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## INDIVIDUAL CONSULTANT PROCUREMENT NOTICE

Date: **12 October 2018**

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**TITLE OF CONSULTANT:** Individual Consultant (IC) for Training on Sludge Management and Waste-Water Pre-Treatment methods

**COUNTRY:** BOTSWANA

**DESCRIPTION OF ASSIGNMENT:** The purpose of the training course is to introduce participants to the Sludge Management and Waste-Water Pre-Treatment Methods

**PROJECT NAME:** Biogas Project

**PROJECT NUMBER:** 000101976

**SUPERVISION:** Bio-gas Project Manager

Proposals with reference should be submitted in a sealed envelope clearly labelled, “**Individual Consultant (IC) for Sludge Management and Waste-Water Pre-Treatment Methods Training in Botswana**”

Should be submitted at the following address no later than **23rd October 2018 at 12:00pm (Botswana Time)**

to:

*The Resident Representative  
United Nations Development Programme  
P.O. Box 54  
Gaborone*

or by email to: [procurement.bw@undp.org](mailto:procurement.bw@undp.org)

Any request for clarification must be sent in writing, or by standard electronic communication to the address or e-mailed to [enquiries.bw@undp.org](mailto:enquiries.bw@undp.org) UNDP Botswana will respond in writing or by standard electronic mail and will send written copies of the response, including an explanation of the query without identifying the source of the inquiry to all prospective facilitators.

**NOTE:** *Consultancy firms/companies interested in applying for this assignment are free to do so provided they submit a CV of only one qualified consultant and present its bid in a manner that would allow for evaluation of the bid in accordance with the evaluation criteria specified in these*

*solicitation documents. That is, the experience required is that of the individual whose CV would have been submitted by the company rather than that of the company. Further, if the submitted bid wins, the ensuing contract will be between the UNDP and the company/firm, not the individual.*

## **1. BACKGROUND**

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### **1.1. Introduction:**

The Government of Botswana in collaboration with the United Nations Development Programme (UNDP) are implementing a project called “Promoting production and utilization of Biogas from Agro-waste in South-Eastern Botswana (Biogas Project)”. This follows the realization that waste has not been taken as a resource in the country and this waste could be used for other uses. The reuse of waste to generate energy is an opportunity that Botswana must tap into for future use. Several waste streams are available in various agro-industrial facilities which can be utilized for generation of energy. Some of the agro-waste for consideration in bio-gas production include chicken manure, cow dung and goat/sheep droppings. Despite this immense potential presented by the abundance of livestock manure, agricultural/animal waste and other forms of biomass in the country, generation of energy from this waste resources remains a challenge.

The Biogas project seeks to facilitate low-carbon investments and public-private partnerships in the production and utilization of biogas from agro-waste in the districts of South-eastern Botswana. It has been realized that there are no suitable demonstration projects for technology penetration as the current use of biogas in Botswana is limited to small-scale applications and there is no institutional biogas plant operating at either an abattoir or a landfill. Also, there is insufficient knowledge among various stakeholders (Government, private companies, farmers, communities, women, consumers) about the benefits of biogas and the available technologies.

One of the objectives of the project is to support the monitoring and enforcement of Trade Effluent Agreements in Botswana. As part of this, the project aims to capacitate the Water Utilities Corporation personnel in complete management of sludge; handling, treatment, storage and disposal of sludge and the Pre-Treatment of waste-water. To that end, UNDP requires the services of an individual consultant to train/capacitate WUC officers and other key stakeholders on sludge management and pre-treatment methods.

## 2. SCOPE OF WORK & RESPONSIBILITIES

The Consultant shall work in close coordination with the Trade Effluent Agreement Task Committee appointed by the Chief Executive Officer of Water Utilities Corporation and will be responsible for the following:

### **a) Undertake needs assessment for the participants to be trained**

The Consultant will be responsible for meeting with the relevant WUC TEA Committee members to get an understanding of the assignment and undertake a needs assessment exercise prior to developing the training modules and facilitating training workshops.

### **b) Development of an interactive and detailed training module on Sludge Management**

The Consultant will be responsible for the development of an interactive and detailed module-based training. It is expected that the Workshop content will provide participants with knowledge and skills on treatment, storage and disposal of sludge. It will include training on the following broad areas but not limited to:

- (i) pump types for primary, chemical precipitated, trickling filter, activated, thickened and concentrated sludge;
- (ii) characteristics, advantages and disadvantages of the four primary types of sludge pumps;
- (iii) gravity and floatation thickening of sludge;
- (iv) mass load guidelines for gravity thickeners;
- (v) operational parameters for floatation and thickening of sludge;
- (vi) chemical conditioning to improve sludge dewaterability;
- (vii) use of heat to improve dewaterability of sludge;
- (viii) sludge dewatering using a belt filtration press;
- (ix) advantages, disadvantages, shortcomings and solutions to problems that may arise with belt filter presses;
- (x) design guidelines for sludge drying beds;
- (xi) sludge moisture reduction using vacuum filtration;
- (xii) sludge dewatering using basket centrifuges;
- (xiii) sludge dewatering using solid bowl centrifuges;
- (xiv) advantages, disadvantages, shortcomings and solutions to problems that may arise with solid bowl decanter centrifuges;
- (xv) plate-and-frame filter presses;
- (xvi) manual, semi-automatic and automatic controls for filter presses;
- (xvii) continuous and intermittent batch aerobic sludge digestion;
- (xviii) anaerobic sludge digestion;
- (xix) design parameters for aerobic digestion using air;

(xx) design parameters for standard- and high-rate anaerobic digesters.

**c) Development of an interactive and detailed training module on Waste-Water Pre-Treatment Methods**

The Consultant will be responsible for the development of an interactive and detailed module-based training on Waste-Water Pre-Treatment Methods. It is expected that the Workshop content will provide participants with knowledge and skills on wastewater pre-treatment technologies and their application in industrial facilities. The workshop content will also assist trainees in monitoring of industries. It will include training in the following broad areas but not limited to:

- (i) conceptual overview of industrial wastewater pre-treatment before discharging in to the municipal sewer;
- (ii) different pre-treatment processes for major and minor polluters;
- (iii) the criteria to use when conducting inspections on pre-treatment facilities for monitoring purposes;
- (iv) identification of pre-treatment processes most commonly used to treat specific pollutants;
- (v) determination of pollutants associated with specific industries and their effect on the wastewater treatment processes;
- (vi) interpretation of pre-treatment process flow diagrams.

**International Standards and Best Practices**

The training should expose participants to best practices in the world.

- (i) International and regional best practices in sludge management.
- (ii) International and best practices in Wastewater Pre-Treatment Methods.
- (iii) The training should also include adherence to quality standards for both Sludge Management and Pre-Treatment Methods.

**The Consultant should ensure the following are included in the training criteria:**

- (i) A training agenda, power-point presentations and training tools that will assist in facilitating trainings;
- (ii) Moderate and guide all discussions through participatory and interactive techniques;
- (iii) Capture, record, and summarize key points of learning during all sessions and manage the smooth flow of the workshop and recap of the previous day's proceedings;
- (iv) Provide materials as needed in various contexts including breakouts, group session and ensure timely completion of activities and group work;
- (v) Actively engage participants in discussion, raising issues, making recommendations and drawing conclusions.
- (vi) Support identification, organization and preparation of the workshop meeting rooms to best accomplish the objectives of the workshop (comfort, seating, presentation space, break-out);
- (vii) Provide ice breaking/energizing exercises to enhance morale and participation in all sessions.
- (viii) Facilitate an evaluation of the modules/workshop(s) by the participants so that the

workshop/training materials can be improved according to the participant feedback.

**(d) Development of a workshop report including a capacity building plan**

As a result of the discussions during and after the training, the Consultant is expected to produce a Workshop Report summarising the findings of the Workshop with a **capacity building plan appended as an annex** outlining the main opportunities, challenges, remaining needs and suggested way forward for

(i) Sludge Management Training with a view of implementing concepts learnt

(ii) how WUC could assist Industries with wastewater pre-treatment Methods

**3. Key deliverables:**

- (a) Needs assessment report for the participants to be trained;
- (b) Interactive and detailed Sludge Management training modules including relevant background material for the delivery of training workshop;
- (c) Interactive and detailed Waste Water Pre-Treatment Methods training modules including relevant background material for the delivery of training workshop;
- (d) Two-day training for Sludge Management
- (e) Three-day training for Waste-Water Pre-Treatment Methods
- (f) A detailed analysis/evaluation report of the modules/workshop(s) with:
  - participant feedback on how training materials can be improved; and
  - capacity building plan outlining the main opportunities, challenges, remaining needs and suggested way forward.

The submission of the manuals should be in a CD (soft copy) and two bound copies. The Reports should be of high quality in terms of presentation, relevance and utility, presented in Times New Roman Text, font size 12 and have the following attributes:

- Concision: The report should cover the required material without being irrelevant and unwieldy.
- Readability: The report should be written in jargon-free language. Its language should be simple, clear and reader-friendly.

Activity	Duration (Estimated # of days)	Deadline
Meeting with WUC TEA Committee to get an understanding of the assignment		
Administer survey and needs assessment to WUC Stakeholders		
Develop interactive and detailed training modules		
Facilitate training including administration of Workshop evaluation.		
Develop workshop report including a <b>capacity building plan</b> outlining the main opportunities, challenges, remaining needs and suggested way forward		
<b>TOTAL</b>		

#### 4. QUALIFICATIONS, EXPERIENCE AND COMPETENCIES

- Minimum Bachelor of Science (Chemistry, Biology or Environmental) Water Resources Management, BEng (Civil, Mechanical) or any other related field.
- 10 years of experience in trade effluent, waste water treatment and sludge management in in Botswana, region or internationally.
- 5 years' experience in waste water treatment or sludge management training
- A good understanding of the main challenges facing the implementation of wastewater and sludge management systems;
- Experience in facilitating and leading training sessions in waste water treatments systems;
- Excellent reporting skills;
- Experience in planning, management, and coordination of training programmes is an asset;
- Previous work experience in Botswana or in the Africa region related to sludge management systems is an added advantage

#### 5. DUTY STATION

The individual consultant will be based in Gaborone, Botswana during the training period.

#### 6. SUPERVISION

The IC will be supervised by the Trade Effluent Agreement Task Committee with support from the UNDP Biogas Project Manager.

#### 7. METHODOLOGIES

The consultant will adopt a consultative approach to develop the expected deliverables. Specifically, the consultant will;

- Undertake desk review of relevant documents and databases.
- Undertake this assignment in consultation and collaboration with relevant stakeholders including WUC, UNDP and BITRI.
- Develop the training programme based on the Botswana condition

#### 8. DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS

Interested individual consultants must submit the following documents/information to demonstrate their qualifications:

a. **Technical Proposal:** The technical proposal should include the following:

- Profile of consultant and an outline of recent experience on assignments of a similar nature.
- The consultant's interpretation and demonstrated understanding of the assignment. Including a clear training programme.

**b. Financial proposal:**

- Lump-sum consultancy fee
- The lump sum should be broken down to clearly indicate: travel, per diems, and actual consultancy fees (daily fee)
- An indication of whether this rate is flexible

c. Personal CV including past experience in similar projects and contacts of at least 3 referees

**9. TRAVEL**

All envisaged travel costs must be included in the financial proposal. This includes all travel to join duty station/repatriation travel. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. Should the IC wish to travel on a higher class he/she should do so using their own resources. In the case of unforeseeable travel, payment of travel costs including tickets, lodging and terminal expenses should be agreed upon, between the respective business unit and Individual Consultant, prior to travel and will be reimbursed.

**10. EVALUATION**

- **Stage 1:** Preliminary evaluation of the proposals will be based on yes/no response as per the table below. If the response is “no” for any of the 3 criteria, the consultant will be disqualified from further evaluation.
- **Stage 2:** Technical Capability of the Consultant to deliver the required consultancy outputs evaluated on a scale of 0-100 points wherein the qualifying mark is 70%. The criteria to be used are shown below:

<b>Technical Criteria</b>	<b>70% of total evaluation</b>	
Criteria A	Relevant education background: Minimum Bachelor of Science (chemistry, Biology or Environmental science/BEng Civil or Mechanical or any other related field. Master’s degree in any of the fields above is an added advantage.	Yes/No
Criteria B	Adequate work and/or professional experience: 10 years of relevant experience in trade effluent, waste water and sludge management, worked in wastewater treatment facilities and water resources management, including experience in facilitating training on wastewater and sludge management at national or international levels	Yes/No
Criteria C	Complete Consultancy package submitted (Technical and financial proposals)	Yes/No
Criteria D	Experience in waste water and sludge management, operations of wastewater treatment facilities and water resources management. Experience in training on waste management, sludge treatment and trade effluent. and excellent writing, editing, and report writing skills in English;	25

Criteria E	Methodology/Approach: A clear description of the methodology - describing how the consultant will develop the training manual, how the training sessions will be conducted for better understanding by the trainees. Detailed work plan of when activities will be implemented and completed	25
Criteria F	Previous work experience in one or more countries or in the region on issues related to trade effluent, wastewater and sludge management.	25
Criteria G	Knowledge of trade effluent agreements, waste water and sludge management, pre-treatment methodologies, concepts and principles and the ability to apply these to strategic and/or practical situations;	25

Individual consultants will be evaluated based on the Cumulative Analyses Methodology (weighted scoring method), where the award of the contract will 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 Individual Consultants obtaining a minimum of 70% of the obtainable points of 100 points in technical evaluation would be considered for the Financial Evaluation. The total number of points allocated for the price component is 100. The maximum number of points will be allotted to the lowest price proposal that is opened and compared among those technical qualified candidates who have attained a minimum of 70% score in the technical evaluation. All other price proposals will receive points in inverse proportion to the lowest price

UNDP applies a fair and transparent selection process that would take into account both the technical qualification of Individual Consultants as well as their price proposals. The contract will be awarded to the candidate obtaining the highest combined technical and financial scores.

UNDP retains the right to contact references directly.

## 11. REMUNERATION

The payment schedule will be as follows:

Payment shall be made against deliverables in the following instalments:

Approval of needs assessment report	
Approval of Sludge Management training	

modules	
Approval of Waste Water Pre-Treatment Methods training modules	<b>50%</b>
Completion of Two-day training for Sludge Management	
Completion of Three-day training for Waste-Water Pre-Treatment Methods	
Approval of detailed workshop evaluation report	<b>50%</b>
<b>TOTAL</b>	<b>100%</b>