



Quality Assurance

Establishment of Testing Laboratory for Clean Cooking, and EE Lighting and Appliances for The Gambia (TGSB)

TERMS OF REFERENCE

Development and Introduction of Minimum Energy Performance Standards (MEPS), Labelling and EE Lighting Testing Laboratory for TGSB

Contract number: 3000072500 – GEF/UNIDO

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1. BACKGROUND INFORMATION

1.1. Beneficiary country

Republic of The Gambia

1.2. Contracting Authority

Ecowas Center for Renewable Energy and Energy Efficiency (ECREEE)

1.3. BACKGROUND

1.3.1 Introduction

In 2016, biomass –including fuel wood– accounted for almost 80% of The Gambia’s energy supply and more than 90% of household energy consumption, while petroleum products –including liquefied petroleum gas (LPG) for cooking; diesel and heavy fuel oil for generating electricity– accounted for 16% and electricity for about 4% of the energy supply. In addition, at least 60% of the population does not have access to electricity and the country depends on diverse fuel sources, of which the use of biomass primarily for cooking and petroleum products has the strongest link to climate change.

Although Large-scale electrification plans are being developed, the natural and financial resources needed to produce the required extra electricity might be difficult to mobilize. Also, implementing additional electricity generation capacity to meet the growing population needs in the country will take time. Therefore, EE and Standards and labelling programs represent an opportunity to more effectively meet the needs of the population within a shorter timeframe and in a sustainable manner. This situation is due to several specific barriers such as:

- Disjointed approaches between activities in the energy sector and other sectors;
- Absence of regulation on the importation and dissemination of inefficient appliances;
- Absence of performance labelling scheme on appliances;
- Limited capacity of private investors and users in identifying and tapping into opportunities that support the switch to more efficient appliances and cooking devices

To address these barriers, the Government of the Gambia requested UNIDO’s support in the operationalization of the SE4All Action Agenda through promoting inclusive, environmentally-sound and low-carbon development. The project is funded by the Global Environment Facility and its objective is to demonstrate the use of energy efficient lighting and appliances as well as efficient cooking stoves. The dissemination of EE lighting and appliances will effectively contribute to national efforts in reducing the pressure on the grid. The replacement of inefficient lights and appliances with efficient devices will also



minimize the need for emergency power generation capacity that is fossil fuel- based. Further, the promotion of efficient cook stoves will effectively reduce the demand for firewood and charcoal therefore reducing the deforestation rate in the country. To achieve this objective, the project will develop and implement the following interrelated components:

- Component 1 – National platform to foster nexus issues;
- Component 2 – Promote the use of energy efficient appliances;
- Component 3 – Promote the production and use of efficient cook stoves and alternative cooking fuels;
- Component 4 – Quality assurance.

In view of its extensive experience in the region serving the ECOWAS Member States with the implementation of the ECOWAS Renewable Energy and EE Policy through several programs including the West African Clean Cooking Alliances (WACCA) program for clean cooking and EE programs in the residential, tertiary and industrial sectors, ECREEE was chosen to fully implement component 4. i.e. the establishment of a testing laboratory for clean cooking, EE lighting and appliances, and conduct capacity building activities at TGSB. The tasks are carried out under the guidance and supervision of UNIDO and in support of the Ministry of Petroleum and Energy.

1.3.2. Study tour and Inception workshop

ECREEE in collaboration with the TGSB conducted a study tour Ghana, October 25 -29, 2019, to discover experiences from Ghana in the area of implementation of Minimum Energy Performance Standards, EE testing laboratories, and EE labelling. The results of the study tour were shared at an inception workshop organized by ECREEE in collaboration with the main partners in the Gambia on November 20 -22, 2019, in Banjul. It was therefore decided that given the market demand for lighting, the first priority for the country would be to develop and implement EE standards and EE testing laboratory for lighting, and formulate EE standards for clean cooking. The successful implementation of the Minimum Energy Performance Standards and labelling can contribute to:

- Reduce electricity peak demand. This can reduce the pressure on the electricity network and reduce the need for new electricity generation plants, and consequently reduce government public expenditures;
- Reduce overall electricity consumption and bills for consumers, who will spend a smaller fraction of their incomes on energy. This is especially important for low-income households, for which the high price of electricity is a barrier to meeting their basic need;
- less dependence on fossil fuels, thereby reducing the negative impacts on environment
- MEPS & labeling of households' appliances can serve as a powerful tool to inform consumers about differences in energy performance;

1.4. Target Area and implementing partners of the assignment

- Framework conditions for promotion of energy efficient lighting, State-of-Play of labelling and name plate information of EE lighting in the Gambia (MEPS & Labelling)
- State of play of testing facilities for EE Lighting
- Capacity building and awareness creation for TGSB, Quality assurance Committee, and general public in the country

The main actors and target groups are:

- Ministry of Petroleum and Energy
- The Gambia Standards Bureau
- Public Utilities Regulatory Authority
- The Gambia Customs Service
- Consumer Protection Council
- Gambia Technical Training Institute
- Gambia Chamber of Commerce and Industry
- Ministry of trade, industry, integration, and employment
- Gambia Clean Cooking Alliance
- Gambia Telecommunication Company Limited
- Ministry of Information and Communication Infrastructure
- National water and Electricity Company Limited
- Importers, exporters, retailers, and local manufacturers of both used and new Lighting equipment

2. OBJECTIVE, PURPOSE & EXPECTED RESULTS

2.1. Overall objective

The overall objective of the assignment is the establishment of testing laboratory for EE lighting and appliances, more specifically for EE lighting, and conduct capacity building activities at TGSB. The tasks will be carried out under the guidance and supervision of UNIDO and in support of the Ministry of Petroleum and Energy. Specific objectives are:

- Conduct a detailed information (cost effectiveness, accreditation and sustainability) for EE performance testing laboratory for lighting,
- Identify suitable EE Lighting testing laboratory for TGSB
- Install EE Lighting testing laboratory
- Conduct capacity building and awareness creation programme for relevant stakeholders

2.2. Results to be achieved by the Consultant

Concrete qualitative and quantitative progress in relation to the achievement of the specific purposes above as well as fulfilment of the tasks and provision of the deliverables defined for the specific purpose, and increase national capacity to uptake energy efficient appliances and clean cooking solutions in compliance with quality standards, as per the specific objectives mentioned above.

3. ASSUMPTIONS & RISKS

3.1. Assumptions

- a) The specific purposes are in line with ECREEE, UNIDO, and GEF expectations;
- b) The assignment scope and activities do not significantly overlap with other Donor agencies activities on the same subject area;
- c) Mitigation of non-targeted electricity subsidies and cross-subsidies.
- d) Full collaboration of the Gambia Customs Services, and relevant government agencies

3.2. Risks

The main risks associated with are:

- e) Import of energy inefficient or used EE equipment although they are banned;
- f) Energy efficiency rebound effects due to user indifference towards proper EE lighting maintenance,
- g) None or Inadequate Government support to standards and labelling
- h) Inadequate regulatory framework for mandatory efficient EE lighting and testing for imported EE lamps

4. SCOPE OF THE WORK

4.1 General

The scope of work is divided into the following work packages:

- **Work Package 1:** Appraisal of Testing Facility for EE lighting
- **Work Package 2:** Establish a basic EE appliances testing laboratory
- **Work Package 3:** Capacity Development and Awareness Creation on Energy Efficient lighting
- **Work Package 4:** Develop strategies for the implementation of Minimum Energy Performance Standards for Lighting.

4.2. Detailed Scope of the Assignment

To increase confidence in the performance of selected electrical appliances, the project will adapt existing appliance performance labelling schemes from countries in the ECOWAS region and more specifically from the ECOWAS approved performance labelling. They will be introduced to The Gambian market focusing on the most commonly used appliances.

4.2.1. Work Package 1: Appraisal of Testing Facility for EE Lighting

The consultant/consulting firm is expected to prepare an appraisal of the cost-effectiveness and efficiency of a national testing facility for lighting, and prepare a complete business plan about the financial and technical viability of a national EE lighting energy performance testing facility. This will entail the following activities:

- a) In collaboration with the key stakeholders, identify a suitable location for the testing facility
- b) Recommend minimum professional qualification of technical staff needed to operate the testing facility;
- c) Estimate costs for TGSB staff, and if necessary, overseas staff training in energy performance testing for lighting;
- d) Elaborate on international accreditation procedures including tracing back instrumentation calibration standards of the facility to a higher national or international standard;
- e) Elaborate on particularities and possible legal challenges of re-testing of imported already labelled EE lamps, provide an opinion about re-labelling schemes without national performance testing;
- f) Estimate options for a sub-regional (ECOWAS) based testing facilities
- g) Develop a National Quality Assurance for EE Solutions Committee
- h) Present findings at a validation workshop. Venue and dates for the workshop will be validated by the ECREEE in collaboration with TGSB and together with its partners.

4.2.2. Work Package 2: Establish a Basic EE Lighting Testing Laboratory

The development of standards and performance labelling schemes will only be effective if market players such as TGSB are able to conduct quality assurance and quality control through testing, inspecting and certification. However, there are no testing capacities in The Gambia and products are tested and certified with partner laboratories abroad, often located in Senegal and Europe. Hence a basic laboratory for these EE solutions is needed through the following activities:

- i. Identify a basic EE Testing Facility for Lighting
- ii. Describe the layout of the testing facility, its measuring equipment, and software
- iii. Prepare a bankable business plan
- iv. Establish the EE lighting appliances testing laboratory
- v. Install the testing facility
- vi. Develop the testing and quality assurance capacity of TGSB

4.2.3. Work Package 3: Capacity Development -Awareness Creation EE lighting

The development of standards and performance labelling schemes will only be effective if market players such as TGSB are able to conduct quality assurance and quality control through testing, inspecting and certification. However, there are no testing capacities in The Gambia and products are tested and certified with partner laboratories abroad, often located in Senegal and Europe. Hence a basic laboratory for these EE solutions is needed. Consequently, in collaboration with key stakeholders and ECREEE, the consultant will develop and execute awareness raising and training workshops to facilitate adoption, integration, and implementation of MEPS and labelling schemes for EE lamps.

- i. Develop the testing and quality assurance capacity of TGSB. Skills in terms of testing and quality assurance at TGSB closely linked to the laboratory are crucial for efficient quality control. These skills include:
 - o Understanding, developing and applying testing protocols and processes.
 - o Using the laboratory equipment incl. calibration, maintenance, etc.
 - o Drawing and presenting conclusions and recommendations of the tests in terms of quality assurance
- ii. Develop the capacity of, and certify installers of EE solutions (Certification modules on EE Lighting: e.g., EE lighting certification module, and it will include: theoretical knowledge, installation, service and system components). Not only certification of products but also of human resources for the installation and maintenance of such EE solutions.

The selection process for the training participants is crucial to ensure that suitable candidates are part of the training programme. The selection criteria of the participants i.e. installers of EE solutions may include the following aspects:

- o Relevant work experience i.e. a minimum of hours of installation of a given EE solution
- o Participation in previous trainings related to installation of the given EE solution
- o Current job related to EE solutions
- o Motivation
- o Gender and age
- o Perceived impact of the training programme in the candidate's activities and for the project
- o Province of residence

Equal opportunities should be given to men, women and youth.

The selection procedure will be split in different steps as follows

- o Application: form and resume
 - o Candidate preselection
 - o Short interview
 - o Final candidate selection
- iii. Deliver training on developed quality standards and performance labelling scheme to key stakeholders. Training on the developed quality standards for EE lighting appliances will be delivered to at least 40 relevant stakeholders including:
- o Importers/distributors of EE appliances
 - o Producers/distributors of clean cooking solutions ■ Consumer associations
 - o Professional associations (Tourism & Travel Association of the Gambia, Women fish smoking associations, etc.)
 - o A small committee composed of the PMO and respectively one representative of the MoPE, NEA and TGSB will make the selection. Efforts will be made to ensure at least 40% of the training participants are women and a proportional representation from the different provinces in The Gambia.
- iv. Establish and build capacity to enforce standards and performance labelling schemes (including supervision and enforcement personnel). This activity will be done in collaboration with the National Quality Assurance Committee on EE Solutions
- v. Design an awareness creation programme to ensure proper communication with the Gambia public, in particular with the main relevant actors (importers, exporters, local manufacturers) regarding the advantages of MEPS and labelling requirements for Lighting. The objective is to ensure a smooth transition towards efficient lighting market and avoid reaction against MEPS and Energy Labelling
- vi. Develop adequate guidelines in form of leaflets/brochures to explain the benefits of MEPS and Energy Labelling to consumers;
- vii. Together with the national Quality Assurance Committee, get feedback from the national platform for energy nexus issues and disseminate the quality assurance information
- 4.2.4. Work Package 4: Develop strategies for the implementation of MEPS for Lighting**
- i. Point out gaps and opportunities for the introduction of MEPS and energy labelling in the Gambia
 - ii. Discuss the appropriate order of implementation of the MEPS and Energy Labelling schemes for EE lighting in the Gambia
 - iii. Propose a method for regular data collection that facilitates future impact evaluation of MEPS and Energy Labelling schemes
 - iv. Identify possible prospective area of collaboration between TGSB, ECREEE, UNIDO and GEF

5. LOGISTICS AND TIMING

5.1 Location

Services will be delivered at:

- Consultants' home office base;
- Partner institutions in Banjul in the Gambia

5.2 Commencement date & period of execution

5.2.1. Duration of the assignment

The total duration for the whole assignment is estimated to be **21 expert working days** spread over 2 months starting from the contract award. The requirements for the consultant are as follows:

- i. Commencement of the work: June 1, 2020
- ii. End of the work: August 31, 2020

The assignment commences after signing of the contract by the consultant and terminates in August 31, 2020. The practical scheduling of the different activities of the work packages will finally be decided by ECREEE in collaboration with the key stakeholders.

The assignment has the following specific tasks, deadlines and time frame of implementation is as follows:

5.2.2. Work packages and deliverables schedule

The schedule of the activities is given in the table 1.

Table 1: Time frame and deliverable

Work Packages	Summarised activities (refer to section 4.2, detailed scope of activities for more details)	Experts	deadlines	Deliverables	Required Expert days
Work Package 1: Appraisal of Testing Facility for EE Lighting	i. Appraisal of EE Lighting	Consultant	June 15, 2020	i. Reports on appraisal of EE Lighting ii. 1 st Validation Workshop to present result on findings	<u>Work Package</u> <u>1</u> <i>4 expert days</i>
Work Package 2: Establish a Basic EE Lighting Testing Laboratory	iii. Identify suitable EE lighting laboratory	Consultant TGSB ECREEE	July 24 , 2020	ii. Report on identification of testing facility (approved by ECREEE and TGSB)	<u>Work Package</u> <u>2</u>

	<p>iv. Bankable business plan developed and approved by TGSB and ECREEE</p> <p>v. Procurement of EE testing laboratory done by ECREEE</p> <p>vi. EE lighting testing laboratory installed by consultant.</p> <p>vii. EE lighting testing laboratory commissioned</p>			<p>iv. Report on bankable business plan approved by TGSB and ECREEE</p> <p>v. Procurement process completed and Laboratory delivered in to TGSB</p> <p>vi. Testing laboratory installed by Consultant</p> <p>vii. Testing laboratory commissioned</p>	10 expert days
<p>Work Package 3: Capacity Development and Awareness Creation on EE lighting</p>	<p>viii. Develop the testing and quality assurance capacity of TGSB</p> <p>ix. Selection of the training participants done and workshop to develop the capacity of, and certify installers of EE solutions done.</p> <p>x. Developed quality standards and performance labelling scheme to key stakeholders done.</p>	<p>Consultant TGSB ECREEE</p>	<p>August 14, 2020</p>	<p>viii. Workshop to develop the testing and quality assurance capacity of TGSB</p> <p>ix. Training participants selected</p> <p>x. Workshop on developed quality standards and performance labelling scheme to key stakeholders done.</p>	<p><u>Work Package 3</u> 5 Experts days</p>

	<p>xi. Establish and build capacity to enforce standards and performance labelling schemes (including supervision and enforcement personnel) done.</p> <p>xii. Capacity building and awareness creation programme</p> <p>xiii. Adequate guidelines in form of leaflets/brochures to explain the benefits of MEPS and Energy Labelling to consumers</p> <p>xiv. Feedback from the national platform for energy nexus issues and disseminate the quality assurance information</p>			<p>xi. Workshop to establish capacity to enforce standards labelling schemes conducted</p> <p>xii. Capacity building and awareness creation programme formulated</p> <p>xiii. Leaflets/brochures formulated</p> <p>xiv. Feedback from the national platform received</p>	
<p>Work Package 4: Develop strategies for the implementation of Minimum Energy</p>	<p>xv. Point out gaps and opportunities for the introduction of MEPS and energy labelling in the Gambia</p>		<p>August 25, 2020</p>	<p>xv. Barriers and opportunities identified for the promotion of EE standards and labels.</p> <p>xvi. Suggested processes/order for the implementation of</p>	<p><u>Work Package 4</u></p> <p><u>2 Expert days</u></p>

<p>Performance Standards for Lighting and labelling</p>	<p>xvi. Discuss the appropriate order of implementation of the MEPS and Energy Labelling schemes for EE lighting in the Gambia</p> <p>xvii. Propose a method for regular data collection that facilitates future impact evaluation of MEPS and Energy Labelling schemes</p> <p>xviii. Identify possible prospective area of collaboration between TGSB, ECREEE, UNIDO and GEF</p>			<p>MEPS and labels formulated</p> <p>xvii. Method for data collection formulated</p> <p>xviii. Possible future collaboration areas identified for the sustainability of Quality Insurance.</p>	
				<p>Total</p>	<p>21 Working days</p>

6. SPECIFICATION OF INPUTS

6.1. Key experts

The consultant shall select his key experts on the basis of the needs of work packages and on the profiles outlined below:

i. Work packages

- A proven track records in the design and operation of EE testing facilities
- Proven track record in the installation of EE testing laboratories, more specifically for lighting
- Proven records in EE capacity development and awareness creation

- Experience in the formulation and implementation of EE standards and Labels
- Know how about preparing a bankable business plan is a must.
- Development of strategies for the implementation of Minimum Energy Performance Standards
- A very good command of English used in a professional context is essential
- Knowledge of Portuguese in an added advantage

ii. Professional experience and technical experiences

- The Consultancy firm/ expert, should have a minimum of five (5) years of general professional experience in existing standards for lighting and appliances and knowledge on the legal framework of standardization bodies.
- Skills in facilitating meetings effectively and efficiently and to resolve conflicts as they arise.
- Excellent ability and working experience in Gender, Social and Environmental mainstreaming in projects, processes and organisations
- Excellent interpersonal and communication skills and sensitivity to cultural, socio-economic and political differences
- The experts shall have the adequate experience in testing and certification of energy efficient lighting and appliances with a particular knowledge in design and operation of testing laboratories.
- At a minimum he/she should have 5 years of experience in the ECOWAS region
- Skills in achieving results through persuading, influencing and working with others, especially high level representatives from both private and public sectors.
- Knowledge of establishment of Testing laboratories in the ECOWAS
- Knowledge of development of Guidelines Knowledge of ECOWAS Regional Policies, Standardisation Bodies and the Sustainable Development Goals

Profession experience in training and awareness creation in areas related to MEPS Professional experience in managing and operating a EE testing laboratory and energy labelling

7. ITEMS OF EQUIPMENT

The Consulting firm shall ensure that all key experts are adequately equipped. ECREEE will make the procurement and payment for the equipment of the testing laboratories.

7.1. Expendable goods

No expendable goods to be purchased within this contract. Office accommodation for experts working under the contract will not be provided by the ECREEE. The Consulting firm shall ensure that all key experts are adequately supported.

7.2 Public relations and training events

Events listing requiring involvement of at least one of the key experts:

- a) workshops with key stakeholders to present the findings of work packages 1&2
- b) Installation of EE Testing facilities
- c) Training workshop for 15 TGSB staff on the operation of the testing laboratory of EE solutions and quality assurance
- d) Provide train the trainer workshops for TGSB staff with the target to provide trainings to installers, distributors and market players for EE solutions. At least 40% of the trainees are women, if possible.
- e) In collaboration with TGSB provide trainings to at least 40 market players and enablers (including supervision and enforcement personnel), on performance labelling schemes for EE appliances and quality standards. To ensure gender mainstreaming a target of 40% of the trainees should be women
- f) Develop capacity building plan for TGSB considering sustainability of activities and continued exchange between ECREEE and TGSB regarding quality standards beyond project duration.

Scheduling of events will be done by ECREEE in cooperation with partners. Local costs for organising and implementing these events will be covered by the project and are not part of this contract.

8. TRAVEL COSTS

A total of 3 trips will be scheduled as follows:

- Travel 1: workshops with key stakeholders to present the findings of work packages 1&2
- Travel 2: Installation of EE testing facility
- Travel 3: Capacity development Workshops, as mentioned in 7.2 (c-f)

A total of three (3) return flights by is assumed. Any other local transportation and costs are the responsibility of the consulting firm. All flights need prior approval by the ECREEE

9. REPORTS

9.1. Language and Reporting requirements

The consultancy firm must have the capacity to work in English, and Portuguese. Intermediate reports are in English. There must be a final report in English, and in Portuguese, a final invoice and the total expenses report at the end of the period of execution as per ECREEE requirements. The draft of a final report must be submitted two weeks after the end of the period of execution of the contract.

9.2. Deficiency of services of parties

In order to assess progress, identify difficulties and rapidly take appropriate measures to overcome them, the consulting firm has to inform the ECREEE Project Management immediately in writing by email of **any** difficulties in providing the contracted services.

10. MODE – SCHEDULE OF PAYMENT

Payment Schedule: Three instalment payments will be made as follows:

Instalment	Condition	Amount in US\$
First	Upon submission of the following 2, reports: <ul style="list-style-type: none"> o Report on the appraisal of EE lighting o Report on the identification of suitable testing facility 	30%
Second	<ul style="list-style-type: none"> o Validation workshops on the appraisal of EE testing facility o Approval of Testing facility by ECREEE and TGSB 	20%
Final	Upon submission of final report including: <ul style="list-style-type: none"> o Establishment of testing facility o Capacity development (TGSB, Stakeholders, training to installers, distributors market players and enablers on performance labelling schemes for EE appliances and quality standards for ICS o Final reports in English and Portuguese 	50%

11. APPLICATION PROCEDURE

Interested candidates should submit proposals as detailed below, in English language and electronically by **May 15, 2020 23:59 UTC-**.

Applicants shall submit their written proposal in English through the ECREEE procurement portal (www.ecreee.org/procurement) including:

- i. Short (10-15 pages) technical proposal with the proposed approach and methodology, work plan as well as well as proven track record of implemented assignments (detailed CVs of experts, copies of university degrees, certifications, licenses, etc. should be included in the Annex);
- ii. Financial proposal in US\$ (including all costs and taxes in a detailed work-time-expert-diagram indicating daily rates for individual team members). All costs are in US\$.