Terms of Reference for consultancy work for assessment of skills and knowledge gap in energy efficiency professionals in Kenya

1. Background

Improving energy efficiency is widely recognised as a strategy for addressing climate change and contributing to sustainable development. The sustainable development goal 7 (Clean and affordable Energy) includes ensuring access to affordable, reliable, sustainable and modern energy for all with the target to double the global rate of energy efficiency (EE) by 2030 (Target 7.3). The cost of energy, both thermal and electrical in Kenya is relatively high, which drives up the production cost, affecting the country's competitiveness. Kenya's gross domestic product (GDP) is growing at a rate of around 5 %. For this growth level to be sustained, it is important, that industrial, commercial and institutional facilities be competitive in their activities. One of the pathways for competitiveness is adopting energy-efficient practises.

To achieve the ambition of doubling the rate of energy efficiency and accelerate the development and implementation of public-private energy efficiency projects will require the right mix of people and skills. Therefore, there is a need for initiatives that provide energy efficiency skills and knowledge, both among the in-service professionals working in the energy efficiency sector and professionals coming out from the educational system. For this, there is a need to review the EE training programmes available to in-service professionals and relevant programs that provide EE knowledge in universities and elsewhere.

Copenhagen Centre on Energy Efficiency (C2E2) has initiated a program to help developing countries improve energy efficiency skills. Within this program in Kenya, the following needs are identified

a) Upgrade of knowledge and skills of the energy efficiency technicians/professionals to support Kenya's initiatives to make the production and service sectors more energy efficient
b) Identification of energy efficiency knowledge and skills requirement vis-à-vis the available programs offered by the universities, and other training centres in Kenya.

Answering these needs requires a proper understanding of the following:
1. What are the relevant areas/applications or processes within the industrial, institutional and commercial sectors in Kenya where energy efficiency projects have the possibility of being implemented? What are the skills required for each of these?
2. What skillsets do the current professionals working on energy efficiency in the industrial, institutional and commercial sectors in Kenya have? And how and when where these skills were acquired?
3. For the future energy efficiency projects in the industrial, institutional and commercial sectors, what is the gap between the requirement of skills and knowledge by EE professionals and the current availability of these skills? How much of it needs to be sufficed through short term training certificate courses like the 'in-professional training programmes' and what needs to be met by longer-term degree courses at the universities?
4. Are the available training/ academic programs in energy efficiency in Kenya tuned up to provide the required skills and knowledge?
5. What changes and modification need to be made to the current programs so that they can provide the needed skills and knowledge?

2. Scope of Work

A local consultant is required who will be responsible for the data collection exercise and primary analysis of collected data. The consultant, with guidance from C2E2, UNEP DTU Partnership (UDP), will work in close coordination with the project partners Ministry of Energy (ME) and Kenya Association of Manufacturers (KAM).

The consultant's tasks and deliverables will be as follows;

Tasks:

i) Preparing an inception report detailing all activities to be carried out during the project period and sharing it with partners for their inputs. The inception report will be based on the activities indicated in this TOR, reflecting the full understanding of the activities for the next steps, including the survey questionnaire and data collection methods. The report will be finalised by the consultant based on the inputs from the UDP and partners (ME and KAM).

Deliverable: Inception report

ii) Data collection: Collecting the relevant data related to the scope of work in close coordination with UDP, ME and KAM.

(a) Demand Side: A survey of experts and professionals and other relevant stakeholders in the energy efficiency sector will be conducted. The purpose of the survey is to understand and estimate the demand for EE skills and knowledge. Appropriate methodology such as market mapping framework will be used to identify experts and professionals to be surveyed, including technicians, professionals, entrepreneurs, and other relevant stakeholders working in the energy efficiency sector. The survey will be carried out to map the skill sets of the professionals, and include detailed information, including sources (universities, certificate programs) of the acquired their skills. The data will need to be analysed in terms of adequacy to meet EE sector requirements. The data so collected will be validated with guidance from professionals from key stakeholders like KAM, EPRA (Energy Regulatory Commission of Kenya), ME etc.

The survey will include questions to bring out EE skill requirements (industry expectations) from in-service training programmes as well as university courses/programs.

(b) Supply-side: A similar exercise will be carried out to collect the data on the supply of energy efficiency professionals and their skill sets from various EE training programs in Kenya conducted by various institutions and university courses/programs.

(c) Gap analysis: An analysis of the demand and supply-side data will be carried out to bring out the following;

- An assessment of the EE training programs in Kenya conducted by various institutions (identified at step (b) vis-a-vis requirements (demand) for trained EE professionals in Kenya (identified in step (a).
- Assess programs taught at the universities and their adequacy vis-a-vis market requirements.
- Based on these assessments, the consultant will identify the need for improvement/changes in both the short term courses leading to required skill and knowledge development and licensing), and the university degree programmes.

Deliverable:

(a) EE skills and knowledge requirements of the industrial, institutional and commercial sectors
(b) Assessment of current skills sets of in-service energy efficiency professionals (including technicians).
(c) Assessment of the current in-service training programmes offered by various institutions and university programmes in terms of their coverage of energy efficiency skills and knowledge.

(d) An analysis that brings out the gaps, identifying the need for improvement in both type of programmes.

iii) Review of relevant programs where EE skills are taught and recommendations for Kenya

(a) The consultant will review the short-term training programs and university programs in Europe/Indian sub-continent/United States/etc. Where courses for imparting EE skills and knowledge are well established. This is to explore and understand how the EE skills and knowledge teaching and upgrading programmes in Kenya can be improved to produce professionals equipped with required EE skills and knowledge.

(b) Develop customised programmes modules for the (i) Training of in-service professionals to enhance their EE skill and knowledge, (ii) Courses/programs that would meet the EE Skill and knowledge requirements for a university. The university will be selected based on the assessment of courses in (ii).

(c) Recommend necessary changes in the course curriculums of the relevant training programmes and in the courses/programs of the selected university..

Deliverables:

(a) Review of the appropriate training and educational programmes in Europe/Indian sub-continent/United States/etc.

(b) Customised programs for (i) in-service personnel that need EE skills and knowledge enhancement, and (ii) University courses/programs (for the selected university))

(c) Recommendations for changes in curriculums of the EE skill and knowledge enhancement training programmes, and university courses/programs (for the selected university)

iv) Dissemination of the findings from skills demand and supply analysis and recommendations for curriculum revision

A workshop will be held to disseminate the findings of the project and get feedback from the broader group of stakeholders.

Deliverable:

(a) Workshop organised and report of the workshop, including feedback from stakeholders.

(b) Submission of final report after incorporating feedback from stakeholders. The final report will also be a final report on all the earlier tasks (after incorporating feedback from the stakeholders and project partners)

3. Budget

The budget for the consultancy contract is USD 17500. In addition to this budget, the consultant will separately budget and provide a lump-sum estimate for travel related to survey work (max USD 2500), as stated in the scope of work. Workshop organising costs are not included in the consultancy contract.

4. Qualifications and Skills

The appointed consultants should have:

- Bachelors in engineering (in mechanical/electrical or similar relevant discipline) with at least 5 years (10 years desirable) of experience in the energy efficiency area.
- Postgraduate degree in energy efficiency / energy management or similar discipline is desirable.
- Knowledge of the educational system of Kenya and of the energy efficiency sector. Should have experience in providing training and /or teaching energy efficiency.
- Experience in conducting energy-related surveys
- Experience of conducting stakeholders' interviews, including government agencies and private sector
- Proficient analytical and writing skills, and English and local language (Kenya) communication skills

5. Working Arrangement

The consultant will be in contract with UDP, and payments will be linked to the deliverables. The consultant will be required to be available for the timely delivery of the project outputs.
The consultant will work under the supervision of the project partners.

6. Language

All outputs should be prepared and submitted in the English language to the C2E2, UDP.

7. Time for completion

Nine months

8. Confidentiality and ownership of results

The contracted consultant is obliged to maintain confidentiality regarding the activities they carry out during the project. The reports generated from the contract will be the exclusive property of UDP. Any publication or dissemination by the consultant will require authorisation from C2E2, UDP.