

Terms of Reference (ToR)

Development of Digital Data Collection Application and Impact Monitoring Dashboard

Solar Powered Community Kitchen Initiative (SPCKI)

1. Background

The Solar Powered Community Kitchen Initiative (SPCKI) is designed as a managed clean-cooking service that combines solar energy, electric cooking appliances and a structured community-based operating model. The initiative is intended to generate practical evidence on whether a solar-powered shared kitchen can provide a reliable, safe and acceptable supplementary cooking solution for participating households. The pilot is expected to generate both technical and social evidence. This includes household participation, cooking sessions, solar generation, battery performance, technical faults, cleanliness, user satisfaction, safety, governance and changes in household backup-fuel dependency. The feasibility assessment therefore recommends regular monitoring at daily, weekly, monthly and endline levels. To make this monitoring process simple, consistent and useful for decision-making, a digital data collection and impact monitoring platform will be developed. The platform will allow field-level data to be entered through a mobile-responsive application and automatically transform the collected information into meaningful indicators, charts and summary views through a centralized dashboard. The proposed system is intended to support both day-to-day project management and evidence generation for future continuation, redesign or scale-up of the model.

2. Purpose of the Assignment

The purpose of this assignment is to design, develop, test, deploy and support a simple digital platform for field data collection, project monitoring and impact visualization under the Solar Powered Community Kitchen Initiative. The system should reduce dependence on manual paper-based consolidation and repetitive spreadsheet calculations while keeping field-level data entry simple enough for community volunteers, caretakers or project staff to use regularly.

The solution should provide a clear flow from: **Field Data Collection → Central Database → Automatic KPI Calculation → Dashboard Visualization → Reporting and Decision-Making**

The system should be developed specifically for the needs of the pilot while maintaining sufficient flexibility to support additional households, locations or similar clean-cooking initiatives in the future.

3. Objectives

The main objective is to establish a reliable and user-friendly digital monitoring system that enables the project team to collect structured field information and convert it into useful management and impact evidence.

The system should specifically help to:

- simplify routine data collection at field level;

- improve consistency and completeness of monitoring information;
- reduce manual data processing and calculation;
- provide timely visibility of operational and technical performance;
- monitor household participation and user experience;
- support donor reporting with clear visual evidence;
- allow project data to be exported for further analysis;
- create an evidence base for future scale-up decisions.

The intention is not to create a complicated Management Information System, but rather a focused and practical monitoring platform appropriate for the scale and operational requirements of the pilot.

4. Scope of Work

The selected service provider will be responsible for the complete design and development of the digital monitoring platform, including requirements finalization, system architecture, UI/UX design, application development, database development, dashboard visualization, testing, deployment, training and post-deployment support.

The system will primarily consist of four interconnected components:

- Mobile-responsive Data Collection Application
- Central Backend and Database
- Impact Monitoring Dashboard
- Reporting and Data Export System

All components should operate as one integrated system.

5. System Design

At the beginning of the assignment, the service provider will review the approved monitoring requirements and translate them into a simple digital workflow. The user interface should be designed for practical field use. Data collection screens should avoid unnecessary text entry wherever possible and should primarily use predefined options, dropdown menus, checkboxes, Yes/No selections, household IDs and automated date/time capture. The overall design should be mobile-responsive so that users can comfortably enter data from smartphones, tablets or computers. The dashboard interface should be clean, professional and suitable for viewing by project management, technical teams and donor representatives.

The design should prioritize:

- simplicity of navigation, minimum data-entry steps;
- clear visual hierarchy, easy interpretation of indicators;
- responsiveness across common device sizes;
- consistency of terminology across forms and reports.

6. Data Collection Application

The data collection application will provide authorized users with access to predefined digital forms. Users should not need advanced technical knowledge to operate the system. The application should provide appropriate validation to reduce common errors such as missing required information, incorrect values, duplicate entries or inappropriate data formats. Where practical, the system should automatically capture or calculate information such as date, time, duration and calculated indicators instead of requiring field users to calculate them manually. Three principal data collection modules are proposed.

6.1 Cooking Session Data Module

The Cooking Session Data Module will be used to capture information related to individual cooking sessions and household participation.

The form should include fields such as:

- date and session number, participating household ID(s);
- cooking start and end time, food category;
- appliance used, whether cooking was completed;
- waiting or scheduling issue;
- technical problem encountered, cleaning completion;
- short remarks where necessary.

The system should automatically calculate cooking duration where start and end times are available. The pilot model is based on structured cooking sessions and household participation, making session-level monitoring a central component of the proposed monitoring approach. Food categories may include commonly prepared items such as rice, dal, vegetables, fish, meat, curry, khichuri and other relevant categories identified during implementation. The purpose of this module is to understand actual utilization, household participation, cooking patterns, session completion, appliance use and operational challenges.

7. Daily Technical Monitoring Module

A simple technical monitoring form will be completed once per operational day by the assigned technical focal person or authorized project user. The module should capture essential information such as daily solar generation, battery condition, system operating status, technical faults, downtime, safety incidents and basic weather conditions.

Typical information may include:

- solar generation for the day;
- morning & evening battery state of charge;
- system operational status & number of faults recorded;
- estimated downtime & safety incident status;
- weather category;
- technical remarks, where required.

The purpose of this form is not to reproduce all information available from an inverter or electrical monitoring system. Only information necessary for management, reliability analysis and pilot learning should be recorded. The proposed SPCKI system includes solar PV, hybrid inverter and battery storage, making solar generation, battery behaviour, controlled appliance use and system reliability important elements of the monitoring framework.

8. Monthly Household Feedback Module

A short household-level survey will be incorporated into the application to capture changes in user experience and household cooking behaviour. The survey should remain intentionally short so that each participating household can be interviewed without creating excessive monitoring workload. Information may cover:

- use of firewood or other backup cooking fuel;
- approximate backup-fuel expenditure;
- perceived reduction in backup fuel use;
- ease of cooking;
- cleanliness of the facility & privacy and comfort;
- perceived safety & waiting experience;
- overall satisfaction;
- willingness to continue using the facility.

Where a rating scale is used, the system may apply a simple standardized scale such as **1 to 5**. The objective is to identify trends rather than create an overly complex household survey. The feasibility assessment identifies user satisfaction, cleanliness, safety, privacy and reduction in backup fuel dependency as important indicators for judging pilot performance and scale-up readiness.

9. Backend and Database

The platform will include a centralized backend and database for storing and managing all information collected through the application. The database should maintain a structured record of households, users, cooking sessions, technical observations, monthly surveys and relevant project reference information. The backend should provide basic administrative functionality, including user creation, user status management and access control.

Different categories of users may be established depending on final requirements, for example:

- Field/Data Entry User
- Technical User
- Project/Admin User
- Dashboard/View-Only User

Administrative users should be able to review data, correct authorized errors where necessary and manage basic reference data such as household IDs and user accounts.

10. Impact Monitoring Dashboard

A web-based impact dashboard will be developed to convert collected data into simple and meaningful information. The dashboard should not attempt to display every field collected by the system. Instead, it should prioritize a limited number of indicators that help management and donors quickly understand project performance.

The main dashboard may display indicators such as:

- households enrolled;
- active households;
- total cooking sessions;
- session completion rate;
- average cooking duration;
- solar energy generated;
- system uptime;
- technical fault count;
- user satisfaction;
- backup-fuel-use trend;
- cleanliness compliance;
- major safety incidents.

Where information is available, selected indicators may be compared by period, household, session or other agreed filters.

11. Dashboard Visualization

The dashboard should include simple charts and graphical summaries rather than highly technical visualizations.

Indicative visualizations may include:

Cooking Sessions by Week

To show utilization and continuity of service.

Solar Generation Trend

To show daily or monthly renewable-energy production.

Baseline vs Current Backup Fuel Use

To demonstrate potential changes in dependence on firewood, biomass or other backup cooking fuels.

User Satisfaction Trend

To show changes in household acceptance over the pilot period.

Technical Fault and Uptime Summary

To demonstrate system reliability.

The final charts and indicators will be agreed during the design stage based on available data and reporting priorities.

12. Filters and Dashboard Navigation

Authorized dashboard users should be able to filter information through commonly required parameters without needing technical assistance.

Depending on final system design, filters may include:

- date or reporting period;
- household;
- session;
- selected indicator;
- food or appliance category.

The interface should allow users to move easily between the overall project summary and more detailed information where required.

13. Reporting and Data Export

The system should provide authorized users with the ability to export project data for further analysis and donor reporting.

At minimum, structured data should be exportable in **Excel and/or CSV format**. The system may also provide basic summary outputs showing key indicators for selected reporting periods.

Exported data should retain clear column headings and logical formatting to allow project staff to work with the information without requiring extensive cleaning.

14. Data Validation and Quality Control

Data quality should be supported through system design rather than relying entirely on manual checking.

Appropriate validation should be applied to important fields. Examples include mandatory fields, numeric limits, predefined categories, date validation and logical checks where applicable.

The system should minimize duplicated entries and should maintain basic traceability of records where technically appropriate.

The project administrator should be able to periodically review data quality and identify incomplete or unusual records.

15. Connectivity and Field Usability

The system will be designed considering the practical realities of field operations.

Where technically feasible within the approved architecture, the application should allow temporary interruption of internet connectivity without immediately losing an unfinished data entry. Data synchronization or submission should occur once adequate connectivity is restored.

If full offline synchronization is not included in the final architecture, the system should still be optimized for low-bandwidth mobile connectivity.

The final connectivity approach will be confirmed during system design.

16. Security and User Access

Reasonable application-level security measures should be incorporated into the system.

Users should authenticate before accessing restricted functions. Access permissions should be based on assigned roles wherever required.

Administrative functions and sensitive project information should not be publicly accessible.

Basic security measures should include:

- authenticated user access;
- role-based permissions where applicable;
- secure password handling;
- secure database access;
- regular database backup;
- restricted administrative access.

The system should avoid displaying unnecessary personally identifiable household information on public or donor-facing dashboard screens.

17. Data Confidentiality and Protection

All project data collected through the platform will remain confidential and should be handled only for authorized project purposes. The service provider should not sell, distribute, disclose or independently use household or project information without written authorization from the commissioning organization. Where household identifiers are required for monitoring, coded IDs should preferably be used in dashboard views instead of displaying unnecessary personal information.

18. Domain, Hosting and Backup

The assignment will include registration and management of the agreed project domain for a period of three years. The service provider will also provide cloud hosting for the application, database and dashboard for three years, including basic backup arrangements appropriate for the expected scale of the pilot. Hosting should be sufficient for the anticipated number of project users, data records and normal dashboard traffic. Basic server and database monitoring should be maintained during the agreed hosting period.

Any future requirement involving significant increases in storage, traffic, computational demand, additional third-party services or expansion substantially beyond the agreed system scope may require separate infrastructure review.

19. Testing and Quality Assurance

Before final deployment, the service provider will conduct functional and technical testing of the platform.

Testing should cover the complete workflow from field data entry to database storage, calculation and dashboard presentation.

The testing process should include:

- form functionality;
- data validation;
- database recording;
- user access;
- KPI calculation;
- dashboard display;
- data filtering;
- report/export functionality;
- common mobile and desktop display testing.

Any major system defects identified during testing should be corrected prior to final acceptance.

20. Training and Orientation

The service provider will provide practical orientation for relevant project users.

Training will focus on normal operational use rather than technical software development.

Training will cover areas such as:

- user login;
- data entry;
- household/session selection;
- technical monitoring entry;
- monthly survey entry;
- dashboard navigation;
- use of filters;
- data export;
- basic administrator functions.

A basic digital user guide or operating note will be provided for future reference.

21. Post-Deployment Technical Support

Following final deployment, the service provider will provide **three months of technical support**.

This period will primarily cover operational assistance and correction of software bugs related to the approved and delivered scope.

Minor configuration adjustments may also be supported where they do not represent substantial changes to the agreed system architecture.

Development of completely new modules, major functional changes or additional systems requested after approval of the final scope may be treated separately.

22. Key Deliverables

The expected deliverables under the assignment will include:

1. Finalized system requirement and workflow.
2. Mobile-responsive data collection application.
3. Cooking Session Data Module.
4. Daily Technical Monitoring Module.
5. Monthly Household Feedback Module.
6. Backend database and basic user management.
7. Impact monitoring dashboard.
8. Agreed KPIs, charts and filters.
9. Excel/CSV data export facility.
10. Tested and deployed production system.
11. User and administrator orientation.
12. Basic operational/user documentation.
13. Three-year domain registration.
14. Three-year cloud hosting and basic database backup.
15. Three months of post-deployment technical support.
16. Full System Documentations & with flowchart
17. Full Owner access including domain, hosting, database etc.

23. Implementation Approach

The assignment should follow a phased development process to avoid extensive redevelopment at later stages.

Phase 1 — Requirement Finalization

The project team and service provider will confirm the forms, data fields, indicators, user roles, dashboard structure and reporting requirements.

Phase 2 — Prototype Development

A preliminary application and dashboard prototype will be prepared for review. The project team will provide consolidated feedback before full development proceeds.

Phase 3 — Full Development

Following approval of the prototype, the service provider will complete the backend, digital forms, dashboard, calculations and reporting functions.

Phase 4 – Testing

The system will undergo technical testing followed by User Testing with nominated project representatives.

Phase 5 – Deployment and Training

The approved platform will be deployed to the production environment and relevant users will receive orientation.

Phase 6 – Stabilization and Support

The service provider will provide post-deployment technical support during the agreed support period.

24. Implementation Timeline

The complete assignment, including requirement finalization, system design, development, testing, User Acceptance Testing, deployment and user training, shall be completed within 10 working days (2 weeks) from the date of contract signing or issuance of the work order and receipt of required project information, given the project's closure timeline.

An indicative implementation schedule is provided below:

Phase	Key Activities	Duration
Phase 1	Requirement finalization, workflow confirmation, KPI and form validation (fast-track, using the existing design and ToR)	1 working day
Phase 2	System design and prototype configuration on the existing platform	1 working day
Phase 3	Data collection application, backend and database configuration	3 working days
Phase 4	Dashboard, KPI calculation, reporting and export configuration	2 working days
Phase 5	Integration, testing and bug fixing	1 working day
Phase 6	User Acceptance Testing and required corrections	1 working day
Phase 7	Final deployment, training and handover	1 working day
	Total	10 working days

Given the compressed 2-week timeline, the service provider should submit a detailed day-by-day work plan at contract signing and maintain daily coordination with the project team to ensure completion within the agreed period.

Where delays arise due to late submission of required project data, delayed approvals or delayed consolidated feedback from the commissioning organization, the implementation schedule may be adjusted accordingly.

25. Roles and Responsibilities

The service provider will be responsible for technical design, development, configuration, testing, deployment, training and agreed technical support.

The commissioning/project team will be responsible for providing required project information, approved household/reference data, monitoring requirements, nominated users and timely consolidated feedback.

The project team will also nominate responsible representatives for prototype review and final acceptance to avoid conflicting or repeated revision requests.

26. Eligibility of the Service Provider

The bidding organization should have demonstrated experience in developing and implementing digital solutions in the Rohingya refugee camp context or in comparable humanitarian field environments.

Given the nature of the assignment, relevant sectoral and contextual experience will be considered essential. The company should have previous experience in **clean cooking, renewable energy, energy access or related digital monitoring solutions at Rohingya camp level**, particularly where digital tools are used for field data collection, monitoring, reporting or visualization.

As a minimum requirement, the company should have successfully completed at least **two digital solution development projects at camp level or in similar humanitarian settings**. Relevant assignments may include digital monitoring applications, mobile data collection systems, dashboards, digital web platforms, clean-cooking monitoring solutions, renewable-energy monitoring systems or other field-oriented digital platforms.

The bidder should provide evidence of relevant experience through contracts, work orders, completion certificates, client references, screenshots, links, demonstration access or other verifiable documentation.

27. Change Management

The system will be developed based on the requirements agreed during the design stage.

Minor adjustments required to make the approved functions operate correctly will remain part of the assignment.

Requests that substantially change the agreed functionality, such as additional applications, completely new modules, integration with external platforms, automated hardware integration, major workflow changes or large-scale expansion, should be reviewed separately before implementation.

This approach will help maintain the agreed implementation timeline and system stability.

28. System Ownership and Handover

Upon final acceptance, the commissioning organization will receive full administrative access to operate the deployed platform and access project data.

All project data collected through the system will remain the property of the commissioning organization.

The service provider will provide access credentials, detail operational documentation and other agreed handover materials required for routine system operation.

30. Expected Result

At the completion of the assignment, the Solar Powered Community Kitchen Initiative will have a practical digital monitoring platform capable of converting routine field data into useful project evidence.

Instead of manually consolidating multiple paper records and spreadsheets, project teams will be able to follow participation, cooking activity, solar performance, reliability, user feedback and selected household-impact indicators through one centralized system.

Most importantly, the platform will help the pilot move beyond simply demonstrating that a solar kitchen can operate. It will generate structured evidence on **how the service is being used, how reliably it operates, how households experience it and whether the model has sufficient evidence for continuation or future scale-up**. The feasibility assessment similarly identifies technical reliability, user satisfaction, governance, safety, battery performance and actual household cooking benefit as important considerations for future scaling decisions.

Company Name:

Date & Signature:

Company Seal/Stamp