**Strengthening the climate resilience of agricultural systems in Cambodia and Vietnam (CRAS)**

**Project No.: 20.2233.3-002.00 (Vietnam Component)**

**TERMS OF REFERENCE (TOR)**

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| Position: | **Consultancy service to transfer the meteorological data recorded by a smart weather station built under the project framework into Son La‘s smart city system.**  |
| Duration of Assignment: | From 15th June to 31st August 2023 |
| Location of assignment: | Son La Province |
| Reference to work plan: | Output 2: Cooperation between small farmers and the private sector is enhanced. * Milestone 8/Act 2.8.6/ Building and integrating data with Son La's SmartCity system
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1. **Background of the programme**

The “Strengthening the resilience of poor population groups to climate change in selected ASEAN states, taking special account of the impact of COVID-19 in Cambodia and Viet Nam” (CRAS) project commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, works with Cambodia and Vietnam.

The main objective of the project is to strengthen the resilience of poor population groups to climate change in selected agricultural value chains (that is Cassava and Cashew nuts value chains in Cambodia and Coffee value chain in Vietnam) in the project regions. The project will provide technical assistance to achieve the following key outputs 1) Capacities of small farmers regarding climate-resilient production methods are increased. 2) Cooperation between small farmers and the private sector is enhanced. 3) Capacities of public and private-sector actors in the field of climate resilience are strengthened; and 4) Actors are informed about experience gained with scalable resilience measures in the value chain

1. **Background of the assignment**

The Coffee Innovation Partnership fund (CIP) under Output 2 of the “Strengthening the Climate Resilience of Agricultural Systems in Cambodia and Vietnam (CRAS) was established which supports cooperation between the private sector and development organizations for their mutual benefit. The CIP fund targets companies in the two project countries through development partnerships which want to make their corporate commitment sustainable. By combining the innovative capacity and capital of the private sector and the resources, knowledge and experience of development organisations, new possibilities can be created for generating positive impetus for development in partner countries. CIP fund seeks to foster market-driven innovations in the production, processing, marketing, and market access in Arabica coffee value chains while meeting quality and sustainable standards and being resilient to climate change.

Under CIP fund, GIZ/CRAS and Weather Plus Joint Stock Company have signed a Cooperation Agreement on: “*Resilience to climate change and climate change-related pests and disease of smallholders in the coffee value chain in Son La is strengthened by using smart warning technology and technical advice related*” to helps ensure people's livelihoods, social stability and sustainable economic development, value enhancement of Son La coffee to meet regional and international integration as planned for Son La coffee development to 2030 that the province has set.

Son La already set up some terrestrial meteorological stations. However, the density of terrestrial meteorological stations is still low. Moreover, the current meteorological stations can only meet the monitoring of several meteorological factors but have not yet provided meteorological data for forecasting and warning tasks for agricultural production making the accuracy quite low, as of 50-60%. Additionally, Son La province has not yet applied smart weather and hydrometeorology monitoring and forecasting technologies such as automating the monitoring process and monitoring factors for weather forecasting and pests and disease situation warning tasks serving agricultural production. Furthermore, Son La city has built and put into pilot operation the smart city monitoring and control centre, promoting digital transformation and building e-government.

To continue the implementation of the Cooperation agreement and for a wider application the data recorded by the smart weather station installed under the project and contribute to promoting digital transformation, GIZ is looking for highly qualified IT expert to build building a database regarding the meteorology sector in Son La and then integrate them into the Smart City system of Son La province.

1. **Objective(s) of the assignment**

The overall objective of this assignment is to develop the database regarding the meteorology sector based on some the input and data collected by 02 meteorologists who are also hired by GIZ in separated contracts and promote digital transformation process in Son La for Son La’s Smart City operation by integrating the meteorological parameters monitored by the smart weather station installed into Son La’s Smart City system.

To support that overall objective, the expert is expected to conduct the following tasks:

* In collaboration with the Provincial Department of Information and Communication, Son La Department of Agriculture and Rural Development, Sub-Department of Crop Protection, 02 meteorologists and other relevant stakeholders to identify the data standard regarding the meteorology sector for integrating into Son La’s Smart City System.
* Build the standardized Application Programming Interfaces - API[[1]](#footnote-2) that help automatically update data between the server and to Son La’s Smart City System.
* Connect and ensure smooth and regular online transfer of meteorological data monitored by the smart weather station into Son La’s Smart City system via the built API.
1. **Expected deliverables and time frame.**

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| **No** | **Deliverables** | **Due Dates** |
| **1.1** | The standardized API connection to Son La’s Smart City System built  | **31st July 2023** |
| **1.2** | The meteorological data monitored by the smart weather station under the project is smoothly connected and online transfer made correctly and sufficiently via API into Son La’s Smart City system. | **31st August 2023** |

1. **Duration and location of the assignment**
	1. ***Duration*:** The assignment is planned for the period from 15th June to 31st August 2023 for this assignment and will include desk-based study and travel to the project areas. The traveling expenses will be covered by the consultant.
	2. ***Location*:** Hanoi and Son La province
	3. ***Others***: Equipment and other logistical arrangements are the responsibilities of the consultants.
2. **Required qualifications and experience of the Contractor.**

An IT expert shall meet the following requirements:

*Education*

* Bachelor’s degree in information technology or a related field
* A technical degree in Information Science, CS, or equivalent skill gained through.

*Work Experience*

* About 14 years of professional experiences in systems (hardware and software) support
* Intensive knowledge of IT principles, concepts, and methods; systems testing and evaluation
* Have knowledge of principles, methods, and tools; IT security principles and methods; COTS products; Internet technologies; and/or emerging information technologies
* Good experience in working on LGSP systems.

*Others*

* Language Skills: Vietnamese (Mother tongue)
* Strong organizational and time management skills.
1. **Application submission:**

The application for each package must include:

**Technical proposal**: The technical proposal needs to be in English language and should include (i) the Experts’ CV with relevant previous assignments listed, (ii) a proposed work plan including a timeline, approach to the assignment, and a clear indication of the role of experts in the team (if a team of experts submits the proposal)

**Financial proposal**: Financial proposals (in English) should include the expected consultancy rate with the number of working days. The price should include PIT.

1. **Responsibilities of GIZ**

The Consultants shall report on a regular basis on related matters directly to GIZ and Weather Plus respectively. All contractual reporting and communication will be submitted to the GIZ/CRAS project team. GIZ will:

* Make available relevant documents and materials and support the Consultants to establish a working relationship with the Provincial Department of Information and Communication, Son La Department of Agriculture and Rural Development, Sub-Department of Crop Protection, and Weather Plus
* Check and accept the deliverables in close consultation with Weather Plus and settle payments.

Any adjustment to the ToR may be made with mutual consent by GIZ and the Consultants in writing.

1. APIs are mechanisms that enable two software components to communicate with each other using a set of definitions and protocols. It could help to automatically update data between the server and clients. For example, the weather bureau’s software system contains daily weather data. The weather app on your phone connect with this system via APIs and shows you daily weather updates on your phone. Please find the attached link to know more about API: [What is an API? - Application Programming Interfaces Explained - AWS (amazon.com)](https://aws.amazon.com/what-is/api/?nc1=h_ls) [↑](#footnote-ref-2)