**ANNEX 1**

**Winrock International**

**Safe Aqua Farming for Economic and Trade Improvement (SAFETI) project**

**Bangladesh**

**Date: January 21, 2020**

**Terms of Reference: Seafood Quality Control Laboratory Specialist**

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| Client | Winrock International, Bangladesh |
| Project | SAFETI project |
| Task duration & timing | 18 days including 4 days travel [timing to be determined ] |
| Type | Individual Consultancy |
| Location | Dhaka, Bangladesh |

1. **BACKGROUND**

WINROCK INTERNATIONAL is a non-profit organization that works with people around the world to empower the disadvantaged, increase economic opportunity and sustain natural resources. Winrock is implementing the USDA-funded **Safe Aqua Farming for Economic and Trade Improvement** (SAFETI) project in Bangladesh October 2016-September 2021 through its offices in Dhaka, Bagerhat, Cox’s Bazar, Khulna and Satkhira.

The SAFETI project has the following objectives:

* Increase agricultural productivity by improving production and management of hatcheries and farms in the shrimp and prawn value chain to contribute to both improved food quality and safety, as well as to improved livelihood and environmental sustainability in the Bangladeshi prawn and shrimp industry.
* Expand trade of agricultural products by improving handling and sanitary controls, reducing unnecessary layers in the value chain, promoting extension services, and building the capacity of trade associations and government trade promotion bureaus.

and aims to support Government efforts to increase farmed shrimp and prawn production, export and trade.

1. **SCOPE OF WORK**

Under a Memorandum of Understanding signed 23 September 2018 between the Bangladesh Department of Fisheries (DoF) and SAFETI, and item 7 of the work plan agreed December 17th, 2018, SAFETI will provide to DoF:

*Capacity building of QC Lab personnel on instrument specific applications and analytical systems, with ICPMS, GCMS, and UPLC systems for method development, method validation and sample testing.*

To implement this, Winrock will recruit a Seafood Quality Control Laboratory Specialist to carry out the following tasks:

**First Visit:** make a preliminary scoping visit (2 days international travel, 3 days in country) to the Department of Fisheries Quality Control Laboratories (FIQC) in Dhaka:

1. Evaluate the capacity of the laboratory (regarding personnel, equipment) and determine the equipment and supplies that will be needed for analysis (including sample extraction) and validation of the following parameters using LCMS/MS systems (Waters UPLC-TQD, XEVO-TQD):
* Amoxicillin and Tylosin in fish and shrimp;
* Sulfonamides and Gentamycin in fish and shrimp;
* Mycotoxin in fish feed;
* Nitrofurans in fish feed.
1. Review and finalize the list of materials and expendable supplies and quantities needed for the training.

**Second Visit**: make a second visit (2 days international travel, 11 days in country) to:

1. Introduce and demonstrate analytical methods for the parameters listed above in accordance with European Commission Decision 2002/657/EC. Method development and demonstration work on the above parameters will be carried out at the Dhaka laboratory with Chattogram staff joining the sessions if needed.
2. Support the laboratory personnel in carrying out the analyses and validations of each parameter in accordance with European Commission Decision 2002/657/EC.
3. Submit a brief report summarizing the work done and recommendations.
4. **ASSUMPTIONS**
* The laboratory is accredited to ISO 17025:2005 and have qualified and trained personnel routinely operating LCMS/MS systems.
* DoF will identify those staff who will participate in the training/demonstration program.
* DoF will ensure that all equipment is in full operational condition prior to the consultant’s second visit.
* Winrock/ SAFETI will make available the chemicals, consumables, standards and reagents identified as required for the demonstration and validation of the analytical methods listed above.
1. **DELIVERABLES**

The Consultant will produce the following deliverables upon which payments will be based:

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| **Deliverable** | **Due Date** | **Submission** |
| First visit: * Brief report on the evaluation of the capacity of the laboratory (regarding personnel, operational status of equipment) and of the consumable materials required for carrying out analysis and validation of the parameters listed in above in section “First Visit (i)”.
 | Within one week of end of first trip | Electronically to John Dorr JDorr@winrock.org  |
| Second visit: * Evaluation of the example analyses and validations carried out for the introduced analytical methods.
* Brief report on the methods introduced and demonstrated, and the work done and recommendations. at the laboratory.
 | Within one week of end of second trip | Electronically to John Dorr JDorr@winrock.org |

1. **DURATION AND TIMING**

18 work-days with two trips to Bangladesh. First trip: 5 days: (2 days international travel, 3 days in country, Dhaka). Second trip: 13 days (2 days international travel, 11 days in country). Timing of trips to be determined in consultation with DoF.

1. **COMMUNICATION AND REPORTING**

The consultant will work under the direction of Dr John A. Dorr, Chief of Party, SAFETI Project, Winrock International and coordinate with specified DoF staff.

1. **QUALIFICATIONS AND EXPERIENCE OF THE CONSULTANT**
* Advanced degree in chemistry, analytical chemistry, pharmacy, food science, fisheries or related subject.
* Proven experience in development and validation of methods in accordance with European Commission Decision 2002/657/EC for analysis of antibiotics, toxins, hormones and veterinary drug residues with liquid chromatography-mass spectrometry (LCMS/MS) systems preferably with Waters UPLC-Xevo TQD, in fish, crustaceans and their feed matrices.
* Good knowledge of EU legislation regarding food contaminants, residues etc. and their permitted limits.
* Good knowledge of EU requirements on method development, validation and analysis of contaminants, residues etc. in fish, crustaceans and their feeds.
* Good knowledge on international standard ISO/IEC 17025 on laboratory quality management and accreditation (preferably a certified auditor for this standard).
* Fluent in English and ability to communicate ideas effectively.

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| **ANNEX 2: List of materials required for FIQC laboratory training and capacity building**  |
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| **Item No.** |  |  |  |  | **Estimated** |
|   | **Maintenance Kits** | **Quantity** | **Part No:**  | **Brand** | **Unit Price** | **Total Price** |
| 1 | Acquity H Qsm Performance Maintenance Kit  | 1 | 201000233 |  Waters, USA |   |   |
| 2 | Acquity H SM-FTN Performance Maint Kit  | 1 | 201000234 |  Waters, USA |   |   |
| 3 | Xevo TQD / SQD 2 (Rotary Pump) Performance Maintenance Kit,  | 1 | 201000252 |  Waters, USA |   |   |
| 4 | Xevo TQD Standard Kit  | 1 | 700006006 |  Waters, USA |   |   |
| 5 | ACQUITY UPLC HSS PFP/Fluoro-Phenyl Column, 100Å, 1.8 µm, 2.1 mm X 100 mm | 1 pack | 186005967 |  Waters, USA |   |   |
| 6 | ACQUITYUPLC® BEH C18 1.7 µm2.1 X100 mm column | 1 | 186002352 |  Waters, USA |   |   |
|  | **Chemicals** |  |   |   |   |   |
| 7 | Formic acid for mass spectrometry, ~98%, 50ml CAS Number: 64-18-6 | 2 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
| 8 | Gentamicin sulfate salt hydrateVETRANAL™, 250 mg analytical standard application(s) HPLC: suitable gas chromatography (GC): suitable storage temp. 2-8°C | 1 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
| 9 | Sulfonamides Mixture | 1 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
|  | **Internal Standard MS Grade** |  |   |   |   |   |
| 10 | Sulfamerazine - D4 | 1 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
| 11 | Sulfathiazole - D4, 2.5mg | 1 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
| 12 | Tobramycin, 50 mg | 1 |   | Sigma-Aldrich/Honeywell/ Dr. Ehrenstorfer/Restek/BOC |   |   |
|  | **Miscellaneous** |  |   |   |   |   |
| 13 | 0.2 um, 25 mm PVDF Syringe filter, 150/pk | 1 |   |   |   |   |

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