TERMS OF REFERENCE (TOR)

Consultancy: Country Situation Study on Smart Logistics Technology Readiness for Agricultural Supply Chains in Five Mekong Countries, namely Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam

Type: Individual Consultancy Services

Duration: March 1 – May 31, 2022

Location: Home-based

Project: Sustainable and Smart Agricultural Supply Chains Development in Mekong Countries

1. Introduction

Mekong Institute (MI) is seeking to engage the services of a consultant for co-working with the MI Project Team on “Country Situation Study on Smart Logistics Technology Readiness for Agricultural Supply Chains in Mekong Countries” (hereafter referred to as the Study) from March 1, 2022 to May 31, 2022.

2. Brief Background of the Project

MI is implementing a project on ‘Sustainable and Smart Agricultural Supply Chains Development in Mekong Countries’ with the aim of improving production effectiveness and efficiency, reducing post-harvest losses, and increasing energy efficiency in agricultural supply chains through cold chain development and smart and sustainable technologies in post-COVID situation in the Mekong countries, namely Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam. The duration of the project is from December 1, 2021 to May 31, 2023 and funded by the Mekong – Republic of Korea Cooperation Fund (MKCF).

With a focus on capacity development for stakeholders and beneficiaries in the target countries, the project is in an urgent need to transform agriculture supply chains (production, processing, and distribution) in the Mekong countries through the application of the smart agricultural, logistics, and renewable energy technology. This is intended to eventually contribute to the achievement of sustainable development goals (SDG) – ending poverty and hunger, promoting efficiency energy, and responding to climate change while achieving inclusive growth, building resilient society, and sustainable natural resources.

The project has three short-term objectives, which are aligned with the short-term and long-term outcomes, for further contributing to the expected impact on enhanced agricultural productivity and quality and economic competitiveness led by green and smart agricultural supply chains in the Mekong countries, as shown in Table 1.
Table 1: Project's Objectives and Outcomes

<table>
<thead>
<tr>
<th>Project's Objectives and Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-term objectives</strong></td>
</tr>
<tr>
<td>- To identify mechanisms for improving productivity and quality of agricultural produce.</td>
</tr>
<tr>
<td>- To increase energy efficiency through using smart and sustainable technologies in agricultural supply chains.</td>
</tr>
<tr>
<td>- To enhance agricultural supply chains by improving logistics systems, including cold chain management practices for agricultural products in the Mekong region.</td>
</tr>
<tr>
<td><strong>Short-term outcomes</strong></td>
</tr>
<tr>
<td>- Application of smart technology in agricultural supply chains and energy used in selected agricultural products.</td>
</tr>
<tr>
<td>- Enhanced capacity of relevant stakeholders on technology utilization for agricultural supply chains.</td>
</tr>
<tr>
<td><strong>Long-term outcomes</strong></td>
</tr>
<tr>
<td>- Improved production effectiveness and efficiency.</td>
</tr>
<tr>
<td>- Reduction of postharvest losses in pilot agriculture products.</td>
</tr>
<tr>
<td>- Increased energy efficiency in agricultural supply chains.</td>
</tr>
<tr>
<td>- Adoption of smart and sustainable logistics technology in agricultural supply chains.</td>
</tr>
</tbody>
</table>

3. **Background of the Study**

The logistics management is a significant element in agricultural product transportation from producers to consumers. Within this, access to affordable appropriate technologies is an important element for maintaining agricultural productivity and efficiency. Various logistics services for agricultural product transportation, such as cold chains, help reduce spoilage and waste from farms to customers and contributes significantly in sustainable agri produce marketing and transportation.

The study will be conducted to understand the readiness of smart logistics technologies and adoption of technologies in the agri produce transportation sector as specified on section 4.1.

3.1) **Objectives, Outputs, and Outcomes of the Study**

- **Objectives**
  1) To gain an understanding of the status and readiness of smart logistics technologies and its adoption in the agriculture sector in five Mekong countries, namely Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam;
  2) To identify different types, functions, and suitable adaptation of technologies including integrated energy saving devices and applications in logistics and transportation for agricultural production in Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam;
  3) To assess human and system capacity needs of government agencies and other stakeholders on the use of identified logistics technologies in the agriculture products transportation and storage in the five Mekong countries;
  4) To suggest and make practical recommendations for effective involvements of key government agencies and the private sector to achieve full operationalization of smart logistics technologies in agri product transportation in the five Mekong countries.
• Outputs
1) A report study titled: “Country Situation Study on Smart Logistics Technology Readiness for Strengthening Agricultural Supply Chains in the Mekong Countries”
2) Validation workshop in which the findings and recommendations of the study are presented and validated to feed into planned project activities.
3) The Study will be a flagship output leading to other planned project activities under the project design.
4) A series of capacity building needs (training areas/topics) identification, as per target groups and mechanism to initiate the process.
5) The findings will be used to further decide the capacity building activities and to identify a group for implementing the pilot activity related to smart logistics technology for selected agriculture products and policy recommendation.

• Outcomes
1) Contribute in supporting the integration of MSMEs into global and regional value chains.
2) Contribute to the increased access to international markets and cross-border trade.

4. Methodology of the Study

A mixed-method approach (i.e., quantitative and qualitative techniques) will be adopted for this study with three modes of information collection (i.e., desk review, survey and virtual consultations).

Figure 1: Methodological Stages of the Study

4.1) Selection process of the logistics technologies

The process for selecting the technologies are listed below:

i. Provide an assessment of smart technology adoption/application readiness in transport and logistics sector in the Mekong countries.
ii. Identify and develop an inventory of different type of technologies in transport and logistics used and potential for adoption for cross border transportation and storage of agriculture commodities in the Mekong countries;
iii. Identify functions and benefits (emission reduction, energy savings, etc.) of the suggested technologies for movement and storage agricultural produces focusing on cross-border provinces of the five Mekong countries;
iv. Suggest at least five types of technologies and their uses for specific agriculture products, including a brief techno economic feasibility (investment size, technology, returns on investment and other details) for each of the suggested technologies to facilitate
investment decisions by the logistics and transport providers.

v. The cross-border points can be selected from Table 2 with high cross border trade on agricultural commodities as case study.

Table 2: Eight (8) border crossing points along Economic Corridors in Five Mekong countries

<table>
<thead>
<tr>
<th>Province</th>
<th>Province</th>
<th>Country</th>
<th>Economic Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Chiang Khong/Houaayxay</td>
<td>Chiang Rai</td>
<td>Thailand</td>
<td>NSEC</td>
</tr>
<tr>
<td></td>
<td>Bokeo</td>
<td>Lao PDR</td>
<td>NSEC</td>
</tr>
<tr>
<td>(2) Tachilek/Mae Sai</td>
<td>Shan State</td>
<td>Myanmar</td>
<td>NSEC</td>
</tr>
<tr>
<td></td>
<td>Chiang Rai</td>
<td>Thailand</td>
<td>NESC</td>
</tr>
<tr>
<td>(3) Myawaddy/Mae Sot</td>
<td>Kayin State</td>
<td>Myanmar</td>
<td>EWEC</td>
</tr>
<tr>
<td></td>
<td>Tak</td>
<td>Thailand</td>
<td>EWEC</td>
</tr>
<tr>
<td>(4) Mukdahan/Savannakhet</td>
<td>Mukdahan</td>
<td>Thailand</td>
<td>EWEC</td>
</tr>
<tr>
<td></td>
<td>Savannakhet</td>
<td>Lao PDR</td>
<td>EWEC</td>
</tr>
<tr>
<td>(5) Lao Bao/Dansavanh</td>
<td>Savannakhet</td>
<td>Lao PDR</td>
<td>EWEC</td>
</tr>
<tr>
<td></td>
<td>Quang Tri</td>
<td>Vietnam</td>
<td>EWEC</td>
</tr>
<tr>
<td>(6) Aranyaprathe/Poipet</td>
<td>Sa Kaeo</td>
<td>Thailand</td>
<td>SEC</td>
</tr>
<tr>
<td></td>
<td>Banteay Meanchéy</td>
<td>Cambodia</td>
<td>SEC</td>
</tr>
<tr>
<td>(7) Hat Lek/Cham Yeam</td>
<td>Trat</td>
<td>Thailand</td>
<td>SEC</td>
</tr>
<tr>
<td></td>
<td>Koh Kong</td>
<td>Cambodia</td>
<td>SEC</td>
</tr>
<tr>
<td>(8) Bavet/Moc Bai</td>
<td>Svéa Rieng (C)</td>
<td>Cambodia</td>
<td>SEC</td>
</tr>
<tr>
<td></td>
<td>Tay Ninh (C)</td>
<td>Vietnam</td>
<td>SEC</td>
</tr>
</tbody>
</table>

4.2) Target of the logistics technologies for the agricultural products

- Study location should cover the five Mekong countries of Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam;
- Producer groups for five (5) to six (6) agricultural products in the study locations; and
- List of logistics technologies owners including warehouse and energy saving in the study locations.

5. Scope of Work and Deliverables

5.1) Scope of Work

The consultant will work closely with the MI Project Team on the “Country Situation Study on Smart Logistics Technology Readiness for Agricultural Supply Chains in Mekong Countries”. Specifically, the consultant will be responsible for:

i. **Designing a methodology** for the Study, which would include a strategy for conducting the study, designing of survey tools, identification of stakeholders, determination of primary information sources, and survey plan.

ii. **Conducting desk research** to identify the smart logistics technologies readiness and adoption of the technologies for agriculture sector in five Mekong countries, namely Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam;
iii. Developing questionnaire (tentative)
- for Key Informants Interviews (KII) and Focus Group Discussions (FGDs) based on the identified in the desk research for collection of both primary and secondary data.
- Primary data collection should include KII and FGDs.
- Prepare the content of letters for sending out the questionnaire and survey to the KII and FGDs.
- The survey may obtain information on national policies and programs and provide road map.
- The survey should also cover capacity needs assessment for the stakeholders, which would provide inputs in designing curriculum for a modular training on smart logistics technology for agriculture supply chains to be held in August to September 2022.

iv. Preparing a Study Report on the findings of the desk research, key informant interviews, focus group discussions, and field survey (if any), which responds to the selection process and targets mentioned in 4.1 and 4.2, including identification of capacity building needs, challenges, limitations, and various interests of different stakeholders – companies, government, associations, customers/end-users, and other involved stakeholders in the logistics sector for selected agriculture products and policy recommendation.

The findings will be used to further decide the capacity building activities and to identify a group for implementing the pilot activity related to smart logistics technology for selected agriculture products and policy recommendation.

v. Sharing the findings of the Final Study at the Validation and Dissemination Workshop scheduled on the fourth week of May 2022. The workshop will be attended by policymakers, practitioners, experts, and academics on smart logistics technology for agricultural supply chains, and the respondents of the KII and FGDs.

5.2) Key Deliverables

i. Present Methodology and Strategy for conducting the Study, which include deciding the study methodology, designing of survey tools (KII and FGDs survey) including questionnaire, identifying stakeholders for KII and FGDs, determining primary sources, and designing the survey plan to MI by March 14, 2022.

ii. Conduct Desk Research on the smart logistics technologies readiness and adoption of the technologies for agriculture sector in five Mekong countries, namely Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam, and identify gaps in studies and develop a questionnaire for carrying out KII and FGDs.

iii. A Study Report containing the findings of the KII and FGDs, capacity needs assessment of stakeholders including listed issues on section 5.1-iv., and techno economic feasibility of the suggested logistics technologies in sections 4.1 and 4.2 for the agricultural products. The draft study report will be submitted to MI for further processing by May 19, 2022.

iv. Presentation of the Final Study Findings at the validation and dissemination workshop organized by MI on May 25, 2022.

v. Revise the Final Report as per suggestions and recommendations of the workshop participants (if any) by May 31, 2022.
5.3) Responsibilities of the MI Project Team

i. Discuss with the consultant and help in finalizing the methodology of the Study;
ii. Provide comments on and help to finalize questionnaire(s)/list(s) of questions for KII's and FGDs;
iii. Set the questionnaire(s) for the survey online on SurveyMonkey and provide the links to the Consultant;
iv. Send the letter with questionnaire(s) form to target respondents in the five Mekong countries identified by the MI Project Team with the help of the consultant;
v. Facilitate online/hybrid meetings and/or FGDs, if any;
vi. Provide comments on the first draft of the study report within the one week of submission by the consultant.
vii. Organize a validation workshop to present and validate the findings of the study report with relevant stakeholders identified by the MI Project Team with the help of the consultant.

6. Timeline

<table>
<thead>
<tr>
<th>Activity and Deliverables</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity and Deliverables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1) Sign the contract</td>
<td></td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>6.2) Design a methodology of the study</td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6.3) Present the Study Methodology to MI by March 14, 2022.</td>
<td></td>
<td>4</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6.4) Desk research review</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>6.5) Key Informants Interviews / Focus Group discussions / Field Survey in Mekong counties</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6) Draft the Study Report and submit to MI by May 19, 2022.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.7) Present and validate the findings of the study report at the validation and dissemination workshop organized by MI on May 25, 2022.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.8) Revise the final report as per suggestions and recommendations of the workshop participants, if any by May 31, 2022.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Qualifications of the Consultant

i. Proven knowledge on smart and modern technologies in transport and logistic sector and use and application of such knowledge in developing programmatic interventions.
ii. At least five (5) years of experience in operation of and/or conducting studies/research/consultancy work related to logistics issues in the Mekong countries;
iii. Familiar with the logistics sector in the Mekong countries will be an added advantage.
iv. Specific experience with logistics service operators through technical support for developing local logistics services and improving quality and services of local logistics providers in the Mekong countries and integrating local logistics providers for the
agricultural supply chains in Mekong countries into sub-regional, regional, and global logistics chains is preferred.

v. Previous experience in conducting surveys, interviews, and stakeholders’ consultations.

vi. Established network among the logistics service providers and other government agencies and the private sector in the country in question.

vii. Advanced University degree in logistics and transportation management, economics, international trade, management, or related fields.

viii. Excellent written, reporting, and communication skills in English.

8. Payments and other arrangements

The total lump-sum fee amount of this consultancy service is **US$ 12,000**. The payment schedule is as follows:

- 10% of the total fees will be paid upon the delivery of the Study methodology by March 14, 2022;
- 50% of the total fees will be paid upon submission of the draft Study Report by May 19, 2022;
- 40% of the total fees as final payment will be paid upon satisfactory completion of all activities and delivery of the expected outputs at the Validation and Dissemination Workshop on May 25, 2022. The revised final study report should be submitted within one week by May 31, 2022 as per suggestions and recommendations of the workshop participants, if any. The final payment will be paid accordingly.

The project is funded by the Mekong-Republic of Korea Cooperation Fund (MKCF) and managed by the Department of Trade and Investment Facilitation, Mekong Institute. The consultant should be responsible for organizing and conducting the scheduled activities in collaboration with the host countries and MI.

MI shall not be responsible for any further expenses incurred by the Consultant during the consultancy visits and for any losses and/or damages caused to the consultant.

All payments will be made by bank transfers in the name of the Consultant as specified in the TOR/contract.

**Note:**

- **Any delay of the work by the consultant without notice (at least 5 days in advance) and agreement from MI will be penalized by deducting the payment at USD 35 (0.5% of the total consultancy fee)/per day based on the days of latency.**
- **The consultant’s failure to deliver all the required outputs for over one-month delay will be considered as a default, which requires the consultant to pay back the first payment added with the compensation for the loss of the MI (50% of the total consultancy fee).**

9. Assignment Prohibited and Termination

The consultant is prohibited to assign or sub-grant any part of the activities under the agreed assignment without prior written consent of MI. Where such prior written consent is given, it shall not relieve the Consultant of any of its responsibilities under this contractual agreement.
The consultant shall ensure that the writings, textual matter, drawings, photographs, picture, maps, and diagrams, and all materials submitted to MI are either (i) original with the Consultant in all respects and do not infringe the copyright or intellectual property right of any third party; or (ii) should there be any part of the writings, textual matter, drawings, photographs, picture, maps, diagrams and material which are not of the consultant's original work, the consultant shall have obtained/cleared all copyright permissions.

MI shall have the rights to terminate this contract in the case that the Consultant is unable to fulfil his/her obligations under the terms and conditions of this TOR; or the contractual agreement may be terminated by either MI or the consultant, whichever comes first.

10. Conflict Resolution

In the case where conflict arises between MI and the consultant, the MI Management shall discuss and resolve the conflict in an amicable manner.

11. Miscellaneous

MI shall not be responsible for any liability for any damages, losses, illness, injuries, and/or death, which may occur to or be caused by the consultant during the assignment.

12. Submission of Application

The Consultant is expected to submit (i) Expression of Interest (EOI) (ii) updated CV with a photo, and (iii) a detailed technical proposal that contains a complete description and explanation of the proposed methodology for the assignment with work plan, technical expertise, qualifications, and related arrangements that the Consultant will make available to execute the assignment and achieve the furnished objectives. These documents shall be submitted to MI not later than February 21, 2022 to kanrayanat@mekonginstitute.org with cc to dutta@mekonginstitute.org and sa-nga@mekonginstitute.org.