

Request for Application for Smart City Project Formulation Study in the ASEAN region

1 Project Title: Smart Bus Shelters

2 Name of the City: Phnom Penh

3 Categories of the Study: E+D

E) Experimental implementation

To confirm applicability of a particular solution or technology for the smart city project in cooperation with Japanese solution provider(s).

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D) Capacity building program (complementing digital solutions of the experimental implementation)

To build the capacity of the stakeholders including government officials or municipal staff through training programs or seminars (may be done online).

4 Justification of the Project

- Present condition of the smart city project in the target city:

Today in Phnom Penh, Capital City of Cambodia, the Public Transportation “Citi Bus” is continuously growing, with more lines, multiples routes, and increased Bus fleet. These efforts are made in order to facilitate safe and convenient transportation of people through the City, to reduce traffic congestion, traffic accident, and air & environmental pollution, to provide citizen affordable transportation and increased healthy living.

This fast public transportation infrastructure development brings its set of challenges to keep quality and convenience that are necessary to engage more population with this urban mobility mode.

One of these challenges is the provision of Bus shelters, which are currently only a few compare to the lines stops, therefore due to the nature of local climate (hot sun, heavy rains ...) it doesn't help to promote public transportation convenience.

As the City is under its Smart transition phase, it is therefore to start from this purposeful need, and to complement it with other useful features, creating Smart Bus Shelters.

- Sectoral development policy of the local government / municipality on the smart city project in the target city:

The Phnom Penh Capital Municipality has done some intense work regarding the improvement and expansion of its public transportation system, to face the urban mobility challenge. Following Smart & Sustainable strategies, several studies and plans have been conducted, some policy planning to prioritize public transport have been developed, some pilot projects elaborated, and on a broader scale, most of the municipality departments and services are on their way to initiate / develop digital transition scheme. Yet the lack of available resources to move ahead to a more pragmatic stage are holding some promising potential.

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- Outline of the Study / Project:

The Smart Bus Shelter Experimental Implementation, will serve cross-cutting city challenges providing new technologies support to fasten its Digital transition and low carbon objectives.

This Demonstration project will use the bus shelter need as a synergistic component to settle multiple sustainable & smart features with a low foot-print on the public space, optimizing resources and fasten best practices capitalization.

The shelter itself, to protect people waiting for the Bus will be designed following sustainable design principles, it will host air quality sensor to measure pollution levels, weather digital sensor to monitor climate conditions, smart camera for people safety and traffic monitoring, it will have digital signage on its top to notify surrounding people on next bus timing arrival, it will have a digital touch-screen to provide useful information to the population as well as getting their anonymous feedback on Smart City projects, spaces for commercial signage will be provided, and the roof will have some solar system on its top.

As the project will be settle with its smart components, a supportive training to all involved municipality entities would be needed to support accurate and optimized use of the digital features and solutions.

- Purpose (short-term objective) of the Study / Project:

- Improving public transportation engagement with increased people convenience, through cross-cutting sustainable and smart solutions support
- Improving air quality with digital sensor and monitoring system
- Improving climate monitoring and disaster prevention with digital weather sensor.
- Improving citizen safety and traffic monitoring through smart camera system
- Improving smart city projects success rate and engagement pace, thanks to voluntary citizen feedback with touch screen surveys while waiting for the Bus.
- Improving resources for maintenance thanks to commercial digital signage space revenues
- Improving low carbon solutions, and lowering operations costs, feeding the energy need of the shelter and its digital components with renewable energy / rooftop solar system.
- Improving municipality departments with digital advanced skills and literacy.

The implementation of this demonstration project will help the municipality to fasten its digital transition, strengthening public transport integrated digital supports, recording data setup a benchmark and monitor air quality and climate events through new technologies supported by big data management and AI support, optimizing the possible uses of smart camera for safety and traffic control supported by unusual event and non-appropriate vehicle detection through digital data and AI, introducing digital surveys and use them as supportive decision / customization supporting tools, showcase optimized operation and maintenance management supported by digital technologies and renewable energy use.

“**Learning by doing**” oriented through demonstration project, supporting the municipality departments and teams with their digital work force transition.

Having the possibility of showcasing a pragmatic real project will increase citizen confidence with the smart city projects. It will be monitored to be able to measure its metrics and performances, with the possibility to analyze the data gathered feedback providing continuous opportunities for project improvement.

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- Goal (long-term objective) of the Study or entire project:

The Demonstration project is targeting the settlement of a few heavily monitored Smart Bus Shelters, working at a small scale but with cross-cutting digital support for multiple municipality services at a time (urban mobility, security & safety, healthy environment, disaster climate management, public facility management, energy efficiency and renewable, smart city data management), bringing on-site collaborative and effective coordination training and best practice model.

After the first few demonstration projects would be monitored then refined / optimized if necessary, the Smart Bus Shelter would be duplicated to ideally fourteen units in a first stage, therefore the possibility to settle one unit per district of the capital. This first up scaling would allow homogenous monitoring of all the above mentioned features, having real time data gathering possibility through all the City area (air quality and climate events digital mapping, safety and traffic real time integrated complementary information, citizen digital interactions).

These Smart units will serve as well as an educative best practice model for low carbon and sustainable digital development inspiration, for the population, the students, and the businesses.

With an increased number of Smart Bus Shelters, the according data gathered will increased, and managed through big data mining & AI, will allow to establish benchmarks, patterns, simulations and forecasts regarding the related multiple city services, starting from a small scale to deliver a big change.

- Other relevant projects, if any.

As an additional possible component (according funding possibilities) to the Smart Bus Shelter, some reservations and design anticipation will be done to allow the development on one small side of the shelter, of an electric bicycle facility to park a few units, being an alternative for the citizen to the ‘last mile(s)’ trip to home or to work, as well as being able to support their batteries recharge system with the smart rooftop solar of the shelter.