TERM OF REFERENCE
FarmOS App Development Consultant
(Consulting Services—Individual Consultant Selection)

Project Name:	**Cambodia Sustainable Livelihood for Indigenous Communities (P174951)**
JSDF Grant No.	**TF B6238**
NGO:	**Analyzing Development Issues Centre**
Ref. Procurement Plan:	**ADIC-CSLICP-SC-023**
Duration:	**200 Person-days (Service Contract)**
Location:	**Phnom Penh office, with frequent travels to the target provinces (Mondulkiri and Ratanakiri)**

Introduction

Analyzing Development Issues Centre (ADIC) registered as local non-government organisation (NGO) in 2011 with Ministry of Interior and has a wide range of research and development projects in Cambodia, funded by different development partners. In December 2021, ADIC has received grant funding from the Japan Social Development Fund (JSDF) through The World Bank for implementing the Cambodia Sustainable Livelihood for Indigenous Communities (CSLICP's Project), with more details below, for four years in Ratanakiri and Mondulkiri Provinces.

Background

In 2001, a Land Law was adopted and established the right of ICs to an Indigenous Communal Land Title (ICLT) over their customary lands where they carry out traditional agriculture including shifting cultivation (Article 25). Demands for ICLTs have increased notably over the last few years. By end 2019, 150 IPs have been recognized as ICs by MRD, 140 IPs have been granted legal recognition by MOI, and 30 ICs have obtained registration of their lands from MLMUPC. More land registration for other ICs is underway.

The agricultural production potential in ICs remains largely untapped, particularly for horticulture for which climatic conditions in the areas are very favourable. This is largely due to the lack of introduction of improved technology and ineffective extension services to improve husbandry practices. Agricultural extension services provided by various public agencies have generally focused on rice production and aquaculture development, thus paying very little attention to horticulture promotion in ICs. In addition, lack of adequate access to irrigation in these communities, as reported in the 2013 agricultural census, has been an important handicap for horticulture development, thus limiting production systems to rainfed cultivation of rice, sweet potato, cassava, and other crops primarily for home consumption. Farm productivity is low.

Domestic demand for vegetable products has been growing fast due to rapid urbanization, increased income, and tourism. Nearly 60 percent of market supplies are imported from Vietnam, valued at US$140 million per year. Furthermore, the COVID-19 -trade restrictions and other barriers have led to more reliance on domestic supplies. Opportunities for the development of horticulture value-chains in indigenous communities are therefore substantial, as illustrated by the growing presence of agro-industries involved in horticulture in the IC areas. This is largely due to the favourable natural conditions of these mountainous areas, such as altitude and climate.

Only community members in ICs with ICLTs would be eligible to benefit from the proposed project. Since communities with ICLTs are only those located in the provinces of Ratanakiri (17 ICLTs) and Mondulkiri (7 ICLTs), project beneficiaries will be drawn from these two areas. A total of 20 communities from 14 Communes, covering 27,122 hectares would form the beneficiary population of the proposed project.

Project Development Objective and Components of the Cambodia Sustainable Livelihood for Indigenous Communities (CSLICP)

The objective of the CSLICP is to improve the livelihoods of the targeted indigenous communities in the provinces of Ratanakiri and Mondulkiri, through innovative farming practices, complemented by off-farm and non-farm activities. These communities are also beneficiaries of the LASED III project. The JSDF intervention will generate new and sustainable sources of incomes for project beneficiaries through the development of a lucrative horticulture value chain, the emergence of a local agri-processing industry, and ecotourism services. The CSLICP has 3 main components. Component 1. Livelihood support through innovative horticulture-based farming practices and technical training for off-farm and non-farm activities. This has 4 sub-components including 1) Introduction of new improved horticulture production practices for community farmers through farmer- managed demonstration farms; 2) provision of environmentally sustainable water solutions for agriculture and adaptation to climate change; 3) setting Up School Bio-Gardens for Capacity Development of Students; Community-Based Vocational Training for Youth; 4) Community-Based Vocational Training for Youth. Component 2: Improving Producer Links to Markets and Horticulture Support Services; and Component 3: Project Management and Administration, Monitoring and Evaluation, and Knowledge Dissemination.

ADIC is seeking to fill the FarmOS App Development Consultant position for the implementation of the CSLICP. The responsibilities and accountabilities of the position are detailed below.

Responsibilities

The consultant shall have the following responsibilities:

- Architect the Open-Source Core Foundation, selecting plug-and-play components (farmOS, Kobo/ODK, Odoo CE or any Similar feature for Supply Chain Management (SCM), Metabase, Keycloak) and defining clear API/data contracts for future microservices.
- Configure and extend farmOS modules for demo-farm management, Farmer Profile, crop/horticulture logs, land-plot geofencing, and weather data capture.
- Design and deploy Supply Chain Management workflows: multi-warehouse inventory, batch/lot tracking, purchase/sales orders—mapping farmOS "harvest" logs into stock entries.
- Leverage OpenFn or n8n platform to automate and monitor data flows between farmOS, Kobo/ODK surveys, SCM systems, and analytics services without custom middleware code.
- Review and adapt proven models from leading platforms—iFarmer's finance & input-supply flows and PlantVillage's advisory & knowledge-sharing patterns—to accelerate feature design and ensure best-practice UX.
- Build a React Native mobile shell that authenticates via Keycloak, loads modular sub-apps (farmOS forms, Kobo surveys, SCM interfaces, Metabase widgets), supports GPS/camera capture, and syncs offline with n8n/OpenFn triggers.
- Develop a Market Intelligence Dashboard in Metabase consolidating on-farm outputs, inventory movements, and external price feeds—complete with geo-visualizations and scheduled PDF/Excel exports.
- Implement DevOps best practices: containerize each service (Docker), define CI/CD pipelines (GitLab CI/GitHub Actions), and deploy to a cloud environment primed for horizontal scaling.
- Lead pilot rollouts in two indigenous communities: perform functional and usability tests of all plug-and-play modules, gather feedback, and iterate interfaces for low-literacy users.
- Deliver a Training-of-Trainers to village trading agents, demo-farmer, field staffs and comprehensive handover package (code repositories, architecture documentation, and user manuals in Khmer/English) to ensure ADIC can sustain and expand the ecosystem in post-project period.

Timing and Expected Outputs

The successful candidate is expected to start immediately and work for 200 person-days—as intermittence and part-time.

The expected outputs and timing are as follows:

Outputs	Indicative Timing
I. Inception Design Phase • Kick-off meeting; validate requirements with CSLICP & M&E team • Develop Core System architecture diagram (farmOS + microservices + React Native) • Data model & API mappings • UX/UI mockups in Khmer & English	June 2025
II. Core Development • armOS configuration (Assets, Logs, Plans) + custom modules for demo-farm, weather logs, • KoboToolbox form design & integration, API Integrated • React Native app scaffolding: login, offline sync, camera & GPS modules • Develop a crop disease identification model	July-August 2025
III. Dashboard & Reporting • Metabase setup: connect farmOS database; build 3 key dashboards (production, plot status, market prices) • Automated report exports (PDF/Excel)	September 2025
IV. Testing and fix bugs • Unit & integration tests for API endpoints • Field acceptance testing in communities (offline/online) • Bug fixing & performance tuning	October 2025
V. Training and handover of FarmOS • Farmers • Farmer user guides (illustrated, Khmer) • Final code repo, deployment scripts, and support handover document	November-December 2025

Coordination and Reporting

The Consultant will report to the M&E Expert and coordinate with project team, the partners both public and private sectors.

Qualifications Team

The candidate should have the following qualifications
- Education: Bachelor's in computer science (required)

- Experience: ≥ 10 years designing & operating enterprise-scale datacenter or cloud infrastructures; deep expertise in containerization (Docker), CI/CD, security best practices; PHP/CMS Laravel including custom farmOS, Experiences with REST/JSON: API microservice integration; automated testing.

- Experience in React Native or Flutter app development with offline sync (SQLite); GPS/camera integration; background sync. Plus ≥ 3 years PHP/Laravel web development; experience embedding Enketo and customizing CMS UIs.

- Skills: farmOS/CMS is a plus; strong communication in English and Khmer; stakeholder management.

- Experiences in Map Visualization/Data Collection

- Experiences in Project Management, Farm Management, Farm Operation

- Skills: farmOS.js/farmOS.py clients; GIS/geofencing; performance tuning; English fluency.

- Skills: RESTful APIs; Git workflows; English communication; Khmer proficiency for training materials.

- Interested candidates are requested to submit the updated curriculum vitae and cover letter with three referees by email with subject line "Application for **FarmOS App Development Consultant**_ADIC-CSLICP-SC-023" and attention to following address info@adicentre.org and copy to iloeur2@gmail.com; pel.martin1@gmail.com; channakchhun@gmail.com; and Son042meknea@gmail.com, kansopheary855@gmail.com

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