

PARTNERSHIP FOR MARKET READINESS: PMR - Thailand

(Ref. No. CS-15) Terms of Reference for Development of mobile application on City Carbon Footprint.

1. Background of the Partnership for Market Readiness (PMR) Programme

The Government of Thailand, through Thailand Greenhouse Gas Management Organization (Public Organization): TGO, with support from the World Bank, is currently exploring potential new domestic market-based instruments to support cost-effective greenhouse gas emissions reduction in Thailand, with the purpose to contribute to the achievement of Thailand's national climate change policies and plans, as well as to assist in the implementation of its Nationally Determined Contribution (NDC) under the Paris Agreement.

Thailand Greenhouse Gas Management Organization (Public Organization) (TGO)- under the Ministry of Natural Resources and Environment, the Royal Thai Government - as an Implementing Country Participant has proposed four main components that cover several activities for the preparation and implementation phases. These components include:

- Component 1* Preparation of key market components for the voluntary Energy Performance Certificate scheme (EPC);
- Component 2* Development of Local Greenhouse Gas Abatement Plans and a study on Low Carbon City (LCC) Pricing and LCC Fund for the LCC program;
- Component 3* Policy recommendation on legal framework to establish the Emission Trading Scheme (ETS);
- Component 4* Project management.

This Terms of Reference (TOR) aims to develop a mobile application on simple calculation of City Carbon Footprint and estimation of GHG emission reduction potential which could be performed by the local municipalities.

Based on the above, TGO, as the Implementing Country Participant for the World Bank's Partnership for Market Readiness (PMR)¹ Programme, is seeking a consultancy to undertake the assignment as defined herein.

2. Objective of consultancy

The objectives of this TOR are;

- (1) To develop the mobile application for supporting local municipalities on Low Carbon City (LCC) development with 3 following functions;
 - Simple City Carbon Footprint estimation
 - Estimate GHG reduction potential base on selected measures and municipalities data input
 - Present GHG reduction potential in simple graphic with practical suggestions of other activities and how to implement for users
- (2) To promote the mobile application as a tool for simple GHG emission inventory estimation via Google Play Store and App Store

¹ More information on the PMR is online available at: <http://www.thepmr.org>.

PARTNERSHIP FOR MARKET READINESS: PMR - Thailand

3. Scope of Work

- 3.1 The consultant shall review the calculation method of City Carbon Footprint of “Simple Tool” which divided into different type of city i.e. industrial city, tourism city, residential city and agricultural city or as suggested by TGO.
- 3.2 The consultant shall review the Low Emission Support Scheme (LESS) evaluation sheet for evaluation method of potential GHG emission reduction from different measures and mitigations.
- 3.3 The consultant shall convert and present GHG reduction potential in simple graphic with practical suggestions of other activities and how to implement for users.
- 3.4 Coordinate with the key stakeholders, such as School of Energy and Environment University of Phayao (Simple Tool Developer) and etc., in consultation with TGO.
- 3.5 The consultant shall develop the mobile application according to TGO approved design. The application shall install and workable on android and iOS platform based on the approved design.
- 3.6 Execute assigned works and deliver outputs as defined in tasks 4.1 – 4.3.
- 3.7 Provide periodic reports on the progress of all activities under the consultancy services.
- 3.8 Provide software testing and adjustment according to TGO’s comments.
- 3.9 Present progress of works to TGO once every two (2) months.
- 3.10 Prepare presentations and meeting materials as well as documenting the outcomes and next steps of the work to present in the LCC working group meetings.
- 3.11 Organize training workshops on software application for TGO staff. The workshops will be held in Bangkok.

Contents	Time Frame	Participant	Number of Participant (at least)
- Back office system	Within 1 month before closing date of contract	TGO’s system administrator	3

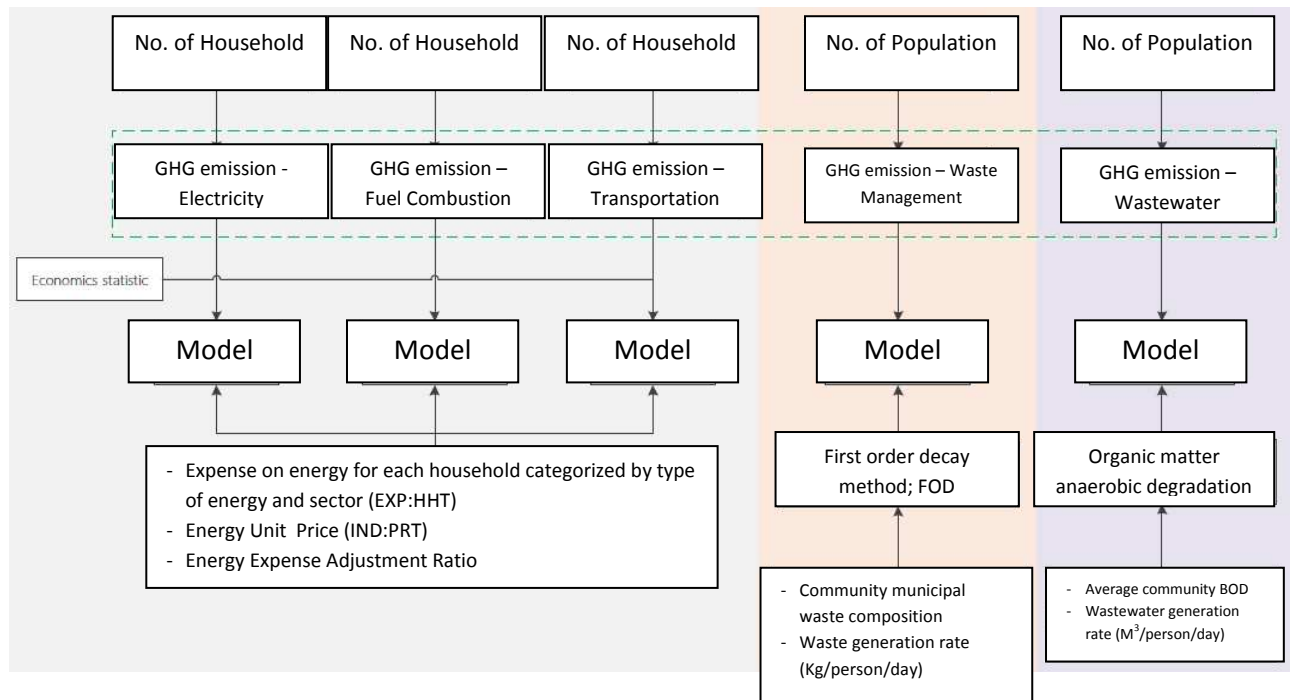
- 3.12 Provide one (1) year warranty on the application covering;
 - Software update to ensure that the mobile application will compatible with the new version of Android and/or iOS, which may release of the new version during the warranty period.
 - The warranty shall cover minor revise or corrective change which TGO may ask to do one time within warranty period.
- 3.13 Deliver of software source code and manuals to TGO.

4. Specific tasks to be carried out

- 4.1 **Review data for Simple Tool Calculation and LESS evaluation as system requirement for developing the mobile application.**

PARTNERSHIP FOR MARKET READINESS: PMR - Thailand

The consultant shall review relevant studies on Simple Tool Calculation as illustrated in the flowchart below and LESS evaluation (refer to <http://ghgreduction.tgo.or.th/calculation/less-calculate-document.html>) of the related cities which are industrial city, tourism city, residential city and agricultural city and propose suitable method for displaying on the mobile application. The consultant shall consolidate all requirement data to develop the application.



4.2 Develop back office and front office of the mobile application.

The consultant shall design and develop user interface, summary of result format and backend system for the mobile application. The user interface should be comprehensive and also user-friendly with a modern design. For the summary of the analytical results, it could present city Carbon Footprint of the city, and present potential GHG emissions reduction from different measures and mitigations. Moreover, the summary could be converted to other presentation formats such as image file. The consultant shall design and develop the back office system of the application which comprises of all important and relevant components, such as master data management, statistic system, input data template and etc.

The mobile application shall be developed for Android and iOS. The version of Operating Systems (OS) shall be in consultation with TGO. The application shall also provide optimal performance under proof design with TGO before development.

4.3 Provide application testing and dissemination

The consultant shall test the application to ensure its functionality, usability and calculation consistency. Furthermore, the consultant shall disseminate the developed application via various platforms such as Play Store and App Store. The consultant shall provide warranty to cover the program update to ensure compatibility with the new version of OS which may release during the warranty period and minor revise or corrective change which TGO may ask to do once time within warranty period.

PARTNERSHIP FOR MARKET READINESS: PMR - Thailand

5. Contract Supervision

The consultant will work under the overall oversight of the Thailand Greenhouse Gas Management Organization (Public Organization: TGO), and in close cooperation with The World Bank.

6. Timeline and Key Deliverables

The Consultant shall prepare the reports as following:

- 6.1 **Progress report** 6 copies and CD recording 3 copies within 2 month from the date of the contract. This report should cover the task 4.1 and partial structure of 4.2.
- 6.2 **Final Report** 6 copies and CD recording 3 copies within 4 months from the date of the contract. This report should cover the tasks 4.1 - 4.3, including the key deliverables of
i) administration manual ii) User Manual iii) Source Code iv) the completed mobile application.

All reports should be submitted full report in Thai and summary in English.

7. Minimum Qualifications Requirement

The consultants will be selected through Consultant's Qualifications Selection (CQS) process.

The consulting firm: is expected to meet the following minimum qualifications:

- Minimum three (3) years of substantive experience in application software development, data management, and;
- Experience in consultation and need assessment;

Key staff: (The qualifications of the proposed key staff will be evaluated at the proposals stage)

Key staff of consultant and their committed availability to have experience in similar projects.

- **Team Leader's minimum requirement:**
 - (i) At least Bachelor's Degree in Engineering, Computer Science, information technology or related field;
 - (ii) Minimum 5 years of substantive experiences in energy management, energy efficiency technology, application development, network system architecture or related fields;
- **Application Developer minimum requirement:**
 - (i) At least Bachelor's Degree in computer engineering or computer science, information technology, or related fields;
 - (ii) Minimum 5 years of substantive experiences in mobile application development or related field.
- **Coordinator's minimum requirement:**
 - (i) Bachelor's Degree in Engineering, Science, Computer Science or related fields;
 - (ii) Minimum 1 year of experiences in project coordination, data management, computer literacy or administration.