrification Funds (REF), normally disburses funds on semi-annual basis in accordance with an Annual Work Plan and Budget presented by REA during the semi-annual meeting which includes other Development Partners. Review of Rural Energy Agency Statement of Income and Expenditures under Sida - support revealed that Sida timely disbursed funds to REA as shown in **Table 4.31**.

Table 4.30: Analysis of Timely Disbursement of Funds by Sida from 2020/21 - 2021/22

Financial year	Required Date for Funds Disbursement	Date Funds Disbursed	Actual Amount Disbursed (TZS)
2020/21	Second quarter	20.12.2020	10,947,730,724.00
2021/22	Second quarter	29.12.2021	27,566,000,000.00

Source: Rural Energy Agency- Sida Support, Statement of Income and Expenditure as at 30th June, 2022

Table 4.31 indicates that Sida managed to disburse programme funds timely as per the requirement of Article 4.2 of Specific Agreement between the Government of Tanzania and Government of Sweden. The disbursement was made cumulatively for all projects supported by Sida, including the Densification Round- 2A Project.

4.8.3 Sida Disbursed Fund as per Approved Budgets

The financing provided by Sweden was required to be paid in instalments upon receipt and approval of written payment requests including both the Swedish & DFID contribution signed by the Government of Tanzania (Article 6.2 of Specific Agreement between the Government of Tanzania and Government of Sweden, 04th December, 2015).

Review of REA's Development Partners' Support to Rural Electrification Funds Annual Work Plan and Budgets and Annual Progress Reports for the financial years 2020/21 and 2021/22, it was noted that Sida disbursed funds over and above the approved budgets from REA as indicated in **Table 4.32**.

Table 4.31: Sufficiency of disbursed REA's Fund by Sida

Financial year	Approved budget (TZS in billion)	Disbursed amount (TZS in billion)	% Disbursed
2020/21	0.838	10.948	1,306
2021/22	28.435	27.566	97
Total	29.273	38.514	132

Source: Development Partners Support to REF Annual Work Plan and Budget and Progress Reports for the financial year 2020/21 - 2021/22

Table 4.32 indicates that for the financial year 2020/21, Sida over disbursed the approved fund for its contribution to the Rural Electrification Funds (REF) by 1,306%. While for the financial year 2021/22, 97% of approved Sida-

support was received by REA. In total, Sida managed to disburse 132% of its support to Rural Electrification Funds for the reviewed period.

Review of Annual Work Plan and Budgets for REF for 2020/21 noted that the approved budget included only the funds approved by the Parliament. While the funds that were disbursed to the Rural Energy Fund by Sida included new contribution or additional contribution as per the Specific Agreements that exist between REA and Sida. In that regard, over-disbursement from Sida was expected.

4.8.4 Disbursed Funds were Utilized as per the Intended Purpose

The Government of Tanzania affirms that the financing provided by Sweden should be used exclusively to cover expenditures allocated for the programme as detailed in the Programme Document and further detailed in the Approved Annual Work Plan and Budget for the respective Government fiscal year (*Article 6.10 of the Specific Agreement between the Government of Tanzania and the Government of Sweden, 04th December, 2015*).

From Reviews of Annual Progress Reports and Income and Expenditures Reports for the financial years 2020/21, the Audit noted that all the disbursed funds by Sida were utilized to the project activities. These activities included settlement of Contractors' claims and provision of technical assistances by REA during project implementation supported by Sida.

Table 4.32: Extent of Utilization of Disbursed Funds by Sida to the Project Activities

Financial year	Allocated Funds (TZS)	Utilized Funds to Project Activities (TZS)	% Utilized
2020/21	10.948	16.576	151
2021/22	27.566	34.967	127
Total	38.514	44.142	115

Source: Development Partners Support to REF Annual Progress Reports for the financial year 2020/21 and Sida-DFID Income and Expenditures Report as of 30th June, 2022.

Table 4.33 reveals that all the disbursed funds by Sida for the financial years 2020/21 and 2021/22 were utilized to the project activities. The

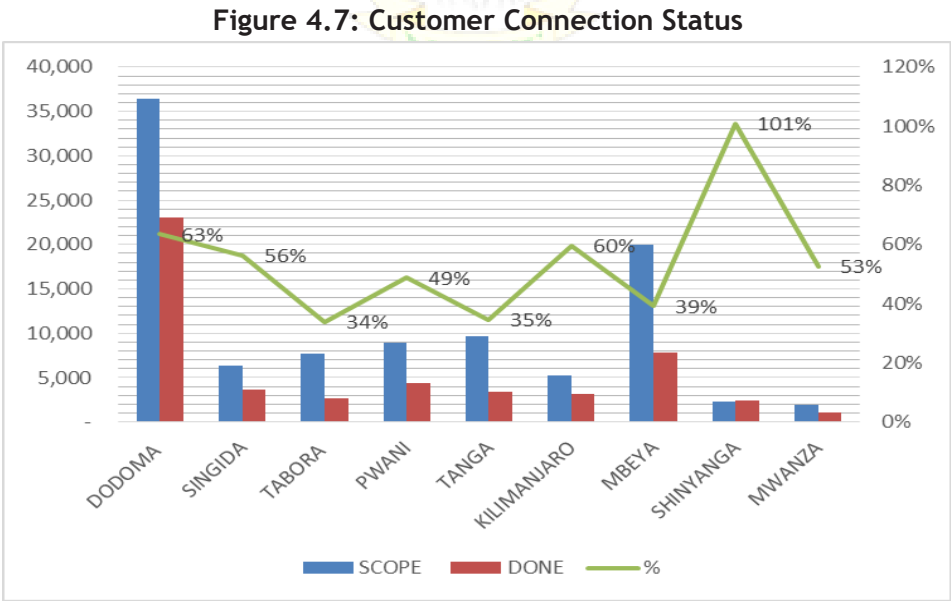
utilization percentages were higher than the disbursed amount. This was due to the reason that there were committed expenditures by REA in the previous years which were also spent in the respective financial years.

4.9 Sustainability of the Densification IIA Projects

This chapter presents findings on the attainment of projects goals, impact and sustainability of Rural Electrification Project - Densification. The findings focus on the effectiveness on connecting electricity to customers; training to REA and TANESCO staff and awareness conducted to customers on the safe use of electricity to ensure sustainability of projects. Below are the observations on the implementation of the project.

4.9.1 Expected customers connection were not attained

The project document clearly stated the number of customers to be connected during the project implementation. The audit team reviewed the developed project document and project progress report and noted that among 9 regions that were touched by the project, 8 out of 9 regions did not meet their planned customers' connections as shown in **Figure 4.7** below.



Source: Auditors' Analysis from Progress Report and Project Document (2022)

Figure 4.7 above reveals that out of a total of 98,689 of the planned customers, 51,425 customers were connected which represents an overall completion rate of 52%.

The scope of Lot 2 which was implemented in the Singida region had a total of 6,411 customers. So far, 3,611 customers were connected, equivalent to 56% of the planned connection. Additionally, this lot included a portion of the Tabora region, which had a scope of 7,752 customers, whereby only 2,628 customers were connected and it represented a lower completion rate of 34%.

The scope of Lot 3 which was implemented in Pwani region targeted to connect 8,886 customers but during the audit only 4,344 customers were connected, equivalent to 49% of the target. This lot also included a portion of the Tanga region, where 9,684 customers were planned to be connected, However, only 3,354 customers were serviced, which represented a lower completion rate of 35%.

The scope of Lot 4 which was implemented in the Kilimanjaro region, had a scope of 5,192 customers but up to the time of the audit only 3,102 customers were connected, equivalent to 60% of the target.

Lot 5 was implemented in the Mbeya region and had a total of 20,038 customers. So far, 7,873 customers were connected, equivalent 39% of the target.

Finally, Lot 6 was implemented in the Shinyanga region, and had a total of 2,352 customers. Surprisingly, the connection was 2,374, equivalent to 101%. This lot also included a portion of the Mwanza region, where 1,980 customers were associated with the lot. So far, 1,044 customers were implemented, equivalent to 53% of the target.

4.9.2 Reduced Scope on the Implementation of Densification IIA Project

According to Table 1 of the Project Document for Rural Electrification - Densification, 2016, the scope of the project as presented in **Table 4.5**, involves construction of 5,988 km of MV lines; 13,429 km of LV lines; installation of 2,651 pieces of 50kVA; 2,412 pieces of 100kVA; 25 pieces of 200kVA transformers and connection of 370,677 initial customers. However, review of Para 1.2 of the Mid-Term Evaluation Report for the Densification

IIA Projects, 2022 showed that the overall target for Densification Round IIA project was to electrify 1,103 hamlets and connect 69,079 customers for a period of 12 months in nine (9) regions, namely; Kilimanjaro, Dodoma, Tabora, Shinyanga, Mwanza, Pwani, Tanga, Mbeya and Singida. This means that 301,598 customer connections were decreased from the scope equivalent to 81%.

Further, the analysis done by the audit showed that the estimated cost for the implementation of the initial scope presented in **Table 4.5** was TZS 701,269,000,000. According to the Press Release⁶ dated 24th September, 2020, Norway, Sweden and the European Union announced a contribution for a total amount of TZS 142 Billion (USD 61 million) to the Densification Round IIA Project where a total of 69,079 new connections were expected from this support. This means that the support did not suffice the money needed for financing the initial scope in the nine (9) regions.

Furthermore, review of the project Document that presented the initial scope showed that if there were financial gap for the implementation of the project, the funds would be sourced from the Rural Energy Fund (REF). However, the scope for the project remained the same as financed by the donor.

The reduced scope means that the expected goals on the project for ensuring increased access to electricity which would contribute to income-generating activities from small businesses using modern energy services was not effectively met.

⁶Released by jointly Norway, Sweden, the European Union and the Government of Tanzania to Increase Electricity Connections in Rural Tanzania, 2020

Table 4.33: Scope of Work for Rural Electrification Densification II A Project

Region	No. of Villages	Scope of Work					Expected Initial Number of Connections		
		MV (km)	LV (km)	Transformers (kVA)			1 Phase	3 Phase	Total
				50	100	200			
Pwani	86	255	1,581	271	253	3	54,773	165	54,938
Dodoma	215	35	2,127	386	314	9	48,019	35	48,054
Kilimanjaro	390	439	789	352	140	2	21,843	1,405	23,248
Mbeya	247	540	890	206	200	2	22,749	1,122	23,871
Mwanza	200	789	764	264	212	2	26,829	1,405	28,234
Shinyanga	158	1,021	1,827	227	379	3	49,169	811	49,980
Singida	75	978	432	143	46	1	23,459	633	24,092
Tabora	177	1,089	2,172	262	460	2	59,223	351	59,574
Tanga	395	842	2,847	540	408	1	57,432	1,254	58,686
Total	1,943	5,988	13,429	2,651	2,412	25	363,496	7,181	370,677

Source: Auditors Analysis of Project Scope as Presented in the Project Document for Rural Electrification - Densification, 2016 and Mid-Term Evaluation Report for the Densification IIA Project, 2022

Based on the information presented in **Table 4.38**, initially it was planned for connections of 370,677 customers whereby 363,496 and 7,181 customers could be connected to 1 Phase and 3 Phase respectively. Further, it was planned that 2,651 of 50kVA; 2,412 of 100kVA and 25 of 200kVA transformers could be installed. The plan was also to construct 5,988km and 13,429km of MV and LV respectively in the nine regions as indicated in the **Table 4.38**.

Despite the fact that REA responded that the customer connection was not attained due to unwillingness of the customer to connect on the electric services, it has been argued by the audit that the awareness campaign on connection has not been adequately conducted. The audit further requested for the report on the campaign conducted still it was not availed with the reports that put a question on which quality and number of campaigns which were conducted.

4.9.3 Evaluation for Rural Electrification Densification II A Project Achievement on Immediate and Medium-Term Objectives were not Adequately Done

According to Para 4.1.5 of the Program Document, 2015, REA was required to facilitate the Trust Agent to conduct an independent Mid-Term Evaluation halfway through the implementation of the programme to assess overall progress and make recommendations for any required redesign or redirection of any of the programme components. The evaluation had to assess the amount of incentive required, as well as the amount of other public and private finance leveraged to create the connection of each and access tier. Also, it was required to assess the amount of electricity used and the energy services enjoyed by the consumers, enterprises and community services with each of these connections and track them over time and develop analysis on value for money of incentives provided.

Review of Para 3 of the Mid-Term Evaluation Report, 2022 which was intended of showing the results of evaluation, however, it did not show the assessment of the amount of electricity used and the energy services enjoyed by the consumers, enterprises and community services with each of connections and track them over time and develop analysis on value for money of incentives provided. It was noted that the evaluation only covered the assessment of overall progress and recommendations for any required redesign or redirection of any of the programme components.

Para 2.3 of the Mid-Term Evaluation Report, 2022 showed that the inadequacy of the mid-term evaluation conducted by the Trust Agent teams accompanied with the representatives from REA and TANESCO was caused by the limitations related to the methods of data collection used and the time was not enough for providing comprehensive evaluation with thoughtful answers. Para 2.2 of the mid-term evaluation showed that the methods used in the mid-term evaluation were divided in three phases namely:

- **Phase I-Inception:** Desk review of relevant project documents from TANESCO and REA to acquire a comprehensive understanding of the project;
- **Phase 2-Data Collection:** Field visits by the Trust Agent teams accompanied with representatives from TANESCO, REA, Contractor

and the Community leaders to the nine regions where the project is implemented for 16 days; and

- **Phase 3-Reporting:** Field teams conducted joint reflection, analysis and reporting the preliminary findings presented to technical team followed by draft report preparation, presentation and review.

Furthermore, it was shown that in interviews and questionnaires, there was a risk that key informants' responses would be biased towards portraying an overly positive view of the project as they were the direct beneficiaries and thus would be hesitant to criticize.

Having inadequate Mid-Term Report which is not comprehensive kills the purpose of the evaluation which was to provide to REA and other implementing partners with: Assessment of the achievement of the REDP IIA project to date based on the agreed contracts entered between REA and Contractors; recommendations for strategic decision-making on the implementation of the Project; Providing accountability to Project stakeholders in terms of progress against the plan; Support the ongoing learning and development of the REA; and Identify lesson learned and recommendations for the remaining project implementation period.

4.9.4 Rural Electrification Projects Impact on Socioeconomic and Living Condition of Rural Community

According to Para 4.1.2 of the Program Document⁷, 2015, the impact level, REA's development objective is to contribute to sustainable socio-economic development and poverty alleviation in rural areas of mainland Tanzania by increased access to modern energy services in an environmentally sound manner and with due regards to gender issues. The envisioned impact of the program was Enhanced economic growth, poverty reduction and climate benefits by increased access to sustainable and affordable modern energy services in rural Tanzania.

Furthermore, according to Annex 5 of the Programme Document, 2015, for Key Performance Indicators (KPIs), REA was required to assess the number of People benefiting from improved health services (catchment population); Students benefiting from improved education, out of which are females; Households out of which are female headed; Businesses, out of which are

⁷SIDA and DFID Financial Support to the Rural Energy Fund (REF), Tanzania, 2015

female owned; Community water pumps; Health care facilities; and educational facilities.

At the time of the Audit, it was noted that there were no analysis of quantitative and qualitative indicators to ascertain to what extent the project impacted Socioeconomic and Living Condition of Rural Community. There were no data on schools being open in the evenings; clinics open at night for emergencies; 24/7 water supply; streetlights providing the feelings of safety.

It was further noted that there were no analysis on the number of connections made under the project compared to the bills being paid. The officials from TANESCO revealed that the system for tracking the bills and amount of electricity being consumed by customers could not allow the bulk or filtering the meters unless each individual meter data is filtered and extracted from the system. They further indicated that if the audit wanted that data it could be a tedious work to extract the usage and bills for each individual meter to the whole project. This implies that tracking the impact of the project through the consumption and bills paid might not be possible.

Although the audit noted that Para 3.5 of the Mid-Term Evaluation on the project indicated that access to electricity reduces the consumption of low quality fuels for lighting (such as Kerosene, or Candles) thereby reducing intra-house emissions of polluting gases hence in turn produce improvements in health outcomes, mainly respiratory illness especially to women and children who spend more time inside the houses; there were no evidences that there were analysis on the achievement on this impact. There were no data on the community being safer during the nights due to high quality lighting which could eliminate or reduce the challenges of theft and attacks on women and children contributed by the darkness.

Also, there were no analysis of employment trends neither of quantitative nor qualitative discussions with sample of businesses before and after the rural electrification project. As stated above, the cause for not undertaking the analysis on these matters was attributed by the time that were used in conducting the evaluation being not enough; and the individuals that benefited from the project were at risk of providing actual information negatively on the project as they were beneficiaries.

Despite the fact that the officials from TANESCO and REA indicated that comprehensive analysis could be done at the end of the project. However, the aimed evaluation could be conducted during the project implementation especially through Mid-Term Evaluation for informed decision making for improvement on the implementation.

4.9.5 Sustainability of Established Electrification Services During the Life Cycle

According to the program, the overall objective of the Swedish cooperation was to contribute to reliable and sustainable energy with low climate impact. In order to make sure that the project was undertaken considering the sustainability, it was required to conduct trainings to stakeholders involved in the project. This includes the consumers, REA and TANESCO staff as well as service providers and the local leaders in all levels.

Review of project documents indicated that trainings undertaken during the project were inadequate. The officials from REA indicated that there were no direct linkage of the trainings conducted for the project, as the trainings were provided in general in all project related to electrification. However, there were no reports shown for trainings that were conducted. This implies that inadequate trainings to customers in productive use of electricity were not attained hence imposing the risk of customers being in danger.

Also, review of Para 3.6 of the Mid-Term Evaluation showed that the sustainability of the project could be jeopardized by the acts of vandalism, especially, to the Transformer Earth Copper Wires that are stolen for sale as scrap metals. It was shown that there were situations whereby the installed transformers being left uncharged for about a year because there were no customers connected to the line. This attracted vandalism of Transformer oil and copper conductors which could be avoided by charging them since the life of transformer does not decrease because of the transformer being charged without load.

For example, in the Mbeya region, while the installation of transformers were completed by 100%, they were not charged as the Permission for shut down from TANESCO was not given hence partly attributing to the delay of the project timelines. Also, the same was experienced in Shinyanga and

Mwanza as the delay due to shut down approval from TANESCO Regional Offices were not timely given.

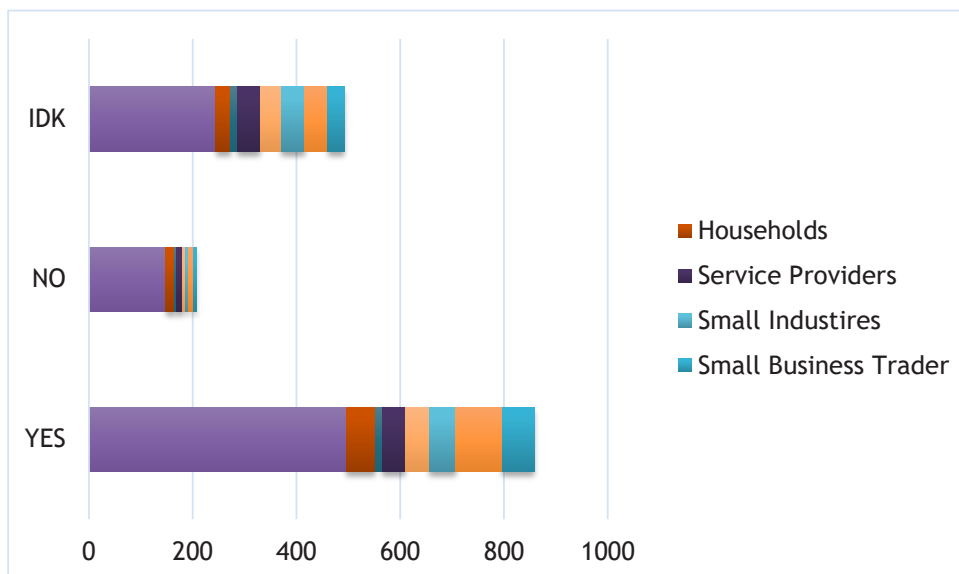
Further, it was shown that the whole project had the Low-Tension Distribution Board ungrounded. This imposed a risk to the boards without surge protection (ungrounded) on the project being easily stricken by the lightning hence increase maintenance cost for TANESCO. On the other hand, it was shown that there were LT poles installed without caps which might cause them being easily cracked since water penetrates much easier at the top of the pole.

4.9.6 Level of Satisfaction on the Project Implementation

The audit team conducted a site visit in selected contracts and regions to assess the customer satisfaction on the electric services provided to the society and noted that

As a result, this section contains information from a site visit that assessed the level of satisfaction of people living in the project area, as well as the challenges they faced during the project's implementation. Responses from various groups on level of satisfaction revealed that 76 percent of social service providers; 66 percent of small businesses; 78 percent of small industries and workers; and 71 percent of house holders and individual beneficiaries responded to have positively benefited from the project as detailed in the following sub-sections below:

**Figure 4.8: Level of Customer Satisfaction of Beneficiaries of
Densification II A Project Per Category**



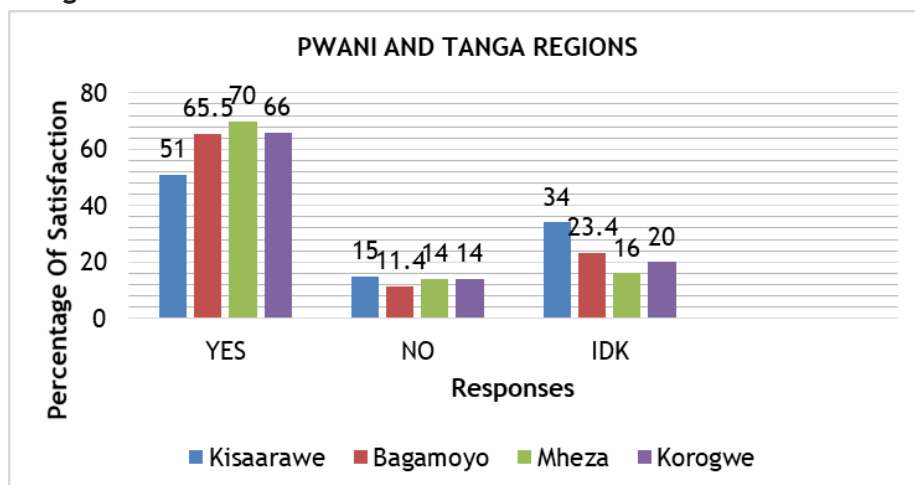
Source: Auditors analysis from Questionnaire (2022)

Household and Individual Beneficiaries

(a) Level of satisfaction at district level

The Audit Team conducted analysis on the level of satisfaction at district level so as to assess the benefits of the electric supply to the villagers as shown in **Figure 4.9** below.

Figure 4.9: Level of Satisfaction of Beneficiaries at District Level



Source: Auditors' analysis from Questionnaire (2022)

Key:

YES - Satisfied

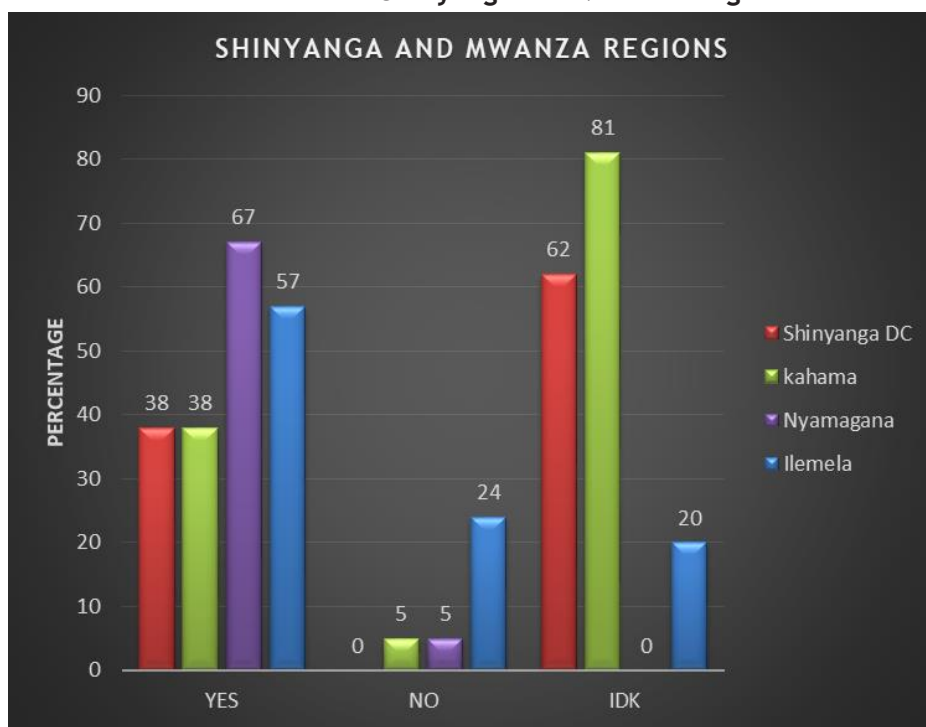
NO - Not Satisfied

IDK - I do Not Know

Among the four districts selected in the two regions of Pwani and Tanga, the Audit noted that at house hold level the level of satisfaction to the benefits of electric supplies reached maximum of 70% in Tanga region compared to Pwani region which shows less level of satisfaction. The analysis further reveals that still there are no enough efforts to add benefits notable to electric users.

However, the audit noted that household's satisfaction to benefits of electric supply has been stated in Mwanza region where by 67% of the respondents stated positive on the benefits of electricity supply.

Figure 4.10: Level of Satisfaction of Densification II A Project Beneficiaries in Shinyanga and Mwanza Region



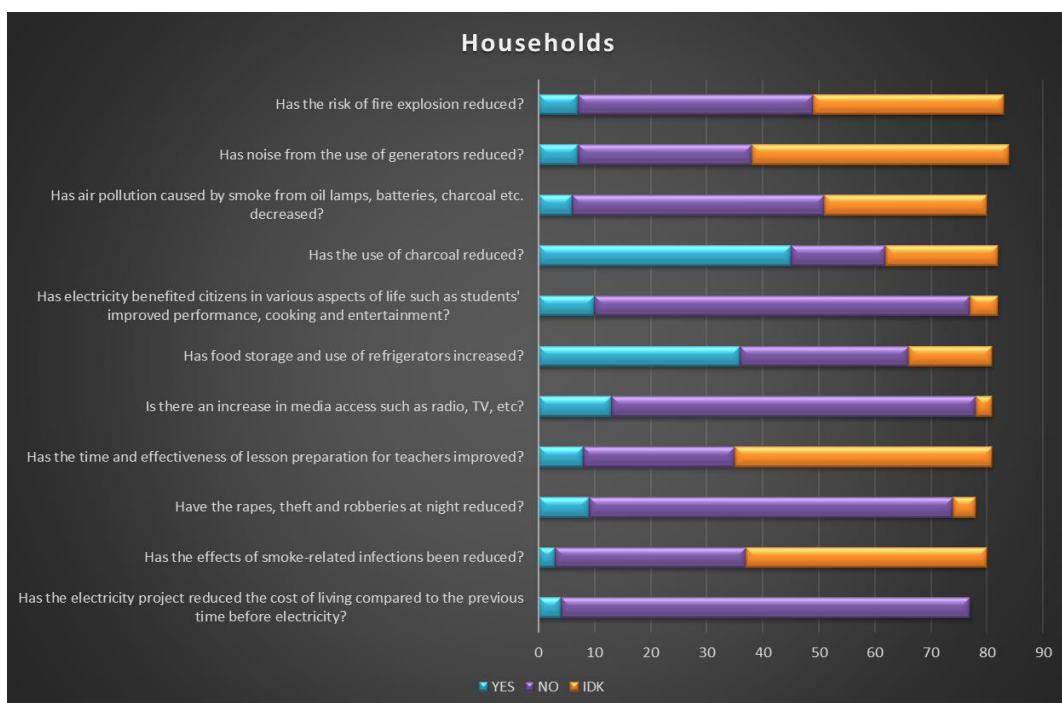
Source: Auditors' Analysis from Questionnaire (2022)

In the Shinyanga region, most of the electric user did not know the benefits of electricity in the society. This has been contributed by inadequate education campaign to enlighten the society on its benefits.

(b) Level of satisfaction at hamlet level

Beneficiaries from the group of Households and individuals provided their responses as they were given the opportunity to express their opinions whether they had benefited from the project. The summarized responses are presented in **Figure 4.11** which shows the graphical presentation of the analysed responses from the group of households and individuals benefited from the project.

Figure 4.11: Level of Satisfaction of Densification II A Project Beneficiaries from Household and Individual Beneficiaries



Source: Auditors' Analysis of Survey Findings from Densification II A Project Beneficiaries Opinions (2023)

Figure 4.11 above shows that 30% of the house hold users responded positive and that there was a reduction of use of woods and charcoal burners to acknowledge the benefits for receiving the services for electric supply. However, the respondents 15% of them answered that there is no increase in the electronic devices for news and information. Also, 19% of the electric users did not have any idea about the decrease of the noise raised by the generator usage.

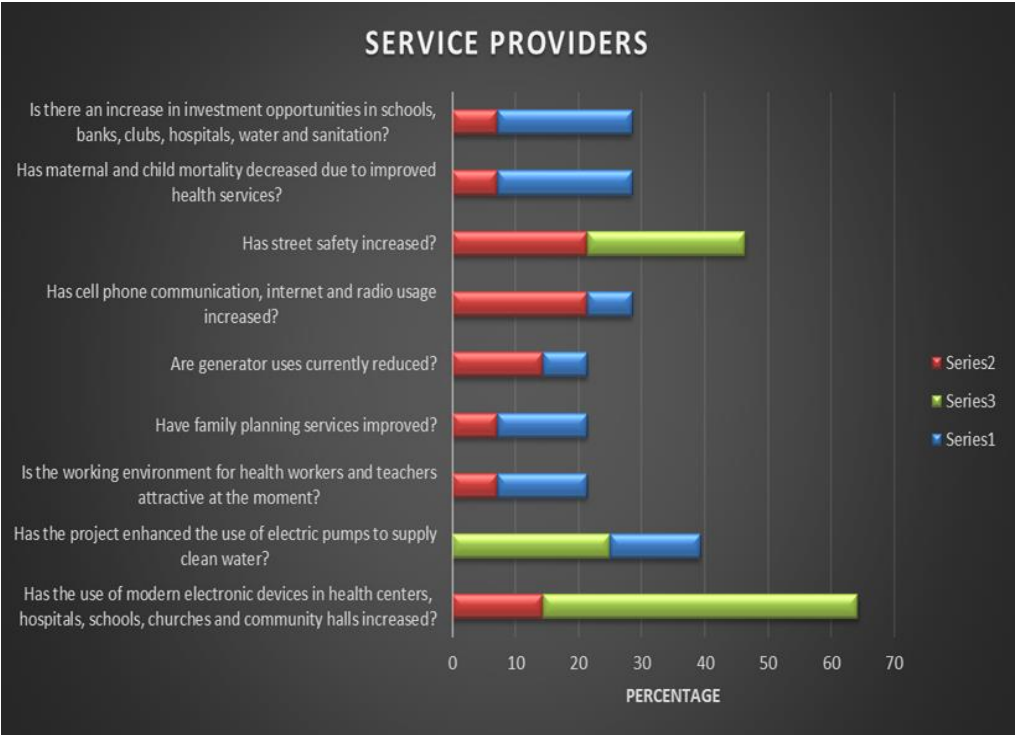
(a) Level of Satisfactions of Social Services' Providers/Workers at hamlet level

Officials from social services' providers such as Hospitals, Schools, Church and Mosques, were given the chance to freely give their opinions through the questionnaires that were prepared based on the project goals on the

respective group hence assess the benefit and challenges encountered during and after project implementation.

Figure 4.12 provides the summary of details on the evaluated responses. The figure presents the achievement or satisfaction level from the officials.

Figure 4.12: Level of Satisfaction of Densification II A Beneficiaries from Social Service Providers/ Workers



Source: Auditors’ Analysis of Survey Findings from Beneficiaries’ Free Opinions (2023)

Figure 4.12 reveals the respondents who agreed that the objectives of the project were met with positive impact on supply of electricity to the social services. This implies that the presence of electricity has led to improvement of the efficiency of different services provided in their areas. Nevertheless, the officials had complaints on the challenges that occurred during and after the project implementation as summarized in the section. On the other hand, 17% of officials did not agree that the efficiency of the service provided to the society was improved.

(b) Level of Satisfactions of Small Business Owners

Beneficiaries of the project from the group of small businesses owners were also given the opportunity to provide their opinions on the satisfaction on the project implementation.

Figure 4.13 below shows that among the prepared questions was the number of users that were highly responding negatively on the cost of products if they were decreased.

Figure 4.13: Level of Satisfaction of Densification II A Project Beneficiaries from Small Business Owners



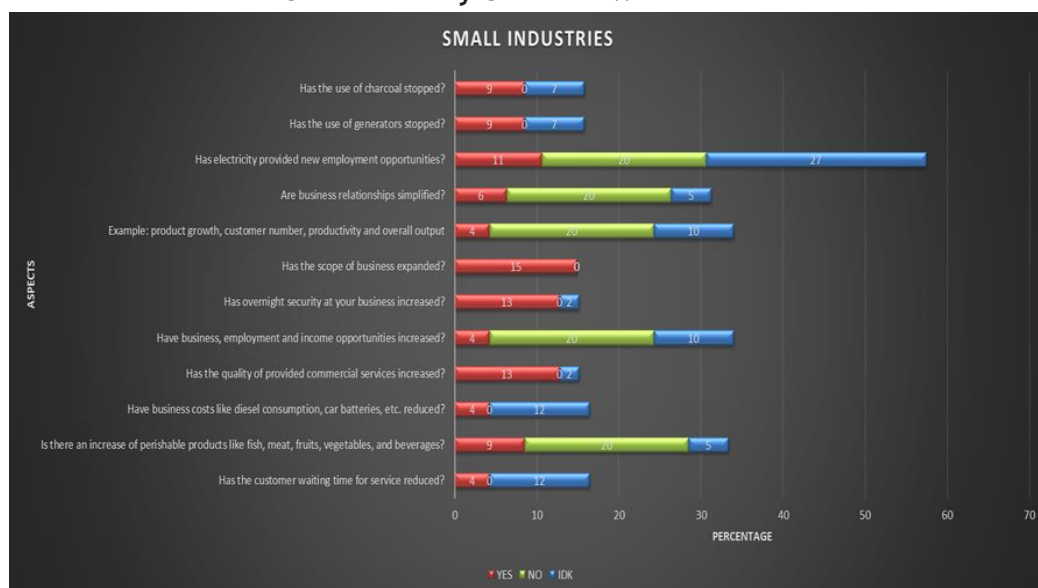
Source: Auditors' Analysis of survey findings from Densification II A Project beneficiaries' opinions (2023)

Figure 4.13 shows that 13% of the respondents positively said that there is benefit of electricity in terms of safety during business, additional of business opportunities and quality of services provided has increased. However, 55% of the respondents said negative that the cost for running the business has increased with respect to supplied electricity services. Also, 18% of the respondents said that they did not have any idea that there is an increase in the cost of provided products.

(c) Level of Satisfactions of Small Industry Owners / Workers

The audit team conducted the site visit to assess the satisfaction of the electric users by the selected small industries' owners and beneficiaries of the project who were given the chance to express their opinions on the benefits of the project. Their responses are summarized in **Figure 4.14** below.

Figure 4.14: Level of Satisfaction of Densification II A Beneficiaries from Small Industry Owners / Workers



Source: Auditors' Analysis of Survey Findings from Densification II A Beneficiaries' Opinions (2023)

Figure 4.14 above shows the number of Densification II A beneficiaries that responded to be satisfied by the electricity connection programme. It was noted that 15% of all inputs that stated that there is an increased safety in the use of industries through lighting at the boundaries was noted to be positively responded by the most users.

The highest response at 20% was stated to be the negative answer on the benefits of the electricity supply to small industries users. For those who were asked whether there were new industrial products that were added in

comparison to previous time, including the use of generators and fuels, it was noted that the income from selling the industrial products has not been increasing. Also, 27% of the users responded that they did not have any idea that there is an increase on the new electrical utilizing machines and equipment.



CHAPTER FIVE

FINDINGS ON RURAL ELECTRIFICATION-RENEWABLE ENERGY PROJECT

5.1 Introduction

This Chapter gives details of findings on the Off-grid (Result Based Financing) component of the rural electrification program being implemented by Sida. The findings cover planning, procurement, contract management, funding and sustainability of the projects implemented under off-grid component.

5.2 Inadequate Planning for the Implementation of Result Based Financing (RBF) Program

Review of the Program Document for SIDA and DfID Financial Support to the Rural Energy Fund (REF), 2015, the Audit Team noted that REA prepared plans to ascertain the validity of the village electrification under RBF. However, there were some shortcomings that were noted during the audit as explained hereunder:

5.2.1 Needs Assessment was not adequately Conducted

Regulation 69 (3) of the Public Procurement Regulations, 2013 requires a Procuring Entity to forecast its requirements for the procured works as accurately as is practicable. The forecast should make reference to activities already programmed in the annual work plan and included in the annual estimates.

REA did not effectively conduct the needs assessment that is very important as it used to identify the problems and produce problem statement. Moreover, it was found out that REA did not effectively develop plans to address the issue of min and micro grid village electrification. This condition resulted from:

Unclearly Defined Scope

The review of the annual action plans from the financial year 2017/18 to 2021/22 indicate that, REA did not adequately specify the scope of min and

micro grid village electrification. Analysis of the information from the annual action plans revealed gaps related to planning as summarized in Table 5.1.

Table 5.1: Analysis of REA's Annual Action Plans to Implement Village Electrification under RBF

Financial Year	Plan	Scope	Auditors' Comments
2017/18	Support to off-grid renewable energy project developers including Solar PV Systems and Institutional Biogas Plants to public facilities and institutions	Provision of support to private developers for mini-grid projects under the Result Based Financing	Did not state the number of villages to be covered
2018/19	Support to off-grid renewable energy project developers including Solar PV Systems	Provision of Solar PV systems to Public Education and Health Facilities	Other sources of renewable energy (wind biomass and hydro) than the solar were not covered
2019/20	Support to off-grid renewable energy sources like solar, wind, hydro and biomass in various areas that are far from the grid	Solar Installations of solar PV to Public Institutions in off grid areas including Islands in the Indian Ocean, Lakes Victoria, Nyasa, Tanganyika and Rufiji delta	Number of Public Institutions and names not stated
2020/21	Support to off-grid renewable energy sources like solar, wind, hydro and biomass in various areas that are far from the grid	Solar Installations of solar PV to Public Institutions in off grid areas	Number and names of the villages/islands to be electrified were not stated
2021/22	Support to off-grid renewable energy sources like solar, wind, hydro and	Electrification of 64 villages in 36 islands Connection of 18,140 initial customers.	The names of the villages were not stated

Financial Year	Plan	Scope	Auditors' Comments
	biomass in various areas that are far from the grid		

Source: Auditors' Analysis of the Information from the Annual Action Plans, 2017/18 - 2021/22

Table 5.1, indicates that REA did not effectively accommodate the village electrification program under RBF in the annual action plans. This is due to the reason that the plans did not mention the scope in terms of numbers and names of villages to be covered under RBF village electrification program.

Moreover, through the review of the Program Document for SIDA and DfID Financial Support to the Rural Energy Fund (REF), 2015, the Audit Team noted that REA did not establish the expected impacts of the intended project to be undertaken. Instead, REA relied on the information presented by the project developers. It was also noted that REA did not conduct feasibility study to establish the requirements of Renewable Energy (RE) Rural Electrification.

Through the interview held with officials from REA, it was noted that the needs analysis was limitedly done based on the evaluation of the proposals from the Project Developers whereby REA evaluated the viability of the project in relation to analysis from the business plan with the distance from the National Grid.

The observed condition was caused by the following factors:

(a) Delay in Engaging the Technical Assistant Consultant

The Program Consulting firm who would assist REA with the during detailed survey, detailed design, preparation of bidding documents under Phase I of consultancy services for technical assistance to implement renewable rural electrification program . However, the audit noted that the consultant was engaged after the commencement of RBF Review of the contracts between REA and Project Developers and Technical Assistant consultant revealed that the commencement of RBF1 (after the signing of developers contracts) was

between 14 March 2018 and 19th March 2018 while the engagement of the Technical Assistant Consultant was in 29th March 2018.

(b) Absence of the Comprehensive Feasibility Study

The audit noted that there was no comprehensive feasibility study that would evaluate the nation's needs on min and micro grid electrification.

Inadequate undertaking of needs analysis resulted into the following:

(i) Failure of Completion of the Projects

Two out of 13 projects failed to complete due to interference with the Main (National) Grid. The review of Quarterly Report April-June 2022 prepared by the Trust Agent reported that one project which was supposed to be developed by M/s L's Solution in Ngorongoro District was postponed because the customers who were earmarked to be electrified under this project were covered with Grid Extension.

(ii) Duplication of Services to The Customers (Beneficiaries)

Moreover, during the site visit, it was observed that out of 18 villages electrified by min and micro grid, 4 were also supplied with electricity from the Grid Extension. **Photo 5.1** indicates a single house supplied by electricity from both min grid (supplied by Project Developers) and main grid (supplied by TANESCO).



Photo 5.1: *To the Left:* TANESCO's Electric Pole: *To the Right;* Project Developer's Pole both supplying electricity to a single house hold at Kifumbe Village in Makambako District Council. Photo taken by Auditors in 28th December, 2022

5.2.2 REA Did not Assess the Viability of the Feasibility Study from Developers

Step 4 of the Operating Guidelines GMG Result Based Financing SIDA/DFID, 2016 suggests among other issues, that the application of Project Developers would be appraised according to the Viable Feasibility Study.

In addition, according to Para 2.3.1 of the Guidelines for Project Planning and Negotiations for Raising Loans, Issuing Guarantees and Receiving Grants, 2020, the Implementing Agency shall ensure that the feasibility study report or project proposal is detailed, robust, realistic, and portrays a true picture of project viability. Further, the feasibility study or project proposal shall contain all necessary information to enable an informed decision.

Review of the Operating Guidelines for the Result Based Financing SIDA/DFID, 2016 indicated that the feasibility study was supposed to include technical, financial, economic and environmental analysis. The guideline did not indicate the aspect to be covered under the suggested technical,

financial, economic and environmental parts of the feasibility study. This was evidenced by the feasibility study from the Project Developers being not comprehensive as they did not cover all aspects needed. Moreover, the Feasibility Study prepared by the Project developers did not appraise and evaluate alternative solution, rank alternative solutions, share the alternative solutions with the stakeholders conduct preliminary engineering design and cost estimates for all alternatives as well as selection of the most suitable alternative.

The observed situation resulted from the absence of mechanism at REA to review the feasibility study from the Project Developers. This was due to the fact that, during conduction of the assessment of proposals, there was no any laid down procedures that could lead the evaluation team on the important aspects to be considered for consideration of viability and acceptance of the feasibility study.

It was noted that the observed situation resulted from the fact that, REA did not prepare guideline/procedure on the manner in which the feasibility study could be prepared.

Inadequate feasibility study increases the risks of technical, social and economic viability of the village electrification program through min and micro grids. This was evidenced by the audit team whereby some project implementers did not meet the objectives. For example, the technical and economic viability of the projects under Green Leaf Project Developer in Kilwa District was not adequate as the result of usage of substandard batteries and inventors. This resulted into inadequate supply of electricity in Kilwa Kisiwani Island and Nanjilinjji Village due to inadequate storage capacity of batteries and malfunctioning of inventors.

Absence of Plans for Environmental and Safety Matters

Section 10 (a) of the Operating Guidelines on the Result Based Financing of Renewable Energy Investments in Green Mini and Micro Grids, 2016 directs to ensure that, all projects to fully comply with the relevant legal and regulatory requirements of the country, specifically the Environmental Management Act, 2004 (EMA, 2004).

Also, Clause 4 (D) (i) of the contract between REA and the Project Developers (Grantees) directs the Grantees to identify potential environmental and social risks of the grant activities and prepare satisfactory mitigation plans to REA in compliance with the laws, rules governing the environmental and social aspects as stipulated by NEMC.

The Audit Team noted that all 13 Project Developers obtained necessary approvals on environmental issues from NEMC. These approvals lacked plans for social issues to take on board during implementation of the projects. Moreover, the Audit Team noted that the environmental plans were not included in the designs of the projects. This was reflected by the absence of the ESIA plans that could be followed by Project Developers during the implementation of the projects.

The observed situation resulted from absence of mechanisms to ensure that the prepared Environmental and Social Impact Assessment (ESIA) were included in the designs prepared by developers as well as being practised during construction and operation of the project. This situation resulted also from the absence Project Monitoring and Evaluation Plans from REA

The absence of plans to ensure environmental and safety compliance during construction and operation of the village electrification under min and micro grids resulted to the absence of safety measures at the project areas. **Photo 5.2 to photo 5.4** indicate some of the safety issues observed during the site visit.



Photo 5.2: Mbaya (Liwale) & Kiegei (Nachingwea) & Usetule Village (Makambako Village) indicating Lack of peripheral fencing for protection of the generation plants:
Photo taken by the Auditors on 20th December, 2022



Photo 5.3: Defective Peripheral fence in Nanjilinj village in Kilwa District: The Photo was taken by the Auditors on 20th December, 2022



Photo 5.4: Unlabeled electric poles in all visited sites at Matekwe in Nachingwea DC. The Photo was taken by the Auditors, December, 2022

Photos 5.2 to 5.4 indicate inadequate compliance with safety measures, this resulted from lack of plans to ensure safety on site.

5.2.4 Inadequate Planning of Time, Cost and Quality of the Renewable Energy Projects

(a) Planning of Four Years Fixed Time to all Project Developers Regardless of the Project Size

The Operating Guideline Para 7.1 stage 2, states that the maximum implementation period after agreement signing is 4 years

Through the review of the contract between REA and the Project Developer, the Audit Team found out that there was inadequate establishment of the time to complete the project. The time was fixed to 4 years for all 13 Project Developers regardless of the scope, nature and location of the project. Table 5.2 indicates the details of the observed situation.

Table 5.2: Planned and Actual Time for the Implementation of Projects under RBF

Name of the Project Developer	Program Grant (USD)	Time Allocated (Years)	Actual Time (Years)
M/s ACRA Foundation	1,800,000	4	2
M/s African Benedictine Sisters of St Agnes	303,000	4	Not Completed
M/s Ensol Ltd	125,000	4	2
M/s Greenleaf Technology Solutions	40,000	4	2
M/s Jumeme Rural Power Supply	2,334,500	4	1
M/s Ls Solutions Ltd	50,000	4	Abandoned
M/s Matembwe Village Company	112,200	4	2
M/s Nishati Associate Limited	96,000	4	1
M/s Power Corner	1,431,500	4	2
M/s Power Electronics and Controls	1,224,000	4	Not Completed
M/s PowerGen	829,000	4	1
M/s Rift Valley Energy-Luponde	1,620,000	4	1
M/s Rift Valley Energy-Mwenga	840,000	4	2

Source: Auditors' Analysis from the Project Documents (2022)

Table 5.2 indicates that, all projects were implemented within a period of two years. This means that the project was completed within two years earlier than the planned time for implementation.

The Management of REA indicated that the establishment of time to complete the project was guided by the Operating Guideline, which states that the *maximum implementation period after agreement signing is 4 years*". Despite this requirement, REA was expected to assess the implementation time based on the scope, nature and location of the project without exceeding the maximum period of four years. The reason behind this was that not all projects would require a maximum period of Four years, as evidenced by 10 out of the implemented projects which took a period of one to two years.

(b) Ineffective Control of Quality for Works and Materials

Para 6.2 of the RBF Operating Guidelines requires all equipment and instalments to comply with the national safety and quality standards, interconnection standards for grid connected mini grids, as well as other regulatory requirements (The Electricity Act (CAP 131), the Electricity (Development of Small Power Projects) Rules 2015; and The Second-Generation Small Power Producers' Framework for Tanzania.

Contract No. AE/008/2018-19/HQ/C43 "Provision of financial Management services as Trust agent to administer grant payments between REA and Consortium of CRDB bank PLC & INTETFIN CONSULTANT LTD, December 2019" Appendix 1 (3) (vi) Scope of Work, requires the Trust Agent on behalf of REA to ensure Verification of equipment, materials, installations and other activities set out in the grant contract to ensure that they have been installed and are in accordance with agreed terms, conditions and standards.

In view of that, REA through the Trust Agent was expected to ensure that the Project Developers implement the project using the quality of material that meet TBS and TANESCO standards. Further, the RBF Operating Guidelines stated that the materials to be used to comply with the TBS or TANESCO standards.

However, REA did not have effective controls measures for quality of works and materials procured. This is because the contract prepared for the

Project Developers did not include detailed technical specifications for civil work or materials to be procured guide the Developers to meet the standards. Also, REA lacked plans or control measures to ascertain compliance with the TBS and TANESCO standards.

As a result, the audit noted cases whereby substandard materials were used as indicated in **Photo 5.3** and **5.4**.



Photo 5.3: One of the poor quality electric pole installed by M/s Green Leaf in Nanjilnji Village (Kilwa District). The Photo was taken by the Auditors on 20th December, 2022



Photo 5.4: One of the poor quality electric pole (with cracks) installed by PowerGen in Iglansoni Village (Ikungi District in Singida). The Photo was taken by the Auditors on 22nd December, 2022

On this aspect, the Management of REA indicated that the Contract is prepared as per template given in the Operating Guideline of the Program, and that the owner of the project (developer) is responsible for detailed survey for establishment of actual requirements (materials needed) after signing of the contract.

However, the audit noted that the requirement of specification included in Developers' contracts under Clause 4 (c), required developers to Install (as appropriate), service line equipment complying with Tanzania Bureau of Standards (TBS) technical specifications, Standards and best practices issued by Tanzania Electricity Company Limited (TANESCO), also, clause 5 (b) requires REA to conduct necessary technical and administrative activities for the sound management of the project including the conduct of site inspections by the Trust Agent.

(c) Inadequate Plans for Cost Controls

Para 7.1 (Step 7) of the Operating Guidelines for Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids, 2016 insists on covering all advance payments (1st and 2nd Payments) by REA to the Project Developer.

However, Clause 6 (F) of the contract between REA and the Project Developers requires the advance payment bond to be paid to the first instalment while the contract is silent on securing of the second instalment.

This situation indicates inadequate plans to secure the grant offered to Project Developers as evidenced by absence of performance securities during the 2nd and 3rd payment instalments. Moreover, there was no guidance or checklist for verifying the quantity and quality of the delivery of materials on site. More details are indicated in **Table 5.3**.

Table 5.3: Grant Securities to the Engaged Project Developers

Payment	Securing Measures	Auditors' Remarks
Advance Payment (35%)	Bank Guarantee/Insurance Bond	Insurance Bond was used by all project Developers
2 nd Payment (35%)	Verification of Procured Materials (however, there were no checklists to ascertain the quality of procured materials)	Subject to the use of agreed standards. However, there was no any guideline or checklist for verification of procured materials
3 rd Payment (30%)	Verification of Customer Connections	Keeps the project at high risk of not being completed in case the project developer underperforms

Source: Auditors' Analysis from the Project Documents (2022)

As shown in Table 5.3, 2nd and 3rd payments were at very high risk in case the Project Developer underperforms (example Power Electronics) did not meet the number of customer connections after the 1st and 2nd payment. This may result into incompleteness of the intended scope of the project.

5.2.5 The Design of the Renewable Energy Projects was not Adequate to Facilitate Achievement of the Intended Objectives

The Audit Team observed that there were challenges in the preparation of the designs for the implementation of village electrification program under RBF. The details of the observed issues are as presented below:

Designs done by Project Developers were neither Reviewed nor Approved by REA

Step 8 of the Operating Guidelines - Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids, 2016 suggest that during the construction phase, the Trust Agent, on REA's behalf should perform design verification. Therefore, designs prepared by the Project Developers were supposed to be verified by the Trust Agent.

However, the review of the Trust Agent Progress Reports indicated that, the Trust Agent did not review any design prepared by the Project Developers. This was evidenced by the absence of design issues that was included in the Trust Agent's reports.

The observed situation resulted from inadequate monitoring and supervision of the roles and functions of the Trust Agent.

This resulted into the implementation of projects with low quality of materials and non-compliance to standards and specifications. For example, poor quality of electric poles was used to implement the RBF project at Nanjilinji Village in Kilwa District Council as indicated in **photo 5.6** below:



Photo 5.6: Broken electric pole at Nanjilinji Village as it was observed by the Audit Team during the Site Visit on 20th December, 2022

Absence of Technical Specifications

Guidelines for Project Planning and Negotiations for Raising Loans, Issuing Guarantees and Receiving Grants of the Ministry of Finance and Planning (URT), of November, 2020 requires the procuring entity to prepare technical specifications for the implementation of the project.

During site visit, the Audit Team found out that the Project Developers did not have technical specifications for implementation of the project. In this aspect, there were no any means to address issues related to statements of testing requirements, operations and maintenance (O&M) manuals, and acceptance criteria for the safety and functionality of all subsystems of the projects.

None of these specifications were used by the Trust Agency for verification of the procured materials. Also, drawings, specifications were not included in the Business Plan. Moreover, the adopted Operating Guidelines were silent about the contents of the Business Plan.

5.3 Weaknesses in the Procurement of Private Project Developers

The audit noted the following with regards to procurement of the off grid projects;

5.3.1 Delays in conducting Results Based Financing call for proposals

A review of the Operating Guidelines on Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids indicated that the first call for result-based financing (RBF) was supposed to be conducted as stipulated in **Table 5.1**:

Table 5:1 Results Based Financing Call Schedule

Call	Open	Closing	Stage one Notification	Stage Two Award
1 st	July 2016	August 2016	September 2016	October 2016
2 nd	January 2017	February 2017	March 2017	April 2017

Source: Operating Guidelines on Result, Revised July 2016

A review of the documents of Results Based Financing's first and second call for proposal (advert and evaluation reports) indicated that the first round of RBF grant call for proposal was launched in September 2016, whereby mini and micro grid project developers were invited to submit applications for result-based grants. The application closing date was 4th November, 2016. The first stage evaluation was conducted for 10 days from 24th November, to 3rd December 2016. The submission deadline for Detailed Proposals was 20th February, 2017 and later extended to 6th March, 2017. The second evaluation was conducted for 7 days from 29th March, 2017 to 4th April, 2017.

Apart from that, through perusal of the contracts between Rural Energy Agency and Developers for RBF, it was noted that all contracts for RBF one were signed in March 2018, contrary to the plan, which indicated the first call of the proposal to be conducted from July 2016 to October 2016.

Further, the project engineer stated that delays, in engaging developers on RBF one, were due to the project being in the pilot which was contributed by an internal process that took a long time.

Moreover, RBF's second call for proposals was launched in November 2019 whereby mini and micro grid project developers in Tanzania were invited to submit applications/Concept Notes for result-based grants geared at supporting accelerated access to sustainable energy services in un-served rural areas of Mainland Tanzania. The application closing date was 7th February, 2020. The first stage of the evaluation was conducted from the 17th to 22nd February, 2020. Moreover, the submission deadline for Detailed Proposals was 3rd April, 2020 and later extended to 30th April, 2020 where the second stage evaluation was done from 9th-22nd May, 2020.

The second call for proposal was attributed to changes in price on tariffs which made a long discussion with donor to provide no objection for the release of funds of the second RBF, however, no evidence was provided to the auditors to validate the information from the project engineer.

5.3.2 Inadequacy of First Stage Evaluation of Applications (Concept Notes)

Para 7.2 (2) of the Operating Guidelines on Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids requires evaluation criteria at the First Stage of applications and screening of Concept Notes submitted on-line or in hard copy, showing key project features, stage of development and financing structure, Minimum Equity percentage, Accuracy of RBF Grant Requested Vs No of connections, If the Project Cost realistic based on Low Voltage (LV), Medium Voltage (MV), number of transformers, the company local Partner must be registered in Tanzania, generation Mix, is it Green Mini and Micro Grids for excess power solar and wind under 1MW, Number of Connections, Nature of Business, Project area within Rural area of Mainland Tanzania, Valid Business License, Certificate of incorporation for Company, TIN Certificate and VAT Certificate.

From the above criteria, stage one evaluation was conducted, and the report indicated that 91 applicants submitted grant application proposals. Some applicants made multiple submissions, thus resulting in 318 received proposals and all of which were evaluated. Out of 91 applicant proposals

screened and evaluated, the evaluation team recommends a list of 16 qualified applicants.

Moreover, through a review of the evaluation report it was observed that the evaluation team recommended a list of 16 qualified applicants as shown in **Table 5.5** were 15 as follows:

Table 5.4: Shortlisted Applicants for Submission of Detailed Proposals (Stage)

Applicant's ID	Applicant Name	Tier
95276	M/s Ruvuma Hydro Electric Power Co.ltd	5
95090	M/s Lung'ali Natural	5
92546	M/s Power Corner (T) Ltd	4
95269	M/s Lumama	4
95362	M/s Ruaha Energy Co. Ltd	4
92877	M/s Aupars GmbH/Volts Co.Ltd	4
88670	M/s Eon off -grid Solutions GmbH	4
95302	M/s Matembwe Village Co.Ltd	5
92789	M/s Nishati Lutheran Investment Ltd	5
92530	M/s Fondazione ACRA	5
95303	M/s Benedictine Sisters Imiliwaha	5
95136	M/s Mofajus Investment Ltd	4
92794	M/s Lyamanz Investment Co.Ltd	5
92876	M/s Luponde Hydro Ltd	5
95333	M/s Ensol Tanzania Ltd	3

Source: First Stage Evaluation Report, RBF one, 2017

Furthermore, reviewed correspondences between Rural Energy Fund and M/s Rex Energy, Quality Solar Solution indicated that there was a claim raised on the letter with Ref. No. RIL/REA-RBFGR/02/17 dated 13th June, 2017 based on disqualification as follows: the availed letter provides that M/s Rex Energy, Quality Solar Solution was disqualified at the second stage, with the following reasons:

- The submitted project was titled (*Lake Victoria Island Min Grid Scale up*) and not assessed;
- The Business Plan as well as how the figure was reached was not well explained and detailed; and

-
- The legal company documents, information, demanded such as TIN were not submitted to the first call.

However, the reason indicated was the absence of legal company documents information demanded such as TIN, which could have been identified during the first stage of evaluation of applications (Concept Note), and not during the second stage of evaluation of proposals.

Apart from that the mentioned developer M/s Rex Energy, Quality Solar Solution, was not found in the list of Project Developers at the first stage of evaluation of the concept note.

The reason was not mentioned by the project engineer during the interview made during the audit. An inadequate evaluation of project proposals could result in the funding of less effective projects. If projects are not evaluated thoroughly, funding may be awarded to project developers that do not achieve the desired outcomes as it was indicated in the visited areas implemented by Greenleaf Technology Solutions Company Limited and PowerGen that implemented in Kilwa Kisiwani, Nanjirinji and Tanga.

5.3.3 Failure to Obtain Approvals to Engage Project Developers

Operating Guidelines on Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids requires the Management of REA to screen and provide approval for Project Developers at both stages one and two.

On the basis of the appraisal, REA's award recommendations were subject to a Sida or Department for International Development (DfID) No Objection procedures. In addition to that Projects which passed Phase 2 appraisal was supposed to be presented to the Rural Energy Board for approval or notification which should be provided within one (1) week of the decision. During the review of the project documents, specifically those related to screening the developer's appraisal, it was discovered that no notification was made available to the auditor to very seeking of approval from the Board on recommended Project Developers.

Apart from that, interview with project engineer noted that approvals were done but no evidence was submitted to indicate that the approvals were

done and notification sent to non-successful applicant as per operation guideline requirement.

As a result, if REA management was not involved in the process through approvals, selected Project Developers might lack ownership.

5.3.4 97% of Developers were Awarded Grants without Feasibility Studies

According to Operating Guidelines on Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids Application process stage two requires Projects that successfully pass Phase one screening are invited to submit a Feasibility Study.

Moreover, through reviewed document at the office of Rural Energy Agency, 11 out of 13 developers equivalent to 97% were considered qualified for grants without having feasibility Studies, despite the fact that feasibility study report attachment was among factors for the Project Developer to be responsive and awarded a contract.

Consideration for grants to developers who did not submit the feasibility studies would have significant risks to viability of implemented Green Min and Micro grid projects in the aspects such financial, social, economic, political, environmental and Technical.

5.3.5 Inadequate Inspection of Materials prior to Second Instalment Payment

According to Operation Guideline Result Based Financing for Renewable Energy Investments in Green Mini and Micro Grids, second instalment payment to Project Developers is supposed to be done after REA management inspects the procured materials as per the submitted business Plan.

Contract between M/s Greenleaf and Rural Energy Agency, as well as the business plan used to request funds, the capacity of providing electricity services at the villages of Nanjilinjji and Kilwa Kisiwani in Kilwa District was supposed to be mini grid Tier 4, which means that electricity service access levels should be more than 16 hours per day, more than 4 hours evening

supply, high load, and grid compatibility. The audit review of the submitted inspection report of the Mini and Micro Grid Result based finance (RBF) program verification report of 14th March 2019 revealed that the battery banks will provide power for short period during interruptions such as cloud cover. However, the audit noted that the inspection team recommended for 2nd disbursement despite of the shortcoming identified during inspection.

During site visit it was noted that the services of electricity provided was contrary to the requirement, for instance at Kilwa Kisiwani the audit found the capacity to provide electricity to customers took 3-9 hours out of 20 hours as of tier four requirement. The reason mentioned was the use of battery with poor quality and capacity contrary to required Standard for Electricity Metering for Mini-Grid Projects by Tanzania Bureau of Standards of the 2017.

According to REA Most of Mini-grid Solar System installed under RBF Program use batteries with life span of batteries which ranges from 3-5 years. The case of Kilwa Kisiwani, the battery was installed at 2019 (4 years now) thus at the time the verification from your office, the battery has almost 4 years hence the autonomy has already lowered. The project was closed successfully after being inspected by Trust Agent and that the owner is currently operating and maintaining the projects. However, the audit concerns about the sustainability of the project, as it suggests that the lifespan of the purchased batteries coincides with the duration of the contract which is 4 years.

The absence of durable battery affects affected the whole process of generating electricity as reduced generation of electricity. This made the community to be angered and demanded for removal of the solar system installed by M/s Green Leaf.

5.3.6 Procurement of Substandard Materials (Battery)

According to Tanzania Bureau of Standards part 13 of the 2017, a suitable battery should assure 15 years continuous operation and 1 year continuous operation without AC power. The shelf-life time of the battery shall be more than 10 years.

During site visit the audit found that the batteries installed at Nanjilini and Kilwa Kisiwani villages were almost defective and had the lifetime of four (4) years since they were installed. However, the interview conducted with Project Developer on life time of the installed battery it was noted that the life time was between 4 to 5 years.

The Audit Team noted through interview that the Project Developer procured batteries of low quality due to the following;

- a) Fluctuation of dollars in the world market because of the first round Request of Proposal delayed compared to what was planned, contract signed on March 2018 instead of 2016, so the Project Developer failed to procure the required standard as the price was high; and
- b) Audit found batteries not performing, due to inadequate maintenance, and no replacement. As a result, customers have low voltage during the day and for a few hours at night due to low capacity of energy storage capacity from batteries.

5.3.7 Adherence to the Procurement Law, Regulations and Guidelines in the Procurement of Consultant

(a) Procurement of Consultant was not Included in the Annual Procurement Plan of REA

Articles 8.1 and 8.2 of the Specific Agreement between the Government of Tanzania through REA and Sweden, required the Government of Tanzania to be responsible for all procurements under the programme in accordance with the procurement rules, guidelines and procedures as stated in the Tanzania Procurement Act 2004, (amended 2011) and its Regulations of 2013.

Furthermore, it states that the Government shall prepare and furnish to Sweden for Approval Annual Procurement Plans detailing the procurement activities to be undertaken during the period covered by the plan, including the relevant procuring entity (REA's procurement Unit). The Annual Procurement Plan shall be submitted to Sweden by 15th of March each year.

Also, Section 49(1) of Public Procurement Act, 2011 states that Procuring Entity shall prepare its Annual Procurement Plan in a rational manner.

Reviewed Annual Procurement Plans of Rural Energy Agency (REA) of the year 2016/2017 and correspondent issued to auditors it was noted that procurement of Technical Assistant was not included in the plans.

The reasons mentioned was the procurement of Technical Assistant was highly needed in order to assist in the process of obtaining Project Developers as one of the obligations of Technical Assistant was to provide technical expertise in obtaining developers. Therefore, procurement out of the Annual Procurement Plans led to the ad hoc activities in every stage of its procurement.

Also, this ad hoc procurement practice affected the effectiveness of proper procurement that was associated with scheduling of procurement activities which resulted into missing of key procurement activities such as Tender Board's approvals

(b) Inadequate the Preparation of the Terms of References

According to Regulation 275 (2) (a) and (b) of PPR, 2013, the procuring entity shall be responsible for preparing the terms of reference contained in a precise statement of the objectives and goals sought, a clear description of the nature and scope of the services required, their context and the time interval in which they are provided.

Review of the procurement files of consultant it was noted that, the user department did not prepare TOR for procurement of the Technical Assistance. The audit noted that the prepared Terms of References did not contain a clear description of nature and scope of the services required and the time interval in which they were required.

Also, the review of the submitted TOR by the Contractor, it was noted that some of the scope of activities which were to be performed by the consultant were not clear stated. This was specifically identified on training aspect. It was stated that the Consultant would have to prepare and conduct one or two days quarterly trainings for at least one of the following groups, REA, Project developers, lenders and other stakeholders on Rural Energy project Development and financiers. Number of participants and training time was not clear.

Moreover, that the ToR did not contain list of all information on the assignment, facilities and services which the Rural Energy Agency would provide to the consultant. Therefore, if TORs lack clear deliverables, it would be difficult to determine the performance of the developer.

(c) Absence of Tender Board Approvals

The audit noted that there was no Tender Board approval on the following:

(i) Selection of Procurement Method by REA

Regulation 280 and 286 of the Public Procurement Regulations GN. No. 446 of 2013, require selection of method of procurement to be competitive and being approved by the Tender Board.

Review of procurement files revealed that procurement method used for procurement of consultant was not approved by the Tender Board.

(ii) Bidding and Contract Documents

Section 33 (1, c) of the Public Procurement Act GN No. 52 Vol. 92 indicates that, among other functions of the Tender Board, shall be to deliberate on the recommendations from the Procurement Management Unit, approve tendering and contract documents.

On 27th October, 2016, Rural Energy Agency (REA) advertised the Expression of Interest for tender number AE/008/2016-17/HQ/C/41 through Daily News. The deadline for submission and opening ceremony was 28th November, 2016.

Twenty (20) firms submitted the Expression of Interest to Rural Energy Agency (REA) Office. After the evaluation process based on technical and financial criteria, six bidders were obtained for invitation of Request for Proposal. Request for Proposal was conducted to six bidders and all submitted their proposal before the deadline on 28th February, 2017, 1200 hours.

The evaluation report indicates that, four (4) out of six (6) bidders had attained pass mark required in the RFP to attend Opening of financial Proposals. **Table 5.6** provides a summary of the score.

Table 5.5: Score of Bidders Based on Evaluation Criteria

Evaluation Criteria	Consultants 'Names and Score			
	M/s Feradon Association in partnership with the energy resources Institute (TERI), Austrian Institute of Technology, RIENTEC	M/s Bigen Africa Services (Pty) Ltd	3E in partnership with Pegasys	M/s GOPA International Energy Consultants (INTEC) GmbH in Partnership with
Understand of TOR	7.83	9.43	6.2	6.1
Overall quality of the offer, quality of the work and methodology	20.93	23.40	17.37	17.6
Qualification of expert in the field of assignment	47.27	57.33	46.43	56.03
Inclusion of local experts	5.00	5.00	5.00	5.00
TOTAL score ²	81.03	95.17	75	84.73
Ranking	3	1	4	2

Source: Technical Evaluation Report 2016/2017

Based on the above explanation, Tender Board was requested to approve the combined Evaluation Report and recommendation of award to M/s Bigen Africa Service (Pty) Ltd that achieved the highest combined score of 86.72 points, at a contract price of USD 2, 273,155.39 Tax Inclusive. However, REA

did not submit Tender Board Minutes indicating the Tender Board reviewed approved the evaluation report

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(d) Inadequate Review of the Contract Draft

Reviewed contract between Rural Energy Agency and M/s Bigen Africa Service (Pty) the audit noted the contradicting information on contract period in the Special Condition of the Contract.

Section four of special condition, Clause 1.1 K of GCC indicated that the intended completion date was December 2019. The contract was signed on 18th March, 2018 while the contract period as per Clause 21.1 of the Special Conditions of Contract was two years.

The contradicting information on the contract document was attributed to weaknesses of the review by the Procurement Management Unit. Tender Board's contradictions in the contract's information could have impacted on the implementation, in case of any misunderstanding between the parties of the contract.

5.4 Contract Management Aspects

This section covers contract management aspects which involved assessing adequacy of systems and processes for managing the project deliverables such as time, cost and quality. Contract administration elements covering supervision and monitoring of contractors and consultants, mobilization of resources earmarked in the Contract documents, project closure and commissioning were also assessed. The details of the noted shortcomings are as indicated in the sub-subsequent sub-sections.

5.4.1 Rural Energy Agency (REA) Did Not Adequately Manage Time for the Rural Electrification Projects

(i) Delays in Engaging the Project Developer

The Operating Guideline of REA (20th July, 2016), requires REA to engage Project Developers once all financing and regulatory requirements are fulfilled, and RBF Grant Agreement will be signed between REA and the Project Developer. However, the Audit noted that there were weaknesses

which attributed to the delays in engaging private developers as explained below:

(a) *Lack of Time Management Plan*

During the review of the Project Correspondences and interview with Officials of REA showed that, REA did not prepare time management plan for the 13 agreements. Instead, REA relied on the work schedules prepared by the developers, which after their review, the schedules were found to be okay.

The Audit noted that, lack of time management plan was due to lack of effective strategies for the implementation of the off - grid electrification projects. Lack of time management plan had an impact on the assurance on the control and effective use of time for execution of the projects.

(b) *Lack of Timelines Commitment/Deadline Setting in Engagement of Project Developers*

According to the RBF Off-Grid Operational Guideline, REA was supposed to engage the Project Developers at various time based on the individual RBF Agreements.

Regulation 233(1) of the Public Procurement Regulations, 2013 (as amended in 2016) requires that, “Without prejudice to the provisions relating to vetting of the contract, where a tender is accepted by the procuring entity and the person whose tender is accepted shall enter into a formal contract for supply of goods, provision of services or undertaking of works within fourteen working days after fulfilling all conditions prior to the signing of contract.”

Review of Signed Contracts between REA and Project Developers, and the Notification of Award Letters from REA to Project Developers, the audit noted that, there were lack of timelines indicating commitment/deadline in the engagement of Project Developers for the implementation of the RBF Agreement, as a result, the engagement of Project Developers took 47 to 182 days after issuance of Notification of Awards Letters by REA to Project Developers. Details are presented in **Table 5.6**.

Table 5.6: Delay in Engagement of Project Developers

Developer	Time required as per Notification of Awards Letter	Date of Contract Signing	Variation in Days
M/s Nishati Associate Limited	16 th January, 2018	19 th March, 2018	62
M/s ACRA Foundation	16 th January, 2018	14 th March, 2018	57
M/s Ls Solutions Ltd	16 th January, 2018	14 th March, 2018	57
M/s Rift Valley Energy	16 th January, 2018	17 th July, 2018	182
M/s PowerGen	16 th January, 2018	19 th March, 2018	62
M/s Power Corner	16 th January, 2018	14 th March, 2018	57
M/s Matembwe Village Company	16 th January, 2018	14 th March, 2018	57
M/s Greenleaf Technology Solutions	16 th January, 2018	19 th March, 2018	62
M/s Power Electronics and Controls	16 th January, 2018	17 th July, 2018	182
M/s African Benedictine Sisters of St Agnes	16 th January, 2018	19 th March, 2018	62
M/s Ensol Ltd	16 th January, 2018	4 th March, 2018	47
M/s Jumeme Rural Power Supply	16 th January, 2018	19 th March, 2018	62
M/s Mwenga Hydro	16 th January, 2018	19 th March, 2018	62

Source: Auditors' Analysis of Period of Engagement of Project Developers (2022)

From **Table 5.6**, it is shown that, 47 days were taken by M/s Ensol Ltd to sign the contract while 182 days were taken by Power Electronics and Controls. According to the Notifications of Award Letter, effectiveness of the agreement was after signing the contract. Since REA did not set the deadline for agreement signing, Project Developers signed contracts at various durations of time.

Submission of the requirements at various duration of time without setting deadlines led to delay in the commencement of the projects.

(c) Delays in the Commencement of the Construction Works

Similarly, Article 4(x) of the Signed Financing Agreement between REA and Project Developers required that, if the activity under the agreement do not

commence within four weeks following the first disbursement, the contract and all obligations of parties shall automatically be terminated, unless the parties meet and agree on amendment to this agreement.

According to Result Based Financing (RBF) Operating Guideline, the first disbursement of the grant was supposed to be 35% of the total grant sum for mobilisation after signing of this Grant Contract and upon confirmation of the Project Financial Closures; upon submission of Advance Payment Bond (Bank Guarantee, Insurance Bond and Physical Assets) and Environmental Clearance from NEMC.

Review of the Project Files on the implementation of the agreement showed that, there were delays in the commencement of the agreements. **Table 5.7** presents the details of the delays in Commencement of the Project.

Table 5.7: Details of Delay in Commencement of the Project

Developer	Date of Contract Signing	Date of First Installment/ Disbursement	Variation (delay) in days
M/s Nishati Associate Limited	19/03/2018	10/08/2018	144
M/s ACRA Foundation	14/03/2018	21/08/2018	160
M/s LS Solutions Ltd	14/03/2018	11/07/2018	119
M/s Rift Valley Energy	17/07/2018	30/07/2018	13
M/s PowerGen	19/03/2018	05/07/2018	108
M/s Matembwe Village Company	14/03/2018	04/07/2018	112
M/s Greenleaf Technology Solutions	19/03/2018	01/08/2018	135
M/s Power Electronics and Controls	17/07/2018	01/08/2018	15
M/s Mwenga Hydro	19/03/2018	21/08/2018	153

Source: Auditors' Analysis on Timelines for Commencement of the Project (2022)

From **Table 5.7**, it is shown that, the commencement of the project had delays that ranged from 13 to 160 days from when each contract was signed. Through the review of Progress Reports, the audit noted that the reasons for delays in commencement of contracts were due to delay in submission of requirements such as advance payment guarantee from the Bank and submission of Environmental Clearance from NEMC.

Delays in the commencement of the project had an impact on the failure of the community under the project to timely realize the benefits that are derived from the supply of electricity power.

(ii) Four Out of 13 Projects had Delays in Completion of Construction Work

Regulation 5(2)(c) of the Public Procurement Regulations, 2013 (as amended in 2016) requires the Procuring Entity to ensure that the construction works are completed in a timely manner and in accordance with the Procuring Entity's priorities.

Also, Para 7.1 of the Operating Guideline (20th July, 2016), required the maximum implementation period for the RBF Grant after signing the agreement to be four years.

Review of Project Completion Certificates (PCC)⁸, Project Progress Reports and Project Verification showed that there were delays in the completion of four out of 13 Result Based Financing Agreements. Details of delays are presented in **Table 5.8** hereunder.

⁸Certificate No. 188 (Letter Ref. No. CRDB/INTERFINi/01 from the Trust Agent to REA, dated 1st October, 2019.

Table 5.8: Timelines in the Completion of Result Based Financing Agreements

Developer	Date of Contract Signing	Expected Date of Contract Completion	Contract Status to date	Actual Date of Contract Completion as declared by Trust Agent after Verification	Time taken from start of the Project (Years)	Variation (delay) in Years
M/s Nishati Associate Limited	19 th March, 2018	18 th March, 2022	Completed	22 nd March, 2019	1	-
M/s ACRA Foundation	14 th March, 2018	13 th March, 2022	Completed	14 th November, 2019	1.7	-
M/s LS Solutions Ltd	14 th March, 2018	13 th March, 2022	On Progress	-	-	Above 4 years
M/s Rift Valley Energy	17 th July, 2018	16 th July, 2022	On Progress	-	-	Above 4 years
M/s PowerGen	19 th March, 2018	18 th March, 2022	Completed	14 th November, 2019	1.7	-
M/s Power Corner	14 th March, 2018	13 th March, 2022	Completed	16 th August, 2020	2.4	-
M/s Matembwe Village Company	14 th March, 2018	13 th March, 2022	Completed	No data	No data	-
M/s Greenleaf Technology Solutions	19 th March, 2018	18 th March, 2022	Completed	18 th June, 2021	1	-

Developer	Date of Contract Signing	Expected Date of Contract Completion	Contract Status to date	Actual Date of Contract Completion as declared by Trust Agent after Verification	Time taken from start of the Project (Years)	Variation (delay) in Years
M/s Power Electronics and Controls	17 th July, 2018	16 th July, 2022	On-progress	-	-	Above 4 years
M/s African Benedictine Sisters of St Agnes	19 th March, 2018	18 th March, 2022	On-progress	-	-	Above 4 years
M/s Ensol Ltd	4 th March, 2018	3 rd March, 2022	Completed	21 st February, 2020	2	-
M/s Jumeme Rural Power Supply	19 th March, 2018	18 th March, 2022	Completed	14 th November, 2019	1.7	-
M/s Mwenga Hydro	17 th July 2018	16 th July, 2022	Completed	No data	-	-

Source: Auditors' Analysis on the Timelines for Project Completion (2022)

From **Table 5.8**, it is shown that, four out of thirteen contracts (30.8%) are still on - progress while the remaining nine contracts (69.2%) were completed. Also, it was noted that, for nine completed contracts, two completed projects (Matembwe Village Company and Mwenga Hydro) had missing information on the completion date, and seven projects were completed within the duration of 48 months (4 years).

According to Project Correspondences and interviews with officials from REA, the Audit Team noted that, delays in the completion of projects are as elaborated in **Table 5.9**.

Table 5.9: Reasons for Delay in the Completion of the Projects

Project Developer	Reason
M/s LS Solutions Ltd	Introduction of power grid by TANESCO led to slow down progress of the developer in Samunge Village located in Ngorongoro District in Arusha Region
M/s Rift Valley Energy	Extension of time in the execution of the projects
M/s Power Electronics and Controls	Extension of time in the execution of the projects
M/s African Benedictine Sisters of St. Agnes	Extension of time in the execution of the projects

Source: Auditors' Analysis of Status of Projects' Completion (2022)

From **Table 5.9**, it is indicated that, Rift Valley Energy, Power Electronics and Controls, and African Benedictine Sisters of St. Agnes were due to extension of time in the execution of the projects while for the M/s LS Solution Ltd the delay was due to introduction of power grid by TANESCO that led to slow down progress of the developer in Samunge Village located in Ngorongoro District in the Arusha Region.

Delay in the completion of the projects (Results Based Financing Agreements) had an impact on delay in providing services to the targeted communities as customers that in turn, slowed down the pace of development achievements in the respective areas.

(iii) The Execution of the Projects had Extension of Time

Clause 10 (B) of the Signed Agreement between REA and the Project Developer required that, for any delay in the performance of the contract as per the terms of the project, should there be any in the performance of the contract or any part thereof; the Grantee (Developer) shall notify REA in writing as soon as he becomes aware of such delay, giving the cause of such delay. Such notice shall be in writing.

Review of the Project Progress Report, the audit noted that, the execution of the project had extension of time that ranged from 90 days (three

months) to 24 months (2 years). Details on the extension of time are as presented in **Table 5.10**.

Table 5.10: Details on the Extension of Time in Execution of Projects

Developer	Date of Contract Signing	Availability of Extension of Time	Reason(s) for Extension of Time	Time extended
M/s L'S Solutions Ltd	14 th March, 2018	YES ⁹	Challenges of the Covid -19 which affected both the delivery time of the suppliers and delivery time of the shipping agency	90 days (08/01/2021 - 08/04/2021)
M/s Rift Valley Energy	17 th July, 2018	YES ¹⁰	Funding challenges	24 months
M/s Power Electronics and Controls	17 th July, 2018	YES ¹¹	To complete the remaining works and connections to the targeted clients	12 months (31/07/2022 - 31/07/2023)
M/s African Benedictine Sisters of St Agnes	19 th March, 2018	YES ¹²	completion of service line connection to users which is subject to completion of construction structures (intake weir, penstock, and power house)	12 months (14/04/2022 - 13/04/2023)

Source: Auditors' Analysis on the Extension of Time (2022)

From **Table 5.10**, it is shown that nine out of thirteen RBF Agreements had no extension of time while the remaining four RBF Agreements had extension of time. For the four agreements with extension of time, the

⁹The Contract was supposed to expire on 8th January, 2021 and the developer submitted a request for extension on 11th January, 2021.

¹⁰Request was submitted to REA on 23rd July, 2022

¹¹The request for extension of time was submitted to REA on 15th July, 2022

¹²The request for extension of time was submitted to REA on 4th March, 2022

lowest extension of time was requested by M/s L'S Solutions Ltd which was 90 days (three months) while the highest extension of time was requested by M/s Rift Valley Energy Luponde which was 24 months (two years).

Review of Project Correspondences, the audit noted that, reasons for requests for extension of time were Challenges of the Covid -19 which affected both the delivery of time of the suppliers and delivery time of the shipping agency; Funding challenges; to complete the remaining works and connections to the targeted clients; and completion of service line connection to users which is subject to completion of construction structures (intake weir, penstock, and power house).

Delay in project completion due to extension of time had impact on delay in provision of electricity power service to the customers in the respective villages.

(iv) Delay in Making Payments to Project Developer

REA's RBF Operating Guideline (Step 7-Payment Procedure) required 35% of the approved RBF capital grant to be paid upon signing of the RBF Grant Agreement; 35% of the approved RBF capital grant to be paid upon delivery of materials on site; and 30% of the grant payment to be withheld until an independent verification of the number of connections is made within the implementation of four years.

The audit team reviewed the Payment Certificates raised by Project Developers and noted that, there were delays in making payments to Project Developers that ranged from 4 to 158 days.

From **Table 5.8**, it is shown that, the delay in making payments was due to internal arrangements by the Grantor (REA) for conducting verification of the executed works prior disbursement of respective instalment to ensure that payments made reflected the executed work.

Delay in making disbursement to project developers resulted into untimely realization of benefits of the grants to communities as beneficiaries and users of the electricity power.

(v) REA Did Not Impose the Liquidated Damages for the Delayed Projects

Regulations 112(1) of the Public Procurement Regulations, 2013 (as amended in 2016) requires a procurement entity to impose on a tenderer a liquidated damages for undelivered materials or goods, undelivered or delayed services or delayed works.

However, through the review of Contract Correspondences for all 13 projects, including the interviews which were held with the officials of REA and Project Developers, the audit noted that there were no liquidated damages imposed due to delay in the construction of RBF projects.

The reason for not imposing the liquidated damages was that, the projects were under fixed value, hence issues of liquidated damages were not considered and included in the RBF Operating Guideline and the Signed Contracts/RBF Agreements.

However, the audit noted that lack of imposition of liquidated damage had impact on commitment of individual parts in the RBF agreement to timely fulfill their respective responsibilities.

(vi) Progress Reporting and Monitoring

REA's RBF Operating Guideline requires the progress of construction and connection of customers in relation to the time schedule and milestones in the agreement to be reported in Quarterly Progress Reports (PQR) by the Project Developer and be monitored by the Trust Agent.

The Guideline further requires the Project Developer to report progress in relation to the indicators as per part 8 of the Guideline, in relation to planned results, on a quarterly basis to REA.

Review of Project Correspondences revealed that the progress of construction and connection of customers in relation to the time schedule and milestones in the agreement was reported in Quarterly Progress Reports (PQR) by the Project Developer and were monitored by the Trust Agent.

Similarly, review of project correspondences revealed that the Project Developers were reporting on a quarterly basis the progress in relation to the indicators as per part 8 of the guideline, in relation to planned results.

5.4.2 REA Did Not Adequately Manage Quality for the Rural Electrification Projects

Rural Energy Agency (REA) managed the implementation of Rural Renewable Energy Projects through Result Based Financing Agreement that involved Project Developers with the intention of improving livelihood of people in rural areas, however, there were weaknesses in the quality of the electricity power to be connected to customers. Details are presented in the following sub-sections.

(i) Lack of Quality Control and Assurance Plan to Ensure Project Sustainability After Completion

Regulation 5(2)(a) of the Public Procurement Regulations, 2013 (as amended in 2016) requires public officials and members of Tender Boards to ensure that building works procured are of satisfactory quality.

Also, REA's Operating Guideline, 2016 requires the Trust Agent on behalf of REA during the construction phase to: a) Conduct design verification, installation verification and spot checks to ensure installation compliance; b) Follows-up on design and installation irregularities and seek remedial action; c) Verify data furnished by project promoters for completeness, technical compliance and duplication; d) Inspect projects including goods, works, sites and construction. Apart from these spot checks, inspection of physical assets and relevant documentation are also required to be taken care.

Review of Project Files showed that REA engaged the Trust Agent for carrying out verification of the construction and installation carried out by the Project Developers to ensure the intended quality was achieved before making payment of the required instalment as per the agreement. However,

the audit noted that REA did not have quality control¹³ and quality assurance plan on the electrification projects that could ensure effective sustainability of the project during operation phase after the project completion.

Based on the site visit conducted to the villages in Ngara District (Bugarama and Murusagamba villages) and villages in Biharamulo District (Nyantakara and Mavota villages) which were connected with off grid power under POWERGEN Renewable Energy, the audit noted that the quality of executed works for power generation house/facility, power storage facility (batteries), generators, distribution lines and connections to the customers were satisfactory. However, there was inadequate supply of electricity power to the connected customers to meet the individual needs and/ or expectations. As a result, customers could not be able to operate their business as per the expectations as indicated in **Photos 5.4 (a) - (d)**.



Photo 5.4 (a): showing customer not using the milling machine due to power outage and capacity at Iglansoni village



Photo 5.4 (b): showing a customer (Pharmacy) using alternative personal solar panel for power due to outage of power outage at Iglansoni village in Singida

¹³Since the main purpose of the quality control process was to ensure that the project meets the actual requirements of the client, as part of quality management focused on fulfilling quality requirements



Photo 5.4 (c): showing customer's (Shopkeeper) fridge deteriorating due to absence of power at Iglansoni village in Singida



Photo 5.4 (d): showing Iglansoni Health Center at Iglansoni Village which has yet to be connected because of lack of power due to non-functioning power plant

Similarly, based on the site visit conducted to the villages in Ukara Island (Bwisya village), Irugwa Island (Sambi and Nabweko villages) connected with off grid power under Jumeme Rural Power Supply, the audit noted that the quality of executed works for power generation house/facility, power storage facility (batteries), generators, transformers, transmission lines and connections to the customers were satisfactory. However, there was inadequate supply of power to the connected customers.

This was due to the reason that there was frequent power cut off as a result of low supply from the generation point, the supply of power was not reliable as once there was no sun light the supply of power also went off. This was caused by the fact of being solely depending on the generators as the only source of power and when they were not switched on to supply electricity power in order to reduce operation cost in diesel fuel generator and it happened that the solar power and batteries did not supply electricity power.

According to interview with an official of the Project Developers, the supply of electricity power by generators had high cost operations due to diesel as fuel to operate generators in the sites.

(ii) *Lack of Assessment on the Performance of Electricity Capacity Prior to Connection to Customers*

Clause 4.9.1 of the General Conditions of Contract of the Standard Tendering Document issued by PPRA in 2022, requires the Contractor to institute a quality assurance system for demonstration of compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the contract.

Review of RBF Guidelines for the implementation of off grid electrification, it was noted that REA conducted verification through the Trust Agent once the completed connections prior to the disbursement of third instalment (30% of contract sum). The audit team reviewed the Project Completion Certificate (PCC) and noted that the Trust Agent considered all works and confirmed that the works were carried out as planned and complied with the required standards of environmental and social provision of the Environmental Management Act, 2004 (EMA 2004).

Further, review of PCC revealed that the Trust Agent declared that the project scope of works as per entered contract between REA and the Project Developer (M/s PowerGen Ltd) was completed, whereby 1,691 customers were connected with excess of 33 customers from 1,658 customers in the signed contract.

However, based on the site visit conducted to the project area, the audit noted that REA through the Trust Agent did not conduct the assessment of the level of performance of electricity power to the connected customers.

Lack of assessment of the level of performance to the connected customers was due to the fact that REA's grant was based on the outcomes of the project in terms of number of connections made and not evaluation of level of performance of electricity power connected to customers.

Absence of conducted assessment on the level of performance of electricity power to the connected customers resulted into lack of information for REA in order to establish the extent to which customers were satisfied with the service of power connection provided through the Project Developer.

(iii) REA Did Not Issue Notice to the Contractors to Correct Defects Noted During the Operation Phase

Clause 4.9.1 of the General Conditions of Contract of the Standard Tendering Document issued by PPRA in 2022, directed the Contractor through Project Developers to institute a quality assurance system for demonstration of compliance with the requirements of the Contract. It further states that the system shall be done in accordance with the details stated in the contract, and the Project Manager shall be entitled to audit any aspect of the system.

Also, based on the Project Specification, REA was supposed to ensure quality of the constructed facility.

According to the site visit conducted to the project areas in Ngara District (Bugarama and Murusagamba Villages) and Biharamulo District (Nyantakara and Mavota Villages), Bwisya village in Ukara Island, and at Sambi and Nabweko villages in Irugwa Island in Ukerewe District, and Kisaba village, Kanoni village and Busikimbi village in Maisome Ward, the audit team did not observe defects derived from inadequate workmanship from the installation of power generation facilities at these project sites.

However, for the projects in Singida region under PowerGen Renewable Energy in Ikungi District (Iglansoni Village), the audit noted that the power was not available as the facility (power plant) was inoperative and the generator was mechanically defective for the past two years. While for Manyoni District (Londoni and Saranda Villages), the facility (Power Plant) was not in operation and was closed.

Review of Project Correspondences and site visit conducted to the project areas in Ngara District (Bugarama and Murusagamba Villages), Biharamulo District (Nyantakara and Mavota Villages), and Ikungi District (Iglansoni village), the audit noted that there were defects in the established infrastructures. Details of the defects are presented in **Table 5.11**.

Table 5.11: Details of the Defects in the Established Infrastructures

Project Name	Region	District	Village	Defects observed during site visit
M/s PowerGen Renewable Energy	Kagera	Ngara	Bugarama	Inadequate functioning of power batteries
			Murusagamba	Non-functioning batteries
		Biharamulo	Nyantakara	Non-functioning of batteries, and non-working generators
			Mavota	non-functioning of batteries, and non-working generators
	Singida	Ikungi	Iglansoni	Power outage and capacity
		Manyoni	Londoni	The power plant was closed, not in operation
			Saranda	The power plant was closed, not in operation

Source: Auditors' Analysis Based on Site Visit (2022)

Table 5.11 shows defects that were observed by the audit team during site visit, which could not provide sufficient electricity power as expected. Despite presence of these defects, REA did not issue notice to the Contractor (Foreman) through Project Developers to correct the defects found to the works.

According to Project Correspondences, the audit noted that the reason for not issuing notice to the Contractor (Foreman) to correct the noted defects found to the works was inadequate monitoring of the contract after completion. As a result, REA did not identify the problems facing the established solar power infrastructures caused by lack of visit to the villages to assess the performance of infrastructures during operation phase.

Non - issuance of notice to the contractor to correct the noted defects has resulted into prolonged insufficient supply of power to the connected customers to meet the customers' needs.

5.4.3 REA Did Not Adequately Manage Cost and Scope of Rural Electrification Projects (Renewable Energy Projects)

According to REA RBF Operating Guideline (20th July, 2016), advance payments are made upon achievement of specific milestones in the RBF Grant Agreement whereby 35% of the approved RBF capital grant should be paid upon signing of the RBF Grant Agreement. This involves submission of advance payment guarantee and Environmental Clearance from NEMC.

Also, Clause 6F (i) of the signed financing agreement between REA and M/s PowerGen Renewable Energy Ltd (Project Developer) required REA to make instalment of 35% of grant sum for mobilization to M/s PowerGen Renewable Energy Ltd after signing the Grant Contract and upon submission of Advance Payment Bond (Bank Guarantee, Insurance Bond, Physical Assets) and Environmental Clearance from National Environment Management Council (NEMC).

However, the audit noted the following weaknesses in relation to advance payment bond as elaborated in the following sub - sections.

(i) Lack of Clarity on the Advance Payment Bond to Cover the Disbursement for the Entire Duration Before Verification of Customers' Connection

The audit noted that REA through RBF Operating Guideline (20th July, 2016) required the Project Developers to submit advance payment bond prior to issuance of first installment of 35% of the grant sum. However, the subsequent installments before verification of customers' connections did not require the Project Developers to submit advance payment bond.

However, the audit noted that the RBF Operating Guideline (20th July, 2016) was supposed to make clear issue of securing all payments that were paid to the Project Developers from when the contract was signed between the two parts.

As a result, the audit noted weaknesses for three out of the 13 Project Developers who were assessed as summarized in **Table 5.12**.

Table 5.12: Details of Project Developers Lacking Clarity on Security

Developer	Status of Availability of Clarity on Security	Reference Number of Letters for Communication	Details on issue of concern	Action by Project Developer
M/s PowerGen	YES			
African Benedictine Sisters of St Agnes	YES			
M/s Jumeme Rural Power Supply	YES	BC 134/157/42/60 from REA to JUMEME, dated 2 nd May, 2019	REA instructed the developer to extend the bid validity to cover the entire duration of the contract up to the completion and verification of customers connections	Project Developer accepted extending the security up to the end of the contract through letter JUMEME/HQ/OUT/19.030 to REA dated 20 th May, 2019

Source: Auditors' Analysis Based on Collected Data (2022)

Table 5.12 indicates that, three out of 13 Project Developers had no clarification on the issue of advance payment bond to cover the disbursement for the entire duration of the agreement before verification of customers' connection.

Lack of clarity has caused miscommunication among the project developers in the execution of the project that has resulted into delay in receiving subsequent installations.

(ii) Rural Energy Agency (REA) Did Not Effectively Control Variations/Addenda and Claims of Rural Renewable Energy Projects

Section 33(1)(b) of the Public Procurement Act No. 7 of 2011 (as amended in 2016) required the Tender Board to review all applications for variations, addenda or amendments for ongoing contracts.

Review of Project Correspondence Files showed that, there were weaknesses in controlling variations/addenda and claims of rural electrification projects in particular renewable. Details on the noted weaknesses are as elaborated in the following sub-sections:

(a) REA Managed Variation in the Number of Connected Customers Without Additional Project Cost

Review of Project Completion Certificates (PCC) and Project Verification Reports from Trust Agent revealed that there were variations in the number of connected customers that ranged from 33 to 256 after verification conducted by the Trust Agent to the completed projects, and that, REA did not grant any additional cost to Project Developers due to increase in the number of connected customers by Project Developers. The variations in number of connected customers are presented in Table 5.13.

Table 5.13: Details in Variations of Number of Connected Customers

Developer	Contract Status to date	No. of Connected Customers as per Signed Agreement	Actual Number of Connected Customers after Verification by the Trust Agent	Difference (Variation)
M/s LS Solutions Ltd	On Progress	100	80	-20
M/s Rift Valley Energy	On Progress	1,400	420	-980
M/s PowerGen	Completed	1,658	1,691	33
M/s Power Electronics and	On-progress	2,448	1,155	-1,293

Controls				
M/s African Benedictine Sisters of St Agnes	On-progress	505	80	-425
M/s Jumeme Rural Power Supply	Completed	4,669	4,600	69
M/s Mwenga Hydro	Completed	2,700	2,444	256

Source: Auditors' Analysis on the Variations of Connected Customers (2022)

From **Table 5.13**, it is shown that, there were variations in the number of connected customers during the verification conducted by the Trust Agent for the completed projects. The variations were noted in the projects implemented by M/s PowerGen (33 connections above the planned number), M/s Jumeme Rural Power Supply (69 connections below the planned number), and to M/s Rift Valley Energy Ltd in Mwenga Hydropower Project (256 connections below the planned number).

Furthermore, the audit noted variations in the number of connected customers for the project implemented by M/s Jumeme Rural Power Supply, for instance, the Trust Agent received information of 4,852 connected customers, however, the Trust Agent verified only 4,600 customers to have complete information and 252 customers had missing information on customer's name, which were yet to be provided by the Trust Agent at the time when the report for verification was prepared.

The Audit noted that, following verification of 4,600 connected customers out of 4,669 stipulated in the contract, the Trust Agent recommended the project developer to provide missing information of the remaining 69 customers (customer names) to reach contract number of connections of 4,669 customers, and from there REA could disburse the remaining 30% for final installment which was USD 700,350.

Further review of the Project Correspondences¹⁴ showed that, the project developer provided the information of the remaining 252 connected

¹⁴Letter with reference number JUMEME/HQ/OUT/20.013 from M/s JUMEME Rural Power Supply to Director General of REA dated 26th February, 2020.

customers and the final installment was paid to the project developer on 4th May, 2020 while the request for payment was initially placed on 22nd November, 2019.

According to the Project Verification Reports for the respective agreements, it was shown that, a reason for variations in the number of connected customers varied from one developer to the other. For instance, the project implemented by M/s Rift Valley Energy Ltd in Mwenga Hydropower Project, a reason for variation in number of connected customers was due to scattered villages, materials for connection could not cover the targeted number of customers and only 2,444 customers were connected out of 2,700 up to the time of verification by the Trust Agent.

Failure to meet the number of connections of customers as per signed contract had an impact on delay in issuance of Project Completion Certificate to project developers by REA and delay in issuance of final installment of 30% of the grant sum.

5.4.4 Inadequate Consideration of Health, Safety, Environmental and Social Issues

Section 4 D(i)(ii) of the Signed Contract (Result Based Financing) between REA (Grantor) and Project Developers (Grantees) required the Grantee to identify potential environmental and social impacts of the proposed grant activities and prepare a mitigation plan satisfactory to REA in compliance with laws, rules and regulations governing environmental and social aspects as stipulated by National Environment Management Council (NEMC). Also, the Grantee is required to carry out the project activities in compliance with laws, rules, and regulations governing environmental and social aspects as stipulated by NEMC.

The review of Project Correspondence Files revealed that, the Grantees (Project Developers) identified the potential environmental and social impacts of the proposed grant activities by conducting environmental and social impact assessment (ESIA) and environmental audit from which the Grantee obtained Environmental Impact Assessment Certificate (EIA Certificate) and Environmental Audit Certificate respectively. However, the audit noted the following weaknesses:

(i) Lack of Environmental Management Plan (EMP) for the Renewable Energy Projects

Through the review of Environmental Correspondences, the audit noted that for the thirteen signed agreements, the Grantees did not prepare mitigation plans (Environmental Management Plans - EMP) to REA in compliance with laws, rules and regulations governing environmental and social aspects as stipulated by National Environment Management Council (NEMC).

Absence of developed Environmental Management Plans could not provide rooms for the Developers to implement specific conditions stipulated in the EIA Certificates and Environmental Audit Certificate.

The audit noted that the reason for not preparing Environmental Management Plans (EMPs) was inadequate enforcement on environmental management issues by REA.

Also, lack of EMP for the renewable energy projects did not provide assurance whether REA ensured the Grantees carried out the project activities in compliance with laws, rules, and regulations governing environmental and social aspects as stipulated by NEMC.

(ii) Health and Safety Issues were Inadequately Addressed and Implemented During the Implementation of Renewable Energy Projects

Clause 6.7 of the Public Procurement Regulatory Authority (PPRA) General Conditions of Contract for Medium and Larger Works, 2022 requires the Contractor to take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall submit to the Project Manager for Review a health and safety manual which has been specifically prepared for the works, the site

and other places (if any) where the Contractor intends to execute the works.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of works, the Contractor shall provide whatever is required by this person to exercise this responsibility.

The Contractor shall send to the Project Manager details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Project Manager may reasonably require.

The Contractor shall conduct a COVID-19 and an HIV/AIDS awareness program via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of transfer of COVID-19 and HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist the affected individuals.

Review of Project Correspondences showed that there were no reports on the implementation of health and safety issues. Due to lack of reports on the implementation of health and safety issues, there were no assurance on the following:

- Availability of medical staffs, first aid facilities, sick bay and ambulances at site;
- Health and Safety Manual was not submitted to Project Manager for Review;
- Existence of records on incidences, accidents that include actions taken in response to the same;
- Awareness Program on HIV/AIDs and COVID-19 to both Contractor and Client; and
- Project Compliance with OSHA Requirements.

However, during site visit verification to the project areas, the audit team observed the presence of serviced fire extinguishers and first aid kit.

5.4.5 REA Did Not Effectively Conduct Completion, Closure and Commissioning of Projects

(i) The Completed Projects were Inadequately Closed and Commissioned

REA's Results Based Financing Operating Guideline (20th July, 2016), requires REA through the Trust Agent to monitor progress and verify completion of the milestones during construction up to project completion/commissioning and to conduct site visits for verification purposes.

Also, the Guideline requires REA to verify the documentation, including having the right to undertake or commission site inspections for verification purposes. The Guideline further requires thirty percent (30%) of the grant payment to be withheld until an independent verification of the number of connections that were made within the project implementation period of four years.

Review of Project Verification Reports prepared by the Trust Agent and Project Completion Certificates showed that nine out of thirteen projects were completed, while the remaining four projects were still on - going. The audit noted that the completed projects were inadequately closed and commissioned. Since verifications were conducted during the commissioning and they were only based on the number of customers connections, and there was no assessment on the level of performance of the power supplied.

A reason for not assessing the level of performance of the projects after closure and commissioning are inadequate management of the grant by the agency (REA).

Failure to assess the level of performance of the project after closure and commissioning resulted into inadequate performance of the projects and consequently, the provision of insufficient amount of electricity power to connected customers that did not suffice daily consumption.

(ii) REA Ensured Contractors Adequately Prepared As-Built Drawings

According to the signed agreement between REA and Project Developers, REA was supposed to ensure that contractors/developer adequately prepared as - built drawings.

Through the review of the Project Correspondences and Verification Report by the Trust Agent, the audit noted that as - built drawings for the connected customers in the signed contracts were prepared and were also checked by the Audit Team.

(iii) REA did not Prepare Operational and Maintenance Plans

According to the Signed Agreements between REA and Project Developers, REA was supposed to ensure that it adequately prepared Operation and Maintenance Plans.

Review of Project Correspondences revealed that REA did not prepare Operation and Maintenance Plans for the 13 signed contracts. The reason for not preparing Operational and Maintenance Plans was inadequate management of the projects.

Failure to prepare Operational and Maintenance Plans resulted into lack of maintenance of the established power infrastructures that led to insufficient supply of electricity power to the connected customers.

(iv) Timelines for the Submission of Operation and Maintenance Manual by REA

Operation and Maintenance Manuals were Available at Site

According to the Signed Agreements between REA and Project Developers, REA was supposed to ensure that contractors timely submitted Operation and Maintenance Manuals.

Based on site visit conducted to the project area, the audit noted that there were operation manuals for the transformers, inverters, batteries and diesel generators. For instance, the audit team observed availability of operational manuals at the project site in Mavota village. Also, the audit team observed the operation manuals at Nyantakara village for the following equipment:

-
- i) Diesel Generator;
 - ii) Inverter (Blue Solar Charge Controller);
 - iii) Battery Monitor;
 - iv) Multi Plus; and
 - v) Quick Installation Guide Cable (Antenna for Communication).

However, the audit team could not establish timelines for submission of operation and maintenance manuals. This was due to the reason that the manuals for the mentioned equipment were supplied by the suppliers during the installation of individual components.

5.4.6 Audit Observations/Findings from Site Visit in Mwanza, Kagera and Singida Region

(i) Involvement of REA in the Project (Site Meeting Minutes)

Through the review of Project Correspondences, Site Progress Reports and interview that was held to the official of project developer, it was indicated that REA was involved at the beginning of the project and after purchase of materials REA officials visited the projects for inspecting the purchased materials before disbursement of second installment (35% of the contract sum).

Also, the audit noted that REA attended site visits to check progress of works. Their visits were during the implementation of the project to check the number of connections of customers, however, there was no evidence on the involvement of REA to assess the performance of the established power infrastructures to evaluate the level of satisfaction of the electricity power service to the connected customers.

(ii) Commencement and Completion of the Project

Review of Signed Works Contracts between the Project Developer (M/s PowerGen) and Foremen revealed that PowerGen engaged foremen for construction of lines and installation of solar PV, Distribution Lines, Power House, except for generators, the supplier did the installation of the batteries.

Also, review of Signed Works Contracts between Project Developer (M/s JUMEME Rural Power Supply Ltd) and Foremen revealed that M/s JUMEME Rural Power Supply Ltd engaged foremen for construction of lines and installation of solar PV, Distribution Lines, power house, transformers, except for generators, the supplier (Delta Industrial Equipment Limited) did the installation of the batteries.

The audit further noted that both M/s JUMEME Rural Power Supply Ltd and M/s PowerGen involved engineer for supervision of the executed works by foremen so as to ensure the quality.

(iii) Assessment of Mode of Execution of the Project (Engagement of the Contractor/Local Fundi)

Review of Works Contracts of Project Developers (M/s PowerGen and M/s JUMEME Rural Power Supply Ltd) revealed that the mode of execution of the project was by entering contracts with foremen and contracts were given to individual foremen in lines, while for installation of generator, the suppliers of generators themselves installed the generators and batteries.

(iv) Inadequate Quality of Works

The audit noted the following with regards to quality of works;

(a) Inadequate Supply of Electricity Power to Connected Customers

Based on site visit conducted to the villages connected with off grid power in Ngara (Bugarama and Murusagamba Villages), Biharamulo (Nyantakara and Mavota Villages), Ukerewe (Bwisya, Nabweko and Sambu Villages), and Buchosa (Kisaba, Kanoni and Busikimbi Villages), the audit noted that the quality of executed works to establish the power generation house/facility, power storage facility (batteries), generators, transformers, transmission lines and connections to the customers was good, however, there was inadequate supply of electricity power to the connected customers.

The reason for this was that the services provided to customers were not meeting their expectations. This was primarily due to frequent power outages caused by low supply from the generation point. Additionally, the power supply was unreliable since it would go out when there was no

sunlight, and there was no backup power from batteries when the sun was not shining. As a result, generators became the only source of power. Despite being the source power, generators were not always used to supply electricity when the solar power and batteries were unable to do so.

According to project developers, the supply of electricity power by generators had high operation cost due to diesel which was used as fuel to operate generators. The audit noted that among the reasons for inadequate supply of electricity power were:

(b) Exhaustion of Battery Power Charges (Non - Functioning Power Batteries)

Based on site visit conducted to Villages in Ngara district (Bugarama and Murusagamba villages) and Villages in Biharamulo district (Nyantakara and Mavota villages), the audit noted that the exhaustion of battery power charges resulted into non-supply of electricity power to the villages when there was no sun light to produce solar power. Details of the batteries which undergone exhaust of power charges as presented in Table 5.14.

Table 5.14: Site Visited with Non - Functioning Power Batteries

District	Village	Total number of batteries supplied	Batteries not functioning	% of batteries not functioning	Power availability
Ngara	Bugarama	12	1	8.3	Power supply is not strong enough to run home appliances, once there is no sun light the power also goes off.
	Murusagamba	24	24	100	Power supply is only day time, no power at night as all

District	Village	Total number of batteries supplied	Batteries not functioning	% of batteries not functioning	Power availability
					batteries are not functioning since June, 2022
Biharamulo	Nyantakara	24	24	100	Villagers get electricity power between 4-6 hours per day. For 24 batteries, 1 does not functioning and is disconnected, only 23 are connected but the connected 23 batteries are not functioning as they cannot store power.
	Mavota	24	8	33.3	Batteries power decreased but they brought other batteries which were also not good. No maintenance.
Ikungi	Iglansoni	24	24	100	Power is not available as

District	Village	Total number of batteries supplied	Batteries not functioning	% of batteries not functioning	Power availability
					the facility (Power plant) is in-operative. The generator is mechanically defective for the past 2 years.
Manyoni	Londoni	24	Not known	Not known	The facility (Power plant) was not in operation and was closed. There was no foreman at site for verification.
	Saranda	24	Not known	Not known	The facility (Power plant) was not in operation and was closed. There was no foreman at site for verification.

Source: Auditors' Analysis on Collected Data from Visited Villages (2023)

From **Table 5.14**, it is indicated that, the percentage of batteries non-functioning ranged from 8.3 to 100% with the lowest percentage in Bugarama village and with the highest percentage noted in Iglansoni, Murusagamba and Nyantakara villages. Other 2 facilities in Londoni and Saranda villages in Singida Region were not in operation as they were closed and there was no foreman at site for verification purposes.

Due to inadequate performance of batteries that were used for storage of power generated from solar panels, electricity power supply to the connected customers in Bugarama village was not strong enough to run home appliances, since once there was no sun light the power also went off.

Also, the connected customers in Murusagamba indicated that power supply was only during the day time, no power at night as all batteries were not functioning since June, 2022.

Similarly, site visit to Nyantakara village showed that, there were 24 batteries, one battery was not functioning and is disconnected, only 23 were connected but the connected 23 batteries were still not functioning as they could not store power. As a result, the connected customers got electricity power between 4 - 6 hours per day during day time when there was sun light.

Furthermore, site visit to Mavota village showed that, there were 24 connected batteries but only 16 batteries were functioning and 8 batteries were not functioning. Through the interview with official of the developer, the audit noted that, despite 16 out of 24 connected batteries to be functioning, the voltage of individual battery was below the required value of 2 Volts, hence the 16 batteries that were claimed to be functioning could not store power charges and up to the duration of this audit, the electricity power supply was directly from solar panels. **Photo 5.5 (a) - (d)** hereunder indicates batteries that were found not functioning from the visited sites in villages located in Ngara and Biharamuro districts in the Kagera region.



Photo 5.5 (a): Non-functioning batteries at Mavota Village - Biharamulo District, the Photos were taken by the Auditors on 29th December, 2022



Photo 5.5 (c): showing non-functioning battery disconnected from other batteries placed on surface



Photo 5.5 (d): showing 23 batteries connected however they are not functioning



Photo 5.5.4: Depleted batteries due to non-maintenance and abandonment at Iglansoni Village Power plant. Photo was taken by the Auditors on 22nd December, 2022.

(a) Non - Operating Fuel Generators

Based on site visit conducted to the project areas in Bugarama, Murusagamba, Mavota and Nyantakara villages, the audit noted that inadequate supply of electricity power was also attributed by non - operating diesel generators and that the generators were not operating due to reasons including lack of fuel and non-functioning factor due to lack of maintenance. **Table 5.15** depicts the visited sites with non-operating generators.

Table 5.15: Site Visited with Non - Operating Diesel Generator

District	Village	Power availability	Status of generator
Ngara	Bugarama	Power supply is not strong enough to run home appliances, once there is no sun light the power also goes off.	Generator available but is not switched on due to lack of diesel
	Murusagamba	Power supply is only day time, no power at night as all batteries are not functioning since June, 2022	The Generator is not functioning since June 2022 and it has not undergone maintenance.
Biharamulo	Nyantakara	Villagers get electricity power between 4-6 hours per day. For 24 batteries, 1 does not functioning and is disconnected, only 23 are connected but the connected 23 batteries are not functioning as they cannot store power	The Generator did not have diesel, hence it is not operating due to lack of operational cost and has not been operation for four months.
	Mavota	Batteries power decreased but they brought other batteries which	The Generator did not have fuel, no maintenance and it was not operating until re-

District	Village	Power availability	Status of generator
		were also not good. No maintenance was undertaken. Power supply is for about five hours only.	fueling it due to operational costs.
Ikungi	Iglansoni	There was power outage and the facility was non-functioning due to mechanical defects of metering equipment.	Automatic back-up diesel generator is mechanically defective since October 2021 and is not working.
Manyoni	Londoni	There were no details of maintenance of batteries as the facility was not attended	Back-up automatic diesel generator was not working and therefore the facility was inactive.
	Saranda	There were no details of maintenance of batteries as the facility was not attended	Back-up automatic diesel generator was not working and therefore the facility was inactive.

Source: Auditors' Analysis on Collected Data from Visited Villages (2023)

From **Table 5.15**, it is shown that, all the four generators in four visited villages were not operating hence power was not supplied when solar power went down and when batteries did not provide power.

It was noted that the generators did not operate due to mechanical faults that the site technician could not attend and the technicians from head office did not visit site to attend such faults including lack of diesel in the three generators.

Failure of the generators to operate resulted into non-supply of power when solar power was not available. According to the connected customers, inconsistencies in power supply impacted the economic activities such as stationeries, operators of business centres.

(v) Verification of Installation of High Tension and Low Tension

Based on site visit conducted to villages in Ngara, Biharamulo, Ukerewe, Buchosa, Ikungi and Manyoni Districts, the audit noted that all required poles (HT and LT) had been installed as per accepted specifications, and the conditions of poles were verified and found to have no cracks, and poles had the required width - diameter.

However, the audit team could not verify the number of poles (HT and LT) installed due to the fact that some locations in which poles were fixed were not accessed. Details of some specifications in installation of poles are presented in **Table 5.16**.

Table 5.16: Medium Voltage and Low Voltage Pole Foundation Depth

Voltage Capacity	Pole Size (m)	Depth (m)	Implemented	Auditor's remarks
Low Voltage	9	1.5	1.5	Complied
	10	1.8	1.8	Complied
Medium Voltage	11	1.8	1.8	Complied
	12	2.0	2.0	Complied
	13	2.2	2.2	Complied

Source: Auditors' Analysis from the file observation (2022)

From **Table 5.16**, it is shown that, the installation of poles met the required specifications which were used for the implementation of off - grid projects.

(vi) Risk due to unavailability of Operational and Maintenance Schedules

(a) Lack of Operational and Maintenance Schedule

Based on site visits conducted to project areas, the audit noted that there was no operational and maintenance schedule. Lack of operational and maintenance schedule indicated that, there were no systematic procedures on how to operate the power generation facility and there was no time intervals allocated for carrying out maintenance to the power generation facility in case there were technical problems.

As a result, generators were not attended for maintenance by either technical personnel from head office of the developer (PowerGen) or by the site technician.

Also, lack of operational and maintenance schedule did not provide solutions to technical problems that happened at field such as what to do with non-functioning batteries.

(b) Safety (Protection) of Infrastructures

Based on site visit conducted to the project area and assessment of function of fire extinguisher at Bugarama power house, the audit noted that the service on supplied power extinguisher was done on 5th July, 2022 and expected to expire on 5th January, 2023, however, the audit noted that, the label showing activeness of the fire extinguisher was on red mark indicating the equipment had already expired.

Also, the audit team assessed function ability of the Fire Extinguisher at Mavota village and found that, the fire extinguisher was serviced in 5th July, 2022 and was supposed to be serviced before 5th January, 2023 and the gauge was in the green colour indicating that it was functioning.

The audit team assessed Fire extinguisher function ability for Nyantakara village and found that, the extinguisher was lastly serviced on 5th July, 2022 and the next service was expected to be on 5th January, 2023 and the gauge was moving from green colour to red as the date for the next service was approaching. In Iglansoni Village in Ikungi District (Singida), the fire extinguishers were not maintained and the whole power plant premise had only one portable extinguisher as indicated in **Photo 5.6**.



Photo 5.6: Fire extinguishers which had no maintenance label and was abandoned at site without replacement at Iglansoni Village in Ikungi District (Singida). The photo was taken by Auditors on 19th December, 2022

5.5 Inadequate Management of Fund for RBF Off-Grid Sub-Program

5.5.1 Delays in Requesting the RBF Fund

According to the Specific Agreement (FA) between GoT and Sweden as per Clause 6.3 and 6.9, REA was required to fulfill the reporting requirements including annual work plan and annual budget that are to be submitted to Sweden latest by 15th March each year.

However, the audit review of details of requests for payments indicated that there were delays in request for funds to finance RBF program.

Below are the details of status for request for payments. **Table 5.17** shows the trend of submission of request for funds as requested by REA from Sida.

Table 5.17: Trend of Request for Program Funds for Off Grid-Renewable Energy Projects

Financial Year	Submission Date of Request for Funds	Actual Date of Submission of the Request	Delay in Days
2015 (Fourth Quarter)	-	-	-
2016	15 th March 2016	26 April 2016	42
2017	15 th March 2017	-	
2018	15 th March 2018	18 August 2018	156
2019	15 th March 2019	-	
2020	15 th March 2020	7 October 2020	206
2021	15 th March 2021	24 September 2021	193
2022	15 th March 2022	-	

Source: Auditors' Analysis of REA's Funds Disbursement details, 2015-2022

Table 5.17 shows that the delay in submitting the requests for program funds by REA ranged from 42 to 206 days. Maximum delay was noted in the year 2020 (206 days) while the lowest was in 2016 with 42 days. However, in 2017, 2019 and 2022, it was noted that REA did not request for any funds as per the agreement.

This means that REA did not adhere to the terms of the agreement with regard to submission of the fund requests. Review of the request letters showed that there were no reports which were submitted in support of the request letters to justify the need for funds. Interviews held with program accountant and planning officials showed that, the delay was not anticipated because the disbursement of funds by Sida depended on whether the disbursed amount was expended at least by 75%. Therefore, REA only requested for funds, after consultation with Sida, where there was a need for funding and the calls for proposals from private developers.

However, the Audit Team noted that REA was not timely (refer to Table 5.17) submitting supporting documents such as annual work plans and budgets when requesting for program funds. This made it difficult to ascertain whether the requested amount equaled the level of compliance with the terms and condition of funds request agreement.

As a result, up to the time of this audit, only 9 out of 13 private developers managed to complete their contractual obligations while 4 had not yet completed the projects as per their respective contracts.

5.5.2 Delay in Disbursement of Funds by SIDA

Clause 4.2 and 6.2 of the specific agreement between GoT and SIDA requires SIDA to disburse RBF program funds on semi-annual basis in installments.

However, review of the disbursement details indicated that there was delay of disbursement of funds from Sida. Review of the disbursement details from Sida showed that there were inconsistencies and delays in disbursement of funds as compared to the terms agreed in the specific agreement. Inconsistencies were assessed based on the trend in installments of fund, which was not regular as per the specific agreement while delays were measured by comparing the expected date of funds disbursement as per specific contract with the actual disbursement dates. **Table 5.18** shows extent of delay in disbursement of funds as per the agreement.

Table 5.18: Extent of Delays in the Disbursement of Funds by Sida

Year	Disbursement Date	Actual Date of Submission of the Request	Date of Disbursement	Delay in Days
2015 (Fourth Quarter)	01-Apr-15	No requests	16-Dec-15	259
2016	01-Sep-16	No requests		
	01-Apr-17	No requests		
2017	01-Sep-17	No requests	22-Nov-17	82
	01-Apr-18	No requests		
2018	01-Sep-18	No requests	30-Jan-19	151
	01-Apr-19	No requests		
2019	01-Sep-19	No requests		
	01-Apr-20	No requests		
2020	01-Sep-20	07-Oct-20	20-Dec-20	74
	01-Apr-21	No requests		
2021	01-Sep-21	24-Sep-21	29-Dec-21	96

Source: Auditors' Analysis of REA's Funds Disbursement Details

Table 5.18 shows that there were delays and inconsistencies in request and disbursement of funds on part of REA and Sida. As indicated in the Table above, during the program period, Sida made five disbursements. However, there were delays during the first year of the program where Sida delayed disbursing fund which ranged between 74 and 259 days.

The interviews held with REA officials responsible with the program indicated that, the disbursements made by Sida depended much on the extent of utilisation of the previous disbursements by private developers and in accordance with the signed contracts based on accomplishing the two first installments and the final installments. In that case, it was difficult for Sida to follow the disbursement installments as per the specific agreement. Also, the inconsistencies noted were a result of timing for call of proposals from private developers therefore, funds were requested only when they were needed to fund successful private developers.

However, review of the disbursement details submitted by REA did not document the basis for delay and inconsistencies in disbursement of funds from Sida. Due to this inconsistency, the first installment that was disbursed by Sida in 2015 was not timely utilised for off-grid projects because the process of issuing calls had not yet started. It was noted that the first calls were initiated in the year 2018 where Sida had already made two disbursements.

5.5.3 Program Funds were Not Disbursed as Per the Approved Requests and Budget

According to Clause 6.2 of the specific agreement between GoT and Sweden, the financing provided by Sweden were required to be paid in installment upon receipt and approval of written payment requests including both the Swedish & DFID contribution signed by the Government of Tanzania.

The review of payments details provided by REA showed that funds disbursed did not match the requested and approved amounts. **Table 5.19** shows the requested amount against amount of funds disbursed.

Table 5.19: Comparison between Requested Amount and Disbursed Amount

Year	Payment Schedule in Installments	Requested Amount (SEK)	Amount Disbursed (SEK)	Difference (SEK)
2015	4 th Quarter	No request	150,000,000	No proof of request date
2016	2 nd Quarter	No request	-	
	4 th Quarter	No request	-	
2017	2 nd Quarter	No request	150,000,000	No proof of request date
	4 th Quarter	No request	-	
2018	2 nd Quarter	No request	-	
	4 th Quarter	No request	-	
2019	2 nd Quarter	No request	150,000,000	No proof of request date
	4 th Quarter	No request	-	
2020	2 nd Quarter	40,000,000	40,000,000	0
	4 th Quarter	No request	-	
2021	2 nd Quarter	110,000,000	110,000,000	0
	4 th Quarter	No request	-	

Source: Program Payment Schedules (2022)

Table 5.19 shows that since the start of the program in 2015, REA made only two requests for fund in the year 2020 and 2021. Both requests were made in the second and first quarter respectively. REA did not provide records of requested fund for the years 2015 to 2019 and hence the Audit Team could not verify whether the amount requested was that which was disbursed.

However, the availed request for funds indicated that Sida was able to disburse the exact amount which was requested by REA to fund program rural electrification off-grid projects undertaken by private developers in the identified villages in the country.

The reason for non-disbursement of fund as per the requested amount was due to the fact that, at the time of the request the calls for proposal had been announced and thus fund was to be secured to ensure that the successful applicants (developers) received fund timely in order to implement the earmarked projects in the selected villages.

5.5.4 Funds Not Utilised as Per the Approved Program Activities

According to Clause 6.10 of the Specific Agreement between GoT and Sweden, the financing provided by Sweden was supposed to be used exclusively to cover expenditure allocated for the program as per program document and as detailed in the approved plan and budget for the respective government fiscal year.

Review of the Annual work plan and budget and annual progress reports for financial years 2015/16 to 2021/22 showed that REA, in consultation with Sida, had set aside a budget for supporting off-grid renewable energy projects in a total of USD 10,805,200 which had planned to issue grants to prospective 13 private developers for off-grid renewable energy who would provide electricity to predetermined villages.

Review of the annual work plans and budgets and the request letter with reference number BC143/292/01/'A'/147 dated 7th October, 2020 indicated that the allocated fund equaling to TZS 114,501,793,527 (SEK 450,000,000) which was disbursed by Sida in 2015, 2017 and 2019 was used entirely for Technical Assistance for off grid, BTIP project, TANESCO: Makambako Songea project and RBF financing projects.

However, the reviewed REA annual plans and project completion report from the Trust Agent showed that operational costs which also covered technical assistance and consultancy services for the program period was also part of the program costs.

Furthermore, it was noted that off-grid projects did not take off until the financial year 2018/19 where REA initiated the first call for proposals for private mini-grid developers. It was further noted that, the annual plans did not specifically provide for the actual amount that was spent for technical assistance on off-grid projects.

Furthermore, review of annual plans and budget indicated that, there was no itemised activities indicating specific off-grid activities. According to REA officials responsible with off-grid projects, this was due to the reason that the funds were considered as grants and were disbursed to successful project developers to facilitate their projects.

5.5.5 Program Funds Not Adequately Managed

Clause 7.1 of the Specific Agreement between GoT and Sweden requires REA to maintain an appropriate financial management system for the program in accordance with the National Legislation and Public Financial Management System. Furthermore, Clause 9.1, 9.2 and 9.3 of the Agreement require REA to submit signed financial reports and narrative reports to Sweden no later than 30th September each year. The reports will indicate all expenditures for the program showing all sources of funding and expenditure. Below are the details of noted shortcomings:

(i) Delays in the Disbursement of Funds to Private Developers

Review of the progress reports and specific program files showed that REA was not adequately managing payments of funds. Planning for issuance of calls for proposal and grants was not adequate to cover the program documents' requirements.

Review of the contract documents for the private developers (for semi-annual call issued in 2016/17) and the RBF Off-grid Operating Guidelines, 2016 showed that private developers were supposed to be paid 35% as the first instalment upon submission of feasibility study, bank guarantee or acceptable securities, 35% upon delivery of materials on site and the remaining 30% upon final independent verification of the trust agent.

Review of payments made to private developers showed that there was delay in disbursement of funds to developers after signing of the contract as per the RBF Off-grid operating guideline. **Table 5.20** shows the trend of disbursement of 1st instalment funds to developers after signing of the contract.

Table 5.20: Delay in Disbursement of 1st Installment RBF funds to Developers

Developer	Contract Signing Date	Actual Disbursement Date	Extent of Delay in Days
M/s Nishati Associate Limited	19 th March 2018	10 th August 2018	144
M/s ACRA Foundation	14 th March 2018	21 st March 2018	7
M/s Ls Solutions Ltd	14 th March 2018	11 th July 2018	119
M/s Rift Valley Energy	17 th July 2018	30 th July 2018	13
M/s PowerGen	19 th March 2018	05 th July 2018	108
M/s Power Corner	14 th March 2018	27 th June 2017	260
M/s Matembwe Village Company	14 th March 2018	04 th July 2018	112
M/s Greenleaf Technology Solutions	19 th March 2018	01 st August 2018	135
M/s Power Electronics and Controls	17 th July 2018	01 st August 2018	15
M/s African Benedictine Sisters of St Agnes	19 th March 2018	27 th June 2017	265
M/s Ensol Ltd	04 th March 2018	27 th June 2017	250
M/s Jumeme Rural Power Supply	19 th March 2018	27 th June 2017	265
M/s Mwenga Hydro	17 th July 2018	21 st August 2018	35

Source: Contract and Fund Disbursement Details (2022)

Table 5.20 shows that there were delays in disbursement of funds to private developers to facilitate development of off-grid renewable energy projects in contracted villages. From the **Table 5.20**, it can be noted that delay ranged from 7 to 265 days after signing of the contracts. The highest extent of delay was noted for African Benedictine Sisters of St. Agnes and Jumeme Rural Power Supply (265 days) while the shortest time was noted for ACRA Foundation, which took 7 days to disburse fund upon signing of the contract.

According to interviews with Officials responsible with RBF off-grid projects at REA, the reasons for delay were attributed to delay in submission of bank guarantee or securities and environmental clearances by contracted developers. However, according to the RBF off-grid Operational Guideline, disbursement was supposed to be effected immediately upon signing of the

contract. Delay in disbursement of funds delayed the whole process of establishing the plants, and timely connections to customers.

As a result, up-to the time when the contract expired 10 private developers had achieved the target of connecting all customers as per contract while 3 had not met the target of the required number of connections.

Not all Grant Funds were Disbursed to Developers as Per Contract

The review of the contracts and private developers' business plans showed that each private developer was awarded a specific amount of grant fund to facilitate the development of off-grid renewable plants and ultimately ensure the agreed number of connections is attained.

The audit noted that not all private developers were paid in accordance with the contract. **Table 5.21** shows the amount paid to developers at the time when the contract ended.

Table 5.21: Payments Effected to the Private Developers

Developer	Contract Amount (USD)	Actual Disbursement to-date (USD)	Outstanding Amount (USD)
M/s Nishati Associate Limited	6,000	67,200	8,800
M/s ACRA Foundation	1,800,000	1,800,000	-
M/s Ls Solutions Ltd	50,000	35,000	5,000
M/s Rift Valley Energy	840,000	588,000	252,000
M/s PowerGen	829,000	829,000	-
M/s Power Corner	1,431,500	1,431,500	-
M/s Matembwe Village Company	112,200	112,200	-
M/s Greenleaf Technology Solutions	40,000	40,000	-
M/s Power Electronics and Controls	1,224,000	1,224,000	-
M/s African Benedictine Sisters of St Agnes	303,000	212,100	90,900
M/s Ensol Ltd	125,000	116,295	8,705
M/s Jumeme Rural Power Supply	2,334,500	2,334,500	-
M/s Mwenga Hydro	1,620,000	1,620,000	-
Total	10,805,200	10,409,795	395,405

Source: Auditors' Analysis of Payments Made to Private Developers (2022)

Table 5.21 shows that there were outstanding payments to some of the private developers despite the fact that their contracts came to an end. The highest outstanding amount was noted for Rift Valley Energy (USD 252,000) while the lowest was Ensol Ltd (USD 8,705). This means that, in total the outstanding amount for payments made to private developers was USD 395,405.

According to REA's officials, the remaining balance was allocated to the subsequent second call for proposal, which started in September 2019.

Furthermore, interviews held with Officials responsible for off-grid projects at REA indicated that the outstanding amount was a result of developers not meeting the targeted number of connections. M/s ACRA Foundation (Lugarawa hydro), M/s L's Solution (Samunge Solar), M/s Power Electronics and Controls (Makambako Solar), and Ensol (Mpanda Solar) did not respond to REA's request for a status update and hence their final payments were withheld. However, the audit noted that despite the fact that Power Electronics and Controls Ltd and M/s ACRA Foundation could not submit the project status update, yet they were paid the whole amount unlike M/s Ensol Ltd and M/s L's Solutions Ltd.

The Auditors could not verify the status of number of connections for all 13 projects due to inadequacy of verification reports from the Trust Agent, who was entrusted with conducting independent verifications prior to effecting final payments. As it was noted during the Audit, the Trust Agent was conducting verification exercise on an ad-hoc basis based on samples thereby leading to other developers' works and proof of connections not verified. As a result, projects implemented by the three private developers whose payments were not entirely paid were not completed on time, and hence the target of meeting the final expected number of connections was not fully met by the affected developers.

(ii) Inconsistency in Payments of Grant Funds to Private Developers

According to the RBF Off-Grid Operational Guidelines, the payments to successful developers were to be made in three installments. 35% advance payments upon signing of the contract, 35% upon delivery of materials on site and final 30% upon attainment of contracted number of connections and subject to independent verification by the Trust Agent.

However, review of payment schedules and details showed that there were inconsistencies in payments of grant funds to developers whereas some were paid in full in only two installments and others up to four installments. **Table 5.22** details the payment installments

Table 5.22: Number of Payment Installments Made to Private Developers

Developer	Contract Amount (USD)	Number of Installments	Total Amount Paid (USD)	Outstanding Amount (USD)
M/s Nishati Associate Limited	96,000	2	67,200	28,800
M/s ACRA Foundation	1,800,000	3	1,800,000	-
M/s Ls Solutions Ltd	50,000	2	35,000	15,000
M/s Rift Valley Energy	840,000	2	588,000	252,000
M/s PowerGen	829,000	3	829,000	-
M/s Power Corner	1,431,500	2	1,431,500	-
M/s Matembwe Village Company	112,200	3	112,200	-
M/s Greenleaf Technology Solutions	40,000	4	40,000	-
M/s Power Electronics and Controls	1,224,000	2	1,224,000	-
M/s African Benedictine Sisters of St Agnes	303,000	2	212,100	90,900
M/s Ensol Ltd	125,000	3	116,295	8,705
M/s Jumeme Rural Power Supply	2,334,500	3	2,334,500	-
M/s Mwenga Hydro	1,620,000	5	1,620,000	-
Total	10,805,200		10,409,795	395,405

Source: Auditors' Analysis of Payment Schedules (2022)

Table 5.22 shows that there were inconsistencies in disbursement of grant funds to successful private developers. Whereas the contract provided for disbursement in three installments, other private developers received full amount in only two installments. **Table 5.22** shows that M/s Power

Electronics and controls, and M/s Power Corner were paid full amount in only two installments contrary to the requirements of the contract and the RBF Off-Grid Operating Guideline. On the other hand, Greenleaf Technology Solutions and M/s Mwenga Hydro Ltd received grant funds in four and five installments respectively.

Interviews held with Officials responsible for Off-grid projects indicated that, the installment payments were made subject to the extent to which the developers managed to reach the targeted contracted number of connections. Therefore, the two installments made to the two above developers were due to the fact that they had reached the contracted number of connections. However, the audit noted that there were no verifications, which were conducted to show if the two companies had reached the expected number of connections. For the two developers whose payments reached to fourth and fifth installments, the reason provided was the fact that the developers were at initial stages of the projects, and therefore their payments depended on the status of the project development.

These insurances undermined the effectiveness of the RBF Operational Guideline and the requirements of the contract and ultimately could lead to malpractices during disbursement of grant funds and may jeopardize the effectiveness of terms and conditions of the contract and the Guideline and affect performance of other developers.

(iii) Final Payments Made without Final Verification by Trust Agent

According to the RBF Off-Grid Operating Guideline, REA was supposed to, upon completion of the final milestone in the Developer's Agreement, conduct an Independent Verification. While the Agent procured by Sweden will ensure that only verified outputs are reimbursed, through a) Certifying the physical delivery at pre-agreed standards of service of contractual outputs (new connections) as reported by the Developer, and b) Validate the total grant funding request (by multiplying number of connections achieved by unit grant), and recommending to the REA to honor payment

Review of the final payments requests and disbursements revealed that there were payments, which were made to developers without final

independent verification by the Trust Agent. **Table 5.23** shows the list of developers who were paid final installments without proven independent verification by the Trust Agent.

Table 5.23: Status of Independent Verification of Developers Prior to Disbursement of Final Installment of the Grant Funds

Developer	Total Amount Paid (USD)	Outstanding Amount (USD)	Status of Independent Verification
M/s Jumeme Rural Power Supply	2,334,500	-	x
M/s ACRA Foundation	1,800,000	-	✓
M/s Mwenga Hydro	1,620,000	-	x
M/s Power Corner	1,431,500	-	✓
M/s Power Electronics and Controls	1,224,000	-	✓
M/s African Benedictine Sisters of St Agnes	212,100	90,900	x
M/s Ensol Ltd	116,295	8,705	x
M/s Matembwe Village Company	112,200	-	X
M/s Rift Valley Energy	88,000	252,000	X
M/s Greenleaf Technology Solutions	40,000	-	X
M/s Ls Solutions Ltd	35,000	15,000	X
M/s PowerGen	29,000	-	X
M/s Nishati Associate Limited	67,200	28800	X
Total	9,109,795	395,405	3

Source: Auditors' Analysis of Final Independent verification Report, July 2019

Table 5.23 shows that in 13 projects implemented by 13 developers, only 3 projects were verified according to the Trust Agent report and Consultant's close out report of July 2019. This means that out of 13 RBF Off-grid projects implemented only 3 were verified which is equivalent to 23% of all projects. Furthermore, the analysis shows that other projects with the exception of projects with outstanding payments were paid their final instalments of grant funds without verification of the works and number of connections as required by the RBF Off-Grid Operating Guideline.

The impact of such trend is that there is likelihood that final payments were made to project developers without due regard to the actual number of connections as per contract agreement, and hence they could hinder the expected achievements of the program objectives.

5.5.6 Program Funds Not Adequately Utilised

The RBF Off-Grid Operating Guideline requires REA to utilise fund in accordance with the contract requirement and expected outputs which was the number of connections. Review of the contract documents indicated that there was a balance of USD 3 212 700 which was not utilized for the intended purposes. **Table 5.24** provides the analysis showing the extent of grant funds utilization up to the end of the contracts, which was July 2019.

Table 5.24: Extent of Grant Funds Utilisation as of July 2019

Instalments	Amount Paid (in USD)	Un utilised amount (in USD)
1 st Disbursement	3,781,820	395,405
2 nd Disbursement	3,174,745	607,075
3 rd (final) Disbursement	2,153,230	692,865
Total	9,109,795	1,695,345

Source: Auditors' Analysis of Disbursement Details from the Status of Projects Report as of July 2019

Table 5.24 shows that, the total amount of the RBF Off-Grid disbursed by July 2019 was USD 9,109,795 out of USD 10,805,140 that was the project amount. Therefore, there was still USD 1,695,345 amount, which was yet to be utilised for funding the contracted developers in accordance with the signed contracts and the RBF Off-Grid Operating Guideline.

5.6 Results and Impact of Green Min and Micro Grid Electrification Program

This section presents the achievement of immediate and medium-term results of rural electrification project to the society through green mini and micro-grids electrification and sustainability of the green mini and micro-grids in rural areas. It describes the achievement of rural electrification of green min and micro-grids in rural Tanzania.

5.6.2 Achievement of the Rural Green Min and Micro Grid Electrification Projects

Rural electrification projects with use of developers were intended to supply electricity to achieve the number of customer connections, provision of

electricity services hours per day in accordance with Tiers and benefit women owned business in rural villages. Through the audit which was conducted to the implemented Green Min and Micro Grids projects, there were noted deficiencies as described in the following sub-sections:

Only 20% of households connected to the Green Min and Micro Grid

The programme document for SIDA and DfID Financial Support to the Rural Energy Fund (REF) requires REA to improve electricity access for at least 430,000 peoples (86,000 households) through green mini and micro-grids.

Since the Rural Energy Agency (REA) was required to improve access to electricity for at least 86,000 households, this same number of electrical accesses was to be realized to the rural areas of Tanzania including villages in Islands and those on the land.

Through review of the completion project reports and Developers' request of financial project payments and Call Reports for the ad hoc visit Paid for Verification to Connected customers under Result Based Financing Program, the Audit Team noted that REA through the use of Developers managed to connect 17,302 households to Green Mini and Micro grid electricity. This number was equivalent to 20% of the agreed target of connecting 86,000 households living in rural Tanzania.

Furthermore, the audit noted that the only implemented connection of households to the Green Min and Micro grid was under the initial phase of Result Based Financing (RBF) mode name RBF1 with the reported achievement of 86% as detailed in **Table 5.25**.

Table 5.25: Status of Customer connectivity by 13 developers of green Min and Micro grid

Name of Project	Agreed Connections	Implemented Connections	% Implemented
M/s Nishati Associate Limited	160	160	100
M/s ACRA Foundation	3,000	3,000	100
M/s Ls Solutions Ltd	100	80	80
M/s Rift Valley Energy -Mwenga	2,700	2,700	100
M/s Rift Valley Energy- Luponde	1,400	420	15
M/s PowerGen	1,658	1,658	100

Name of Project	Agreed Connections	Implemented Connections	% Implemented
M/s Power Corner	2,863	2,863	100
M/s Matembwe Village Company	187	187	100
M/s Greenleaf Technology Solutions	80	80	100
M/s Power Electronics and Controls	2,448	1,155	47
M/s African Benedictine Sisters of St Agnes	505	80	16
M/s Ensol Ltd	250	250	100
M/s Jumeme Rural Power Supply	4,669	4,669	100
Total	20,020	17,302	86

Sources: Auditors' Analysis of information from the project Implementation reports by REA (2022)

Table 5.25 shows that, 17,302 out of the agreed 20,020 connections were implemented by 13 developers which is equivalent to 86% under RBF1. These connections of 17,302 made under RBF1 represents 20% of 86,000 connections required under the agreement made between SIDA and the Government of Tanzania.

It was noted that, non-achievement of the project was due to the inadequate preparation by REA of the preliminary works/process that were required to be fulfilled before progressing the green min and micro grid. It was further noted that, this delayed start on the implementation of the program as the implementation of program started in the year 2018, delaying 2 years from the expected start year which was 2016.

Moreover, another reason for non-achievement of the project was REA's failure from achieving the objective under SIDA program that focused on increasing the private sector investment in renewable off-grid and min-grid. REA was required to ensure increase of private Sector investment in renewable off-grid and min-grid by use of various financial instruments.

Interviews with officials from REA HQ revealed that delay in implementing the project was due to DfD withdrawing its fund from the programme which was intended for the increased private sectors investment in renewable

Energy. Further, the delay was emanated from unforeseen preliminary process which took long time from commencing the project.

The untimely acquisition of electrical connections through SIDA program resulted in the loss of government grants for developers whose projects encroached upon the national grid. As a result, these projects were closed down before they could benefit the intended population. This issue was observed in the M/s LS Solution LTD project in Samunge Village, Arusha Region, whose cost was USD 50,000, as well as the M/s PowerGen Project in Nemba Village, whose cost was USD 109,200.

In addition, other sites are also at risk of being closed due to encroachment on the national grid, including M/s PowerGen sites in the Kagera Region. Therefore, none attainment of the project goals was contrary to the agreements for the provided grant and does not prove the value for money to the utilized grant.

(i) *Less hours of electrical supply to customers in green min and micro grids not in accordance to the stipulated Services Tiers*

The Operating Guidelines of July 2016 for result-based financing of developers to investment in green Mini and Micro Grids require the electrical developers to implement Green Min and Micro Grids that meet the number of hours of electrical supply to households depending on the project tiers as indicated in **Table 5.25**.

Table 5.26: Service Levels for the Green Min and Micro Grid Electricity Projects Implemented under RBF1

Category	Corresponding Service Level
Tier 5	More than 22 hours a day, more than 4 hours evening supply
Tier 4	More than 16 hours a day, more than 4 hours evening
Tier 3	More than 4 hours a day, more than 2 hours evening supply

Source: Auditors' Analysis of Information from RBF Operation Manual (2022)

The developers' categories of service provisions of Green Min and Micro Grid electricity, which were covered under this audit, varied from one developer to another. It was revealed that most of developers were in category 4 and the rest were in category 5 of service tiers as presented in **Table 5.27**.

Table 5.27: Services Level of Developers in Visited 26 Villages

Name of Project Developer	Agreed Services Tiers
M/s Power Gen	4
M/s Jumeme	4
M/s PowerConer	4
M/s Green leaf	4
M/s Rift Valley	5
M/s Power Electronics and Controls	4

Sources: Auditors' Analysis of information obtained from Operating Guideline and contracts between REA and Developers (2022)

Table 5.27 shows 5 out of 6 visited developers under the audit were in category tier four of provision of electricity to customers, while one developer fell under category 5 of service level provision.

Through the audit visits to 26 villages where the Green Min and Mirco grids, were implemented, it was noted that 20 out of 26 villages were either receiving less number hours of electricity supply in a day or some villages did not have electrical supply at all. This was central to the agreed service tiers between REA and developers. The details on the status of the number of hours of electrical supply services in the visited villages was as presented in **Table 5.28**:

Table 5.28: Villages supplied electricity will less hours per day.

Name of Project Developer	Total Villages	Villages Supplied less hours (<10hrs)	No Electricity at All
M/s Power Gen	8	4	4
M/s Jumeme	6	5	0
M/s PowerConer	4	2	0
M/s Green leaf	2	2	0
M/s Rift Valley	3	0	0
M/s Power Electronics and Controls	3	2	1
Total	26	15	5

Sources: Auditors' Analysis of information obtained from site visit (2022)

Table 5.28 shows that 15 out of 26 villages, equivalent to 58%, were supplied with electricity for less than 10 hours a day, while 5 out 26 villages, equivalent to 19%, were not getting electricity at all.

Presence of Green Min and Micro Grid supplied with electricity for less hours than the agreed tiers was attributed to factors such as inadequate maintenance of power generation plants, change in tariffs, inadequate supervision to the implemented projects by REA. The description on the causes was as following:

(i) Inadequate Maintenance of Power generation plants

The Audit team noted that the power generation infrastructures were not scheduled for maintenance in the projects which were implemented by developers, namely; PowerGen, Green Leaf and Power Electronics. The audit further noted the presence of power Generation plants with defective batteries, and this was the situation that led to lack electrical energy storage capacity to sustain number of hours of electrical supply to customers. Therefore, it was noted that only during sunny hours the electrical supply was available to customer and in the case of cloudy day, there was no supply.

(ii) Failure of Developers to run back diesel generators for the purpose of power generation when the main sources were down

The audit team noted through site visit to the implemented Green Min and Micro Grids that most of the sites depended on the main sources of energy such as solar and wind while in times where the main sources were unable to provide electrical energy the backup generation was considered to cover the power generation gap and hence ensure the electrical supply to the stipulated hours to benefit the customers.

However, the audit noted that less hours of electrical supply than that which was demanded. This was attributed to no use of backup option of electrical generation to sustain the demand in times where the main sources of electricity were not in the capacity of generating the required amount of energy. This occurrence was noted in the sites under developers, namely; M/s PowerGen, M/s Jumeme, M/s Green Leaf, M/s Power Electronics and M/s Power Corner.

Through interviews with developers to the visited sites, it was noted that the projects did not manage to meet their operation cost enough to run the diesel backup generators due to less amount of fund earned from users as it

was not enough to cater for maintenance of back diesel. This was due to changes on Tariff that was made in August 2020 to become TZS 100 per unit KW-hours disregarding the investment and operation cost of the projects. Detailed of change in the tariff in the visited projects is as indicated in Table 5.29.

Table 5.29: Changes of Tariff to Green Min and Micro Grid

Name of Developer	Initial Tariff (TZS/kWh)	Tariffs after change (TZS/kWh)	New Tariff (TZS/kWh)
M/s PowerGen	1,500 to 3,000	100	1,200 to 1,500
M/s Jumeme	2500 to 3500	100	1,130 to 1,470
M/s Power Corner	1,000 to 3,000	100	1000 to 1500
M/s Power Electronic	1,500 to 3,000	100	1000 to 1500
M/s Rift Valley	1,000 to 3,000	100	1000 to 1500
M/s Green Leaf	1,500 to 3,000	100	1000 to 1500
M/s Ensol	1,000 to 3,000	100	1000 to 1500

Source: Auditors' Analysis (2022)

Table 5.29 shows that, Tariff drop in August 2020 ranged from TZS 1,030 to TZS 3,400 per unit kWh which was the significant amount on income generation of the developed Green Min and Micro Grid projects in the rural areas.

Due to the less hours of electrical supply to customers in the visited villages, the developed projects were not in line with the requirements of grants and did not meet the power demand to the users of electricity in areas such as business, small enterprises, home lighting, and there was no evidence that the developed projects reduced the living cost to customers in the villages rather than in the visited villages. However, customers were found using other options for power supply such as use of diesel generators and home electrical solar system for milling machines, business and for home lighting.

(iii) Total number of businesses connected (measuring productive use of female owned businesses)

Operating Guidelines GMG result basing financing by SIDA, 2016 indicate that one of the achievement indicators of the green min and micro grid projects

implemented in the country was to ensure the number of businesses connected while measuring productive use of the female owned business.

The audit noted that, the implementation of Green Min and Micro Grid did not put into consideration connecting female owned businesses as among priorities of the grant. This was evidenced that Developers lacked plans which prioritized female owned business being considered for connectivity to the Green Min and Micro Grid in the areas where the projects were implemented. As a result, few female owned businesses benefited to the projects as revealed during the audit visit in the villages where the projects were implemented, the condition was as detailed in **Table 5.30**.

Table 5.30: Analysis of Female Owned Businesses benefited from the Village Electrification Project

Name of Developer	District	Randomly Picked Business	Female Owned Business
JM/s umeme	Ukerewe	14	1
	Buchosa	9	1
M/s PowerGen	Ngara	4	0
	Biharamulo	10	0
	Ikungi	5	2
	Londoni	8	2
	Saranda	5	0
M/s Power Corner	Liwale	10	1
M/s Green Leaf	Kilwa	12	0
M/s Power Electronics	Makambako	6	1
M/s Rift Valley	Njombe	5	1
Total		88	9

Source: Auditors' Analysis from Questionnaires (2022)

Table 5.30 indicates that in the visited 8 districts the number of female owned businesses were 5 out of 70 which is equivalent to 7%. This generally indicates inadequacy to the implementation of Green Min and Micro grid according to the grant requirement.

Interviews with developers in the selected sites, stated that the reason for not achieving the prioritization to connect female owned business was due to location of the businesses. Projects did not have other means of enhancing women to own businesses, however, after being connected to

electricity it was expected that they would run their businesses and increased the electrical power demand.

Also, REA did not have a specific number of women to benefit in each village covered under the program. Non-attainment of productive use of Green Min and Micro Grid electricity to female owned business, this being one of the indicators for the project success, the developed projects would not meet the grant requirement including not improving the lives of Tanzanians in the rural settings.

5.6.3 Implemented rural projects that were not cost effective

Clause 2.4.5 of the Approval process for Public Investment Project requires decision for implementing public Investment to consider affordability and cost effectiveness. Therefore, REA was required to ensure that the implementation of green mini and micro grid projects were implemented with a concern on affordability and cost effectiveness.

The implementation of Green Min and Micro Grid in some of the projects were not cost effective due to being coexisted with the National grid in the same areas/villages. There were villages whose projects coexisted with the national grid. **Table 5.31** depicts the number of villages which the National grid coexisted with the Green Min and Micro Grids.

Table 5.31: Village that Grid and Green Min and Micro Grids Co-existed.

Name of Developer	Total Village Visited	Number of Villages with co-existence
M/s PowerGen	9	6
M/s Power Electronics	3	1
M/s Power Corner	4	2

Source: Auditors’ Analysis (2022)

Table 5.31 shows that 9 out of 16 visited villages which is equivalent to 56% were found having both the Green Min and Micro grid and are at same time connected to the National Grid.

The existence of both National Grid and Green Min and Micro Grid in areas where developers implemented electricity projects was due to a reason that REA did not have adequate mechanism of allocating electrical projects in

rural area of Tanzania. As a result, there was presence of Green Mini and Micro Grid projects that were dormant just after installations and did not prove economically viable, such as the implemented Green Min and Micro Grid projects in Engalasoni, Ikungi in Singida Region; Nemba in Kagera Region and Loliondo in Arusha Region.

5.6.4 Rural electrification projects impact on the socioeconomic and living condition of rural community

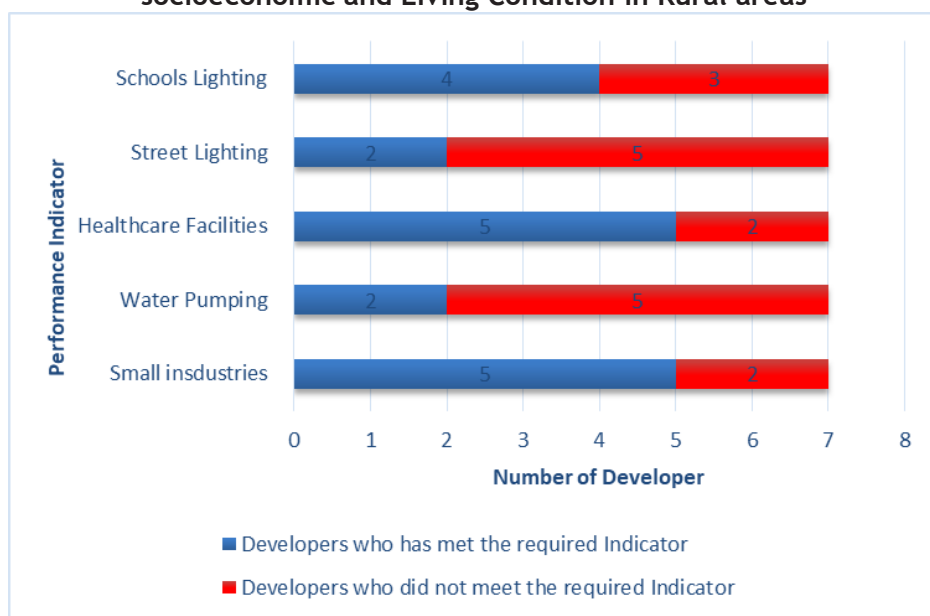
According to Para 4.1.2 of the Program Document¹⁵, 2015, the impact level, REA's development objective is to contribute to sustainable socio-economic development and poverty alleviation in rural areas of mainland Tanzania by increased access to modern energy services in an environmentally sound manner and with due regards to gender issues. The envisioned impact of the program was enhanced economic growth, poverty reduction and climate benefits by increased access to sustainable and affordable modern energy services in rural Tanzania.

Furthermore, according to Annex 5 of the Programme Document, 2015, for Key Performance Indicators (KPIs), REA was required to assess the number of People benefiting from improved health services (catchment population); students benefiting from improved education, out of which are females; Households, out of which are female headed; Businesses, out of which are female owned; Community water pumps; Healthcare facilities and educational facilities.

The audit noted that, the implemented Green Min and Micro Grid in the country to some extent did not impact positively the lives of citizens, rather than people continued to live with their usual sources of energy. This was revealed in the visited sites whereby in the implemented projects 49% of Developers did not meet the power demand to citizens in rural areas as per the performance indicators of the grant as was detailed in **Figure.5.1**

¹⁵SIDA and DFID Financial Support to the Rural Energy Fund (REF), Tanzania, 2015

Figure 5.1: Status of Green Min and Micro Grid on Impacting socioeconomic and Living Condition in Rural areas



Source: Auditors' Analysis of Questionnaires Used in REA Audit (2022)

Figure 5.1 shows that two out of seven developers had power supplied for water pumping, and Street lighting; four out of seven developer supplied electricity for street lighting, while five out of seven developers supplied electricity for school lighting and small industries.

It was further noted that, the Green Min and Micro grid did not meet the socioeconomic activities to rural societies due to inadequate scrutinization to assess the technologies that could be used by developer to assess whether it could meet the performance indicators for the grant.

Also, REA did not manage to set a clear measurement on the achievement of the set performance indicators for the impact to socioeconomic development in the villages supplied with the Green Min and Micro Grid Projects, rather than focusing on the number connections. There was no consideration on other factors such as capacity, availability and reliability of the generated electricity.

According to Program document the envisioned impact of the program was enhancing economic growth, poverty reduction and climate benefits by

increased access to sustainable and affordable modern energy services in rural Tanzania. Therefore, due to inadequate and unreliable power generation, these targets would be hard to be attained.

5.6.5 Sustainability of Established electrification services by Green Min and Micro Grid during the life cycle

According to the program document, the overall objective of the program was to contribute to reliable and sustainable energy with low climate impact. To make sure the projects were undertaken considering the sustainability was required to ensure adequate allocation of the projects, presence of reliable power generation plants and affordable technologies to compatibility of the TANESCO standards to meet the requirement of projects implementation under Tier 4 and 5 of rural electrification.

Through the site visit to rural electrification made by REA through Developers, the audit noted that one out of seven developers implemented the Green Min and Micro grid that meets TANESCO standards, also there was no scheduled maintenance or maintenance reports of the implemented projects of developers such as M/s Green Leaf, M/s Power Gen, M/s Green Leaf, M/s Power corner and M/s Power Electronics.

The implementation of the project which did not meet TANESCO standards, and the presence of unmaintained projects were attributed to the lack of a mechanism by REA, beyond funding, to ensure the sustainability of the implemented projects. As a result, the funds allocated as grants for electrification did not translate to reliable electricity for citizens in rural areas.

There is a risk of the utilized fund for rural electrification through Green Min and Micro grids not meeting its intended values, and risk of misallocation of fund in areas that have already been encroached by National Grids.

5.6.6 Level of Satisfaction on the Off Grid Village Electrification Program

This section contains information obtained from site visits that assessed the level of satisfaction as well as the challenges faced by people during the implementation of off grid village electrification program. **Table 5.32**

indicates the number and percentage of the people assessed during site visit.

Table 5.32: Number of People Assessed on the Level of Satisfaction of the Off Grid Village Electrification Program

Category of Beneficiaries	% Satisfaction of the Off Grid Village Electrification Program		
	Yes	No	Unaware
Household Beneficiaries	40	49	11
Small Scale Industry Owners	56	35	9
Social Service Providers	45	44	11
Small Scale Business Owners	35	55	10
Average	44	46	10

Source: Auditors' Analysis of Questionnaires Used in REA Audit (2022)

Table 5.32 indicates that, the responses from various groups on level of satisfaction revealed that 44 percent of beneficiaries were satisfied with the service, 46 percent were not satisfied while 10 percent had no idea on the level of satisfaction of the service provided through the Off Grid Village Electrification Program.

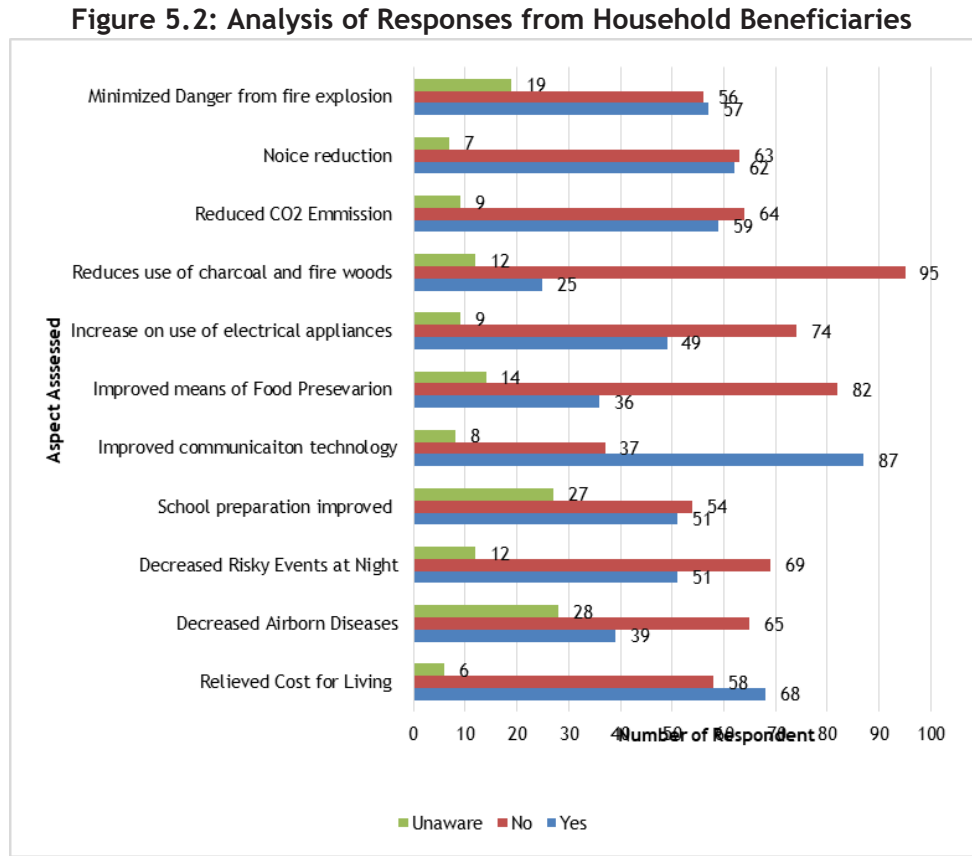
Further, **Table 5.32** indicates that, 40 percent of household beneficiaries were satisfied with the service, 49 percent were not satisfied while 11 percent were not aware of the level of satisfaction. Moreover, 56 percent of the Small-Scale Industry Owners indicated to have been satisfied with the service delivered by the Project Developers, 35 percent of them were not satisfied, whereas 9 percent of them had no any idea.

Based on the information provided in **Table 5.32**, it was revealed that 45 percent of the Social Service Providers were satisfied with the service from the Project Developers, 44 percent of them were not satisfied while 11 percentage did not have any idea on the level of satisfaction. Moreover, 35 percent of the Small-Scale Business Owners seem to have been satisfied with the service delivered through the Off Grid Electrification Program, 55% of them were not satisfied and 10 percent of them were not aware of the status of satisfaction.

The details of responses of each category (group) are indicated in the following sub-sections:

(d) *Level of Satisfactions of Household Beneficiaries*

Beneficiaries from the group of households provided their responses as they were given the opportunity to express their opinions whether they had benefited from the project. The summarised responses are shown in **Figure 5.2**.



Source: Auditors' Analysis of Responses of Beneficiaries on the Questionnaires (2023)

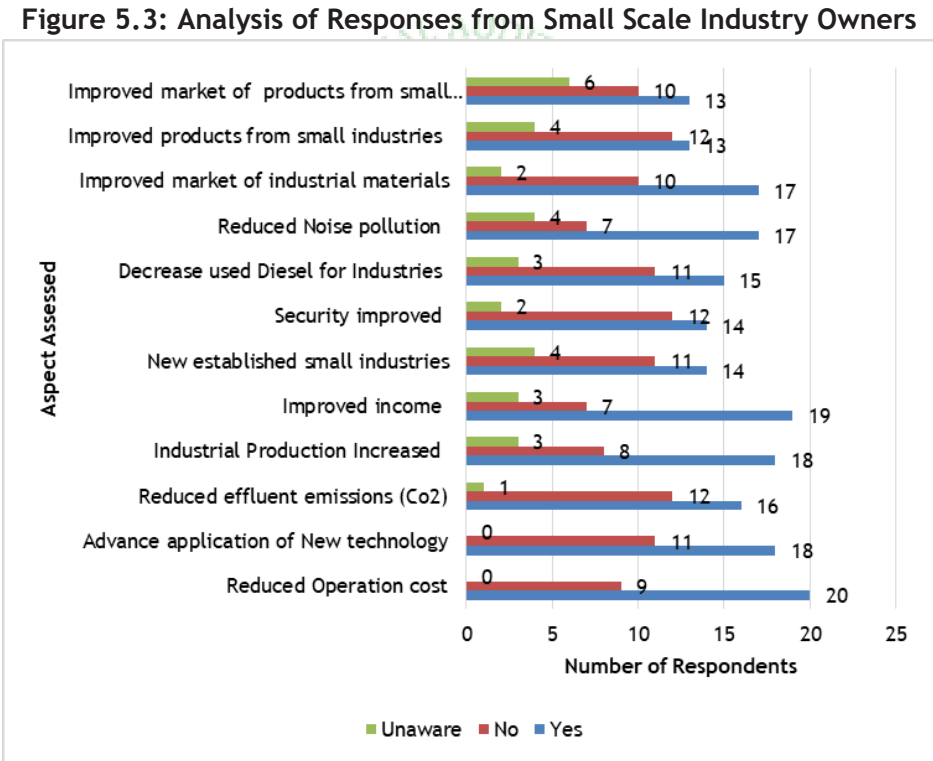
Figure 5.2, indicates that the use of green Min and Micro grid for households' improvement on their living standards at different degree of satisfactions. The great satisfaction responses were noted on the impact of project to the improvement of communication technology to communities benefited from the project, as presented on the figure, 87 out of 132 respondents equivalent to 65% responded YES on this regard, while the less satisfaction responses were obtained on the issues of reduced use of

charcoal and fire wood as an effect of the used Green Min and Micro Grid, only 25 respondents out of 132, equivalent to 18%, agreed that the introduction of off grid electricity impacted their use of both charcoal and fire woods as sources of energy for use.

Generally, the level of satisfaction on the use of Off Grid electricity was at 40% which indicates, the use of Green Min and Micro Grid in the Villages of Tanzania has not been satisfactory and inadequately meet the demand for electrical power in rural areas.

(e) Level of Satisfactions of Small Scale Industry Owners

Small scale industry owners as beneficiaries of the project were given the chance to express their opinions on the benefits of the project. Their responses were summarized in **Figure 5.3:**



Source: Auditors' Analysis of Responses of Beneficiaries on the Questionnaires (2023)

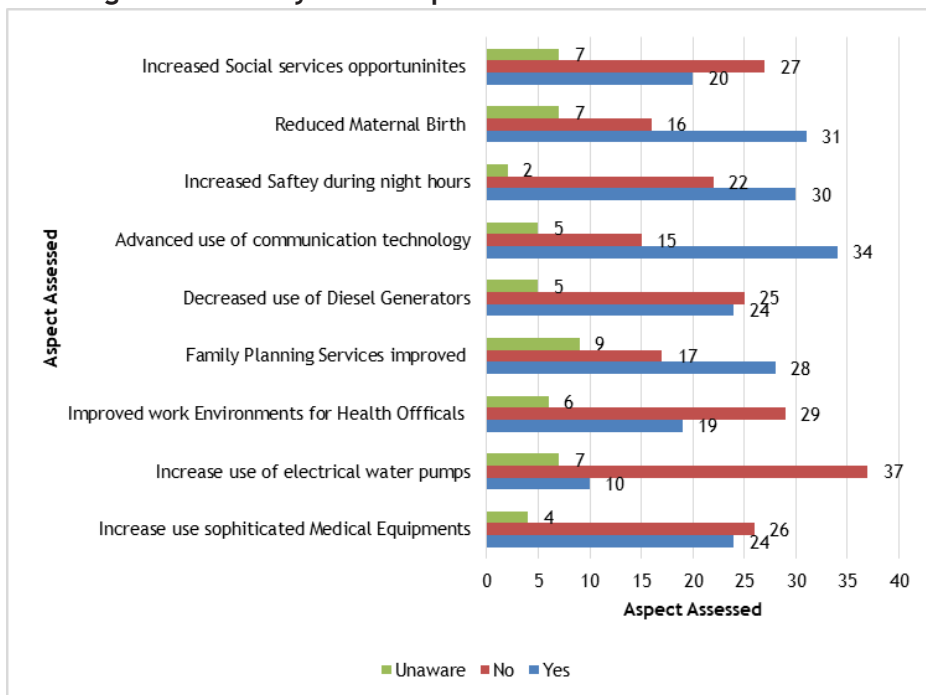
Figure 5.3 Indicates that the green Min and Micro Grid was satisfactory by 56%, however this percentage was not adequate for the projects implemented with a number of areas for being measured for satisfaction in respect to customers. The most response of satisfaction was delivered by 20 out of 29 respondents, equivalent to 69%, which was for the people who had the view that the implementation of the off-grid projects reduced their operation cost for using electrical energy to run their small industries. While, on the other hand, the least response was delivered by 13 out of 29 respondents, equivalent to 45%, that indicated satisfaction with electrical energy on the improvement of products and increased markets for the produced products from small industries. Therefore, the implementation of Green Min and Micro Grid did not adequately satisfied the intended customers in respect to the small industries in rural Tanzania.

(f) Level of Satisfactions of Social Services Providers

Officials from social services providers such as Hospitals, Schools, Church and Mosques, were given the chance to freely give their opinions through the questionnaires that were prepared based on the project goals on the respective group hence assessed the benefits and challenges encountered during and after implementation of the project.

Figure 5.4 provides the summary of details on the evaluated responses. The figure presents the achievement or satisfaction level from the officials.

Figure 5.4: Analysis of Responses from Social Service Providers



Source: Auditors' Analysis of Responses of Beneficiaries on the Questionnaires (2023)

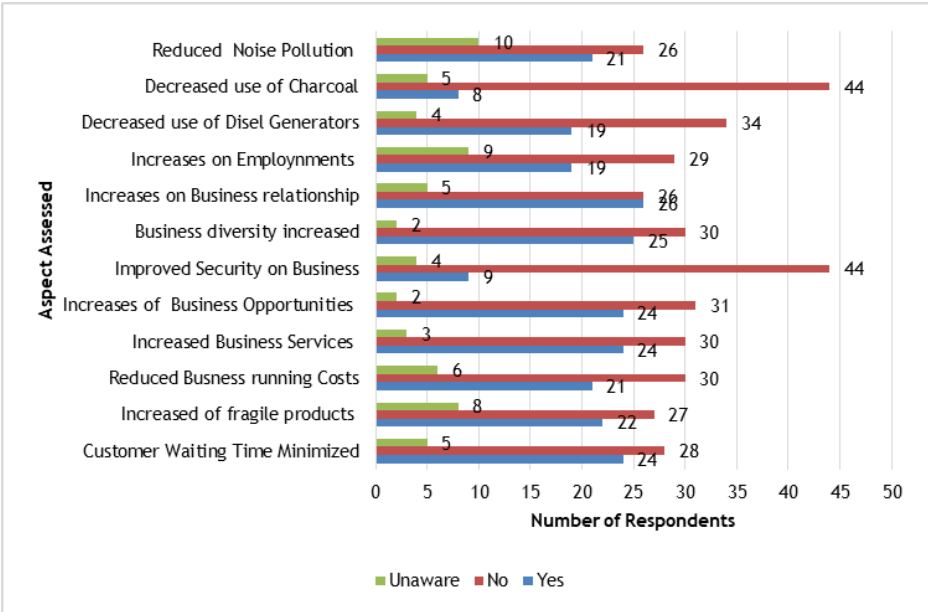
Figure 5.4 indicates that 45% of social service providers responded to have been satisfied with the use of electricity, the highest extent of satisfaction was noted to 34 out of 52 respondents, equivalent to 65%, who had the view of advancement in the use of electricity for communication technologies in the visited villages, while the least response on satisfaction was 10 out of 52, equivalent to 19% of people who responded to have been satisfied with the electricity for improving water supply to the rural villages. Therefore, the level of satisfaction to the customers for the provision of social services in the visited villages was below 50% which indicates that the electricity was not adequate to meet the community demand.

The evidence which could be used to back up the responses from the respondents was the presence of the solar energy system for the off-grid projects such as the ones implemented by M/s PowerGen, M/s Jumeme, and M/s Ensol, however, the power generated was not adequate in operating the medical equipment in Hospital and water pumps. Therefore, other sources of electricity such as diesel generators were not reduced in villages.

(g) Level of Satisfactions of Small Scale Business Owners

Beneficiaries of the project from the group of small businesses owners were also given the opportunity to provide their opinions on the satisfaction on the implementation of the project. Also, **Figure 5.5** shows the graphical presentation of the result from the analysed responses.

Figure 5.5: Analysis of Responses from Small Business Owners as Beneficiaries



Source: Auditors' Analysis of Responses of Beneficiaries on the Questionnaires (2023)

Figure 5.4 Indicates that the level of satisfaction on business owners from the use of off grid electricity was 35%, while the least areas of satisfaction were noted in the area increase of security to businesses and reducing the use of charcoal and the use of diesel Generators, with responses of 9, 8 and 19 out of 57, equivalent to 14%,16% and 33% respectively. While the highest satisfaction was noted in the area of increase of business relationship due to the presence of off grid electricity in the rural areas whereby 26 out of 57 respondents, equivalents to 46%, responded to have been satisfied with the increased business relationships as a result of the presence of green Min and Micro grid. Generally, the level of satisfaction on the use of electricity from the Green Min and Micro grid in respect to improved small business was not adequate.

5.6.7 Payment of Unexecuted Works for Electrification of Four (4) Communities Amounting to USD 137,256

According to the contract between the Rural Energy Agency (REA) and M/s Powergen Renewable Energy Limited for electrifying 14 communities in Biharamulo and Ngara District in Kagera Region; Kilosa and Gairo in Morogoro Region; and Ikungu na Manyoni District in Singida Region, the Contractor was required to be electrified by solar PV with a capacity of 150 KW at a cost of USD 829,000.

The review of the Final Completion Certificate, it was found that Powergen Renewable Energy has electrified 10 instead of Communities in Biharamulo and Ngara District in Kagera Region; Ikungu na Manyoni District in Singida Region; and Buchosa Mwanza as presented in **Table 5.33**.

Table 5.33: Summaries of Communities Electrified by M/s Powergen Renewable Energy Limited

S/N	District	Name of Community	No. of Customers Connected
1	Biharamulo	Mavota	133
2		Nemba	179
3		Nyantakara	95
4	Buchosa	Kasalazi	250
5		Yozu	180
6		Ziragula	220
7	Ikungi	Iglansoni	200
8	Manyoni	Londoni	203
9	Ngara	Bugarama	52
10		Murusagamba	176
Total			1688

Source: Auditors' Analysis of Customers Connected (2023)

Table 5.33 indicates that a total of 1688 customers were connected from 10 communities. However, the audit noted that Buchosa District in Mwanza was not included in the contract between REA and M/s Powergen Renewable Energy Limited for electrifying 14 communities for a total cost of USD 829,000 by Powergen Renewable Energy Limited.

Despite the fact that, the Contractor did not construct mini-grids for communities in Gairo and Kilosa-Morogoro and opted for Buchosa-Mwanza as agreed in the contract, the audit further found that 10 out of 14 communities were electrified by Powergen Renewable Energy Limited. This implies that mini-grids were not installed in four (4) communities. However, the target of connecting 1659 customers was achieved. Review of payment records indicated Powergen Renewable Energy Limited has been paid the whole of USD 829,000 for electrifying 14 communities, including installation of 14 mini-grids.

Review of contract, the audit found that the average cost to electrify a community bone by REA was USD 59,214 ($829,000/14$). Furthermore, review of the business proposal attached to the contract, the average cost of connecting customers per site was USD 41,500, of which 40% was agreed to be incurred by Powergen (i.e., USD 16,600) and 60% by REA (i.e., USD 24,900).

Since Powergen has successfully connected customers as targeted, this implies that, the contractor was paid all costs associated with customers' connections. However, the payment made by REA to the Contractor included the costs for installing Three solar systems (Min-Grids) which were not installed. This implies that, REA paid a cost of USD 137,256 ($59,214 + 24,900$) * 4) for four (4) communities that were not electrified.

5.5.2 3 out 103 (equivalent to 2.9%) customers were Using Min Power Grid at Kitaita and Songambele Min Power Grid

Interview with the Official responsible for daily operation at Kitaita and Songambele Min Power Grid revealed that currently only 3 out of 103 customers connected were using electricity from Kitaita and Songambele Min Power Grid after the introduction of grid electricity. This was attributed by:

- i. ***The installation of Transmission and Distribution line from TANESCO***

Interviews with residents revealed that the Kitaita and Songambele min power grids went live in 2019, and that REA installed new electricity infrastructures in 2021. As a result, most customers opted to use energy

from TANESCO. This implies that the government's efforts to electrify Kitaita and Songambebe communities were duplicated.

ii. Charging of TZS 1000 per day regardless of Usage

Interviews with beneficiaries at Kitaita and Songambebe revealed that the current pricing strategy of charging TZS 1000 daily regardless of the usage adopted by Powergen was expensive as compared to the previous system where customers paid per usage and not on the daily basis.

5.5.3 Uncertainty on the future of the Mpale Mini Grid Project by the Project Developer M/s Ensol (T) Limited

According to the Ensol officials, currently connections to new customers have stopped because, as per available information from local leaders, REA was in the preliminary stage of installing another electricity infrastructure at the village. Solar mini grid may be phased out in that case due to different billing practices.

Also, it was revealed that initially, normal customers were charged TZS 11,000 monthly. The EWURA Consumer Consultative Council (EWURA CCC) ordered normal customers to be charged TZS 1,000 per month, which means that a total of TZS 256,000 was collected monthly while the normal monthly expenditures were TZS 2,700,000, which were salaries to three permanent employees, maintenance, fuel for a generator in case of no sunlight, and other administrative expenses. In that case, for about 2 months, service stopped because the company incurred losses. The situation was resolved when consumers at Mpale Village organized to pay a subsidiary additional cost of TZS 10,000 as before so as to enable operations of the Mpale Min Grid.

CHAPTER SIX

MANAGEMENT OF PROGRAMME FUNDS AND IMPLEMENTATION OF MONITORING AND EVALUATION

6.1 Introduction

This Chapter presents the overall findings relating to the management of programme funds for Implementation of Rural Electrification Programme. It assesses the adequacy of disbursed funds, timely disbursement, extent of utilization of disbursed funds and impact of the disbursed funds to the achievement of the overall project objectives and targets. The reviewed programme included Village Electrification Initiative along Backbone Transmission Investment, Densification Round IIA and Rural Electrification Renewable Energy Project.

Also, the Chapter presents the results regarding monitoring and evaluation of the Rural Electrification Programme. It presents the assessment of specific indicators, targets, goals and activities related to power accessibility and reliability.

6.2 Efficiency of Disbursement of Funds

According to the Specific Agreement between the Government of the United Republic of Tanzania and the Government of Sweden, Sida was required to disburse fund for supporting the implementation and monitoring of the rural electrification programme up to the sum of six hundred Million Swedish Kronor (600,000,000 SEK) subject to Parliamentary appropriations of funds.

However, the audit noted deficiencies related to management of programme funds for the implementation of Rural Electrification Programme in different aspects such as the adequacy of disbursed funds, timely disbursement, extent of utilization of disbursed funds and impact of the disbursed funds to the achievement of the overall project objectives and targets as detailed below:

6.2.1 Sida Disbursed 100% of the agreed Programme Funds to REA

Through the review of the Income and Expenditures Report for Sida funded projects dated 30th June, 2022, it was found that the financier (Sida) managed to disburse all the agreed funds. Table 6.1 depicts the extent of disbursement of funds by SIDA as per the signed Agreement.

Table 6.1: Extent of Disbursement of Funds by SIDA as per the Signed Agreement

Years for disbursement	Quarter for disbursement	Agreed Amount (SEK Million)	Agreed Amount (TZS Million)	Disbursed amount (SEK Million)	Disbursed amount (TZS)	%Disbursed
2015	4 th	150	36,946.917	150	36,946.917	100
2016	2 nd	50	-	-	-	-
	4 th	50	-	-	-	-
2017	2 nd	75	-	-	-	-
	4 th	75	39,549.333	150	39,549.333	60
2018	2 nd	50	-	-	-	-
	4 th	50	-	-	-	-
2019	2 nd	50	38,005.542	150	38,005.542	60
	4 th	50	-	-	-	-
2020	2 nd	-	-	-	-	-
	4 th	-	-	40	10,947.731	26.6
2021	2 nd	-	-	-	-	-
	4 th	-	-	110	27,566	100
Total		600	-	600	153,015.52	100

Source: Auditors' Analysis of REA Income and Expenditures Statements as of June, 2022

Table 6.1 indicates that Sida managed to disburse all the agreed-upon programme funds amounting to 600 million SEK, which is 100% disbursement rate achieved in the fourth quarter of the year 2021.

From Table 6.1, it can be noted that in 2015, the financier managed to disburse 100% of agreed amount in the 4th quarter while in 2016 an agreed amount of 50 million SEK was not disbursed in either the 2nd or 4th quarters. In 2017 no funds were disbursed, but an agreed amount of 75 million SEK plus the previous undisbursed 75 million SEK equivalent to TZS 39,549.333 million was disbursed in the 4th quarter, with a 60% disbursement rate.

Moreover, in 2018, an agreed amount of 50 million SEK was not disbursed. However, in 2019 an agreed amount of 50 million SEK plus previous undisbursed 100 million SEK equivalent to TZS 38,005.542 million was disbursed in the 2nd quarter, with a 60% disbursement rate. In 2020, no funds was disbursed. In 2021, an agreed cumulative amount of 110,000,000 SEK equivalent to TZS 27,566 million was disbursed in the 4th quarter, totaling to 100% disbursement rate. Even though the disbursement was 100%, the audit

found that there were delays in the disbursement of funds and that REA did not use the disbursed program funds on time, as shown in the sections that follow.

6.2.2 Delay in Disbursement of Funds

The audit team further analyzed the timeliness for disbursement of funds for Rural Electrification Programs and noted that the funds were not timely disbursed by Sida. In 2015, funds were disbursed in the 4th quarter without any delays. In 2016, funds were not disbursed in either the 2nd or 4th quarters. In 2017, funds were disbursed in the 2nd quarter on 22/11/2017, but there was a delay of 11 months. Also, funds were not disbursed in the 4th quarter. In 2018, funds were disbursed in the 2nd quarter on 30/01/2019, but there was a delay of 13 months.

Table 6.2 Depicts the timeliness for disbursement of funds by Sida.

Table 6.2: Timeliness for Disbursement of Funds by Sida

Years for disbursement	Required Quarter for disbursement	Date funds received by REA	Delays (Months)
2015	4 th	16/12/2015	No delay
2016	2 nd	Not disbursed	-
	4 th	Not disbursed	-
2017	2 nd	22/11/2017	11
	4 th	Not disbursed	-
2018	2 nd	30.01.2019	13
	4 th	20.12.2020	24
2019	2 nd	Not disbursed	-
	4 th	29.12.2021	30

Source: Auditors' Analysis of REAs Statement of Income and Expenditures as at 30.06.2022, (2023)

Table 6.2 indicates that Sida managed disbursement as the first installment was on time, which was disbursed in the agreed 4th quarter of the year 2015. The second disbursement delayed by 11 months, third disbursement delayed by 13 months, fourth disbursement delayed by 24 months while the last disbursement was made after two years (24 months) from the previous disbursement.

The audit noted that delayed disbursement of funds by Sida was mainly contributed by late request of funds by REA to Sida due to delayed

submission of annual work plan and budget to the Development Partners including Sida.

The situation is as noted in **Section 4.61** of this report whereby, REA delayed presenting the Annual Work Plan and Budget to Development Partners including Sida for the financial years 2018/19 and 2022/23 for three to two months respectively. While for the remaining three financial years from 2019/20 2021/22 submission status were not known, since the evidence was not availed to the Audit Team by REA for verifications.

Delayed submission of the Annual Work Plan and Budget to Development Partners was caused by delayed completion of preparation of different programme implementation documents by REA.

Moreover, the REA Management added that delays in completion of the procurement process for Contractors also caused the Agency to delay in requesting fund from Sida.

As a result, the financier delayed disbursing the respective instalment to REA due to delayed presentation of Annual Work plans and Budget by REA.

6.2.3 REA did not Utilize 31% of the Disbursed Programme Funds

The audit noted that, as of 30th June, 2022, REA did not manage to utilize 31% of all the disbursed funds by Sida for the implementation of Rural Electrification Projects as presented on **Table 6.3**.

Table 6.3: Extent of Utilization of Disbursed Funds by REA as of 30th June, 2022

Descriptions	Total Funds received (TZS)	Total Expenditures (TZS)	Balance as of 30.06.2022	% of funds unutilized
Total funds received from Sida	153,015,524,252.87	-	-	-
DFID contribution	12,820,384,466.69	-	-	-
Proceeds from Invested funds	3,125,382,367.07	-	-	-
Total	168,961,291,086.63	115,740,152,992.05	53,221,138,094.58	31

Source: REAs Income and Expenditures Statements as of June, 2022

Table 6.2 indicates that 31% of the disbursed funds was not utilized. The insufficient utilization of disbursed funds was contributed by failure of REA to settle the Contractors' claims timely as discussed in detail under **Section 5.5.5** of this Report.

The overall total outstanding payments to the Contractor as per the signed agreement for each of the reviewed projects was also assessed. The total contract price for the 24 contracts in these projects was TZS 136,200,708,824.22, with a total actual payment of TZS 108,234,376,088.79. This indicates the presence of a TZS 27,966,332,735.43 outstanding balance, which is equal to 21% of the total contract price.

Table 6.4, presents the percent of the outstanding balance of the three projects - Renewable Energy (RBF projects), BTIP Projects, and Densification 2A Project.

Table 6.4: Percent of the Outstanding Balance of Three projects as of June, 2022

Project Name	No. of Contracts	Total Contract prices (TZS Million)	Total actual payment (TZS Million)	Outstanding balance (TZS)	% of outstanding balance to contract price
Renewable energy RBF)	13	24,716.841	22,707.239	2,009.601	8
BTIP Projects	5	58,146.136	50,116.642	8,029.493	14
Densification 2A Project	6	53,337.732	35,410.494	17,927.238	34
Total	24	136,200.710	108,234.380	27,966.330	21

Source: Auditors' Analysis of REAs Income and Expenditures Statements as of 30th June, 2022

Table 6.4 indicates that as of June 30th, 2022, from the reviewed signed 24 Contracts, REA had an outstanding balance of 21% of unpaid amount to Contractors.

It can be noted that the Renewable Energy (RBF projects) had the lowest outstanding balance of TZS 2,009,601 million (8% of the contract price), while the Densification 2A Project had the highest outstanding balance of

TZS 17,927.238 million (34 % of the contract price). The outstanding balance was also reasoned by inefficiency of REA in ensuring timely settlement of the Contractors' claims and some contractors did not raise invoices because of non-execution of works especially on customers' connection.

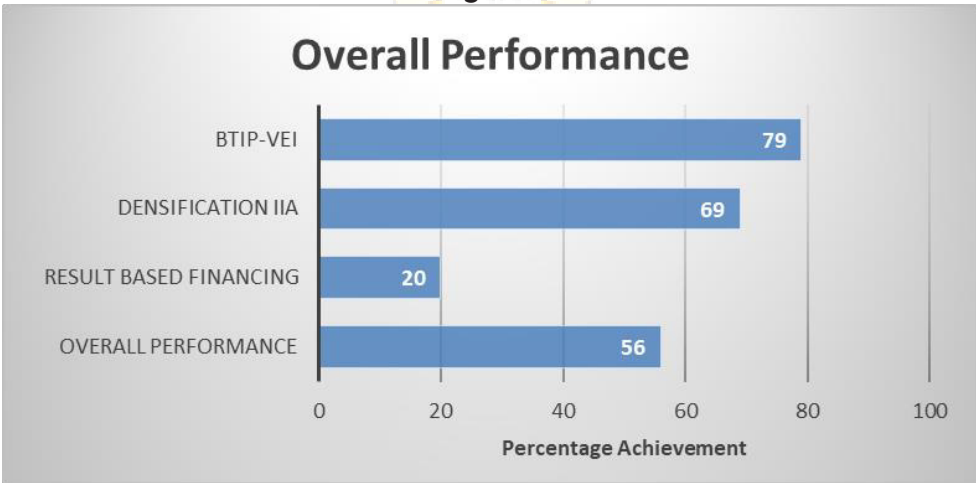
The Management of REA stated that the unutilized amount was intended to be used to finance the new project known as result-based finance round two, which was still in the procurement process stage of contract signing at the time of this audit. Whereby three Contracts out of eleven were already signed as of 11th March, 2023 and the project is expected to cost USD 12.5 Million.

6.3 Overall Achievement of Programme Objective

6.3.1 REA Achieved 56% of the Overall Programme Outputs

In general, the performance analysis revealed that REA achieved 56% of the intended outputs in the implementations of the rural electrification program as shown in **Figure 6.1**:

Figure 6.1: Achievement Percentages for Individual and Overall Programme



Source: Auditors' Analysis on the Achievement of the Programme (2022)

As shown in the Figure 6.1, the overall achievement of programme outputs is 56 percent, whereby the highest performance was noted for BTIP-VEI

which achieved 79 percent of its planned outputs. The lowest performance was in the Renewable project that achieved 20 percent of its outputs.

Details of the achievements for each project are as provided below:

6.3.2 REA Achieved 79% of the Backbone Transmission Investment Project (BTIP - VEI) Outputs

The audit noted that, as of June 2022, REA achieved 79% of the BTIP -VEI project outputs, as presented in Table 6.5.

Table 6.5: Achievement of BTIP-VEI Project as of June 2022

Scope	Unit of Measurement	Targeted	Actual Achievement	Overall Achievement (%)
Villages Connected	Number	121	121	100
Medium Voltage	Kilometer	901.60	901.60	100
Low Voltage	Kilometer	437.70	437.70	100
Transformers	Number	206	206	100
Ready Board	Number	34,576	8,576	25
Customers Connection-Single Phase	Number	34,576	23,329	67
Customers Connection-Three Phase	Number	815	682	84
Overall				79

Source: Auditors' Analysis of REA's Progress Report (2022)

Table 6.5 shows that, in average the achievements of project outputs were 79%. It shows that REA achieved 100% of its outputs related to number of villages connected, kilometers of medium and low voltage and the number of transformers installed. However, for the number of customers connected in both single and three phase, the performance was 67%. For the ready boards, the performance was minimal to a tune of 25%.

Low achievement for number of ready boards and number of connections was mainly caused by low willingness of customers and ineffective awareness conducted to customers in the respective areas.

6.3.3 REA Achieved 69% of the Densification IIA Project Outputs

The review of the REA's Annual Progress Report as of June 2022 revealed that the overall achievement of project output was 69%, as presented in **Table 6.6**:

Table 6.6: Achievement of Densification IIA Project Output as of June 2022

Scope	Unit of Measurement	Targeted Achievement	Actual Achievement	Overall Progress of Works
Number of Hamlet	Number	1,319	996	76
Low Voltage lines	Kilometres	4,889.01	4,177.94	85
Transformer	Number	1,002	764	76
Customers Connection	Number	96,352	39,143	41
Overall				69

Source: Auditors' Analysis of Progress Report (2022)

Table 6.6 shows that, in average the achievement of project outputs was 69%. It shows that REA achieved above 75% of the targeted outputs on the number of hamlets, transformers as well as the length of the coverage of low voltage lines.

On the other hand, the output target for number of customers connected was 41%, the low level of achievement was also due to a low level of customer willingness to connect.

6.3.4 REA Achieved 20% of the Renewable Energy Project Output

Through the review of the Annual Progress Report as of June 2022 and Program Document SIDA and DfID Financial Support to the Rural Energy Fund (REF), it was noted that, REA achieved 20% of the outputs for the renewable energy project. **Table 6.7** provides the details of achievement of the project outputs.

Table 6.7: Achievement of Renewable Energy Project Output as of June 2022

Targeted No. of Customers Connected	Actual No. of Customers Connected	Achievement in %
86,000	17,302	20

Source: Auditors' Analysis of RBF Progress Report (2022)

Table 6.7 shows that, the achievement of project outputs was 20%. This lowest performance was attributed by lack adequate preparation by REA to the project preliminary works on Green and Micro Grids projects and hence delayed start of implementation of the Projects by 2 years in the year 2018.

6.4 The Actual Physical Progress of Works were Lower than the Projects Financial Performance as of June, 2022

The Audit expected REA to ensure that the financial progress match with the physical progress of the implemented works. The audit noted that the financial progress for BTIP-VEI, Densification 2A and Renewable (RBF) projects were higher than the actual progress works as detailed hereunder: -

(i) Physical Achievement of the Village Electrification Initiative along Backbone Transmission Investment Project (BTIP -VEI) was Lower than the Financial Performance

The review of the Annual Progress Report as of June 2022 revealed that the overall physical progress of works as measured in terms of planned output was 79%.

Similarly, the audit noted that as of June 2022, a total of TZS 50,116,642,242 out of TZS 58,146,135,542.46 (equivalent to 86%) had been paid (refer to **Table 6.4**). This means that the outstanding payment was only 14%, while the pending work was 21%. This implies that payments made exceeded the overall progress of work by 7%.

(ii) Physical Achievement of the Densification IIA Project was Matched with the Financial Performance

The review of the REA's Annual Progress Report as of June 2022 revealed that the overall physical progress of work was 69%. Similarly, the audit noted that a total of TZS 53,337,732,307.76 out of TZS 35,410,494,196.70 (equivalent to 66%) was paid for the implementation of the project. The

outstanding payment was 34%, while the pending work was 31%. This implies that payments matched with the overall progress of work by 3%.

(iii) Physical Achievement of the Village Electrification Initiative along Renewable Energy was Relatively Lower than the Financial Performance

The audit noted through the review of the Annual Progress Report as of June 2022 that the overall progress of work was 86%. However, the audit found that as of June 2022, a total of TZS 22,707,239,649.62 out of TZS 24,716,840,974 equivalent to 93% were paid. This indicates, the outstanding payment was only 8%, while the pending work was 14%. This implies that payments made exceeded the overall progress of work by 6%.

Consequently, because the financial progress for all three projects exceeded the actual physical performance, there is a risk that additional funds will be required to complete the projects if Contractors' default.

6.5 Monitoring and Evaluation of Rural Electrification Programme by the Ministry of Energy

This section presents the results regarding monitoring and evaluation of the Sida Funded Rural Electrification Projects. The section further presents the assessment of specific indicators, targets, goals and activities related to power accessibility and reliability. However, the section also notes the deficiencies associated with the implementation of Rural Electrification Projects as detailed in the following sub-sections:

6.5.1 There were no Performance Indicators, Targets, and goals related to the Implemented Rural Electrification Projects

In both Strategic Plans, namely; 2018/19-2020/21 and that of 2021/22 - 2025/26, the Ministry of Energy showed that monitoring was supposed to be conducted quarterly, semi-annually and annually. In doing so, MoE indicated that the performance reports were supposed to be produced for proper tracking of the performance of rural electrification programmes.

Review of the two Strategic Plans also revealed that, the Ministry of Energy did not present the specific performance indicators for assessing activities related to rural electricity supply services, percentage of customers

connected to rural electricity, percentage of power generated from renewable resources and availability of equipment for renewable energy.

Lack of specific set performance indicators, targets, and goals on the specific issues of reliability and accessibility of electricity supply services, and the methods of achieving them were caused by lack of M&E Framework and inadequate resources for monitoring activities of ongoing and completed rural electrification projects. This was also acknowledged by Ministry of Energy officials responsible for monitoring and evaluation. As a result, there were no reports on the performance of REA on implementation of rural projects executed by REA in the rural electrification programme.

6.5.2 The Ministry of Energy did not Execute Monitoring, Evaluation, and Performance Reporting roles as Expected

The audit noted that there was no M&E at the Ministry level conducted to Sida Funded Rural Electrification Projects, rather the monitoring was done internally by REA through the hired Trust Agent. However, despite being among the project objectives, the conducted monitoring did not assess issues such as project sustainability to meet the demand of the community.

The MoE received the monitoring reports from REA. However, the Ministry did not conduct verifications to confirm issues presented in those Monitoring Reports from REA. Lack of M & E was partly due to non-allocation of budget by the Ministry to conduct the Monitoring and Evaluation of the Sida funded rural electrification projects.

CHAPTER SEVEN

AUDIT CONCLUSION

7.1 Introduction

This chapter presents audit conclusions for three program components covered in the audit. The conclusions are based on the specific objectives of the audit presented in Chapter One of this Performance Audit Report, covering five aspects, namely; planning, procurement, contract management, funding, and sustainability of the program. These are categorised in three sub-programs, which are BTIP, Densification IIA and Off-grid (Result Based Financing).

7.2 General Conclusion

The audit concludes that, rural electrification programme has increased access to electricity to Rural Communities and the living condition of the beneficiaries. As of December, 2022, 11,044 customers, equivalent to 31% of the intended 23,000 customers, have been connected to the electricity grid. Additionally, REA has connected 17,302 households to the Green Mini and Micro grids, equivalent to 20% of targeted 86,000 households. The provision of electricity has extended to important public institutions such as schools, health centres, dispensaries, government offices, mosques and churches. Despite the improvement made, the audit noted that REA has not adequately managed the implementation of rural electrification programme.

The Rural Electrification projects are not adequately planned, designed and supervised when such issues relating to time, cost, and quality are considered in order to facilitate the provision of electricity to the intended the rural users. Inadequate planning, procurement, designing, and execution of rural electrification pose a risk for sustainable electricity in the rural areas where the projects were implemented. This was validated due to the noted challenges; such as variations, extensions of times, additional costs and non-compliance with the quality requirements. The sustainability of rural electrification programme implemented by REA is questionable due to the fact that, some of projects were not properly handed over and others are not functioning.

Likewise, the payments to the contractors, consultants and project developers did not adhere to the rural electrifications contract documents. Further, REA has not adequately managed the quality of the projects such as the workmanship and quality of the procured and constructed projects as a result of inadequate supervision of the technical and financial management for consultancy services.

7.3 Conclusions on BTIP Sub-program

7.3.1 REA has not Adequately Managed the Initiation and Planning of the Projects

The audit concludes that REA has not prepared the concept note of the project. Absence of developed concept note may result into the potential duplication of efforts, overlapping of activities and unnecessary destruction of the existing infrastructure during the implementation of the respective projects. REA did not prepare concept note due to being dependent on the two undertaken feasibility Studies. Likewise, the Ministry of Energy did not do any preliminary screening of the project before channelling to the Ministry of Finance and Planning, specifically to the National Planning Division for scrutiny and recommendation.

Furthermore, about 17% of the villages that were covered by the project in Dodoma, Iringa, Shinyanga and Singida were not covered during the previously conducted feasibility studies. Because of that, there has been a risk of missing baseline information needed for project design.

Lack of awareness on the importance and the need for the concept note has been the factor that has contributed to none preparation of the concept note. Thus, the audit did not have enough evidence if the Ministry of Energy did a preliminary screening of the project before channelling to the Ministry of Finance and Planning, and specifically to the National Planning Division for scrutiny and recommendation.

7.3.2 REA has not Adequately Adhered to the Procurement and Contracting Procedures during implementation of the BTIP projects

REA has not adequately adhered to the procurement and contracting procedures during the implementation of the BTIP projects as it did not invite advertisements in the appropriate foreign or international publications or professional or trade journals to enhance competition.

On the other hand, REA has not properly managed the documentation of the procurement process as procurement documents for BTIP-VEI were missing. Additionally, procurement of the contracts did not adhere to the requirements of public procurement laws and regulations, for instance, there was no signing date of all contracts except for Lot 1.

7.3.3 REA did not Ensure Adequate Contract Management during the Implementation of the Village Electrification under BTIP Project

REA has not adequately manage the contracts for BTIP project. Time management in the construction of BTIP projects has not been satisfactorily managed. As a result, there have been noted delays in completion of the implemented projects across all lots. The delay in completion of the Lot 1 project was 1379 days due to factors such as delays in obtaining VAT exemption certificates, which resulted into a loss to the government of approximately TZS 5.05 billion due to demurrage charges at the port and the COVID-19 pandemic disease which blocked experts from Iran to travel to proceed with duties.

Although REA has managed to handle the project costs well, to some extent it can concluded that project was not executed at the planned cost. Since there have been observed differences in the contract with impacts in an increase in costs, particularly the total additional cost amounting to USD 68,532.82 for the additional materials.

Similarly, REA has not adequately managed the quality of the projects. Such things as warning and identification plates on the wooden poles of LV and MV have not been adequately inserted. It is also observed that no replacement has been provided for the burnt project materials, especially 37 burnt wooden poles of Lot 2 and the project materials burnt at Mtera

substation by which REA could not enclose their specifications and names. Furthermore, it is noted that REA has not ensure the presence of the technical experts from power transformers' manufacturer/supplier during installation and commissioning.

7.3.4 REA did not Adequately Attain the Project Goals

REA has not adequately attained the target of connecting 23,000 customers in the villages located in the immediate impact areas of TANESCO's 400 kV transmission line project from Iringa via Dodoma and Singida to Shinyanga as stipulated in the main feasibility studies. As a result, there has been a deviation of the construction materials intended for the project, especially to areas outside the scope of the project, and in those, long the project areas, where TANESCO electrification of the customers requires the connection fees of TZS 27,000.

7.4 Conclusion on Densification IIA Sub-program

7.4.1 Planning of REA Densification Projects were not effectively Executed.

REA has not ensured that planning of REA Densification Projects is effectively executed, as the current planning has been done using the information from the planning which was conducted in 2016. While the contract for densification was signed in September 2020, however, the only verification that has been noted to have been conducted with regard to this project is the one by Norplan in May 2018, and it focused on the scope proposed in the project document. Also, the project document prepared in 2016 concluded on the key issues which were required to be assessed during feasibility studies such as willingness to pay, based on survey conducted by REA in 2011, but not specific study on the proposed densification project areas.

7.4.2 Execution of the REA Densification Projects were not effectively Conducted

REA has not ensured that the REA Densification Projects commenced and completed on time as required by the contract documents. There have been noted several extensions of time for the execution of the project. It is

further noted that the observed situation has been attributed to inadequate management of the project execution by the project manager/engineers. REA has not ensured that the payments to the contractors have been in line with the requirements of the project contract documents and requirements as the payments have not been done on time to the extent affecting the financial performance of the project.

7.4.3 REA did not Adequately Manage the Quality of works for REA Densification II Projects

REA has not ensured that there have been quality control and assurance plans in place to check and inspect the contractor's work and instruments to ensure that all activities have complied with the required drawings and specifications. As a result, the workmanship of the executed works has not been adequate as per the required specifications of the contract requirements to the extent of increasing the risk for the project in terms of meeting the required standards.

7.4.4 REA did Not Adequately Manage Cost and Scope of REA Densification II Projects

REA has not adequately managed Cost and Scope of Rural electrification Projects as the payments to the contractors and consultants have not been adhering to the rural electrifications contract documents. Inadequate payments have been impacting the project timeline, causing delays in the completion of the project, leading to increased costs, extended timelines and dissatisfied clients. When payments are delayed or not made in full, this may result into cash flow problems to the contractors making it difficult for them to pay their own bills and employees.

7.5 Conclusion on Off-Grid-Renewable Energy (RBF) Sub-program

This section presents the conclusion based on the findings on the extent to which the Rural Energy Agency (REA) has managed the Results Based Financing (RBF) Agreements which were entered between REA and Project Developers in the off - grid electrification program.

Audit concludes that the sustainability of the project has been at risk, and value of money used for installation of mini power grid, transmission and

distribution of electricity cannot be attained because the new electricity project at villages does not use the existing infrastructures. Also, maintenance of the min power grid has not been properly done.

7.5.1 REA Inadequately Planned for the Implementation of Rural Electrification Projects under Off Grid Electrification Program

REA has not conducted a comprehensive feasibility study that would evaluate the nation's needs on min and micro grid electrification. On this aspect, it can be stated that the Feasibility Studies reports prepared by Project Developers from Private Sector did not appraise and evaluate alternative solutions, rank alternative solutions, share the alternative solutions with stakeholders, conduct preliminary engineering design and cost estimates for all alternatives, as well as select the most suitable alternative. Inadequate feasibility study has increased the risks of technical, social and economic viability of the village electrification program through min and micro grids.

REA has not effectively conducted the needs assessment to identify needs of rural electrifications. Moreover, there has been inadequate planning to address the issue of min and micro grid village electrification. Annual action plans from the financial years 2017/18 to 2021/22 did not adequately address the scope of off grid rural electrification.

Designs developed by Project Developers have neither been reviewed nor approved by REA and the Trust Agent. Due to the fact that there has been no review to any designs prepared by the Project Developers, the consequence for this could be implementing the project below the standard required by REA.

The Project Developers did not have technical specifications for implementation of the project. Consequently, there was no benchmark to check issues related to statements of testing requirements, operations, and maintenance (O&M) manuals, and acceptance criteria for the safety and functionality of all subsystems of the projects.

7.5.2 REA did not adequately manage the Compliance with Procurement Activities of Off Grid Rural Electrification Programme

REA has not adequately managed procurement of private developers in the implementation of off-grid (Result Based Financing) projects. There have been weaknesses in soliciting private developers during the calls for proposals.

Evaluation has not been comprehensively done to get the right developer with adequate qualifications and experience based on the evaluation criteria.

Review of contracts have not been not adequately done and vetted by the relevant legal officers of REA as expected. As such, most contracts have not been certified by REA's legal officers. This may lead to questionable authenticity and risks on the validity of the contracts when disputes arise.

7.5.3 REA did not Adequately Manage Contracts with Private Developers in Off-grid projects

(i) REA has not Adequately Manage Time for the Rural Electrification Projects

REA has not adequately managed the time for the rural electrification project in the off-grid program due to delays in engaging project developers. For the case of time management, it can be concluded that REA did not prepare a time management plan for the 13 agreements and instead relied on work schedules prepared by the developers. As a result, the lack of a time management plan has affected the assurance of control and effective use of time for project execution, with the four projects still ongoing at the time of this Audit.

REA has not ensured timely commencement of the projects due to delay in submission of requirements such as advance payment guarantee from the Bank and submission of Environmental Clearance from NEMC. REA has not prepared timelines commitment/deadline setting in engagement of project developers. Since REA does not set the deadline for agreement signing, project developers signed contracts at various durations of time, which in

turn led to delay in commencement of the projects. REA does not ensure timely completion of financing agreement for all project developers.

Project developers are not paid on time due to internal arrangements by the Grantor (REA) for conducting verification of the executed works prior disbursement of the respective instalments to ensure that payments made reflected the executed work. Delayed disbursement to project developers led to the untimely completion of the project, which ultimately delayed the realization of the benefits of the grants for the communities that are supposed to benefit from the electricity service.

REA has not imposed liquidated damages in the Result Based Financing (RBF) Agreement for all 13 agreements due to the projects being under a fixed value. Therefore, issues of liquidated damages were not considered and included in the RBF Operating Guideline. This has impacted the commitment of individual parts in the RBF agreement to timely fulfil the respective responsibilities.

(ii) REA has Not Adequately Manage Quality of works for the Private Developers in Off-grid projects

Despite engaging the Trust Agent to verify the construction and installation of the electrification projects, the Trust Agency REA lacks a quality control and quality assurance plan, and this has resulted into unsustainable electricity during the operation phase. The supply of power has been unreliable due to frequent power cuts, lack of power from batteries, and generators that have not been always used to reduce diesel fuel costs. REA has not assessed the level of performance of the power provided to connected customers, hence the failure to conduct assessment on their satisfaction with the service.

Although the Trust Agent has conducted customer verification, REA, on its part, has not issued notices to correct defects found during the operation phase. As a result, REA has been unable to identify the problems with the established solar power infrastructures in the Off Grid Electrification Program, resulting in the prolonged insufficient power supply to meet customer needs.

(iii) REA has not Adequately Manage Cost and Scope of Private Developers in Off-grid projects

The REA has not provided clear instructions regarding the payment bond to cover the disbursements for the entire duration before verification of customers' connection, causing miscommunication among project developers and resulting in delays in receiving subsequent installations. The REA is supposed to instruct developers to secure all payments paid to them from the time the contract is signed.

REA has not effectively controlled variations in rural electrification projects. The reasons for these variations include scattered villages and inadequate materials for connection, resulting in delays in verifying the actual number of connections. Consequently, failure to meet the number of customer connections specified in the signed contract delayed the issuance of Project Completion Certificates to project developers by REA, as well as the final instalment of 30% of the grant sum.

(iv) The Implementation of Projects has not Adequately Consider Health, Safety, Environmental and Social Issues

REA has ensured all project developers submitted environmental clearance from NEMC such as Environmental Impact Assessment (EIA) Certificates, Environmental Audit (EA) Certificates and Project Briefs after contract signing and prior disbursement of first instalment. However, there has been no Environmental Management Plan (EMP) for the projects. Also, health and safety issues have not been adequately addressed and implemented for the project because of the absence of health and safety manuals.

Failure of project developers to prepare Environmental Management Plans hindered the developers from implementing specific conditions stipulated in the EIA Certificates and EA Certificate. Also, lack of EMP in the projects implied lack of assurance that the Grantees carried out the project activities in compliance with laws, rules and regulations governing environmental and social aspects as stipulated by NEMC.

(v) *REA has not Effectively Conducted, Closure and Commissioning of Completed Projects*

REA has conducted closure and commissioning of completed projects based on the verifications conducted on the completed projects by the Trust Agent. However, it can be concluded that the verifications conducted were based on the number of customers connections without adequate assessment of the sufficiency and sustainability of the power supplied after closure and commissioning of the projects.

This resulted into inadequate performance of the projects leading into provision of insufficient amount of electricity power to the connected customers that did not suffice daily consumption due to less hours of electrical supply.

REA has not ensured that the private developers prepare operation and maintenance plans for the 13 signed agreements. As a result, there is lack of maintenance of the established power infrastructures that led to insufficient supply of electricity power to the connected customers due to frequent breakdown of the developer's infrastructure.

7.5.4 REA has not Adequately Manage Funds for Off-grid (Result Based Financing) Projects.

REA has not adequately managed funds for off-grid (Result Based Financing) projects. There were delays in disbursement of funds to developers for implementing the off-grid projects. Delay in disbursement of funds to developers delayed the whole process of establishing the plants and timely connections to customers. As a result, up-to the time when the contract expired, not all private developers had achieved the target of connecting all customers as per contract.

Also, there are inconsistencies in payments of grant funds to developers whereas some were paid in full in only two instalments whereas for others it took up to four instalments. These inconsistencies undermine the effectiveness of the RBF Operational Guideline and the requirements of the contract and ultimately could lead to malpractices during disbursement of grant funds, and eventually affecting the performance of developers.

Furthermore, review of the final payments requests and disbursements made by REA revealed that there are payments, which have been made to developers without final independent verification by the Trust Agent.

7.5.5 Conclusion on the Attainment of Rural Electrification Intended Results

(i) REA did not Adequately Attain the Intended Results for the Green Min and Micro Grid

REA has not adequately attained the intended results for the Green Min and Micro Grid of 17,302, equivalent to only 20% households of the agreed 86,000 households, achieved connectivity to the Green Min and Micro grid. This has been due to the reason that REA has not increased the private sector investment in renewable off-grid and Min-grid. This has been caused by the delayed start of project implementation from 2016 to 2018, leading to DfD withdrawing its funds from the programme. About 58% of the visited communities are supplied with less than 10 hours of electricity per day which does not meet the agreed service tiers by developers. Additionally, 19% of visited communities have not received electricity at all due to lack of maintenance of power generation plants and failure of developers to run backup diesel generators. Moreover, there are no adequate mechanisms for REA to ensure female-owned businesses are connected to Green Min and Microgrid electricity, resulting in only 5% of the visited sites having electricity supplied which is 2 out of 37 female-owned businesses.

(ii) Cost of Implemented Projects was not Effective, Social Economic and Sustainability.

Green Min and Micro grid coexist with the national grid, resulting in a decline in off-grid projects despite the invested government funds. Furthermore, the sustainability of these projects is at risk due to REA's lack of a functional mechanism to ensure that developers maintain electrical infrastructure and keep electrical supply reliable for sustainable socioeconomic activities.

(iii) 46% of Communities were Satisfied with the Implemented Green Min and Micro Grids Project

About 46% of social service providers indicated that the provision of Green Min and Microgrid is satisfactory, while 56% of small industries showed that they are satisfied with the provision of electricity. Additionally, 40% of households are reported to be satisfied with the provision of rural electrification through the Green Min and Microgrid program, and 35% of small business owners are indicated as being satisfied with the provision of electricity from developers.



CHAPTER EIGHT

AUDIT RECOMMENDATIONS


8.1 Introduction

This part provides recommendations which are addressed to the Ministry of Energy (MoE) and Rural Energy Agency (REA) on the provision of rural electrification program which was implemented by REA under three components, namely; BTIP, Densification IIA and Off-grid - Renewable energy projects. The recommendations cover planning, procurement, contract management, funding, and sustainability of the implemented projects.

The National Audit Office believes that based on the principles of Economy, Efficiency and Effectiveness, these recommendations need to be fully implemented to ensure improvements in delivery of quality electricity supply to the communities.

8.2 Recommendations to REA on the Implementation of BTIP Projects

In order to improve planning for implementation of the BTIP projects, REA is urged to:

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- (a) Ensure that there is a concept note in place that will enable the financier and the Ministry of Energy to conduct a right preliminary screening of the project prior the implementation: and
 - (b) Ensure Feasibility Studies reports are comprehensive and cover all Parameters.

In order to improve procurement and contracting of BTIP projects, REA is urged to improve its record keeping system and that all project financial records, procurement records and other key projects documents are kept safe.

In order to improve contract management of BTIP projects, REA is argued to:

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- (a) Establish an implementation strategy and milestones to facilitate timely submission of the advance payment guarantee and performance security, as well as site handover;
 - (b) Processing and approval of time extensions to contractors and consultants should also be done in a timely manner to avoid delays in project implementation and additional costs; and
 - (c) Device a quality control mechanism to ensure that all designed works and specification are reviewed, approved and adhered to before commencement of its implementation so as to reduce unnecessary variations and poor quality of works.

8.3 Recommendation to REA on the Implementation of Densification IIA Projects

In order to improve services delivery on the Densification Projects, REA is urged to:

- (a) Ensure that in future similar projects, it reassess areas that were not assessed in the previous evaluation such as market demand, technical requirements, financial viability, and potential risks and use the evaluation results for planning the projects;
- (b) Ensure that in future similar projects, it institutes and implements a comprehensive and effective awareness campaign through establishing a framework for the campaign, developing risk assessment criteria, engaging local stakeholders, and decentralizing the campaign activity to lower levels;
- (c) Timely processing of payments to the contractors to facilitate smooth implementation of the projects and avoid effects of delayed payments;
- (d) Ensure timely renewal of advance payment securities;
- (e) Ensure the contractors use transformers and poles with appropriate capacity and quality to meet the specifications so as to meet the expected output;

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- (f) Ensure availability and adherence to safety and operational guidelines to ensure the safe operation and proper performance of the transformers to enhance their sustainability;
 - (g) Conduct a comprehensive assessment of infrastructure to identify any instances of poor workmanship and take necessary steps to rectify them;
 - (h) Manage retention monies to address defects during the Defect Liability Period (DLP), which will ensure project sustainability and reduce future maintenance costs; and
 - (i) Ensure that health and safety manuals are available at site and are implemented at all times.

8.4 Recommendations to REA on Implementation of Off-grid-Renewable Energy Projects

In order to enhance planning and designing for the implementation of Off Grid Rural Electrification Projects, the REA is urged to:

- (a) Ensure enable project developers prepare operational and maintenance plans;
- (b) Strengthen the evaluation system for the first and second stages to avoid selecting Project Developers who may not be able to fulfil the terms of the awarded contracts;
- (c) Carry out a thorough inspection to ensure all materials are of good quality and adhere to the applicable criteria; and
- (d) Ensure that all contract documents undergo thorough review before being signed, and all user departments are fully informed of their contents.

In order to improve the management of contracts for Off Grid rural electrification projects, REA is urged to:

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- (a) Ensure that Off-grid electrification projects have a time management plan and that, the plan is followed;
 - (b) Set the timelines for signing agreements to enable all Project developers sign contracts at an appropriate time to avoid delay in commencement of the projects;
 - (c) Devise a mechanism to ensure that all financing agreements are completed within the agreed-upon timeframe;
 - (d) Conduct an assessment on the sufficiency and sustainability of electricity supply services delivered to connected customers;
 - (e) Ensure that the project has a system in place to control variations in the number of connections made to customers;
 - (f) Ensure payments made to Project Developers reflect the number of connected customers as per the agreement; and
 - (g) Ensure Project Developers adhere to health and safety issues during implementation of the project; project-, conduct assessment of the level of performance of the power supplied to ensure sustainability of the project during operation phase.

In order to enhance the management of Fund for Off Grid Rural Electrification in accordance with the Financing Agreement and Financial Guidelines, REA is urged to ensure securing of all payments prior to completion of connections to avoid payment delays in ongoing and future projects.

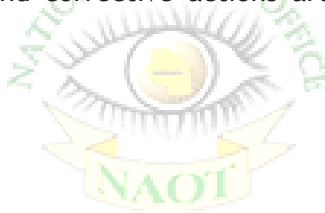
To attain the impactful and sustainable results for the Rural Off Grid electrification program, REA is urged to:

- (a) Develop a mechanism to ensure the implemented Green and Min Grid projects are sustainable and benefit the customers connected;
- (b) Ensure timely implementation of Grant projects to avoid delays that results to some fund from withdrawing their funds;

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- (c) Develop a mechanism to increase the number of private investors in Green Min and Micro Grid projects;
 - (d) Develop a mechanism to reach out to and connect with female-owned businesses in rural areas to ensure the achievement of goals for electrifying female-owned businesses through targeted efforts;
 - (e) Set strategies of avoiding double allocation of project within a certain period of time; and
 - (f) Set strategies of using available granted infrastructures in case new project is implemented.

Recommendation to Ministry of Energy on the Monitoring and Evaluation of the Project

MoE has to enhance its plan to ensure that rural electrification programme is effectively monitored, and corrective actions are timely taken to achieve programme objective.



APPENDICES



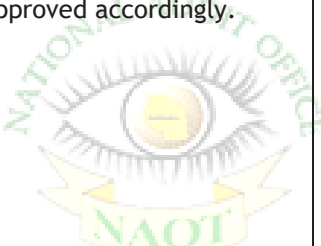
Appendix 1: REA's Responses on the Issued Recommendations

(a) General Comment

The Agency will continue to adhere and comply with all laws, regulations, guidelines, standards, and specifications to achieve the intended objectives and Value for Money.

(b) Specific Comments

S/N	Recommendation	REA's Comment	Planned Action	Timeline
In order to improve the Performance on the BTIP projects, REA is urged to:				
1.	Ensure that there is a concept note in place that will enable the financier and the Ministry of Energy to conduct a right preliminary screening of the project prior the implementation	The Agency has taken note of the observation. In order to improve, the Agency has developed a Rural Energy Master plan (REMP) that will guide all future projects.	To adhere to Rural Energy Master Plan in implementing Rural Energy projects	June 2023
2.	Ensure Feasibility Studies reports are comprehensive and cover all Parameters	All grid extension projects (distribution network) developed by the Agency are implemented based on the project document. However, the Agency will comply to auditor recommendation when need arises	The Agency will ensure the project documents cover all parameters.	June 2023
3.	improve its record keeping system and that all project financial records, procurement records and other key projects documents are kept safe	To improve records keeping, the Agency instituted File storage system, recruited two Record Management Officers and acquired two extra storage rooms. However, currently the Agency has limited storage space in its office	The Agency is planning to have two storage rooms in its newly building that is under construction	December 2023
4.	Establish an implementation	The lessons learnt in previous projects including	The Agency will continue	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
	strategy and milestones to facilitate timely submission of the advance payment guarantee and performance security, as well as site handover	BTIP-VEI have been used by the Agency to strengthen supervision of the project including tracking of performance and advance security. From 2021, the Agency allocated contract managers for each region whose role include to supervise, advise and provide alert on the validity of securities	monitoring project implementation including the validity of securities throughout the implementation period.	
5.	Processing and approval of time extensions to contractors and consultants should also be done in a timely manner to avoid delays in project implementation and additional costs.	The Agency will ensure that requests for time extension are responded or approved accordingly. 	The Agency complies in timely extension of contract	June 2023
6.	Device a quality control mechanism to ensure that all designed works and specification are reviewed, approved and adhered to before commencement of its implementation so as to reduce unnecessary variations and poor quality of	Quality control is in place whereby all designs, specifications, standards are approved by TANESCO, the Consultant and REA during planning, procurement and implementation of projects. However, in case of variations, terms and procedures stipulated in the contracts prevails.	The Agency will continue adhering to terms and conditions of the contract.	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
	works			
In order to improve services delivery on the Densification Projects, REA is urged to:				
1.	Ensure that in future similar projects, it reassess areas that were not assessed in the previous evaluation such as market demand, technical requirements, financial viability, and potential risks and use the evaluation results for planning the projects	The Agency through the consultant prepared a project document derived from Rural Energy Master which indicates the description of load flow and demand. Therefore, all future projects will be anchored of project documents and Rural Energy Master Plan	The Agency will adhere to project document and Rural Energy Master Plan in implementing its projects	June 2023
2.	Ensure that in future similar projects, it institute and implement a comprehensive and effective awareness campaign through establishing a framework for the campaign, developing risk assessment criteria, engaging local stakeholders, and decentralizing the campaign activity to lower levels.	<p>The Agency has prepared the following</p> <ul style="list-style-type: none"> - Communication strategy; - Outreach Plan; and - Visibility plan which includes awareness campaign. <p>The Agency has conducted stakeholders' awareness meetings with councillors, member of parliament, RCs, DCs, VEO, WEO and beneficiaries.</p> <p>The Agency conducted awareness campaign for customer connection and productive use of electricity through mass</p>	The Agency will continue conducting awareness and updating communication tools as deemed necessary.	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
		media such as Television, Radio, social media and print media. Furthermore, the Agency has published leaflet, posters, banners, and t-shirts.		
3.	Timely process payments to the contractors to facilitate smooth implementation of the projects and avoid effects of delayed payments	According to the contract, payments are supposed to be made within 45 days from the date of receiving invoice by REA. In case of notable discrepancies, the same is communicated to the contractor for rectification. The contractor is obliged to rectify and respond timely through TANESCO. The Agency will ensure that, all payments are made based on the contractual terms and condition.	The Agency will continue to ensure that all payments are made based on the contractual terms and condition.	June 2023
4.	Ensure timely renewal of advance payment securities	Advance payment guarantees are always valid for a period of advance payment recovery.	The Agency will continue to monitor the validity of advance securities	June 2023
5.	Ensure the contractors use transformers with appropriate capacity to meet the specifications so as to meet the expected output	The 50kVA/11kV transformer installed in lieu of 100kVA/33kV at Kipaduka village was installed because Mtera substation which is the source of the tapping point (33kV) was not operational. However, the Agency will ensure replacement of the transformers after completion of Mtera	To replace the transformers and energies the 33kV line from Mtera substation	December 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
		substation project.		
6.	Ensure availability and adherence to safety and operational guidelines to ensure the safe operation and proper performance of the transformers to enhance their sustainability	The Agency ensures adherence to operational guidelines in conducting Factory Acceptance Tests, Site Acceptance Tests and commissioning. The Agency will continue providing trainings to its personnel to ensure they adhere to set standards while conducting Tests.	To conduct training to all supervision team on quality aspect.	December 2023
7.	Conduct a comprehensive assessment of infrastructure to identify any instances of poor workmanship and take necessary steps to rectify them	The Agency has taken note. However, all snags identified are normally rectified prior to issuance of operational certificate. Thus, at the time of issuance of completion certificate snags are recorded and are bound to be rectified within Defect Liability Period.	The Agency will ensure all snags identified are rectified	December 2023
8.	Manage retention monies to address defects during the Defect Liability Period (DLP), which will ensure project sustainability and reduce future maintenance costs	The Agency will continue to hold retention monies until completion of the project and issuance of completion certificate and operation acceptance certificate. Also, during the DLP the project is covered by performance security.	The Agency will continue to hold retention monies according to the contract	June 2023
9.	Ensure that health and safety manual are available at site and are implemented at all times.	The subsequent projects after Densification 2A have taken on Board the noted anomaly whereas, contractors have health and safety manuals as well as safety officers at site at	The Agency through consultant and TANESCO will continue monitoring contractor's	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
		all times whose role is to oversee safety issues and report to the Consultant or Agency on matters pertaining safety issue	adherence to health and safety requirement.	
In order to enhance and improve the Performance of Off Grid Rural Electrification Projects, the REA is urged to:				
1.	Ensure enable project developers prepare operational and maintenance plans	During submission of the proposal's developers are required to present work plan which include operation and maintenance activities. However, during operation of the plant it's the responsibility of the regulator to ensure grid operators complies with the O&M guidelines	The Agency will liaise with EWURA to ensure all developers are complying with the submitted O&M plans	June 2023
2.	Strengthen the evaluation system for the first and second stages to avoid selecting Project Developers who may not be able to fulfil the terms of the awarded contracts	Developers who qualified in the first and second stages were evaluated based on the operating guideline. However, during implementation some of the developers encounters challenges.	The Agency will continue conducting evaluation based on the approved operating guideline. The Agency will ensure non-performer developers are not considered for future projects/calls.	June 2023
3.	Carry out a thorough inspection to ensure all materials are of good quality and adhere to the applicable criteria	The quality of materials used for construction of mini grid are based on the designed scope of the project. In case there is any addition customers apart from the original design the infrastructure cannot accommodate additional customers hence	The Agency will continue to insist to inspect project material to ensure they meet standards and specifications. However,	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
		results into poor services due to capacity limitation.	whenever, there is additional load the Agency will continue to support project developers to connect more customers.	
4.	Ensure that all contract documents undergo thorough review before being signed, and all user departments are fully informed of their contents	The Agency has taken note and will comply with the recommendation	To review all documents before signing	June 2023
5.	Ensure that Off-grid electrification projects have a time management plan and that, the plan is followed	The Operating guideline has provided the time for implementation of the project however, during implementation project developers submits implementation plan that is used by the Agency to monitor implementation progress	The Agency will continue to monitor implementation schedules	June 2023
6.	Set the timelines for signing agreements to enable all Project developers sign contracts at an appropriate time to avoid delay in commencement of the projects	The timeline for signing agreement is based on submission of environmental clearance and payment guarantee/insurance therefore, the Agency normally sign contracts after receiving the required documents	The Agency will continue to emphases project developers to submit the required document on time	June 2023
7.	Devise a mechanism to ensure that all financing	The Agency normally ensures that all financing agreement are completed within the agreed	To strengthen supervision of the financing agreement	December 2025

S/N	Recommendation	REA's Comment	Planned Action	Timeline
	agreements are completed within the agreed-upon timeframe	timeframe however if there is any challenge during implementation the Agency requests extension of time.		
8.	Conduct an assessment on the sufficiency and sustainability of electricity supply services delivered to connected customers	The sustainability of the project is the responsibility of the project developer.	The Agency will liaise with the regulator (EWURA) to ensure assessment is conducted accordingly.	June 2023
9.	Ensure that the project has a system in place to control variations in the number of connections made to customers	The Agency has never encountered variations during implementation of off-grid projects but the operating guideline allows for the project developer to be paid based on the number of connections achieved but should not exceed the contract amount.	The Agency will continue to adhere to the operating guideline or contract.	June 2023
10.	Ensure payments made to Project Developers reflect the number of connected customers as per the agreement	The operating guideline allows for the project developer to be paid based on the number of connections achieved but should not exceed the contract amount.	The Agency will continue to adhere to the operating guideline or contract.	June 2023
11.	Ensure Project Developers adhere to health and safety issues during implementation of the project; project-, conduct assessment of the level of	The sustainability of the project is the responsibility of the project developer.	The Agency will liaise with the regulator (EWURA) to ensure compliance of health and safety and sustainability of the project.	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
	performance of the power supplied to ensure sustainability of the project during operation phase			
12.	ensure securing of all payments prior to completion of connections to avoid payment delays in ongoing and future projects	The operating guideline allows for the project developer to be paid based on the number of connections achieved but should not exceed the contract amount.	The Agency will continue to adhere to the operating guideline or contract.	June 2023
13.	Develop a mechanism to ensure the implemented Green and Min Grid projects are sustainable and benefit the customers connected	The sustainability of the project is normally the responsibility of the project developer who contribute to the investment cost. However, the auditors' recommendation has been noted for further improvement.	The Agency will liaise with the regulator (EWURA) to ensure assessment on viability of project is done before registration and/or issuance of licence.	June 2023
14.	Ensure timely implementation of Grant projects to avoid delays that results to some fund from withdrawing their funds	The Agency has noted auditors' recommendation and will adhere in future projects	The Agency will adhere	June 2023
15.	Develop a mechanism to increase the number of private investors in	The Agency is mobilizing more funds to support private investors to invest in Green Mini and Micro projects. In addition, the	The Agency will continue to support and provide conducive	June 2023

S/N	Recommendation	REA's Comment	Planned Action	Timeline
	Green Min and Micro Grid projects	Agency is providing capacity building, technical support and awareness program to private investors to apply for opportunity available within REA or other financing windows.	environment to attract more private investors to participate in development of Mini and micro green projects.	
16.	Develop a mechanism to reach out to and connect with female-owned businesses in rural areas to ensure the achievement of goals for electrifying female-owned businesses through targeted efforts	The Agency has taken note of the auditor's recommendations. For further increasing of female connections. The Agency is increasing the number of connections for female owned business by providing ready board which does not require cost of wiring.	The Agency will continue sensitising the community on the importance of electrifying female owned business.	June 2023



Appendix 1(b): Responses from the Ministry of Energy on the Issued Recommendations

(c) Overall Response

The Ministry's Strategic Plan 2021/2022-2025/26. Among the critical issues in the current Strategic Plan (SP) of the Ministry (section 2.12) is *"increasing access to modern energy services in rural areas"*. Further, under objective C of the SP regarding enhancing and sustaining power generation, transmission and distribution networks, there are two targets for rural electrification. These are (vii) *"All 12,317 villages in Tanzania mainland are electrified by June, 2026"* and (viii) *Rural electricity access to communities increased from 69.8% to 100% by June, 2026*. Key Performance Indicators (i) *percentage of customers connected to electricity* and (iii) *Number of kilometres of transmission and distribution networks constructed* have been used to track achievements recorded in the set targets. Objective D of the SP focuses on renewable energy as follows *"New and Renewable Energy Resources Developed"*. Since the SP is expected to undergo Mid-Term Review in the Year 2023/24, the Ministry will unpack some targets and indicators to address concerns raised by the Auditor.

(d) Specific Responses

S/N	Recommendation	MoE's Comment	Planned Action	Timeline
1.	MoE has to enhance its plan to ensure that rural electrification programme is effectively monitored, and corrective actions are timely taken to achieve programme objective	With regards to enhancing Monitoring and Evaluation of rural electrification programmes implemented by REA, the Ministry has undertaken several initiatives including recruiting District Coordinators for REA projects in all Districts in the mainland Tanzania in February, 2023 and approval has been granted for recruiting Regional	Address Audit Concerns into the SP through Mid Term Review	Year 2023/24

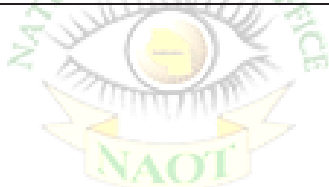
S/N	Recommendation	MoE's Comment	Planned Action	Timeline
		<p>Managers for REA projects in all regions in the mainland Tanzania. The central function of the District Coordinators and Regional Managers is to closely monitor the implementation of REA projects in their areas of jurisdiction and provide regular feedback to the Ministry and other stakeholders on issues related to performance in the execution of rural electrification projects and programmes. Further, the Ministry has acquired a vehicle specific for the Monitoring and Evaluation Section in the Ministry and the budget of the Section has been strengthened in order to improve monitoring and evaluation functions. This initiative is continuous considering the</p>		

S/N	Recommendation	MoE's Comment	Planned Action	Timeline
		<p>fact that rural electrification programmes are still ongoing including the initiative to electrify all the hamlets in the mainland Tanzania.</p> <p>Also,</p> <p>a) In July, 2022 the Ministry organized training on Project Management, Monitoring and Evaluation in the Energy Sector to some of its officers in order to strengthen their capacities in managing energy related projects and programmes.</p>		

Appendix 2: Main and Sub-audit Questions

Audit Question 1: To what extent has Rural electrification program attained results which are impact fully and sustainable	
Audit Question 1.1	Did rural electrification projects achieved its stated immediate and medium-term objectives?
Sub-question 1.2	Are rural electrification projects results being cost-effective?
Sub- Question 1.3	Have the rural electrification projects impacted the socioeconomic and living condition of rural community?
Sub- Question 1.4	Are the established electrification services sustainable during the life cycle of the intervention and after the intervention?
Sub- Question 1.5	Did REA, SIDA and TANESCO adequately monitored and evaluated the implementation and results of Rural Electrification Projects?
Audit Question 2: Are Planning for Rural Electrification Projects adequately done?	
Sub-question 2.1	Did REA managed to implement projects initiation effectively?
Sub- Question 2.3	Is the design of the projects adequate to address the intended objectives?
Sub- Question 2.4	Did REA comply with environmental and safety during planning of the project?
Audit Question 3: Are the procurement activities of REA projects in compliance with the stipulated law and regulations?	
Sub-question 3.1	Did REA adequately prepare procurement plans?
Sub-question 3.2	Is the invitation of contractors conducted adequately?
Sub-question 3.3	Are the Prequalification conducted effectively? (If applicable)
Sub-question 3.4	Did REA adequately Selected the Procurement Methods?
Sub-question 3.5	Did REA adequately prepare the tender documents
Sub-question 3.6	Was tender invitation, Receipt and opening conducted adequately
Sub-question 3.7	Was evaluation of tender properly conducted
Sub-question 3.8	Was Negotiation (if any) and Awarding conducted adequately?
Sub-question 3.9	Was Contract Vetting and Signing conducted effectively?
Audit Question 4: To what extent did the implementers of Rural Electrification project ensure the project fund were effectively managed?	
Sub-question 4.1	Are the funds requested timely by the project implementers upon fulfilment of the set disbursement terms and conditions
Sub-question 4.2	Are the funds disbursed timely as agreed?

<i>Sub-question 4.3</i>	<i>Are the funds disbursed adequately as per approved budget?</i>
<i>Sub-question 4.4</i>	<i>Are the disbursed funds utilized by project implementers as per intended objectives?</i>
<i>Sub-question 4.5</i>	<i>Are payments made during projects execution effectively managed?</i>
<i>Audit Question 5: Are contracts for rural electrification projects adequately managed?</i>	
<i>Sub-question 5.1</i>	<i>Does Rural Energy Agency (REA) adequately manage time for the Rural Electrification projects?</i>
<i>Sub-question 5.2</i>	<i>Does Rural Energy Agency (REA) adequately manage Quality for the Rural Electrification projects?</i>
<i>Sub-question 5.3</i>	<i>Did Rural Energy Agency (REA) adequately manage cost and scope of Rural electrification projects?</i>
<i>Sub-question 5.4</i>	<i>Did REA consider health, safety, Environmental and social as required by laws, regulations, and guidance in the country during project execution?</i>
<i>Sub-question 5.5</i>	<i>Did REA adequately manage human resources during execution of project</i>
<i>Sub-question 5.5</i>	<i>Did REA adequately ensure that projects closure and commissioning effectively done?</i>



Appendix 3: Transformer Factory Tests for Lot 2

Transformer	Serial No.	Rating (kVA)	Load loss Pk(W)	Specification (W)[1]	Remark
50 kV,33/0.4kV	E19-50/337	50	1221	1150	Exceed
50 kV,33/0.4kV	E19-50/33-335	50	1220	1150	Exceed
50 kV,11/0.4kV	E19-50/33-334	50	1199	1150	Exceed
100 kV,11/0.4kV	E19-200/33-054	200	3325	2900	Exceed
50 kV,33/0.4kV	E19-100/33-185	100	1979	1800	Exceed
50 kV,33/0.4kV	E19-100/33-182	100	2012	1800	Exceed
100 kV,33/0.4kV	E19-100/33-179	100	2040	1800	Exceed
100 kV,33/0.4kV	E19-50/33-343	50	1140	1150	With Range
100 kV,33/0.4kV	E19-50/33-342	50	1245	1150	Exceed
100 kV,33/0.4kV	E19-50/33-340	50	1210	1150	Exceed
100 kV,33/0.4kV	E19-50/33-338	50	1129	1150	Exceed

Appendix 4: Factory Acceptance Tests for Lot 4

Transformer	Serial No.	Rating (kVA)	Load loss Pk(W)	Specification (W) ¹⁶	Remarks
50 kV,33/0.4kV	TX017173	50	791.36	1150	Within range
50 kV,33/0.4kV	TX017189	50	813.12	1150	Within range
50 kV,11/0.4kV	TX017132	50	1214.72	1100	Exceed
100 kV,11/0.4kV	TX016354	100	2066.88	1750	Exceed
50 kV,33/0.4kV	TX017201	50	821.76	1150	Within range
50 kV,33/0.4kV	TX017042	50	800	1150	Within range
100 kV,33/0.4kV	TX017083	100	1743.36	1800	Within range
100 kV,33/0.4kV	TX017087	100	1711.68	1800	Within range
100 kV,33/0.4kV	TX017089	100	1712.96	1800	Within range
100 kV,33/0.4kV	TX017094	100	1728.64	1800	Within range

Source: Derm Electric and TANESCO FAT minutes, 9th August 2021



¹⁶ Transformers with losses exceeding the above values shall be rejected

Appendix 5: Lot 4 Factory Acceptance Tests

Transformer	Serial No.	Rating (kVA)	Load loss Pk(W)	Specification (W) ¹⁷
50 kV,33/0.4kV	TX017173	50	791.36	1150
50 kV,33/0.4kV	TX017189	50	813.12	1150
50 kV,11/0.4kV	TX017132	50	1214.72	1100
100 kV,11/0.4kV	TX016354	100	2066.88	1750
50 kV,33/0.4kV	TX017201	50	821.76	1150
50 kV,33/0.4kV	TX017042	50	800	1150
100 kV,33/0.4kV	TX017083	100	1743.36	1800
100 kV,33/0.4kV	TX017087	100	1711.68	1800
100 kV,33/0.4kV	TX017089	100	1712.96	1800
100 kV,33/0.4kV	TX017094	100	1728.64	1800

¹⁷ Transformers with losses exceeding the above values shall be rejected

Appendix 6: Performance Guarantee

LOT	PERFORMANCE GUARANTEE REF	PERFORMANCE GUARANTEE TZS EXPIRED ON	PERFORMANCE GUARANTEE DELAY TIME	PERFORMANCE GUARANTEE REF	PERFORMANCE GUARANTEE USD EXPIRED ON	PERFORMANCE GUARANTEE DELAY TIME
1	PG NO. MHB/GRT/4 98/09/2020	30/09/20 22	92	PG NO. MHB/GRT/49 8/09/2020	30/09/20 22	92
2	PG NO. PBG 300005820	31/07/20 22	153	PG NO. PBG 300005820	31/07/20 22	153
3	PG NO. PBG 300005920	31/07/20 22	153	PG NO. PBG 300005920	31/07/20 22	153
4	PG NO. MHB/GRT/4 99/09/2020	30/09/20 22	92	PG NO. MHB/GRT/49 9/09/2020	30/09/20 22	92
5	PG NO. 31702004430 8	31/12/20 22	0	PG NO. 31702004424 6	31/12/20 22	0
6	PG NO. 31702004429 1	31/12/20 22	0	PG NO. 31702004428 2	31/12/20 22	0