

**Terms of Reference  
(TOR)**

**For**

**Developing Digital Applications for User Awareness  
and Organisational Management for E-Cooking  
Market Development**

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**April 2022**

## 1. BACKGROUND

Practical Action is a global change-making group that consists of a UK registered charity with community projects in Africa, Asia and Latin America, an independent publishing company and a technical consulting service. It combines these specialisms to multiply its impact and help shape a world that works better for everyone. In Nepal, Practical Action is focused on putting ingenious ideas into work to contribute to poverty reduction and sustainable wellbeing through working in three expertise change areas: **Energy that transforms; Farming that works** and **Resilience that protects**.

## 2. INTRODUCTION OF PROJECT

Under Energy that Transforms, a consortium of Practical Action, National Association of Community Electricity Users' Nepal (NACEUN) and Ajummary Bikas Foundation (ABF) is implementing a project entitled “Digital innovations for e-cooking market development”. The project is funded by Netherlands Enterprise Agency (RVO) through EnDev Innovation Window. The project intends to develop and utilise digital technologies to accelerate the e-cooking market, and will capture and share learning across three areas: (i) Develop web/mobile-based digital applications for e-cooking market actors and users; (ii) Build capacity of e-cooking users and supply chain actors in using the digital applications to make informed decisions; (iii) Establish linkages between/among the demand and supply chain actors for e-cooking market development. The project will reach at least 3000 households (HHs), 10 micro small medium enterprises (MSMEs), 10 last-mile distributors (LMDs), 5 transport service providers, 5 Community Rural Electrification Entities (CREEs) through innovative digital applications.

The digital applications are proposed for three main actors of the e-cooking sector, namely:

- Users (HHs and MSMEs) – Represent the demand side. In order to raise awareness of the users and enhance demand of e-cooking solutions, mobile learning applications will be developed.
- Supply chains actors (Importers/ Suppliers and LMDs) – Represent the supply side. A digital platform for connecting importers/ suppliers with local retailers or last mile distributors for promotion of standard quality e-cooking solutions is being developed.
- Electricity service providers (CREEs) – Represent the basic infrastructure services and contribute towards enabling environment. Web-based applications to evaluate and ascertain the status of CREEs, their ability to promote e-cooking solutions and organising such data in a Management Information System (MIS) will be developed.

Among these, the digital platform is already in the design phase. The project now seeks to develop mobile/ web-based applications for the users and CREEs.

## 3. OBJECTIVE OF THE ASSIGNMENT

The main objective of the assignment is to develop and deliver a mobile application intended for general users of e-cooking solutions as well as a web-based MIS for CREEs and NACEUN. The specific objectives of the assignment are:

- To develop a mobile-based learning app for e-cooking users (HHs and MSMEs) which

shall include information on:

- benefits and ways of using e-cooking solutions promoting cleaner and healthier kitchen and households
- recipes and methods for cooking various meals on E-cooking solutions
- understanding and implementing measure for electrical safety at household/enterprise level
- To develop a web-based MIS with a main interface at NACEUN, personalized interfaces for the CREEs and an interface for NEA to access summary information
- To develop a self-assessment interface for CREEs within the MIS

Note: All the necessary contents for the mobile-app will be provided by the project team.

#### **4. SCOPE OF WORK**

The scope of work for the assignment includes, but not limited to:

1. Development of Mobile based app – android and iOS
2. Development of web-based MIS
3. Development of self-assessment interface within the MIS
4. Suggestion of appropriate hosting server requirements for the MIS (including all interfaces and mobile app)
5. Procurement of login credentials to the approved hosting server (after discussion with the project team) for at least for two years
6. Provisioning of annual maintenance and update for at least two years
7. Development of user manuals and standard operating procedures for the users to install and operate the applications

The details of the mobile/ web-based applications are given in Annex 1.

#### **5. SUGGESTED METHODOLOGY**

The assignment is expected to ensure following methodologies:

- Project management – agile methodology for flexibility
- Standard and detailed testing procedure
- Have links established to other digital applications e.g. B2B platform separately developed by the project
- Ensure compliance with legal requirements including compliance with any relevant data protection legislation (including GDPR)
- Consult, discuss and receive feedback from the project team at different stages of the application development

#### **6. DELIVERABLES**

The following deliverables are envisioned under this study:

- An Inception report and presentation
- Live and functioning mobile and web applications
- A zipped copy of all the codes as well as databases
- A coding manual and a user manual for both the applications
- Root login access to hosting server

## 7. COMPOSITION OF THE CONSULTANT TEAM

The Consultant team shall have a Team Leader/ Project Manager, a Senior Web Developer, two Web Developers, two Mobile Application Developers, a System Analyst, a Designer and at least one Tester. The Team is required to have a proven track record of at least five years of developing mobile and web applications. They should be able to demonstrate their developed products.

The Team should have the ability to work in collaboration and communicate proactively with people at all levels. The Team has to work closely with the project team from Practical Action, ABF and NACEUN and in the guidance of the Project Manager and Digital Manager to carry out the above-mentioned assignment.

*(Preference will be given to the team composing of consultants from marginalized groups, including women, Dalit and oppressed communities)*

In addition to the above criteria of team members, the following considerations should be taken into account during the selection process:

- a. Proposed professionals must sign the copy of CVs clearly mentioning their proposed position in this assignment;
- b. A copy of company registration certificate;
- c. A copy of VAT certificate (obligatory); and
- d. A copy of tax clearance for the last fiscal year from the Inland Revenue Office.

## 8. BUDGET

The maximum available budget for this assignment is **NRS. 1,800,000.00** (In words: Eighteen hundred thousand rupees only) inclusive of applicable taxes. All applicable taxes will be deducted at the source. 40% of the total cost shall be made upon finalization of inception report, second and third instalment each of 30% will be paid against the progress and final report of development and live functioning of web and mobile based applications.

*All expenses should be included in your budget plan with a proper budget breakdown.*

## 9. TENTATIVE TIMELINE

The assignment is expected to commence in the third week of May 2022 and the applications should be live and functioning by the end of August 2022. The following timeline needs to be followed to complete the assignment:

<b>Timeline</b>	<b>Contents</b>	<b>Remarks</b>
By 17 May 2022	Contract signing	
By 27 May 2022	The consultants review key documents and refine the methodology of the assignment; prepare inception report with user and process flow diagram and present the inception report	Discussion with the project team
During the assignment	Regular update and discussion with the project team	

<b>Timeline</b>	<b>Contents</b>	<b>Remarks</b>
By 29 July 2022	The team submits a progress report and demonstrates the progress to the wider team	Discussion with the wider project team
31 August 2022	Final report; Live and functioning system and all deliverables	Incorporating all the comments received during the discussions

## **10. EVALUATION OF THE PROPOSAL**

All received proposals shall be reviewed following different indicators. These will be but not limited to sound understanding of the assignment, competent methodology, consistency, coherence and compliance, the experience of the proposed consultants, inclusiveness of the team and efficient budget planning.

## **11. INVITATION FOR THE LETTER OF INTEREST**

Practical Action Nepal Office requests consultant firms (registered in VAT) to submit (i) an application highlighting the letter of interest (LoI); (ii) a brief technical proposal along with your proposed methodology and design; (iii) recently updated CVs; and (iv) a financial proposal with detail cost breakdown to conduct the proposed work to following address on or before 17:00 hrs., 9th May 2022 in separate envelope properly marked with the proposal type sealed. The outer envelope should be marked as “**Developing Digital Applications for User Awareness and Organisational Management for E-Cooking Market Development**”.

Practical Action Nepal Office  
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***Practical Action believes in and follows through a fair and competitive process to recruit the consultant in all of its assignments to ensure quality assurance.***

## Annex 1

# System Requirements Specifications

## Interactive Learning App for Users

Broadly, this app provides information on three areas:

1. why and how to use e-cooking solutions promoting health benefits, time saved collecting firewood and tending a fire, etc.
2. how to cook various meals on induction/ infrared cook top, electric pressure cooker
3. household electrical safety.

It will have provision to be upgraded/updated as needed. The users will be oriented in how to download and use the app. They will also be able to interact with the call-centre or the demand aggregator. The project team will be responsible to provide the content for the app, which may be periodically updated.

### **Front end**

The app should be available in Nepali as well as in English with the option to change the language on the go.

### *Offline feature*

Things that have been downloaded/viewed should be available offline

### Sections

1. Which cooking solution should I buy? (Everything under this should come from the API which will connect to the B2B system that we are developing. We are thinking to replicate the product database from the B2B system to this app database once every week.)
  - List out cook stoves
    - Multiple pictures
    - Video
    - Description
    - Price
    - Power Consumption, Rated Power
    - Number of burners
    - Warranty
    - Brand
    - Standard/Label
    - Type
      - Infrared
      - Induction
      - Electric Pressure Cooker
      - Hybrid (Infrared and Induction)
    - Basic maintenance
  - Filter to narrow down options
    - Variables
      - Price

- Power consumption
  - Number of burners
  - Infrared/Induction/Electric Pressure cooker
  - Family size
- 2. Recipes
  - Videos/Pictures/Text
    - a. Categorization
      - i. Full meal
      - ii. ...
      - iii. ..
    - b. Other video and news links related to e-cooking and clean cooking
- 3. Safety
  - Videos/Pictures/Texts
    - a. Electrical safety
    - b. House wiring
    - c. Power requirements
    - d. Kitchen placement
    - e. Basic precaution
    - f. Cleaning process
- 4. About us
- 5. Settings
  - a. Update app (check app version and ask to update)
- 6. Notifications
- 7. Previously viewed
- 8. Comment
 

Need to have a generic comment/complaint/enhancement system so that users can send in their comments and views.

These are just feature outlines and the consulting firm should provide a good-looking but light-weight, intuitive and easy to use design to present the information above on the app. We should also be able to track users, their journeys and the events that they trigger.

## **Backend**

Backend for the app will be hosted under the MIS system server (same domain) and will use the same login credentials as on the MIS system. This feature should only be visible to Super admins as a separate menu (Interactive Learning app).

Administrative part will provide the abilities to add/edit/delete sections and pages as per the necessity. Administrator(s) should be able to manage every aspect of front-end data outlined above.

Admin module should include:

- Ability to add/edit/delete sections
- Manage recipe category
- Product database

Update/Synchronize product database update will help administrators manually sync the app product database (including product specific details as well as other

related details like category and so on.)

- Manage recipes
  - Add/edit/delete recipes
    - Title
    - Description (WYSIWYG editor)
    - Video
    - Category (dynamic drop-down list from Manage recipe category)
    - Cooking time
    - Estimated Power consumption
    - Image (this image should be used while showing the recipe along with the title and a short description)
    - Ability to connect a recipe to multiple cook stoves. This in turn will feed into the cookstove page/screen where recipes will be shown when users visit the respective cookstove page.
- Password reset option for the admin (sending email to the registered account email address)
- Manage About us page (WYSIWYG) editor.

PS: Given the multi-language option, we are not sure what other features we might need to be able to add translations to standard messages or menus so we expect expert suggestion from the consulting team on that regard and on any modules/sections that will be required to fulfil the requirements outlined above or for basic app usage/installation.

## Digital Solutions for CREEs

The main purpose of the digital solution for CREEs is to help them self-assess the electricity supply status and CREE performance on a real-time basis and share this information with NACEUN and Nepal Electricity Authority (NEA) for their timely support and action. A web-based app will be developed, which will be fed with technical data from various devices installed in the local distribution system. The app will be linked to the main server managed at NACEUN (MIS Backend) where separate data for individual CREEs as well as integrated data for all CREEs will be available.

This web-based app in essence will be a Management Information System (MIS) that has a main interface at NACEUN, personalized interfaces for the CREEs and an interface for NEA to access summary information.

\*\* CREEs are local level electricity providers (who buy electricity from NEA and sell it to their consumers).

### **Problem Statement:**

CREEs hardly ever analyse their (usage vs income) data and at the end of the year are in a position where they are at loss but are not in a position to do anything. With this tool, we hope to see regular updates on their usage so that they are in a better position to act before the damage is done. For this, CREEs would upload their monthly sales and other useful information (aggregated data) onto the system.



NACEUN are governing body or association of CREEs. They need to know how (and if) the CREEs are working as per the mandate and if there is a need to intervene. This system will give them the information they need to take that decision.

## MIS system overview

*System needs to be available in two languages (Nepali and English)*

### **Site User Module**

Administrators need to be able to manage users on the MIS.

- Add/edit/delete users  
NOTE: Passwords should be stored securely using MD5 hash or latest authentication techniques
- Role management  
Users from different organizations need different access and we might also need separate roles for different users within a particular organization. For example, CREEs can have a manager/administrator and a data entry person and the system needs to be flexible enough to limit certain sections to a particular type of users.

### **Report Module**

Various users will see different items on this page depending on the reports they have access to. For instance, NAECUN users should be able to see every data entry and self-assessment report from all CREE users/offices. We will have a set of reports that users can generate and they will be able to change the reports to match the dates they want the reports for. To make it easy for users to find the reports, the section should include various filtering options like (but not limited to):

- Date filter
- Variable filter (various)
- CREEs (not necessary if a member of a CREE is logged in as they will only be able to see their own reports)
- Free text search

Users should be able to export reports as PDFs or CSV.

Type of users and their report access

- NACEUN
  - Data from CREEs and its analysis graphs
  - Assessment reports from CREEs
- CREEs
  - Individual CREE data
  - Past self-assessment reports,
  - Completed and pending actions
- NEA
  - Electricity sales data and technical data of CREEs

## Dashboard

Different users should see different dashboards. This page should appear as soon as the users successfully login to the system. Page should contain useful information like charts, graphs or scorecards. Users should see a summary of what is going on with the system here.

## Site settings

Site settings module for system administrators.

- Users should be able to add tariff rates (for 5-15-30 Amp lines and a separate one for 3 phase)
- API settings to pull through data from the B2B platform

## Menus/features for CREE users

- Dashboard
- **Financial**
  - Tax clearance
    - Year
    - Upload (file)
  - Audit report
    - Year
    - Document upload
    - Total Income
      - Sales of electricity .....
      - Interest from bank .....
      - Meter sales .....
      - Penalties .....
      - Discount .....
      - Others (ability to add more headings) .....
    - Total Expenses
      - Electricity payment .....
      - Office operation .....
      - Salary & allowance .....
      - Repair and maintenance .....
      - Procurement of meters .....
      - Procurement of equipment .....
      - AGM & program expenses .....
      - Others (ability to add more headings) .....
- Consumer details and electricity sales  
NOTE: Tariff prices for different type of consumers will vary and the rates for each year (as provided by NEA will be added to the system by NACEUN from their login) but each CREE should be able to update their own tariff rates as seem fit. Calculations should be made as per the tariff provided.

		No of consumers	Units	Rupees
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Households	5A			
	15A			
	30A			
Commercial				
3 Phase				

Add details as per CRE by law Annex 4

Electricity purchased from NEA in last month – (monthly updates)

Electricity sales in last month – (monthly updates)

- **Technical details**

- How far is the CREE from the Substation? ....
  - Name of the substation
- What is the length and size of cables of the distribution line?
  - 3 Phase (4 wires) ..... km
  - 2 Phase (3 wires) ..... km
  - 1 Phase (2 wires) ..... km
- Transformers ratings and loadings (disaggregation as per consumer types)
  - 15 kVA \_\_\_\_\_
  - 25 kVA \_\_\_\_\_
  - 50 kVA \_\_\_\_\_
  - 100 kVA \_\_\_\_\_
  - 200 kVA \_\_\_\_\_

- **Organization**

- Name of CREE
- Location
- Registered at
- Year of establishment
- Coverage area
- Office address
- *Bidhan, Biniyamabali* (By laws) (upload files)
- Last AGM
  - When
  - Where
  - No of Participants
  - Minutes (upload)
  - renewal date with NEA
- Executive body with GESI disaggregation

	Dalit	Janajati	Brahmin/Chettri	.....
Men				
Women				
Others				

- Staffs with GESI disaggregation

<b>Technical staffs</b>				
	Dalit	Janajati	Brahmin/Chettri	.....

Men				
Women				
Others				
<b>Administrative staffs</b>				
	Dalit	Janajati	Brahmin/Chettri	.....
Men				
Women				
Others				

- Services offered by CREE (Drop down list with the ability to add more than one).
- Self-assessment
  - CREEs want/need to evaluate their current status based on certain pre-set parameters and then get a result based on formulae. The formulae are yet to be established,
    - List of past assessments done (and be able to see the report)
    - Form to conduct another self-assessment
      - Form fields to be decided
- Reports
  - Set of pre-defined reports
  - Ability to change dates
- Notification
- Tariff Management
  - Import the tariff from Super administrator but each CREE can set their own tariff rates
- News and events
- Supplier listing
  - A simple interface to view (the list) and search for a particular item or seller
- Useful documents
  - List of documents uploaded (ability to download the document)
- My Profile

**Menus for Super Administrators** (NACEUN users will have all other access but to manage users and edit data from CREEs)

- Dashboard
- Reports
- Users
  - Super admin should be able to manage users from this section. Users will have the following basic fields:
    - Name
    - Username
    - Password
    - Email
    - Phone
    - User type
      - CREE
        - Choose CREE
      - NACEUN

- Status
      - Active
      - Inactive
  - CREEs
 

NACEUN users should be able to see the list of CREEs who are registered on to this system and should be able to view details about them. CREE details page should show generic details about that particular CREE and have links to view their reports (including past self-assessment reports) and other details they have entered (like Organization details, financial details and so on...).
  - Interactive Learning App
    - Manage Sections
    - Manage Recipe categories
    - Manage Recipe
    - Manage About us page
    - Manage Product database
  - System Settings
    - Tariff management
      - Normal
        - 5A .....
          - 10A .....
          - 15A .....
      - 3 phase
- Supplier listings
  - View already added list
  - Add new listing
  - Listing form
    - Name of supplier
    - Address
    - Items sold
      - Multiple select list of items (List will be provided)
    - Phone number
- Notification
 

Super admins should be able to send broadcast messages to all CREEs. Once a message is sent, it should appear under the notification section on CREE login. All past notifications should be available for future reference.
- Useful documents
  - NACEUN users should be able to add documents useful for CREEs. Type of documents that go in here would either be pdf, word, excel or image. NEA directives/policies, NACEUN related document would go in here so that CREEs have a single point to access these documents.
  - Form fields
    - Name of document
    - File upload
    - Description of document and it's purpose
    - Upload date/Changed date
- My Profile
  - Change Password
  - Update Name, email, phone....

PS: We will need all the dates to be in Nepali and thus we will need to install/use appropriate Nepali calendar on the system.

