

Terms of Reference (ToR)

Training on Repair and Maintenance of E-Cooking Appliances and Preparation of Manual

1. Introduction

Alternative Energy Promotion Center (AEPC), after its establishment, has been promoting renewable energy systems through different programmes and projects to meet the energy needs of the population as well as improving the living standard, increasing employment and productivity, and reducing dependency on traditional energy for sustainable development.

RERL supports to create of livelihood opportunities for the poor and marginalized communities through the provision of reliable electricity supply and enterprise development with a focus on increasing plant load factor and improving the quality of electricity and revenue generation.

2. Background

RERL has deployed electric home appliances under the project of Japanese Supplementary Budget (JSB) to the selected HHs in Bajura and Jumla districts to make less smoke free kitchen, improve quality of life of women as well as to increase the plant load factor of micro hydro projects and to increase revenue of the system. The project target is to disseminate 1500 efficient electric cooking appliances. To date, there have been already deployed 750 over e-cooking appliances to the last miles consumer and there are plans to distribute 400 Induction Cookstoves to the selected HHs in both districts as per the availability of surplus power of micro hydro projects.

The rampant market for electrical home appliances in rural areas in Nepal is steadily growing and awareness of their uses has increased. However, in these off grid rural areas, there is a no availability of services, facilities, and trained professionals to repair and maintain these appliances. Consequently, many people end up discarding appliances that could have been easily repaired leading to unnecessary expenses and waste. Moreover, the available local technical service providers have not adequate skill and knowledge to provide the services of electric home appliances particularly on EPC and Induction Cookstoves to serve the customers needs. Thus, the repair and maintenance manual will be the viable option to the local service providers to solve the problems in simply and make hassle free for repair and maintenance of the appliances.

To solve this issue, RERL intends to conduct repair and maintenance training for home appliances to local technical service providers and other interested individuals particularly those who offer such services in rural areas but lack sufficient skills and knowledge for the repair and maintenance of electrical appliances. This initiative may even empower them to start small repair and maintenance businesses and sustain the market at the local level.

3. Objectives of the Assignment

The overall objective of the training is to develop local technicians for repair and maintenance of e-cooking appliances in the project locations. However, the specific objectives are:

- To provide hands-on training on the repair and maintenance of electrical

home appliances.

- To promote sustainability by reducing the unnecessary disposal of appliances and extending the lifespan of appliances.
- To potentially create employment opportunities by encouraging individuals to start electric and electrical small repair and maintenance service centers.

4. Scope of Work (Activities)

- The consultant/firm will be responsible for providing training on repair & maintenance of Induction Cookstoves and Electric Pressure Cooker (EPC) to the selected technicians and individuals.
- The consultant/firm should submit a detailed curriculum of the training to AEPC/RERL for approval of the training content before commencing the training program. The content should incorporate the theme mentioned below in the "Expected Outcome".
- The consultant/firm will be responsible for managing trainers and training venues. The costs of participants' accommodation and logistics will be managed by RERL.
- The training venue is in Kathmandu or Butwal which will be decided later.
- Assemble/Disassemble different parts of the appliances (Induction, EPC)
- Identify and introduce names of different components of induction and EPC, and explain functions of parts and components (inductor, resistor, capacitor, IGBT, diode, transistor, thermistor, fuse etc.)
- Understanding circuit diagrams
- Understanding error types, identifying error codes, inspection methods cause and solutions.
- Use of Repairing Tools,
 - Using soldering iron
 - Using resoldering iron/station
 - Using power supply
- Repair and replace non-functioning parts and components.
- Re-install software, as appropriate.
- Adequate practical exercise involvement of the trainees as per the curriculum should be ensured during the entire training period.
- Detailed training content should be submitted and approved before starting training from RERL.
- The training participants will be maximum 7-10
- Preparation of repair and maintenance manual of E-cooking
 - Prepare repair and maintenance manual of Induction cookstove and Electric Pressure Cooker with close coordination with AEPC.
 - Finalization of manual after approval from AEPC/RERL
 - Manual should be prepared in Nepali and English language with pictorial and very simple language.

5. Expected Learning and Outcomes

Upon completion of this training participants will be able to:

- Identify each external/internal parts of e-cooking appliances (Induction, EPC)
- Identify problems associated with e-cooking appliances (Induction, EPC)
- Use the correct hardware tools to repair e-cooking appliances.
- Assembly and disassembly an e-cooking appliance
- Install/re-install associated software.
- Recognize potential hazards in the repair of those appliances and apply safety measures.

- Identify faults and solve them.
- Identify quality spare parts and their costs.
- Operation and Maintenance Manual in Nepal and English Language

6. Duration of the training period

The duration of the training will be 3 days. All the required training equipment's during the training period should be managed by the consultant/consulting firm.

7. Course Structure

20% Theory
80% Practical

8. Team Composition and Qualification Requirement

• Technical Experts

A Lead Trainer shall have completed at least Bachelors' Degree in electronics with at least 5 years experiences in repair and maintenance of electric home appliances particularly on Electric Pressure Cooker and Induction Cookstove. The Lead Trainer will be responsible for coordinating all the activities pertaining to the activities mentioned in this ToR. Similarly, other technical experts should have skill and experience as per the requirement.

9. Documents to be submitted by the Firm (Eligibility Criteria)

S.N.	List of Documents
1	Copy of Company/Firm Registration Certificate with updated renewal
2	Copy of VAT Registration Certificate
3	Copy of TAX Clearance Certificate of F. Y. 2078/79
4	Latest Signed Resume of resource persons (as per ToR)
5	Financial Proposal with signed cover letter including VAT (as per given format)
6	Experience of Firm and individual that signifies the working knowledge in electric home appliances

10. Payment Schedule

The payments shall be made to the Consultant/firm after successful completion of the assignment and approval and acceptance of the field report by RERL.

11. Selection/Evaluation Process

The selection of the consultant/firm will be carried out based on the least Cost Based Selection (LCBS). The sealquotation will be collected from potential firms/individuals with relevant experience, and the contract will be awarded to the successful firm/individual.

12. Duties and Taxes

The consultant/individual is sole responsible to pay all tariffs, duties, other taxes, or charges levied by the Government of Nepal at any stage during the execution of the work.

13. Acceptance of Proposal

All rights are reserved with AEPC/RERL either to approve or disapprove any proposal without giving any reasons whatsoever. If needed, the consultant will be asked for justification and presentation of the proposal before approval.

**Renewable Energy for Rural Livelihood
Tentative Cost for E Cooking Repair and Maintenance Training**

A. Human Resources Fee

S N	Name of Professionals	Unit/day	No.	Unit Rate (Rs.)	Total Amount (Rs.)
1	Resource persons for Electronics experts				
2	Repair and Maintenance Manual				
3	Transportation of Resource persons	LS			
4	Reporting				
Sub-total					
Overhead (5%)					
Total Fee					
VAT 13%					
Total Fee					