

Terms of Reference
Japan-Caribbean Climate Change Partnership (J-CCCP)
Energy Efficient Street Lighting Consultant

1. Position Information

Title:	Energy Efficient Street Lighting Consultant
Type of Contract:	Individual Contract
Direct Supervisor:	Programme Analyst, J-CCCP, UNDP Guyana
Unit:	Environment, Extractive Industry & Energy
Duty station:	Home-based with travel to Guyana
Expected Duration of Assignment:	<u>29 working days over 7 months</u>
Start of Contract:	May 7, 2018
End of Contract:	December 31, 2018

2. BACKGROUND

The Government of Japan supports the CARICOM region in the area of climate change under the framework of the ‘Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)’

The Japan-Caribbean Climate Change Partnership (J-CCCP) launched officially in January 2016, aims to support eight Caribbean countries in advancing the process of low-emission risk-resilient development by improving energy security and integrating medium to long-term planning for adaptation to climate change. This project is funded by the Government of Japan and will be implemented by UNDP, with UNDP Barbados & the OECS sub-regional office as lead agency. In the Guyana context, the Office of Climate Change (OCC), Ministry of the Presidency (MoTP) is the national focal, counterpart agency for the implementation of J-CCCP activities and is the proponent for related pilot projects.

Interventions under the J-CCCP include supporting policy innovation through the development of a number of Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) and implementing actual technology that is both low-emission and advances climate risk management, including demonstration in the target countries. This will be demonstrated in two pilot projects in Guyana, one of which is related to climate change adaptation and one to climate change mitigation, the latter being the project for which this assignment serves.

The Government of the Co-operative Republic of Guyana will implement the community based pilot project on climate change mitigation in the township of Bartica (6.405° Latitude; -58.626° Longitude). The project is to include two components:

1. The installation of a solar PV system with backup batteries at the Three Miles Secondary School in Bartica with accompanying energy efficient lighting retrofitting component; and
2. Replacing the existing street lights in Bartica with energy efficient light emitting diode (LED) street lights.

The consultancy services sought under this assignment shall support the second component.

Current Situation

The streets of Bartica are currently lit by 179 street lamps that are operated with high pressure sodium (HPS) or mercury vapor (MV) technology at a regular name plate wattage of 250 W per lamp. A few exceptions provide lower wattages, for example 175 W. The lamps are mainly situated at road crossings, and only a few lamps are located in between crossings. This results in an unbalanced lighting pattern with high lighting levels at the crossings and low lighting levels in between. In many areas, especially where shops, bars and public buildings are located, the illumination from the street lights is supplemented by security lights or billboard lighting. On the other hand, in areas of no secondary lighting effects, the spaces between street lights are very dark. The dark areas on the roads pose safety concerns because pedestrians passing these areas at night are exposed to a higher risk of experiencing incidents than on well-illuminated roads. This applies particularly to women.

The harsh difference between bright and dark areas on the road is challenging for the human eye's iris contraction and expansion when driving along, which is a traffic safety risk. Therefore, a more balanced street illumination with higher surface coverage would improve the safety and security. The lamps are controlled individually by photoelectric cells to switch the lamps on and off, but many of those cells are broken resulting in permanent operation of the lamps. Other lamps are dysfunctional and do not come on at all. From visual inspection it was found that about 60 % of the lamps seems to be in a state that allows reusing by retrofitting if decided to do so.

Overall Objectives

- Overall objective of the LED street lighting intervention is to increase the overall street lighting level in Bartica while increasing energy efficiency of the street lighting resulting in energy savings. The increased and more balanced illumination of the roads will increase road safety and security for pedestrians.
- The pilot project is expected to create knowledge and first-hand experience in the applied technologies regarding design, procurement, installation and maintenance among all directly involved stakeholders and thus close a knowledge gap that exists in Guyana for this new technology.
- The project is expected to produce tangible outputs that can be used for similar projects in other communities in the future.

The traditional technology of street lighting differs in many technical aspects from the rather new LED technology. This assignment will demonstrate the differences and will build capacities among the technical stakeholders in Guyana. The Consultancy will produce training materials to be used for future trainings of technicians and engineers in Guyana. Furthermore, the Consultancy will produce standardized documents that will guide and inform the design of street lighting with LED lamps and facilitate the procurement of LED street lights. The Ministry of Communities may use

the outputs directly to install additional street lights in Bartica and any other communities in Guyana.

The responsible agency for this pilot project is the Office of Climate Change (OCC) under the Ministry of the Presidency. Technically responsible will be the Guyana Energy Agency (GEA). GEA’s engineers who will provide technical support for this assignment, and in turn will be trained by the Consultant along with staff of the, Ministry of Public Infrastructure (Street Lighting Division), Ministry of Communities and other stakeholders. The Consultant shall provide advice to OCC and GEA and produce key documents for training of engineers and technicians and for the procurement of future street lighting systems.

3. OBJECTIVE OF THE ASSIGNMENT

The consultant will provide technical assistance to the relevant government counterparts in Guyana related to the design, development, installation and human resource capacity building to ensure successful implementation of the pilot demonstration project.

4. SCOPE OF WORK

No.	Task	Suggested effort in days
1.	Submit Inception Report	2
2.	Kick-off meeting with the stakeholders in Guyana.	1
3.	Analyze the lighting situation in Bartica to date, including an assessment of the reusability of the existing light fixtures for retrofitting with LED light bulbs.	3
4.	Based on the Consultant’s experience in other assignments, suggest LED street lighting standards for required illumination levels separately for different zones, such as main roads, secondary roads and side roads. The standards shall apply for the situation in Bartica and for other municipalities in Guyana, including Georgetown. Based on the developed standards, the illumination level and related dimming level and dimming timing of the LED lamps will be defined. The final definition of lighting zones in Bartica will be done in coordination with the Mayor and Town Council and GEA. The Consultant will present the developed standard to the stakeholders via one video conference, during which any persisting queries will be clarified. The standard will be reviewed and be subject to approval by the Guyana National Bureau of Standards in Guyana.	4
5.	Conduct a preliminary lighting simulation using suitable software, such as DIALUX, RELUX or similar, to identify the approximate number and type of lamps required for the situation in Bartica.	2

6.	Revise and suggest specifications for minimum technical requirements for LED lamps, including aspects such as robustness, energy efficiency, compliance with international standards, surge protection levels, IP protection class, and so on. The specifications will be reviewed and approved by a respective board in Guyana.	2
7.	Propose technical aspects of a tender procedure for procurement of the LED lamps (and retrofit LED bulbs if applicable)	1
8.	Assist GEA and UNDP with the technical aspects of tendering, including finalization of the technical specifications and tender documents and definition of appropriate evaluation criteria. To ensure that the formal tendering criteria are met, GEA and UNDP will produce a draft of the tender documents which the Consultant will review and complete. It is expected that the tender procedure includes requesting samples to be tested on site, and based on the results of these tests, bulk will be ordered or not.	4
9.	Assist during evaluation of the proposals and the lamp samples and advise on related field tests.	3
10.	Prepare training materials for training of engineers and installation and maintenance technicians. The training materials shall facilitate future training to be executed, for example, by GEA's engineers. The training materials shall also contain a section to train procurement officers in the differences in procurement of LED lamps versus traditional lamps.	3
11.	Conduct training of LED lamp installers and maintenance staff and other stakeholders based on the produced materials.	1
12.	Provide advice during the installation of LED street lamps as necessary.	1
13.	Prepare draft final report for review and feedback from key stakeholders. The draft report shall summarize the findings and lessons learnt and calculating the avoided CO ₂ emissions per lamp respectively resulting from the project	1
14.	Prepare final report summarizing the findings and lessons learnt and calculating the avoided CO ₂ emissions per lamp respectively resulting from the project and including feedback from key stakeholders	1
	Total expected effort	29

5. LOCATION OF WORK

The Consultant will operate from their home-base, and undertake two missions to Guyana:

- One travel for the kick-off meeting and analysis of the current situation in Bartica and Georgetown (5 days)
- One travel for evaluation of the proposals, testing of samples and conducting of the training (5 days)

6. EXPECTED OUTPUTS AND DELIVERABLES

Deliverables/ Outputs	Estimated Duration to Complete	Target Due Dates	Review and Approvals Required
Inception report including workplan on how assignment would be approached	2 days	May 14, 2018	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change
Site visit report summarizing main findings, recommendations and inclusive of minutes of stakeholder meetings.	4 days	June 14, 2018	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change
Development of one set of street lighting standards for Guyana	4 days	June 30, 2018	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change
Report on lighting simulation and recommended measures including technical specifications for LED Street Lighting and recommendations for LED Street Light Procurement Procedures	5 days	July 16, 2018	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change
Training Materials for LED lamp installers, maintenance staff and other stakeholders	3 days	Tentative- November 9, 2018*	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change
Draft report summarizing findings, lessons learnt, and calculating the avoided	1 day	Tentative – November 20 17, 2018*	Programme Analyst, J-CCCP UNDP in consultation with the

CO ₂ emissions per lamp respectively resulting from the project			Head, Office of Climate Change
Final report summarizing findings, lessons learnt, calculating the avoided CO ₂ emissions per lamp respectively resulting from the project and including feedback from key stakeholders	1 day	Tentative – December 7, 2018*	Programme Analyst, J-CCCP UNDP in consultation with the Head, Office of Climate Change

**In the event that procurement and installation of lamps and related activities occur faster than originally scheduled, the consultant shall submit related deliverables at an earlier time at the request of UNDP.*

7. DURATION OF WORK

The consultant would be expected to perform **Twenty-nine (29) days of work commencing May 7, 2018 to December 31, 2018.**

8. INSTITUTIONAL ARRANGEMENT

The Consultant will report directly to the Programme Analyst, J-CCCP, UNDP and the Pilot Project proponent, the Office of Climate Change (OCC), Ministry of the Presidency, and work under the overall guidance of UNDP Deputy Resident Representative. The Consultant will provide briefs and updates to the Programme Analyst, J-CCCP and OCC and the respective UNDP personnel on the progress of the work, challenges encountered, risks foreseen, proposed or taken mitigation measures, and where UNDP or OCC support may be required. UNDP will review for certification of acceptance of the deliverables produced by the contracted Consultant.

9. REPORTING REQUIREMENTS

All deliverables shall be in concise and grammatically correct English and presented in electronic form in MS Word format. If relevant, copies of high resolution maps and graphics, data, reports and other information collected and/or developed in support of this assignment should also be submitted to the Programme Analyst, J-CCCP.

The contracted Consultant will report weekly to the Programme Analyst, J-CCCP and OCC to ensure a timely delivery of the expected outputs.

10. REMUNERATION

Payment

Payment will be remitted subject to the approval of final deliverables by UNDP in consultation with the OCC and based on the Consultant's price proposal accepted by UNDP. Payment will be done as follows:

Deliverables/ Outputs	Payment
Site visit report summarizing main findings, recommendations and inclusive of minutes of stakeholder meetings.	10%
Development of one set of street lighting standards for Guyana	15%
Report on lighting simulation and recommended measures including technical specifications for LED Street Lighting and recommendations for LED Street Light Procurement Procedures	40%
Training Materials for LED lamp installers, maintenance staff and other stakeholders	10%
Final report summarizing findings, lessons learnt and calculating the avoided CO₂ emissions per lamp respectively resulting from the project.	25%

The contract price is a fixed output-based price regardless of extension of the herein specific duration. The Financial Proposal will include all fees and costs associated with the execution of the contract, including professional fees, travel, equipment and all other expenses that will be incurred during the execution of the work. Should unforeseeable travel to the country be required which exceeds the anticipated country mission outlined in Section 5 “Location of Work”, UNDP will reimburse all related travel costs. Reimbursement will be calculated at the rate for travel and associated expenses established and agreed to within the final contract. It should be noted that justification must be provided by the proponent, and prior written approval obtained from the UNDP, before unforeseeable travel is undertaken.

11. COMPETENCES

- In-depth knowledge and understanding of energy efficient lighting;
- Strong planning, presentation and analytical skills
- Ability to work flexibly and independently with limited supervision and deliver quality results in tight deadlines
- Ability to produce reports with a high degree of accuracy and technical quality;
- Demonstrated excellent field skills;
- Demonstrated facilitation skills;
- Excellent communication skills both orally and in writing to a variety of stakeholders from technical to general audiences; cultural sensitivity

12. RECRUITMENT QUALIFICATIONS

Education: Bachelor degree in engineering, physics or equivalent sciences. PhD in the specified areas is an asset.

Experience:

- At least 10 years of professional in the field of energy efficient lighting or a related field.
- Strong expertise in energy efficient lightening technology, related procurement and related standards
- Proven experience in implementing Energy Efficient Pilot Projects
- Strong awareness of international best practice in the field of Energy Efficiency Street Lighting
- At least 2 years’ experience working with international organizations, including UNDP, is preferred

Language Requirements: Excellent oral and written communication skills in English.

- 13. OTHER:** Proficiency with Microsoft Office Package
Willingness to conduct site visits to the proposed project target region.

14. DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS

- **Technical proposal** (Mandatory, free format), including a) methodology on how you will approach and complete the assignment.
- **P11 form**, including past experience in similar projects and at least 3 professional references (please make sure to include email, phone number of each).
- **Financial Proposal -** For Financial proposals, please use UNDP's Template for Confirmation of Interest and Submission of Financial Proposal provided.

Applications must be submitted in English, and incomplete proposals will not be considered.

15. Evaluation

- Individual consultants will be evaluated based on the following methodology:
Combined scoring method
When using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:
 - a) responsive/compliant/acceptable, and*
 - b) Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.*

** Technical Criteria weight; 70%*

** Financial Criteria weight; 30%*

Only candidates obtaining a minimum of seventy (70%) technical points would be considered for the consultancy.

Financial Evaluation

- The lowest financial offer among technically compliant candidates will be given the maximum score of thirty (30) points and the remaining offers will be assigned a score in inverse proportion. The candidate who obtains the highest cumulative score by adding both the weighted technical score and the financial score will be selected.

UNDP P11 Form and UNDP's Template for Confirmation of Interest and Submission of Financial Proposal provided can be downloaded from:
http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc