



**REPUBLIC OF UGANDA**

**MINISTRY OF WATER AND ENVIRONMENT**

**INTEGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT**

**LOAN ID NO. P163782**

**BIDDING DOCUMENT**

**RFB No: MWE/SUPLS/19-20/00040/1/2**

**LOT 1: HYDROMETRIC EQUIPMENT, INCLUDING ACCESSORIES AND  
INSTALLATION UNDER STATION CATEGORIES I, II, III, AND SUPPLY OF OTHER  
EQUIPMENT, BASE STATION AND SOFTWARE FOR UGANDA**

- i. Category I: 5 No. Digital Water Level Recording Stations
- ii. Category II: 5 No. Ground Water Level Recording Stations
- iii. Category III: 2 No. Automated Full Climate Stations
- iv. Other Equipment, Base Station and Software

**LOT 2: WATER QUALITY EQUIPMENT AND INSTALLATION FOR WET  
PRECIPITATION AND DRY DEPOSITION**

- i. 3No. Wet Precipitation
- ii. 2No. Dry Deposition

**JULY 2020**

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## **PART 1 – Bidding Procedures**



# Section I - Instructions to Bidders

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## Section I. Instructions to Bidders

### A. General

1. **Scope of Bid**
  - 1.1 In connection with the Specific Procurement Notice, Request for Bids (RFB), specified **in the Bid Data Sheet (BDS)**, the Purchaser, as specified **in the BDS**, issues this bidding document for the supply of Goods and, if applicable, any Related Services incidental thereto, as specified in Section VII, Schedule of Requirements. The name, identification and number of lots (contracts) of this RFB are **specified in the BDS**.
  - 1.2 Throughout this bidding document:
    - (a) the term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, including if **specified in the BDS**, distributed or received through the electronic-procurement system used by the Purchaser) with proof of receipt;
    - (b) if the context so requires, “singular” means “plural” and vice versa; and
    - (c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is an official working day of the Borrower. It excludes the Borrower’s official public holidays.
2. **Source of Funds**
  - 2.1 The Borrower or Recipient (hereinafter called “Borrower”) **specified in the BDS** has applied for or received financing (hereinafter called “funds”) from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called “the Bank”) in an amount **specified in the BDS**, toward the project named **in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract for which this bidding document is issued.
  - 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the

Loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import is prohibited by decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).

### 3. Fraud and Corruption

- 3.1 The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Section VI.
- 3.2 In further pursuance of this policy, Bidders shall permit and shall cause their agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and their personnel, to permit the Bank to inspect all accounts, records and other documents relating to any initial selection process, prequalification process, bid submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

### 4. Eligible Bidders

- 4.1 A Bidder may be a firm that is a private entity, a state-owned enterprise or institution subject to ITB 4.6, or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the Bidding process and, in the event the JV is awarded the Contract, during contract execution. Unless specified **in the BDS**, there is no limit on the number of members in a JV.
- 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this Bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
  - (b) receives or has received any direct or indirect



subsidy from another Bidder; or

- (c) has the same legal representative as another Bidder; or
- (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Purchaser regarding this Bidding process; or
- (e) or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
- (f) or any of its affiliates has been hired (or is proposed to be hired) by the Purchaser or Borrower for the Contract implementation; or
- (g) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
- (h) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding document or specifications of the Contract, and/or the Bid evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the Bidding process and execution of the Contract.

- 4.3 A firm that is a Bidder (either individually or as a JV member) shall not participate in more than one Bid, except for permitted alternative Bids. This includes participation as a subcontractor. Such participation shall result in the disqualification of all Bids in which the firm is involved. A firm that is not a Bidder or a JV member, may participate

as a subcontractor in more than one Bid.

- 4.4 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.8. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or subconsultants for any part of the Contract including related Services.
- 4.5 A Bidder that has been sanctioned by the Bank, pursuant to the Bank's Anti-Corruption Guidelines, in accordance with its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework as described in Section VI paragraph 2.2 d., shall be ineligible to be prequalified for, initially selected for, bid for, propose for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified in the BDS.
- 4.6 Bidders that are state-owned enterprises or institutions in the Purchaser's Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not under supervision of the Purchaser.
- 4.7 A Bidder shall not be under suspension from Bidding by the Purchaser as the result of the operation of a Bid-Securing Declaration or Proposal-Securing Declaration.
- 4.8 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's

country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

4.9 A Bidder shall provide such documentary evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.

4.10 A firm that is under a sanction of debarment by the Borrower from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Borrower's request, is satisfied that the debarment;

(a) relates to fraud or corruption; and

(b) followed a judicial or administrative proceeding that afforded the firm adequate due process.

**5. Eligible Goods and Related Services**

5.1 All the Goods and Related Services to be supplied under the Contract and financed by the Bank may have their origin in any country in accordance with Section V, Eligible Countries.

5.2 For purposes of this ITB, the term "goods" includes commodities, raw material, machinery, equipment, and industrial plants; and "related services" includes services such as insurance, installation, training, and initial maintenance.

5.3 The term "origin" means the country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

**B. Contents of Request for Bids Document**

**6. Sections of Bidding Document**

6.1 The bidding document consist of Parts 1, 2, and 3, which include all the sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

**PART 1 Bidding Procedures**

- Section I - Instructions to Bidders (ITB)
- Section II - Bidding Data Sheet (BDS)
- Section III - Evaluation and Qualification

#### Criteria

- Section IV - Bidding Forms
- Section V - Eligible Countries
- Section VI - Fraud and Corruption

#### **PART 2 Supply Requirements**

- Section VII - Schedule of Requirements

#### **PART 3 Contract**

- Section VIII - General Conditions of Contract (GCC)
- Section IX - Special Conditions of Contract (SCC)
- Section X - Contract Forms

6.2 The Specific Procurement Notice, Request for Bids (RFB), issued by the Purchaser is not part of this bidding document.

6.3 Unless obtained directly from the Purchaser, the Purchaser is not responsible for the completeness of the document, responses to requests for clarification, the Minutes of the pre-Bid meeting (if any), or Addenda to the bidding document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Purchaser shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding document and to furnish with its Bid all information or documentation as is required by the bidding document.

#### **7. Clarification of Bidding Document**

7.1 A Bidder requiring any clarification of the bidding document shall contact the Purchaser in writing at the Purchaser's address specified **in the BDS**. The Purchaser will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of Bids within a period specified **in the BDS**. The Purchaser shall forward copies of its response to all Bidders who have acquired the bidding document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified **in the BDS**, the Purchaser shall also promptly publish its response at the web page

identified **in the BDS**. Should the clarification result in changes to the essential elements of the bidding document, the Purchaser shall amend the bidding document following the procedure under ITB 8 and ITB 22.2.

**8. Amendment of Bidding Document**

- 8.1 At any time prior to the deadline for submission of Bids, the Purchaser may amend the bidding document by issuing addenda.
- 8.2 Any addendum issued shall be part of the bidding document and shall be communicated in writing to all who have obtained the bidding document from the Purchaser in accordance with ITB 6.3. The Purchaser shall also promptly publish the addendum on the Purchaser's web page in accordance with ITB 7.1.
- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2.

**C. Preparation of Bids**

**9. Cost of Bidding**

- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

**10. Language of Bid**

- 10.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the language specified **in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the language specified **in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

**11. Documents Comprising the Bid**

- 11.1 The Bid shall comprise the following:
- (a) **Letter of Bid** prepared in accordance with ITB 12;
  - (b) **Price Schedules**: completed in accordance with ITB 12 and ITB 14;
  - (c) **Bid Security** or **Bid-Securing Declaration**, in accordance with ITB 19.1;

- (d) **Alternative Bid:** if permissible, in accordance with ITB 13;
- (e) **Authorization:** written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.3;
- (f) **Qualifications:** documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the Contract if its Bid is accepted;
- (g) **Bidder's Eligibility:** documentary evidence in accordance with ITB 17 establishing the Bidder's eligibility to bid;
- (h) **Eligibility of Goods and Related Services:** documentary evidence in accordance with ITB 16, establishing the eligibility of the Goods and Related Services to be supplied by the Bidder;
- (i) **Conformity:** documentary evidence in accordance with ITB 16 and 30, that the Goods and Related Services conform to the bidding document; and
- (j) any other document required **in the BDS.**

11.2 In addition to the requirements under ITB 11.1, Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

## **12. Letter of Bid and Price Schedules**

12.1. The Letter of Bid and Price Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.3. All blank spaces shall be filled in with the information requested.

## **13. Alternative Bids**

13.1. Unless otherwise specified **in the BDS**, alternative Bids shall not be considered.

## **14. Bid Prices and**

14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Price Schedules shall conform to

**Discounts**

the requirements specified below.

- 14.2 All lots (contracts) and items must be listed and priced separately in the Price Schedules.
- 14.3 The price to be quoted in the Letter of Bid in accordance with ITB 12.1 shall be the total price of the Bid, excluding any discounts offered.
- 14.4 The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.
- 14.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, unless otherwise specified **in the BDS**. A Bid submitted with an adjustable price quotation shall be treated as nonresponsive and shall be rejected, pursuant to ITB 29. However, if in accordance with **the BDS**, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a Bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.
- 14.6 If so specified in ITB 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Unless otherwise specified **in the BDS**, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4 provided the Bids for all lots (contracts) are opened at the same time.
- 14.7 The terms EXW, CIP, and other similar terms shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, as specified **in the BDS**.
- 14.8 Prices shall be quoted as specified in each Price Schedule included in Section IV, Bidding Forms. The disaggregation of price components is required solely for the purpose of facilitating the comparison of Bids by the Purchaser. This shall not in any way limit the Purchaser's right to contract on any of the terms offered.

In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance with Section V, Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V, Eligible Countries. Prices shall be entered in the following manner:

- (a) For Goods manufactured in the Purchaser's Country:
  - (i) the price of the Goods quoted EXW (ex-works, ex-factory, ex warehouse, ex showroom, or off-the-shelf, as applicable), including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the Goods;
  - (ii) any Purchaser's Country sales tax and other taxes which will be payable on the Goods if the Contract is awarded to the Bidder; and
  - (iii) the price for inland transportation, insurance, and other local services required to convey the Goods to their final destination (Project Site) specified **in the BDS**.
- (b) For Goods manufactured outside the Purchaser's Country, to be imported:
  - (i) the price of the Goods, quoted CIP named place of destination, in the Purchaser's Country, as specified **in the BDS**;
  - (ii) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) specified **in the BDS**;
- (c) For Goods manufactured outside the Purchaser's Country, already imported:
  - (i) the price of the Goods, including the original import value of the Goods; plus any mark-up (or rebate); plus any other related local cost, and custom duties and other import taxes already paid or to be paid on the Goods already imported;



- (ii) the custom duties and other import taxes already paid (need to be supported with documentary evidence) or to be paid on the Goods already imported;
- (iii) the price of the Goods, obtained as the difference between (i) and (ii) above;
- (iv) any Purchaser's Country sales and other taxes which will be payable on the Goods if the Contract is awarded to the Bidder; and
- (v) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) specified **in the BDS**.

- (d) for Related Services, other than inland transportation and other services required to convey the Goods to their final destination, whenever such Related Services are specified in the Schedule of Requirements, the price of each item comprising the Related Services (inclusive of any applicable taxes).

### **15. Currencies of Bid and Payment**

15.1 The currency(ies) of the Bid and the currency(ies) of payments shall be the same. The Bidder shall quote in the currency of the Purchaser's Country the portion of the Bid price that corresponds to expenditures incurred in the currency of the Purchaser's Country, unless otherwise specified **in the BDS**.

15.2 The Bidder may express the Bid price in any currency. If the Bidder wishes to be paid in a combination of amounts in different currencies, it may quote its price accordingly but shall use no more than three foreign currencies in addition to the currency of the Purchaser's Country.

### **16. Documents Establishing the Eligibility and Conformity of the Goods and Related Services**

16.1 To establish the eligibility of the Goods and Related Services in accordance with ITB 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.

16.2 To establish the conformity of the Goods and Related Services to the bidding document, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section VII, Schedule of

## Requirements.

- 16.3 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Section VII, Schedule of Requirements.
- 16.4 The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period **specified in the BDS** following commencement of the use of the goods by the Purchaser.
- 16.5 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Section VII, Schedule of Requirements.

**17. Documents  
Establishing the  
Eligibility and  
Qualifications of the  
Bidder**

- 17.1 To establish Bidder's eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid, included in Section IV, Bidding Forms.
- 17.2 The documentary evidence of the Bidder's qualifications to perform the Contract if its Bid is accepted shall establish to the Purchaser's satisfaction:
- (a) that, if required **in the BDS**, a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Purchaser's Country;
  - (b) that, if required **in the BDS**, in case of a Bidder not doing business within the Purchaser's Country, the Bidder is or will be (if awarded the Contract)

represented by an Agent in the country equipped and able to carry out the Supplier's maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and

- (c) that the Bidder meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria.

### **18. Period of Validity of Bids**

18.1. Bids shall remain valid for the Bid Validity period specified **in the BDS**. The Bid Validity period starts from the date fixed for the Bid submission deadline (as prescribed by the Purchaser in accordance with ITB 22.1). A Bid valid for a shorter period shall be rejected by the Purchaser as nonresponsive.

18.2. In exceptional circumstances, prior to the expiration of the Bid validity period, the Purchaser may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB 19, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid, except as provided in ITB 18.3.

18.3. If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Bid validity period, the Contract price shall be determined as follows:

- (a) in the case of fixed price contracts, the Contract price shall be the Bid price adjusted by the factor specified **in the BDS**;
- (b) in the case of adjustable price contracts, no adjustment shall be made;
- (c) in any case, Bid evaluation shall be based on the Bid price without taking into consideration the applicable correction from those indicated above.

### **19. Bid Security**

19.1. The Bidder shall furnish as part of its Bid, either a Bid-Securing Declaration or a Bid Security, as specified **in the BDS**, in original form and, in the case of a Bid Security, in the amount and currency specified **in the BDS**.

19.2. A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms.

19.3. If a Bid Security is specified pursuant to ITB 19.1, the Bid Security shall be a demand guarantee in any of the following forms at the Bidder's option:

- (a) an unconditional guarantee issued by a bank or non-bank financial institution (such as an insurance, bonding or surety company);
- (b) an irrevocable letter of credit;
- (c) a cashier's or certified check; or
- (d) another security specified **in the BDS**,

from a reputable source, and an eligible country. If an unconditional guarantee is issued by a non-bank financial institution located outside the Purchaser's Country, the issuing non-bank financial institution shall have a correspondent financial institution located in the Purchaser's Country to make it enforceable unless the Purchaser has agreed in writing, prior to Bid submission, that a correspondent financial institution is not required. In the case of a bank guarantee, the Bid Security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Purchaser prior to Bid submission. The Bid Security shall be valid for twenty-eight (28) days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2.

19.4. If a Bid Security is specified pursuant to ITB 19.1, any Bid not accompanied by a substantially responsive Bid Security shall be rejected by the Purchaser as non-responsive.

19.5. If a Bid Security is specified pursuant to ITB 19.1, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the Performance Security pursuant to ITB 46.

19.6. The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the

required Performance Security.

19.7. The Bid Security may be forfeited or the Bid Securing Declaration executed:

- (a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder in the Letter of Bid, or any extension thereto provided by the Bidder; or
- (b) if the successful Bidder fails to:
  - (i) sign the Contract in accordance with ITB 45; or
  - (ii) furnish a Performance Security in accordance with ITB 46.

19.8. The Bid Security or Bid- Securing Declaration of a JV must be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of Bidding, the Bid Security or Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.

19.9. If a Bid Security is not required **in the BDS**, pursuant to ITB 19.1, and

- (a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid; or
- (b) if the successful Bidder fails to: sign the Contract in accordance with ITB 45; or furnish a performance security in accordance with ITB 46;

the Borrower may, if provided for **in the BDS**, declare the Bidder ineligible to be awarded a contract by the Purchaser for a period of time as stated **in the BDS**.

## **20. Format and Signing of Bid**

20.1 The Bidder shall prepare one original of the documents comprising the Bid as described in ITB 11 and clearly mark it “ORIGINAL.” Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE.” In addition, the Bidder shall submit copies of the Bid, in the number **specified in the BDS** and clearly mark them “COPY.” In the event of any discrepancy between the original and the copies, the

original shall prevail.

- 20.2 Bidders shall mark as “CONFIDENTIAL” information in their Bids which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.
- 20.3 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified **in the BDS** and shall be attached to the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid where entries or amendments have been made shall be signed or initialed by the person signing the Bid.
- 20.4 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 20.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

## D. Submission and Opening of Bids

### 21. Sealing and Marking of Bids

21.1. The Bidder shall deliver the Bid in a single, sealed envelope (one-envelope Bidding process). Within the single envelope the Bidder shall place the following separate, sealed envelopes:

- (a) in an envelope marked “ORIGINAL”, all documents comprising the Bid, as described in ITB 11; and
- (b) in an envelope marked “COPIES”, all required copies of the Bid; and,
- (c) if alternative Bids are permitted in accordance with ITB 13, and if relevant:
  - i. in an envelope marked “ORIGINAL - ALTERNATIVE”, the alternative Bid; and
  - ii. in the envelope marked “COPIES – ALTERNATIVE BID” all required copies of the alternative Bid.

21.2. The inner and outer envelopes, shall:

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Purchaser in accordance with ITB 22.1;
- (c) bear the specific identification of this Bidding process indicated in ITB 1.1; and
- (d) bear a warning not to open before the time and date for Bid opening.

21.3 If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the Bid.

### 22. Deadline for Submission of Bids

22.1. Bids must be received by the Purchaser at the address and no later than the date and time specified **in the BDS**. When so specified **in the BDS**, Bidders shall have the option of submitting their Bids electronically. Bidders submitting Bids electronically shall follow the electronic Bid submission procedures specified **in the BDS**.

22.2. The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the bidding document in accordance with ITB 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be

subject to the deadline as extended.

### **23. Late Bids**

23.1. The Purchaser shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB 22. Any Bid received by the Purchaser after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

### **24. Withdrawal, Substitution, and Modification of Bids**

24.1. A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB 20.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be:

- (a) prepared and submitted in accordance with ITB 20 and 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” or “MODIFICATION;” and
- (b) received by the Purchaser prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2. Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3. No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

### **25. Bid Opening**

25.1. Except as in the cases specified in ITB 23 and ITB 24.2, the Purchaser shall, at the Bid opening, publicly open and read out all Bids received by the deadline at the date, time and place specified **in the BDS** in the presence of Bidders’ designated representatives and anyone who chooses to attend Any specific electronic Bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as specified **in the BDS**.

25.2. First, envelopes marked “WITHDRAWAL” shall be



opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. If the withdrawal envelope does not contain a copy of the “power of attorney” confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding Bid will be opened. No Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Bid opening.

- 25.3. Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Bid opening.
- 25.4. Next, envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening.
- 25.5. Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Prices, per lot (contract) if applicable, including any discounts and alternative Bids; the presence or absence of a Bid Security, if required; and any other details as the Purchaser may consider appropriate.
- 25.6. Only Bids, alternative Bids and discounts that are opened and read out at Bid opening shall be considered further in the evaluation. The Letter of Bid and the Price Schedules are to be initialed by representatives of the Purchaser attending Bid opening in the manner specified **in the BDS**.
- 25.7. The Purchaser shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).
- 25.8. The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum:

- (a) the name of the Bidder and whether there is a withdrawal, substitution, or modification;
  - (b) the Bid Price, per lot (contract) if applicable, including any discounts;
  - (c) any alternative Bids;
  - (d) the presence or absence of a Bid Security or Bid-Securing Declaration, if one was required.
- 25.9. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

### **E. Evaluation and Comparison of Bids**

#### **26. Confidentiality**

- 26.1 Information relating to the evaluation of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the Bidding process until the information on Intention to Award the Contract is transmitted to all Bidders in accordance with ITB 40.
- 26.2 Any effort by a Bidder to influence the Purchaser in the evaluation or contract award decisions may result in the rejection of its Bid.
- 26.3 Notwithstanding ITB 26.2, from the time of Bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the Bidding process, it should do so in writing.

#### **27. Clarification of Bids**

- 27.1 To assist in the examination, evaluation, comparison of the Bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the Bids, in accordance with ITB 31.

- 27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Purchaser's request for clarification, its Bid may be rejected.
- 28. Deviations, Reservations, and Omissions**
- 28.1 During the evaluation of Bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the bidding document;
  - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding document; and
  - (c) "Omission" is the failure to submit part or all of the information or documentation required in the bidding document.
- 29. Determination of Responsiveness**
- 29.1 The Purchaser's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB 11.
- 29.2 A substantially responsive Bid is one that meets the requirements of the bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:
- (a) if accepted, would:
    - (i) affect in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
    - (ii) limit in any substantial way, inconsistent with the bidding document, the Purchaser's rights or the Bidder's obligations under the Contract; or
  - (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
- 29.3 The Purchaser shall examine the technical aspects of the Bid submitted in accordance with ITB 16 and ITB 17, in particular, to confirm that all requirements of Section VII, Schedule of Requirements have been met without any material deviation or reservation, or omission.
- 29.4 If a Bid is not substantially responsive to the requirements of bidding document, it shall be rejected by the Purchaser and may not subsequently be made

responsive by correction of the material deviation, reservation, or omission.

**30. Nonconformities, Errors and Omissions**

30.1 Provided that a Bid is substantially responsive, the Purchaser may waive any nonconformities in the Bid.

30.2 Provided that a Bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

30.3 Provided that a Bid is substantially responsive, the Purchaser shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified **in the BDS**.

**31. Correction of Arithmetical Errors**

31.1 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;

(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in

accordance with ITB 31.1, shall result in the rejection of the Bid.

- 32. Conversion to Single Currency** 32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted in a single currency as specified **in the BDS**.
- 33. Margin of Preference** 33.1 Unless otherwise specified **in the BDS**, a margin of preference shall not apply.
- 34. Evaluation of Bids** 34.1 The Purchaser shall use the criteria and methodologies listed in this ITB and Section III, Evaluation and Qualification criteria. No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies, the Purchaser shall determine the Most Advantageous Bid. This is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:
- (a) substantially responsive to the bidding document; and
  - (b) the lowest evaluated cost.
- 34.2 To evaluate a Bid, the Purchaser shall consider the following:
- (a) evaluation will be done for Items or Lots (contracts), as specified **in the BDS**; and the Bid Price as quoted in accordance with ITB 14;
  - (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
  - (c) price adjustment due to discounts offered in accordance with ITB 14.4;
  - (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
  - (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 30.3; and
  - (f) the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria.
- 34.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account

in Bid evaluation.

- 34.4 If this bidding document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated cost of the lot (contract) combinations, including any discounts offered in the Letter of Bid, is specified in Section III, Evaluation and Qualification Criteria.
- 34.5 The Purchaser's evaluation of a Bid will exclude and not take into account:
- (a) in the case of Goods manufactured in the Purchaser's Country, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder;
  - (b) in the case of Goods manufactured outside the Purchaser's Country, already imported or to be imported, customs duties and other import taxes levied on the imported Good, sales and other similar taxes, which will be payable on the Goods if the contract is awarded to the Bidder;
  - (c) any allowance for price adjustment during the period of execution of the contract, if provided in the Bid.
- 34.6 The Purchaser's evaluation of a Bid may require the consideration of other factors, in addition to the Bid Price quoted in accordance with ITB 14. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of Bids, unless otherwise specified **in the BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria. The criteria and methodologies to be used shall be as specified in ITB 34.2(f).

### 35. Comparison of Bids

- 35.1 The Purchaser shall compare the evaluated costs of all substantially responsive Bids established in accordance with ITB 34.2 to determine the Bid that has the lowest evaluated cost. The comparison shall be on the basis of CIP (place of final destination) prices for imported goods and EXW prices, plus cost of inland transportation and insurance to place of destination, for goods manufactured within the Borrower's country,

together with prices for any required installation, training, commissioning and other services. The evaluation of prices shall not take into account custom duties and other taxes levied on imported goods quoted CIP and sales and similar taxes levied in connection with the sale or delivery of goods.

**36. Abnormally Low Bids**

- 36.1 An Abnormally Low Bid is one where the Bid price, in combination with other constituent elements of the Bid, appears unreasonably low to the extent that the Bid price raises material concerns with the Purchaser as to the capability of the Bidder to perform the Contract for the offered Bid price.
- 36.2 In the event of identification of a potentially Abnormally Low Bid, the Purchaser shall seek written clarification from the Bidder, including a detailed price analyses of its Bid price in relation to the subject matter of the contract, scope, delivery schedule, allocation of risks and responsibilities and any other requirements of the bidding document.
- 36.3 After evaluation of the price analyses, in the event that the Purchaser determines that the Bidder has failed to demonstrate its capability to perform the contract for the offered Bid price, the Purchaser shall reject the Bid.

**37. Qualification of the Bidder**

- 37.1 The Purchaser shall determine, to its satisfaction, whether the eligible Bidder that is selected as having submitted the lowest evaluated cost and substantially responsive Bid, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.
- 37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17. The determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractors (other than specialized subcontractors if permitted in the bidding document), or any other firm(s) different from the Bidder.
- 37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event the Purchaser shall proceed to the Bidder who offers a substantially responsive Bid with the next

lowest evaluated cost to make a similar determination of that Bidder's qualifications to perform satisfactorily.

- 38. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids** 38.1 The Purchaser reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract Award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
- 39. Standstill Period** 39.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with ITB 44. The Standstill Period commences the day after the date the Purchaser has transmitted to each Bidder the Notification of Intention to Award the Contract. Where only one Bid is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.
- 40. Notification of Intention to Award** 40.1 The Purchaser shall send to each Bidder the Notification of Intention to Award the Contract to the successful Bidder. The Notification of Intention to Award shall contain, at a minimum, the following information:
- (a) the name and address of the Bidder submitting the successful Bid;
  - (b) the Contract price of the successful Bid;
  - (c) the names of all Bidders who submitted Bids, and their Bid prices as readout, and as evaluated;
  - (d) a statement of the reason(s) the Bid (of the unsuccessful Bidder to whom the notification is addressed) was unsuccessful, unless the price information in c) above already reveals the reason;
  - (e) the expiry date of the Standstill Period;
  - (f) instructions on how to request a debriefing and/or submit a complaint during the standstill period.

## F. Award of Contract

- 41. Award Criteria** 41.1 Subject to ITB 38, the Purchaser shall award the Contract to the Bidder offering the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:



(a) substantially responsive to the bidding document;  
and

(b) the lowest evaluated cost.

**42. Purchaser’s Right to Vary Quantities at Time of Award**

42.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section VII, Schedule of Requirements, provided this does not exceed the percentages specified **in the BDS**, and without any change in the unit prices or other terms and conditions of the Bid and the bidding document.

**43. Notification of Award**

43.1 Prior to the expiration of the Bid Validity Period and upon expiry of the Standstill Period, specified in ITB 39.1 or any extension thereof, and upon satisfactorily addressing any complaint that has been filed within the Standstill Period, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification of award (hereinafter and in the Contract Forms called the “Letter of Acceptance”) shall specify the sum that the Purchaser will pay the Supplier in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”).

43.2 Within ten (10) Business Days after the date of transmission of the Letter of Acceptance, the Purchaser shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

- (a) name and address of the Purchaser;
- (b) name and reference number of the contract being awarded, and the selection method used;
- (c) names of all Bidders that submitted Bids, and their Bid prices as read out at Bid opening, and as evaluated;
- (d) names of all Bidders whose Bids were rejected either as nonresponsive or as not meeting qualification criteria, or were not evaluated, with the reasons therefor;
- (e) the name of the successful Bidder, the final total contract price, the contract duration and a summary of its scope; and
- (f) successful Bidder’s Beneficial Ownership Disclosure Form, if specified in BDS ITB 45.1.

43.3 The Contract Award Notice shall be published on the Purchaser's website with free access if available, or in at least one newspaper of national circulation in the Purchaser's Country, or in the official gazette. The Purchaser shall also publish the contract award notice in UNDB online.

43.4 Until a formal Contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

#### **44. Debriefing by the Purchaser**

44.1 On receipt of the Purchaser's Notification of Intention to Award referred to in ITB 40.1, an unsuccessful Bidder has three (3) Business Days to make a written request to the Purchaser for a debriefing. The Purchaser shall provide a debriefing to all unsuccessful Bidders whose request is received within this deadline.

44.2 Where a request for debriefing is received within the deadline, the Purchaser shall provide a debriefing within five (5) Business Days, unless the Purchaser decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Purchaser shall promptly inform, by the quickest means available, all Bidders of the extended standstill period

44.3 Where a request for debriefing is received by the Purchaser later than the three (3)-Business Day deadline, the Purchaser should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Public Notice of Award of contract. Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.

44.4 Debriefings of unsuccessful Bidders may be done in writing or verbally. The Bidders shall bear their own costs of attending such a debriefing meeting.

#### **45. Signing of Contract**

45.1 The Purchaser shall send to the successful Bidder the Letter of Acceptance including the Contract Agreement, and, if specified in the BDS, a request to submit the

Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership. The Beneficial Ownership Disclosure Form, if so requested, shall be submitted within eight (8) Business Days of receiving this request.

- 45.2 The successful Bidder shall sign, date and return to the Purchaser, the Contract Agreement within twenty-eight (28) days of its receipt.
- 45.3 Notwithstanding ITB 45.2 above, in case signing of the Contract Agreement is prevented by any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, where such export restrictions arise from trade regulations from a country supplying those products/goods, systems or services, the Bidder shall not be bound by its Bid, always provided however, that the Bidder can demonstrate to the satisfaction of the Purchaser and of the Bank that signing of the Contract Agreement has not been prevented by any lack of diligence on the part of the Bidder in completing any formalities, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract.

#### **46. Performance Security**

- 46.1 Within twenty-eight (28) days of the receipt of Letter of Acceptance from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC 18, using for that purpose the Performance Security Form included in Section X, Contract Forms, or another Form acceptable to the Purchaser. If the Performance Security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Purchaser. A foreign institution providing a bond shall have a correspondent financial institution located in the Purchaser's Country, unless the Purchaser has agreed in writing that a correspondent financial institution is not required.
- 46.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that

event the Purchaser may award the Contract to the Bidder offering the next Most Advantageous Bid.

**47. Procurement  
Related Complaint**

47.1 The procedures for making a Procurement-related Complaint are as specified in the BDS.

## Section II - Bid Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

ITB Reference	A. General
ITB 1.1	<p>The reference number of the Request for Bids (RFB) is: <b>MWE/SUPLS/19-20/00040/1/2</b></p> <p>The Purchaser is: <b>Ministry of Water &amp; Environment</b></p> <p>The name of the RFB is: <b>PROCUREMENT OF:</b></p> <p><b>LOT 1: Hydrometric Equipment, Including Accessories and Installation Under Station Categories I, II, III, And Supply of Other Equipment, Base Station and Software for Uganda</b></p> <ul style="list-style-type: none"> <li>i. Category I: 5 No. Digital Water Level Recording Stations</li> <li>ii. Category II: 5 No. Ground Water Level Recording Stations</li> <li>iii. Category III: 2 No. Automated Full Climate Stations</li> <li>iv. Other Equipment, Base Station and Software</li> </ul> <p><b>LOT 2: Water Quality Equipment and Installation for Wet Precipitation and Dry Deposition</b></p> <ul style="list-style-type: none"> <li>i. 3No. Wet Precipitation</li> <li>ii. 2No. Dry Deposition</li> </ul> <p>The number and identification of lots (contracts) comprising this RFB is: <b>2</b></p>
ITB 2.1	<p>The Borrower is: <b>The Republic of Uganda</b></p> <p>Loan or Financing Agreement amount:</p> <p>The name of the Project is: <b>Integrated Water Management &amp; Development Project</b></p>
ITB 4.1	Maximum number of members in the Joint Venture (JV) shall be: <i>No limit</i>

<b>ITB 4.5</b>	A list of debarred firms and individuals is available on the Bank’s external website: <a href="http://www.worldbank.org/debarr">http://www.worldbank.org/debarr</a> .
<b>B. Contents of Bidding Document</b>	
<b>ITB 7.1</b>	<p>For <b>Clarification of Bid purposes</b> only, the Purchaser’s address is:</p> <p><b>The Permanent Secretary, Ministry of Water &amp; Environment</b>  Attention: <b>Head, Procurement &amp; Disposal Unit</b>  Street Address: Plot 3-7 Kabalega Crescent Road, Luzira  City: <b>Kampala</b>  Country: <b>Uganda</b>  Telephone: <b>+256 414 220 229</b>  Facsimile number: <b>+256 414 505 941</b></p> <p>Electronic mail address: <a href="mailto:kateregga9@hotmail.com">kateregga9@hotmail.com</a> with copies to <a href="mailto:tomu.kanyike@gmail.com">tomu.kanyike@gmail.com</a></p> <p>Requests for clarification should be received by the Purchaser no later than: <b>10 days to bid submission date</b></p>
<b>C. Preparation of Bids</b>	
<b>ITB 10.1</b>	The language of the Bid is: <b>English</b>
<b>ITB 11.1 (j)</b>	<p>The Bidder shall submit the following additional documents in its Bid:</p> <p>The bidder shall provide the physical address, as well as the telephone and email contacts (that can be reached) of the previous Clients indicated as references under the post qualification, Failure to reach the previous clients will lead to disqualification</p>
<b>ITB 13.1</b>	Alternative Bids <b>shall not be</b> considered.
<b>ITB 14.5</b>	The prices quoted by the Bidder <b>shall not</b> be subject to adjustment during the performance of the Contract.
<b>ITB 14.6</b>	<p>Prices quoted for each lot (contract) shall correspond at least to <b>100</b> percent of the items specified for each lot (contract).</p> <p>Prices quoted for each item of a lot shall correspond at least to <b>100</b> percent of the quantities specified for this item of a lot.</p>
<b>ITB 14.7</b>	The Incoterms edition is: <b>Incoterms 2020</b>
<b>ITB 14.8 (b)(i) and</b>	Place of destination: <b>CIP, Ministry of Water and Environment, Water Resources Institute (WRI), Plot 12, Mpigi Road- Entebbe, Uganda</b>

(c)(v)	
<b>ITB 14.8 (a)(iii), (b)(ii) and (c)(v)</b>	<p>Final Destination (Project Site): <b>Offices of DWRM/WRI in Entebbe &amp; finally at the station sites indicated under PART 2 – Supply Requirements.</b></p> <p>The delivery of all equipment shall be to the offices of the Directorate of Water Resources Department /WRI on Plot 12, Mpigi Road, Entebbe. Installation and training in operation and maintenance will be undertaken at all sites under each category specified under PART 2 – Supply Requirements.. The civil works required for preparation of installation are to be procured under a separate contract.</p>
<b>ITB 15.1</b>	The Bidder “is not” required to quote in the currency of the Purchaser’s Country the portion of the Bid price that corresponds to expenditures incurred in that currency.
<b>ITB 16.4</b>	Period of time the Goods are expected to be functioning (for the purpose of spare parts): <b>Three (3) years</b>
<b>ITB 17.2 (a)</b>	Manufacturer’s authorization is: <b>required</b>
<b>ITB 17.2 (b)</b>	After sales service is: <b>required</b>
<b>ITB 18.1</b>	The Bid validity period shall be <b>120</b> days.
<b>ITB 18.3 (a)</b>	The Bid price shall be adjusted by the following factor(s): <b>N/A</b>
<b>ITB 19.1</b>	<p>A <i>Bid Security shall be</i> required.</p> <p>The amount and currency of the Bid Security shall be:  Lot 1: <b>USD 13,000</b> or the equivalent in freely convertible currency  Lot 2: <b>USD 13,000</b> or the equivalent in freely convertible currency</p>
<b>ITB 19.3 (d)</b>	Other types of acceptable securities: <b>None</b>
<b>ITB 20.1</b>	In addition to the original of the Bid, the number of copies is: <b>Four (4) copies</b>
<b>ITB 20.3</b>	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: <b>Notarized Power of Attorney</b>
	<b>D. Submission and Opening of Bids</b>
<b>ITB 22.1</b>	For <b><u>Bid submission purposes</u></b> only, the Purchaser’s address is: <b>The Permanent Secretary Ministry of Water and Environment Plot 3-7 Kabalega Crescent Road, Luzira</b>

Tel: +256-414-220229  
Fax: +256-414-505941  
Kampala, UGANDA  
Email: [ps@mwe.go.ug](mailto:ps@mwe.go.ug);

**The deadline for Bid submission is:**

Date: **Tuesday 25<sup>th</sup>, August 2020**

Time: **10:30 a.m. (Uganda time)**

Bidders *shall not* have the option of submitting their Bids electronically.

In addition to the submission of bids as above, the bidders *shall* have the option of submitting their Bids by the following means

**Option 1**

The Bidder may send the bid by e-mail to their Embassy if they are willing to assist. The Embassy may print the bid from the scanned copy of the bid and submit the bid with a letter from the Embassy confirming authenticity of the firm and the bid. The scanned copy with the letter from the Embassy will be accepted as original. The Bidder is responsible to submit the complete bid and the Employer bears no responsibility. The Embassy should be advised to maintain confidentiality particularly when they are printing bids from multiple bidders.

**Option 2**

The bidder may send the bid by e-mail to their local representative along with scanned copy of the authorization to sign (Power of Attorney - POA) the bid. The local representative could print and sign the bid based on the scanned copy of the authorization to sign (Power of Attorney) the bid and submit. The scanned copy of authorization to sign will be accepted instead of original authorization to sign the bid as contemplated in ITB 20.3.

**Important Note:**

- (i) *If the bidder follows Option 2, the bidder shall send the original authorization to sign the bid (Power of Attorney) for Employer's record as per address given in ITB BDS 22.1*
- (ii) *A bidder should ideally submit a bid using one of the above options for submission. However, due to Covid-19 Pandemic and restrictions and for the purposes of ensuring timely delivery of the bid to the employer, If a bidder submits a bid using more than one of available options listed above, then whichever bid is*



	<i>received last prior to the deadline for bid submission, shall be considered the final bid from the bidder.</i>
<b>ITB 25.1</b>	The Bid opening shall take place at: <b>Procurement and Disposal Unit offices, Ground Floor,  Ministry of Water and Environment Plot 3-7 Kabalega Crescent Road, Luzira Tel: +256-414-220229 Fax: +256-414-505941 Kampala, UGANDA Date <b>Tuesday 25<sup>th</sup> August 2020</b> Time: <b>10:35 a.m. (Uganda time)</b></b>
<b>ITB 25.6</b>	The Letter of Bid and Price Schedules shall be initialed by <i>all</i> representatives of the Purchaser conducting Bid opening.
<b>E. Evaluation and Comparison of Bids</b>	
<b>ITB 30.3</b>	The adjustment shall be based on the <b>average</b> price of the item or component as quoted in other substantially responsive Bids. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Purchaser shall use its best estimate
<b>ITB 32.1</b>	The currency that shall be used for Bid evaluation and comparison purposes to convert at the selling exchange rate all Bid prices expressed in various currencies into a single currency is: <b>Uganda Shillings</b> The source of exchange rate shall be: <b>Bank of Uganda</b> The date for the exchange rate shall be: <b>Deadline for bid submission</b>
<b>ITB 33.1</b>	A margin of domestic preference <i>shall not</i> apply.
<b>ITB 34.2(a)</b>	Evaluation will be done for Lots(contracts) Note: <b>Bids will be evaluated lot by lot. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items. An item not listed in the Price Schedule shall be assumed to be not included in the Bid, and provided that the Bid is substantially responsive, the average or highest price (as specified in the BDS) of the item quoted by substantially responsive Bidders will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.</b>

<b>ITB 34.6</b>	<p>The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria:</p> <ul style="list-style-type: none"> <li>(a) Deviation in Delivery schedule: <i>No</i>.</li> <li>(b) Deviation in payment schedule: <i>No</i></li> <li>(c) the cost of major replacement component, mandatory spare parts, and service: <i>No</i></li> <li>(d) the availability in the Purchaser’s Country of spare parts and after-sales services for the equipment offered in the Bid <i>No</i></li> <li>(e) Life cycle costs: the costs during the life of the goods or equipment <i>No</i></li> <li>(f) the performance and productivity of the equipment offered; <i>No</i></li> </ul>
<b>F. Award of Contract</b>	
<b>ITB 42</b>	<p>The maximum percentage by which quantities may be increased is: <i>0%</i>  The maximum percentage by which quantities may be decreased is: <i>0%</i></p>
<b>ITB 45. 1</b>	<p>The successful Bidder <i>shall not</i> submit the Beneficial Ownership Disclosure Form.</p>
<b>ITB 47.1</b>	<p>The procedures for making a Procurement-related Complaint are detailed in the “<a href="#">Procurement Regulations for IPF Borrowers</a> (Annex III).” If a Bidder wishes to make a Procurement-related Complaint, the Bidder should submit its complaint following these procedures, in writing (by the quickest means available, that is either by email or fax), to:</p> <p><b>For the attention:</b> <i>Mr. Alfred Okidi Okot</i></p> <p><b>Title/position:</b> Permanent Secretary  <b>Purchaser:</b> Ministry of Water and Environment</p> <p><b>Email address:</b> <a href="mailto:ps@mwe.go.ug">ps@mwe.go.ug</a></p> <p>In summary, a Procurement-related Complaint may challenge any of the following:</p> <ol style="list-style-type: none"> <li>1. the terms of the Bidding Documents; and</li> <li>2. the Purchaser’s decision to award the contract.</li> </ol>

## **Section III - Evaluation and Qualification Criteria**

This Section contains the criteria that the Purchaser shall use to evaluate a Bid and qualify the Bidders. No other factors, methods or criteria shall be used other than specified in this bidding document.

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### 1. Margin of Preference (ITB 33)

If the Bidding Data Sheet so specifies, the Purchaser will grant a margin of preference to goods manufactured in the Purchaser's Country for the purpose of Bid comparison, in accordance with the procedures outlined in subsequent paragraphs.

Substantially responsive Bids will be classified in one of three groups, as follows:

- (a) **Group A:** Bids offering goods manufactured in the Purchaser's Country, for which (i) labor, raw materials, and components from within the Purchaser's Country account for more than thirty (30) percent of the EXW price; and (ii) the production facility in which they will be manufactured or assembled has been engaged in manufacturing or assembling such goods at least since the date of Bid submission;
- (b) **Group B:** All other Bids offering Goods manufactured in the Purchaser's Country;
- (c) **Group C:** Bids offering Goods manufactured outside the Purchaser's Country that have been already imported or that will be imported.

To facilitate this classification by the Purchaser, the Bidder shall complete whichever version of the Price Schedule furnished in the bidding document is appropriate provided, however, that the completion of an incorrect version of the Price Schedule by the Bidder shall not result in rejection of its Bid, but merely in the Purchaser's reclassification of the Bid into its appropriate Bid group.

The Purchaser will first review the Bids to confirm the appropriateness of, and to modify as necessary, the Bid group classification to which Bidders assigned their Bids in preparing their Bid Forms and Price Schedules.

The Bids in each group will then be compared to determine the Bid with the lowest evaluated cost in that group. The lowest evaluated cost Bid from each group shall then be compared with each other and if as a result of this comparison a Bid from Group A or Group B is the lowest, it shall be selected for the award.

If as a result of the preceding comparison, a Bid from Group C is the lowest evaluated cost, all Bids from Group C shall be further compared with the Bid with the lowest evaluated cost from Group A after adding to the evaluated costs of goods offered in each Bid from Group C, for the purpose of this further comparison only, an amount equal to 15% (fifteen percent) of the respective CIP Bid price for goods to be imported and already imported goods. Both prices shall include unconditional discounts and be corrected for arithmetical errors. If the Bid from Group A is the lowest, it shall be selected for award. If not, the lowest evaluated cost from Group C shall be selected.

### Most Advantageous Bid

The Purchaser shall use the criteria and methodologies listed in Section 2 and 3 below to determine the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:

- (a) substantially responsive to the bidding document; and
- (b) the lowest evaluated cost.

## **2. Evaluation (ITB 34)**

### **2.1. Evaluation Criteria (ITB 34.6)**

### **2.2. Multiple Contracts (ITB 34.4)**

If in accordance with ITB 1.1, Bids are invited for individual lots or for any combination of lots, the contract will be awarded to the Bidder or Bidders offering a substantially responsive Bid(s) and the lowest evaluated cost to the Purchaser for combined lots, after considering all possible combination of lots, subject to the selected Bidder(s) meeting the required qualification criteria (this Section III, Sub-Section ITB 37 Qualification Requirements) for a lot or combination of lots as the case may be.

In determining Bidder or Bidders that offer the total lowest evaluated cost to the Purchaser for combined lots, the Purchaser shall apply the following steps in sequence:

- (a) evaluate individual lots to determine the substantially responsive Bids and corresponding evaluated costs;
- (b) for each lot, rank the substantially responsive Bids starting from the lowest evaluated cost for the lot;
- (c) apply to the evaluated costs listed in b) above, any applicable discounts/price reductions offered by a Bidder (s) for the award of multiple contracts based on the discounts and the methodology for their application offered by the respective Bidder; and
- (d) determine contract award on the basis of the combination of lots that offer the total lowest evaluated cost to the Purchaser.

### **2.3. Alternative Bids (ITB 13.1)**

An alternative if permitted under ITB 13.1, will be evaluated as follows: **N/A**

## **3. Qualification (ITB 37)**

### **3.1 Qualification Criteria (ITB 37.1)**

After determining the substantially responsive Bid which offers the lowest-evaluated cost in accordance with ITB 34, and, if applicable, the assessment of any Abnormally Low Bid (in accordance with ITB 36) the Purchaser shall carry out the post-qualification of the Bidder in accordance with ITB 37, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

Factor	<b>2.1 Eligibility</b>					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
All partners combined			Each partner	At least one partner		
<b>2.1.1 Nationality</b>	Nationality in accordance with ITB 4.2.	Must meet requirement	Existing or intended JVA must meet requirement	Must meet requirement	N / A	Form ELI –1.1 and 1.2, with attachments
<b>2.1.2 Conflict of Interest</b>	No- conflicts of interests as described in ITB 4.3.	Must meet requirement	Existing or intended JVA must meet requirement	Must meet requirement	N / A	Letter of Bid
<b>2.1.3 Bank Ineligibility</b>	Not having been declared ineligible by the Bank as described in ITB 4.4.	Must meet requirement	Existing JVA must meet requirement	Must meet requirement	N / A	Letter of Bid
<b>2.1.4 Government Owned Entity</b>	Compliance with conditions of ITB 4.5	Must meet requirement	Must meet requirement	Must meet requirement	N / A	Form ELI –1.1 and 1.2, with attachments
<b>2.1.5 Ineligibility based on a United Nations resolution or Borrower’s country law</b>	Not having been excluded as a result of the Borrower’s country laws or official regulations, or by an act of compliance with UN Security Council resolution, in accordance with ITB 4.8	Must meet requirement	Existing JVA must meet requirement	Must meet requirement	N / A	Letter of Bid

**(a) If the Bidder is a manufacturer:**

(i) Financial Capability

The Bidder shall furnish documentary evidence that it meets the following financial requirement(s):

<b>Factor</b>	<b>Financial Situation</b>					
<b>Sub-Factor</b>	<b>Requirement</b>	<b>Criteria</b>				<b>Documentation Required</b>
		<b>Bidder</b>				
	<b>Single Entity</b>	<b>Joint Venture, Consortium or Association</b>	<b>All partners combined</b>	<b>Each partner</b>		
<b>2.3.1 Historical Financial Performance</b>	Submission of audited balance sheets or if not required by the law of the bidder’s country, other financial statements acceptable to the Employer, for the last three [3] years to demonstrate the current soundness of the bidders financial position and its prospective long term profitability.	Must meet requirement	N / A	Must meet requirement	N / A	Form FIN – 3.1 with attachments
<b>2.3.2 Average Annual Turnover</b>	Minimum average annual turnover of at least twice the bid price, calculated as total certified payments received for contracts in progress or completed, within the last three (3) years	Must meet requirement	Must meet requirement	Must meet fifty percent (50%) of the requirement	Must meet fifty percent (50%) of the requirement	Form FIN –3.2

<b>Factor</b>	<b>Financial Situation</b>							
<b>Sub-Factor</b>	<b>Criteria</b>					<b>Documentation Required</b>		
	<b>Requirement</b>	<b>Bidder</b>						
		<b>Single Entity</b>	<b>Joint Venture, Consortium or Association</b>					
			<b>All partners combined</b>	<b>Each partner</b>	<b>At least one partner</b>			
<b>2.3.3 Financial Resources</b>	The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet: (i) the following cash-flow requirement: USD 88,000 per Month for Lot 1 and USD 80,000 per month for Lot 2 (ii) the overall cash flow requirements for this contract and its current commitments.	Must meet requirement	Must meet requirement	Must meet fifty percent (50%) of the requirement	Must meet fifty percent (50%) of the requirement	Form FIN –3.3		



(ii) Experience and Technical Capacity

The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s):

Factor	Experience					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
All partners combined			Each partner	At least one partner		
2.4.1 General Experience	Experience under contracts in the role of contractor, subcontractor, or management contractor for at least the last <i>five</i> years, starting 1 <sup>st</sup> January 2014.	Must meet requirement	N / A	Must meet requirement	N / A	Form EXP-2.4.1
2.4.2 Specific Experience	(a) Participation as contractor, management contractor, or subcontractor, in at least (3) contracts within the last three (5) years, each with a value of at least USD500,000 for Lot 1 and USD 400,000 for Lot 2 that have been successfully and substantially completed and that are similar to the proposed Plant and Installation Services. The similarity shall be based on the physical size, complexity, methods/technology or other characteristics as described in Part 2, Supply Requirements.	Must meet requirement	Must meet requirements for all characteristics	N / A	Must meet requirement for one characteristic	Form EXP 2.4.2(a)

Factor	Experience					
Sub-Factor	Criteria					Documentation Required
	Requirement	Bidder				
		Single Entity	Joint Venture, Consortium or Association			
All partners combined			Each partner	At least one partner		
<p><b>2.4.2 Specific Experience</b></p>	<p>(b) For the above or other contracts executed during the period stipulated in 2.4.2(a) above, a minimum experience in the following key activities:</p> <p>Lot 1:</p> <ul style="list-style-type: none"> <li><b>i)</b> Setting up and configuration of telemetric systems for hydrometric data acquisition</li> <li><b>ii)</b> Supply of hydrometric equipment and after sales service</li> <li><b>iii)</b> Training local staff in operation and maintenance of telemetric hydrometric equipment</li> <li><b>iv)</b> Training of local staff in hydrometric information software and data management systems usage</li> </ul> <p>Lot 2:</p> <ul style="list-style-type: none"> <li><b>i)</b> Supply and installation of water quality testing equipment, field sampling and testing equipment</li> </ul>	<p>Must meet requirements</p>	<p>Must meet requirements</p>	<p>N / A</p>	<p>Must meet requirements</p>	<p>Form EXP-2.4.2(b)</p>

The Bidder must demonstrate that it will have the personnel for the key positions that meet the following requirements:

No. required	Position	Total Work Similar Experience (years)	In Similar Works Experience (years)
1	<b>Senior Hydrometric expert</b> - must have a MSc. Degree in Hydrometry with specific experience in data bases and hydrometric information system management. (A post graduate qualification in servicing and maintenance of hydrologic equipment will be an added advantage)	10	5
1	<b>Senior IT specialist</b> – must have an M.Sc. in Informatics and database management, and be familiar with all software and hardware provided by the bidder. This person will be responsible for all configuration of software and set up of equipment in the data center at Entebbe.	10	5
1	<b>Hydrological/Hydro-geological Technician</b> – must have Diploma in Civil/Mechanical/Electrical Engineering or electronics. Hands on experience in servicing and maintenance of equipment of similar nature is required. Additional experience required is proven competence in hydrological and hydro-geological instrument installation and experience in training client staff in installation, calibration, testing and repair of all installed telemetric stations.	10	5
1	<b>Meteorological Technician</b> – must have a diploma in Mechanical/Electrical Engineering or electronics with hands on experience in field meteorological applications and instrumentation, and training in installation, calibration, testing and repair of all installed meteorological stations (Automatic Climate Stations and Automatic Rain Gauges).	10	5

The Bidder shall provide details of the proposed personnel and their experience

The Bidder must demonstrate that it will have access to the key Contractor’s equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Number required
1	Cranes	1
2	Trucks	1
3	Welding equipment	1
...	Any other deemed necessary by the bidder	

The Bidder shall provide further details of proposed items of equipment

(iii) Documentary Evidence

The Bidder shall furnish documentary evidence to demonstrate that the Goods it offers meet the usage requirements specified under PART 2 – Supply Requirements.

**(b) If Bidder is not a manufacturer:**

If a Bidder is not a manufacturer, but is offering the Goods on behalf of the Manufacturer under Manufacturer's Authorization Form (Section IV, Bidding Forms), the Manufacturer shall demonstrate the above qualifications (i), (ii), (iii) and the Bidder shall demonstrate that it has successfully completed at least [3] contracts of similar goods in the past [5] years.

Subcontractors/manufacturers for the following major items of supply or services must meet the following minimum criteria, herein listed for that item:

Item No.	Description of Item	Minimum Criteria to be met
1	All Equipment to be supplied	Satisfactory performance in tropical conditions similar to Uganda in the last 5 years supported with documentary evidence.
2	All installed equipment	The availability within the African Region of after-sales services and spare parts and technical support for the equipment offered in the bid.

Failure to comply with this requirement will result in rejection of the subcontractor.

In the case of a Bidder who offers to supply and install major items of supply under the contract that the Bidder did not manufacture or otherwise produce, the Bidder shall provide the manufacturer's authorization, using the form provided in Section IV, showing that the Bidder has been duly authorized by the manufacturer or producer of the related plant and equipment or component to supply and install that item in the Employer's country. The Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements of ITB 4 and 5 and meets the minimum criteria listed above for that item.

# Section IV - Bidding Forms

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## Letter of Bid

***INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT***

*The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and business address.*

*Note: All italicized text is to help Bidders in preparing this form.*

**Date of this Bid submission:** *[insert date (as day, month and year) of Bid submission]*

**RFB No.:** *[insert number of RFB process]*

**Request for Bid No.:** *[insert identification]*

**Alternative No.:** *[insert identification No if this is a Bid for an alternative]*

**To:** *[insert complete name of Purchaser]*

- (a) **No reservations:** We have examined and have no reservations to the bidding document, including Addenda issued in accordance with Instructions to Bidders (ITB 8);
- (b) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) **Bid/Proposal-Securing Declaration:** We have not been suspended nor declared ineligible by the Purchaser based on execution of a Bid-Securing Declaration or Proposal-Securing Declaration in the Purchaser's Country in accordance with ITB 4.7;
- (d) **Conformity:** We offer to supply in conformity with the bidding document and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods: *[insert a brief description of the Goods and Related Services]*;
- (e) **Bid Price:** The total price of our Bid, excluding any discounts offered in item (f) below is:

Option 1, in case of one lot: Total price is: *[insert the total price of the Bid in words and figures, indicating the various amounts and the respective currencies]*;

Or

Option 2, in case of multiple lots: (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;

- (f) **Discounts:** The discounts offered and the methodology for their application are:

- (i) The discounts offered are: [*Specify in detail each discount offered.*]
- (ii) The exact method of calculations to determine the net price after application of discounts is shown below: [*Specify in detail the method that shall be used to apply the discounts*];
- (g) **Bid Validity Period:** Our Bid shall be valid for the period specified in BDS 18.1 (as amended, if applicable) from the date fixed for the Bid submission deadline specified in BDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (h) **Performance Security:** If our Bid is accepted, we commit to obtain a performance security in accordance with the bidding document;
- (i) **One Bid per Bidder:** We are not submitting any other Bid(s) as an individual Bidder, and we are not participating in any other Bid(s) as a Joint Venture member, or as a subcontractor, and meet the requirements of ITB 4.3, other than alternative Bids submitted in accordance with ITB 13;
- (j) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Purchaser’s Country laws or official regulations or pursuant to a decision of the United Nations Security Council;
- (k) **State-owned enterprise or institution:** [*select the appropriate option and delete the other*] [*We are not a state-owned enterprise or institution*] / [*We are a state-owned enterprise or institution but meet the requirements of ITB 4.6*];
- (l) **Commissions, gratuities, fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: [*insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity*]

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate “none.”)

- (m) **Binding Contract:** We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

- (n) **Purchaser Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Bid, the Most Advantageous Bid or any other Bid that you may receive; and
- (o) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption.

**Name of the Bidder:** \*[insert complete name of the Bidder]

**Name of the person duly authorized to sign the Bid on behalf of the Bidder:** \*\*[insert complete name of person duly authorized to sign the Bid]

**Title of the person signing the Bid:** [insert complete title of the person signing the Bid]

**Signature of the person named above:** [insert signature of person whose name and capacity are shown above]

**Date signed** [insert date of signing] **day of** [insert month], [insert year]

\*: In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder.

\*\* : Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.



## Bidder Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member: <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information  Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.4. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITB 4.6 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not under the supervision of the Purchaser</li> </ul>
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. <i>[If required under BDS ITB 45.1, the successful Bidder shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.]</i>

## Bidder's JV Members Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture].*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of Bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.  <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Purchaser, in accordance with ITB 4.6.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. <i>[If required under BDS ITB 45.1, the successful Bidder shall provide additional information on beneficial ownership for each JV member using the Beneficial Ownership Disclosure Form.]</i>

## Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the **Price Schedules** shall coincide with the List of Goods and Related Services specified by the Purchaser in the Schedule of Requirements.]*

### Price Schedule: Goods Manufactured Outside the Purchaser’s Country, to be Imported

(Group C Bids, goods to be imported)						Date: _____		
Currencies in accordance with ITB 15						RFB No: _____		
						Alternative No: _____		
						Page N° _____ of _____		
1	2	3	4	5	6	7	8	9
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price CIP <i>[insert place of destination]</i> in accordance with ITB 14.8(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in the Purchaser’s Country to convey the Goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
<i>[insert number of the item]</i>	<i>[insert name of good]</i>	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price CIP per unit]</i>	<i>[insert total CIP price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[insert total price of the line item]</i>
							Total Price	

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[Insert Date]*

### Price Schedule: Goods Manufactured Outside the Purchaser’s Country, already imported\*

(Group C Bids, Goods already imported)

Date: \_\_\_\_\_  
 RFB No: \_\_\_\_\_  
 Alternative No: \_\_\_\_\_  
 Page N° \_\_\_\_\_ of \_\_\_\_\_

Currencies in accordance with ITB 15

1	2	3	4	5	6	7	8	9	10	11	12
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price including Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i)	Custom Duties and Import Taxes paid per unit in accordance with ITB 14.8(c)(ii) , [to be supported by documents]	Unit Price net of custom duties and import taxes, in accordance with ITB 14.8 (c) (iii) (Col. 6 minus Col.7)	Price per line item net of Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i) (Col. 5×8)	Price per line item for inland transportation and other services required in the Purchaser’s Country to convey the goods to their final destination, as specified in BDS in accordance with ITB 14.8 (c)(v)	Sales and other taxes paid or payable per item if Contract is awarded (in accordance with ITB 14.8(c)(iv)	Total Price per line item (Col. 9+10)
<i>[insert number of the item]</i>	<i>[insert name of Goods]</i>	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per unit]</i>	<i>[insert custom duties and taxes paid per unit]</i>	<i>[insert unit price net of custom duties and import taxes]</i>	<i>[ insert price per line item net of custom duties and import taxes]</i>	<i>[insert price per line item for inland transportation and other services required in the Purchaser’s Country]</i>	<i>[insert sales and other taxes payable per item if Contract is awarded]</i>	<i>[insert total price per line item]</i>
<b>Total Bid Price</b>											

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

\* *[For previously imported Goods, the quoted price shall be distinguishable from the original import value of these Goods declared to customs and shall include any rebate or mark-up of the local agent or representative and all local costs except import duties and taxes, which have been and/or have to be paid by the Purchaser. For clarity the Bidders are asked to quote the price including import duties, and additionally to provide the import duties and the price net of import duties which is the difference of those values.]*

### Price Schedule: Goods Manufactured in the Purchaser’s Country

Purchaser’s Country _____		(Group A and B Bids)  Currencies in accordance with ITB 15				Date: _____ RFB No: _____ Alternative No: _____ Page N° _____ of _____			
1	2	3	4	5	6	7	8	9	10
Line Item N°	Description of Goods	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price EXW	Total EXW price per line item (Col. 4x5)	Price per line item for inland transportation and other services required in the Purchaser’s Country to convey the Goods to their final destination	Cost of local labor, raw materials and components from with origin in the Purchaser’s Country % of Col. 5	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 14.8(a)(ii))	Total Price per line item (Col. 6+7)
<i>[insert number of the item]</i>	<i>[insert name of Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert EXW unit price]</i>	<i>[insert total EXW price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[Insert cost of local labor, raw material and components from within the Purchase’s country as a % of the EXW price per line item]</i>	<i>[insert sales and other taxes payable per line item if Contract is awarded]</i>	<i>[insert total price per item]</i>
<b>Total Price</b>									

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

### Price and Completion Schedule - Related Services

Currencies in accordance with ITB 15						Date: _____
						RFB No: _____
						Alternative No: _____
						Page N° _____ of _____
1	2	3	4	5	6	7
Service N°	Description of Services (excludes inland transportation and other services required in the Purchaser's Country to convey the goods to their final destination)	Country of Origin	Delivery Date at place of Final destination	Quantity and physical unit	Unit price	Total Price per Service (Col. 5*6 or estimate)
<i>[insert number of the Service ]</i>	<i>[insert name of Services]</i>	<i>[insert country of origin of the Services]</i>	<i>[insert delivery date at place of final destination per Service]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per item]</i>	<i>[insert total price per item]</i>
<b>Total Bid Price</b>						

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

## Form of Bid Security

### (Bank Guarantee)

*[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Purchaser to insert its name and address]*

**RFB No.:** *[Purchaser to insert reference number for the Request for Bids]*

**Alternative No.:** *[Insert identification No if this is a Bid for an alternative]*

**Date:** *[Insert date of issue]*

**BID GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that \_\_\_\_\_ *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Bid (hereinafter called "the Bid") for the execution of \_\_\_\_\_ under Request for Bids No. \_\_\_\_\_ ("the RFB").

Furthermore, we understand that, according to the Beneficiary's conditions, Bids must be supported by a Bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of \_\_\_\_\_ (\_\_\_\_\_) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

- (a) has withdrawn its Bid during the period of Bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to sign the contract agreement, or (ii) has failed to furnish the performance security, in



accordance with the Instructions to Bidders (“ITB”) of the Beneficiary’s bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the Contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such Contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary’s notification to the Applicant of the results of the Bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

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*[Signature(s)]*

***Note: All italicized text is for use in preparing this form and shall be deleted from the final product.***

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## Form of Bid Security (Bid Bond)

*[The Surety shall fill in this Bid Bond Form in accordance with the instructions indicated.]*

BOND NO. \_\_\_\_\_

BY THIS BOND *[name of Bidder]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Purchaser]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Purchaser]* as Obligee (hereinafter called “the Purchaser”) in the sum of *[amount of Bond]*<sup>1</sup> *[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted or will submit a written Bid to the Purchaser dated the \_\_\_ day of \_\_\_\_\_, 20\_\_, for the supply of *[name of Contract]* (hereinafter called the “Bid”).

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

- (a) has withdrawn its Bid during the period of Bid validity set forth in the Principal’s Letter of Bid (“the Bid Validity Period”), or any extension thereto provided by the Principal; or
- (b) having been notified of the acceptance of its Bid by the Purchaser during the Bid Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to Bidders (“ITB”) of the Purchaser’s bidding document.

then the Surety undertakes to immediately pay to the Purchaser up to the above amount upon receipt of the Purchaser’s first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

The Surety hereby agrees that its obligation will remain in full force and effect up to and including the date 28 days after the date of expiration of the Bid Validity Period set forth in the Principal’s Letter of Bid or any extension thereto provided by the Principal.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this \_\_\_ day of \_\_\_\_\_ 20\_\_.

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<sup>1</sup> The amount of the Bond shall be denominated in the currency of the Purchaser’s Country or the equivalent amount in a freely convertible currency.

Principal: \_\_\_\_\_  
Corporate Seal (where appropriate)

Surety: \_\_\_\_\_

\_\_\_\_\_  
*(Signature)*  
*(Printed name and title)*

\_\_\_\_\_  
*(Signature)*  
*(Printed name and title)*

## Form of Bid-Securing Declaration

*[The Bidder shall fill in this Form in accordance with the instructions indicated.]*

Date: *[date (as day, month and year)]*

Bid No.: *[number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[complete name of Purchaser]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding or submitting proposals in any contract with the Purchaser for the period of time of *[number of months or years]* starting on *[date]*, if we are in breach of our obligation(s) under the Bid conditions, because we:

- (a) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid; or
- (b) having been notified of the acceptance of our Bid by the Purchaser during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security, if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder\* \_\_\_\_\_

Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* \_\_\_\_\_

Title of the person signing the Bid \_\_\_\_\_

Signature of the person named above \_\_\_\_\_

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\* : Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

*[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]*

## Manufacturer's Authorization

*[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its Bid, if so indicated in the BDS.]*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[insert complete name of Purchaser]*

### WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a Bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 28 of the General Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ *[insert date of signing]*

## **Section V - Eligible Countries**

### **Eligibility for the Provision of Goods, Works and Non Consulting Services in Bank-Financed Procurement**

In reference to ITB 4.8 and ITB 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this Bidding process:

Under ITB 4.8(a) and ITB 5.1: **None**

Under ITB 4.8(b) and ITB 5.1: **None**





# Section VI - Fraud and Corruption

**(Section VI shall not be modified)**

## 1. Purpose

1.1 The Bank’s Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

## 2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

- a. Defines, for the purposes of this provision, the terms set forth below as follows:
  - i. “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
  - ii. “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
  - iii. “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
  - iv. “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
  - v. “obstructive practice” is:
    - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

- (b) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.
- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank’s Anti- Corruption Guidelines, and in accordance with the Bank’s prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;<sup>1</sup> (ii) to be a nominated<sup>2</sup> sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect<sup>3</sup> all accounts, records and other documents relating

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<sup>1</sup> For the avoidance of doubt, a sanctioned party’s ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

<sup>2</sup> A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

<sup>3</sup> Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms.

to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

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Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.



## **PART 2 – Supply Requirements**



# **Section VII - Schedule of Requirements**

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## **LOT 1:**

### **SUPPLY OF HYDROMETRIC EQUIPMENT, INCLUDING ACCESSORIES AND INSTALLATION UNDER STATION CATEGORIES I, II, III, AND SUPPLY OF OTHER EQUIPMENT, BASE STATION AND SOFTWARE FOR UGANDA**

#### **1.1 Civil Works**

Civil works for the hydrometric stations will **not** be a part of this bid. These are to be procured separately under a separate contract. This implies that the civil works for enclosures/buildings at the stations of DWRM/GoU shall be completed before the installation services are required. Within the Bidding Document i.e. Bid Data Sheet and Employers Requirements, prospective Bidders have been provided with sufficient information about the scope and nature of the civil works to enable them prepare preliminary designs for the installation services.

Consequently, prospective bidders will only be required to inspect the completed civil works to satisfy themselves that they are ready to receive equipment for installation and prepare the final installation design & drawings and in accordance with the local conditions. Bidders shall then furnish the final detailed designs and drawings of equipment mounting arrangements and installation to the Client. Bidders shall install lightning protection and power supply.

#### **1.2 Station Installation**

Supply of all Hydro-meteorological equipment (Category I: Digital Water Level Recording Stations (DWLR), Category II: Ground Water Level Recording Stations (GWLR), and Category III: Automated Full Climate Stations (AFC)), sensors and data center components shall be by the bidder. Thereafter, the Bidder will be fully responsible for the installation, commissioning and site acceptance testing of the hydrometric measuring stations.

During installation, the bidder will be required to devise acceptable mounts for sensors, as sensor placement should abide by WMO convention as applicable or by standard hydrological practices. The bidder shall also devise acceptable mounts to the existing bridges that should take into account obtaining a good measurement as well as adequately securing the sensor from tampering and/or vandalism. Upon completion of installation, the stations shall be commissioned jointly by the purchaser (DWRM/GOU) and the Bidder upon inspection of complete installation and functioning data activities. Installation shall be considered complete when the selected stations have been commissioned and operating for a 30 day period with no break in service for any station/sensor longer than 24 hours.



### 1.3 Geographical and Ambient Specifications

All materials and equipment supplied under these specifications shall be suitable for delivery, storage and operation under continental conditions with extreme changes in temperature between winter and summer and between day and night.

It is the bidder's responsibility that the offered equipment/configuration be appropriate for the following locations and climatic conditions:

Elevation	:	< 1,000m
Temperature range	:	-10° to +60°C (air temperature)
Relative humidity range	:	5 to 100% (non-condensing)

### 1.4 Units

Measurement units of all the equipment/systems to be procured shall be metric.

### 1.5 Station Autonomy

The conditions and constraints of network operation in the region require long periods of station autonomy. The measuring equipment shall offer capability for unattended operation for at least one year both in power supply and data logging capacities. Mains power will not be available at any of the remote stations. If solar panels are used for power supply the capacity of the battery (12V DC, sealed, maintenance-free) must be sufficient for normal operation for at least 60 days without recharge and the data logger memory must be non-volatile. Longer autonomy will be required for certain components, as specified in the following sections.

### 1.6 Lightning Protection

All sensors, data loggers and other equipment shall be protected from lightning. Equipment for lightning protection, such as conductors and ground rods, are part of the station equipment to be supplied.

All systems shall require Single Point Grounding (SPG) to protect the equipment from Electromagnetic Pulse (EMP) surge and lightning damage. Radio Frequency antenna shall be protected from power surge entering the Data Collection Platform and sensors with the use of a proven surge protector. Diagrams showing the application of grounding and surge protection, with model, make, and manufacturer is required as part of the bid package.

### 1.7 Accessories and Tools

All accessories, tools and fixtures required for installation and dismounting/remounting of the equipment shall be treated as part of the supply for each type of equipment. Devices and instruments required for sensor re-calibration shall be offered separately.

### 1.8 Consumables

The bidder shall provide an initial supply of consumables, for at least three years of operation, which shall be included in the cost of the equipment offered.

### 1.9 Documentation

The bidder must submit full documentation, including user's manuals and guidelines for operation and maintenance in English, for all equipment and software components

supplied. In addition, a project-specific system operation manual has to be prepared, including

- a. Specific equipment layout
- b. A procedural handbook
- c. System block diagrams (logical connections)
- d. Wiring diagrams
- e. Interface specifications, including communication protocols and configuration modes
- f. Software licenses

The manual shall be provided both as hardcopy (10 copies) and on CD-ROM (10 copies) each for all equipment.

### 1. List of Goods and Delivery Schedule - Lot 1

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
<b>Category I: Digital Water Level Recording Stations (DWLR)</b>							
<b>Installation sites for selected stations as per table and map</b>							
1.	Staff Gauge Plates	180	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
2.	Data Logger with GPS and GPRS Communications Device including accessories, cable connectors, surge protection and mounting hardware	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
3.	Data Logger Programming Set	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
4.	Solar panels and Solar Regulator with batteries	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
5.	Water Level (Pressure transducer)	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
<b>Category II: Ground Water Level Recording Stations (GWL R)</b> <b>Installation sites for selected stations as per table and map</b>							
6.	Data Logger with GPS and GPRS Communications Device including accessories, cable connectors, surge protection and mounting hardware	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
7.	Deep Meter	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
8.	Data Logger Programming Set	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
9.	Solar panels and Solar Regulator with batteries	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
10.	Ground water sensors for the measurement of Level, Conductivity and Temperature	5	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
<b>Category III: Automated Full Climate Stations (AFC)</b> <b>Installation sites for selected stations as per table and map</b>							

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
11.	Solar charging system with batteries	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
12.	Tipping bucket rain-gauge	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
13.	Auto-accumulation rain-gauge with shield	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
14.	Temperature Sensor with radiation shield	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
15.	Relative Humidity Sensor	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
16.	Wind Speed/Direction Sensors for AFC	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
17.	Atmospheric Pressure Sensors	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
18.	Solar Radiation Sensors	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
19.	Structure on which to mount sensors and enclosure	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
20.	Data Logger with GPS and Communications Device including accessories, antenna, cable connectors, surge protection and mounting hardware	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
<b>OTHER EQUIPMENT, BASE STATION &amp; SOFTWARE</b>							
21.	Electronic Current Meter (ADC)	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
22.	Mechanical Current Meter	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
23.	ADCP traveller (downward looking) for River Discharge Measurement	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
24.	ADCP (Side looking/horizontal) for velocity, stage & river discharge measurement	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
25.	ADCP (downward looking) for River Discharge Measurement	4	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
26.	Tough book laptops	4	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
27.	Computer Server and Software for Network Data Reception, Data Processing and Data Storage (Base station infrastructure)	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
28.	Web based data visualization software for the display and dissemination of hydro-meteorological data	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
29.	Maintenance tracking software	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
30.	Global positioning system (GPS)	10	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
31.	Satellite signal meter finder	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
32.	Internet Mi-fi router with active subscription at least 24 months, 24 port network switch, mobile rack(18U), UPS 3000vA, WiFi access points (2)	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
33.	Manual Groundwater level meters for measuring water levels for reference levels	10	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
34.	Divers for effective continuous water level data capture	10	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
35.	GNSS RTK Survey Receiver and Transmitter	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
36.	Training modules	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
37.	Digital Video Camera Recorder each with a set of robust stands	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
38.	Unmanned Aerial Vehicles	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
39.	Copy stands and digital cameras	3	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	



Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
40.	Photocopier	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
41.	LED monitor	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
42.	HDMI switch	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
43.	Solar panels (20,000W solar system)	56	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
44.	PV combiner	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
45.	Solar/charge controller	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
46.	Inverter	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
47.	Solar batteries	38	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
48.	Solar panel rack set	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
49.	Cable set	1	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

## 2. List of Related Services and Completion Schedule- Lot 1

Service	Description of Service	Quantity <sup>1</sup>	Physical Unit	Place where Services shall be performed	Intended completion period for the supply and installation contract
1.	Installation of Category I Stations	5	No.	As indicated on map and table of location below	8 Months
2.	Installation of Category II Stations.	5	No.	As indicated on map and table of location below	8 Months
3.	Installation of Category III Stations	2	No.	As indicated on map and table of location below	4 Months
4.	Installation of Computer Systems and Software (Base station and Datacenter IT infrastructure)	1	No.	DWRM Data Center, Plot 18, Mpigi	3 Months

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5.	Knowledge transfer during installation at each site (training conducted at two selected stations in each category)	2	Month	At sites as per requirement	3 months
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## INSTALLATION SITES

The coordinates and elevations of the GoU stations in the following lists have been verified by GPS, and are reasonably accurate. Station coordinates and elevations are less accurate and should be taken as indicative of the location. Local site conditions may require some relocation of the stations, which will be made in consultation with DWRM/GoU.

### Category I – Digital Water Level Recording Stations

S/No.	Station Name	Longitude	Latitude
1	R. Nchwera	9949588	0811781
2	R. Nyamwamba	30.1167	0.25
3	R. Longiro - Near Kotido	34.1	2.98733
4	R. Aswa I at Puranga	32.93333	2.58333
5	R. Pager at Kitgum town	33.88333	3.25

In general, a hydrometric site will be equipped with a weatherproof instrument enclosure for housing the data logger, batteries, and solar regulator; a water level sensor being either a pressure transducer; and a solar power supply system. Water temperature will be observed if an in-situ water level pressure transducer is used.

A series of staff gauges will be installed for the manual observation of water level as well as three benchmarks tied to the local datum. The requirements for a typical hydrometric site are tabulated below:

Major Component	Quantity	Description
1. Site Infrastructure	1	Weatherproof enclosure for data logger, communications device, battery, etc.
	1	Mounting bracket for radar sensor, or in-water mount for pressure transducer, or shelf mount for shaft encoder including conduit.
	1	Underground conduit with inspection pits for placement of cables.
	1	Flexible metal conduit with fire resistant protection for all above-ground cables with connectors, as required
	4	Staff gauges posts
	1	Grounding system for lightning protection
	3	Benchmarks (Numbered)
2. Instrumentation	1	Data logger with GPS and communications device
	1	Solar charging system with batteries
	1	Water level sensor ( Pressure Transducer,)
	4	Set of staff gauge plates
	1	Cabling, connectors, and mounting hardware for all sensors, as required

### Category II – Ground Water Level Recording Stations

No.	Location	Eastings	Northings	Expected Drill Depth	Expected Aquifers
1	Arua	267402	535145	70m	Overburden and Fractured Bedrock
2	Buliisa (Butiaba)	313718	401082	80m	Overburden and Fractured Bedrock
3	Mityana (Kajoji)	386841	234545	80m	Overburden and Fractured Bedrock
4	Kaliro	556507	299191	60m	Overburden and Fractured Bedrock
5	Lira	488765	450089	75m	Overburden and Fractured Bedrock

All boreholes for the selected ground water level recording stations have already been drilled and capped i.e. they are ready to receive the equipment for installation. The installation will be equipped with a pressure transducer, data logger, and a solar power supply system. The data logger will be housed in a weatherproof NEMA 6 (IP67) rated instrument enclosure with the required batteries and solar regulator system. A five-meter tower will be required to support the instrument enclosure, solar panel, and communications antenna. The data logger will have a display enabling the on-site observation of the groundwater level. The frequency of the observations will be every 60 minutes.

A contact gauge or deep meter will be required for the manual measurement of depth to water, temperature, and conductivity in groundwater. The contact gauge will consist of measured tape with a probe placed on a drum held by a stable frame, which is easy to carry. Once the probe touches the water surface a signal is produced and the distance to water can be read. The contact gauge is suitable for depths of 50 to 100 m. The contact gauge can be equipped with a conductivity sensor and display to show values of temperature, conductivity and TDS (Total Dissolved Solids). A bailer will be required to collect a groundwater sample for laboratory analysis.

### Category III – Automated Full Climate Stations

S/No.	Station Name	Location
1	Moroto	Municipal Council Offices
2	Mutukula	Mutukula Primary School

The infrastructure and instrumentation requirements for a typical Full Climate Station or Automatic Weather Station are indicated below. The basic configuration will be a 6x6 meter fenced observing park with a standard tower for placement of wind sensors and the weatherproof NEMA 6 (IP67) rated instrument enclosure. The instrument enclosure will house the data logger, batteries, and solar regulator. The fence will be 2-meter in height, with a gate for access. Galvanized chain link is preferred for the fence. The precipitation gauges will be mounted on a separate pedestal to place the lip of the precipitation gauge at a one-metre height.

The typical suite of sensors located at an Automatic Weather Station will be: wind speed and wind direction on a standard tower, barometric pressure, air temperature and relative humidity housed in a radiation shield mounted on an arm from the ten-meter tower at a two meter height, solar radiation, an auto-accumulation precipitation gauge with a shield, a tipping bucket

rain gauge, and a manual rain gauge. The solar radiation sensor will be mounted on an arm at two meters extending to the south at least one meter from the ten-meter tower.

The frequency of the automatic observations using sensors will be every 10 minutes. Evapotranspiration will be calculated from the sensor data using the Penman-Monteith method.

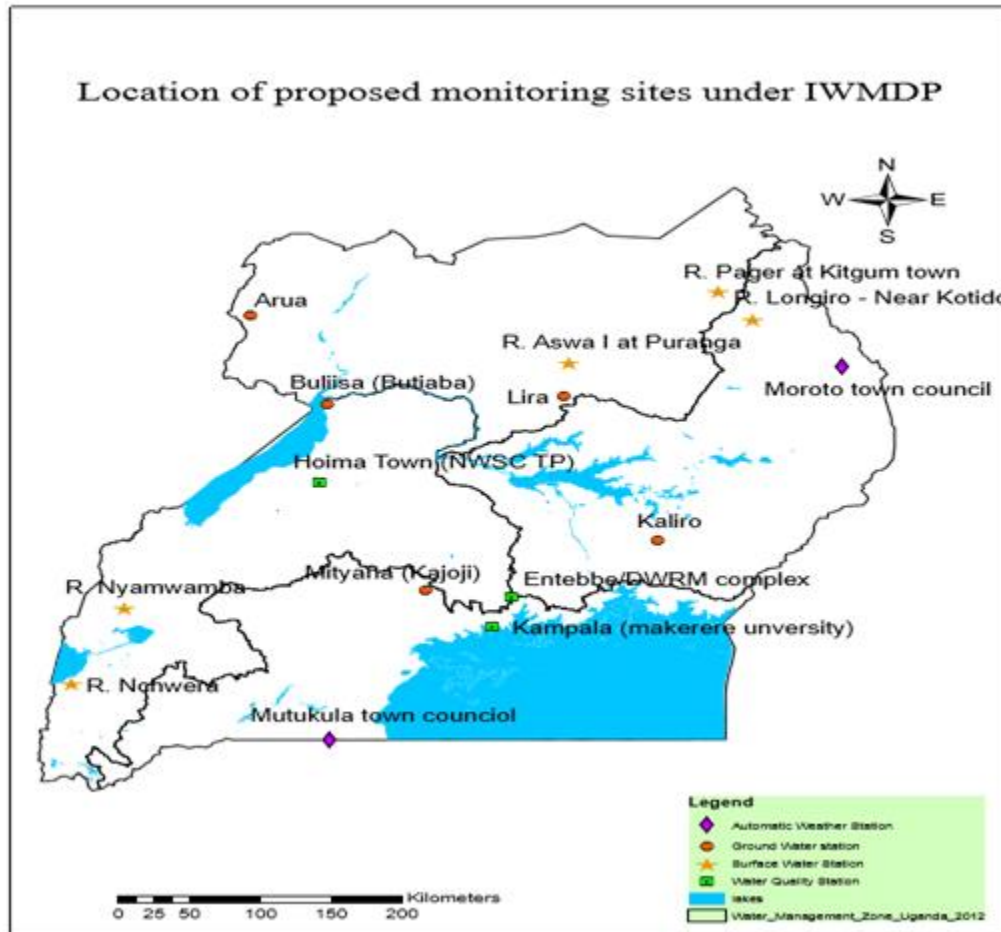
Major Component	Quantity	Description
1. Site Infrastructure	1	2 meter high fence of galvanized chain link, with posts, gate, and post foundations. Typical compound will be 20 by 20 meters
	1	Ten-meter free standing tower with foundation designed according to building code requirements with a method for accessing the top of the tower
	1	Weatherproof NEMA 6 (IP67) rated enclosure for data logger, communications device, battery, etc.
	1	Foundation and pedestal for auto accumulation rain gauge
		Foundation and pedestal for tipping bucket rain gauge
	1	Mounting arm from the ten-meter tower for the radiation shield and barometric pressure sensor
	1	Mounting arm from ten-meter tower for solar radiation sensor
	1	Underground conduit with inspection pits for placement of cables
	1	Flexible metal conduit with fire resistant protection for all above-ground cables with connectors, as required
	1	Grounding system for lightning protection
2. Instrumentation	1	Data logger with GPS and communications device
	1	Solar charging system with batteries
	1	Wind speed and wind direction sensor
	1	Temperature sensor with radiation shield
	1	Humidity sensor
	1	Barometric Pressure sensor
	1	Solar Radiation sensor
	1	Auto-accumulation rain-gauge with shield
	1	Tipping Bucket Rain-gauge
	1	Cabling, connectors, and mounting hardware for all sensors, as required

### 1. Other Equipment, Base Station and Software

No	Equipment/Software	Location
1	Electronic Current Meter (ADC)	DWRM Data Center, Plot 18, Mpigi
2	Mechanical Current Meter	DWRM Data Center, Plot 18, Mpigi
3	ADCP traveller (downward looking) for River Discharge Measurement	DWRM Data Center, Plot 18, Mpigi
4	ADCP (Side looking/horizontal) for velocity, stage & river discharge measurement	DWRM Data Center, Plot 18, Mpigi

5	ADCP (downward looking) for River Discharge Measurement	DWRM Data Center, Plot 18, Mpigi
6	Tough book laptops	DWRM Data Center, Plot 18, Mpigi
7	Computer Server and Software for Network Data Reception, Data Processing and Data Storage (Base station infrastructure)	DWRM Data Center, Plot 18, Mpigi
8	Web based data visualization software for the display and dissemination of hydro-meteorological data	DWRM Data Center, Plot 18, Mpigi
9	Maintenance tracking software	DWRM Data Center, Plot 18, Mpigi
10	Global positioning system (GPS)	DWRM Data Center, Plot 18, Mpigi
11	Satellite signal meter finder	DWRM Data Center, Plot 18, Mpigi
12	Internet Mi-fi router with active subscription at least 24 months, 24 port network switch, mobile rack(18U), UPS 3000vA, WiFi access points (2)	DWRM Data Center, Plot 18, Mpigi
13	Manual Groundwater level meters for measuring water levels for reference levels	DWRM Data Center, Plot 18, Mpigi
14	Divers for effective continuous water level data capture	DWRM Data Center, Plot 18, Mpigi
15	GNSS RTK Survey Receiver and Transmitter	DWRM Data Center, Plot 18, Mpigi
16	Training modules	DWRM Data Center, Plot 18, Mpigi
17	Digital Video Camera Recorder each with a set of robust stands	DWRM Data Center, Plot 18, Mpigi
18	Unmanned Aerial Vehicles	DWRM Data Center, Plot 18, Mpigi
19	Copy stands and digital cameras	DWRM Data Center, Plot 18, Mpigi
20	Photocopier	DWRM Data Center, Plot 18, Mpigi
21	LED monitor	DWRM Data Center, Plot 18, Mpigi
22	HDMI switch	DWRM Data Center, Plot 18, Mpigi
23	Solar panels (20,000W solar system)	DWRM Data Center, Plot 18, Mpigi
24	PV combiner	DWRM Data Center, Plot 18, Mpigi
25	Solar/charge controller	DWRM Data Center, Plot 18, Mpigi
26	Inverter	DWRM Data Center, Plot 18, Mpigi

27	Solar batteries	DWRM Data Center, Plot 18, Mpigi
28	Solar panel rack set	DWRM Data Center, Plot 18, Mpigi
29	Cable set	DWRM Data Center, Plot 18, Mpigi



## Training Requirements

The bidder is expected to provide an outline or table indicating the specific topics to be covered for each day of the training period. The **training program shall be included with the bid**. The bid price should incorporate the costs of the training instructors and all training materials. **The venue for the training shall be the point of delivery of the equipment.**

**The training costs shall be included in the bid.**

Sr. No.	DESCRIPTION OF TRAINING
1	Training in general equipment operation and maintenance procedures will be provided by a four-week training course as well as by on-the-job training. The training is for DWRM staff or designates. The four week training will be



	<p>conducted in two lots each of two weeks. The training should be in modules with refresher courses occurring over the contract period. Course topics will include sensor calibration, DCP configuration, data downloading, data retrieval, collection, compilation, processing, maintenance requirements, and procedures for equipment configuration, installation, site testing and commissioning. An additional course will be conducted in the theory and practice of discharge measurements, and development of rating curves. The training course will be organized in Entebbe or as designated by DWRM. On-the-job training will be provided by the supplier in conjunction with the installation of hydrologic stations, conducting discharge measurements and during the course of maintenance at DWRM's choosing. The venue for training will be provided by DWRM.</p>
2	<p>In addition to the general training, the bidder is to provide training for technicians responsible for the operation and maintenance of electronic and other equipment. Combined two week training by two Equipment Specialists (of different specialization) for up to 20 technicians must be provided, as a minimum. Course topics will include sensor calibration, DCP configuration, data down loading, maintenance requirements, O&amp;M and procedures for equipment configuration, installation, site testing and commissioning. This training is required even though the system will be maintained for the warranty period and AMC period.</p>
3	<p>All training courses will be recorded on video/multimedia (.avi, .mpg, etc). The multimedia files will be organized by subject, with one presentation for each file. The video presentations will include both in the field and classroom training. The presentations will be provided on both USB drive and DVD. There will be 10 copies of the presentation provided, consisting of 5 USB flash drive media and 5 DVD media. The GoU will own the content of the media, for the supplier will be informed if additional copies are required. These rates should thus be included in the bid to ease costing for additional work.</p>

## Incidental Services

All costs related to training during the installation and maintenance at the sites will be the responsibility of the **Bidder** and should be included in the Bid. DWRM/GoU will however provide office space at all the WMZ Sub-centers for the **Bidder's** technicians.

## Site Preparation

1. DWRM/GoU has provided a map and site location information on page 2-21 to allow the Bidder to perform site inspection, and to enable the bidder to cost and include in the bid for bush clearing, ground levelling, and construction of suitable structures requisite for the installation of the hardware.
2. The location of antenna and sensors will be decided by the respective Site Engineer-in-charge during contract execution depending on the site and river flow conditions.
3. The Bidder should complete the required works at the site before installation of the equipment.



### 3. Specifications – Lot 1

#### 3.1. General Specification

- i. All goods and materials to be incorporated in the supply have to be new, unused, and of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the contract. The specifications offered by the supplier will be part of the contract between DWRM/GoU and the selected supplier, and will be used by the inspection authority to verify compliance on delivery.
- ii. Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest current edition or revision of the relevant standards or codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable

#### Summary of Requirements

No.	Description	Quantity Required
<b>Category I: Digital Water Level Recording Stations (DWLR)</b>		
1.	Staff Gauge Plates	180
2.	Data Logger with GPS and GPRS Communications Device including accessories, cable connectors, surge protection and mounting hardware	5
3.	Data Logger Programming Set	1
4.	Solar panels and Solar Regulator with a pair of battery	5
5.	Water Level Sensors (Pressure Transducer)	5
<b>Category II: Ground Water Level Recording Stations (GWLR)</b>		
6.	Data Logger with GPS and GPRS Communications Device including accessories, , cable connectors, surge protection and mounting hardware	5
7.	Deep Meter	5
8.	Data Logger Programming Set	1
9.	Solar panels and Solar Regulator with batteries	5
10.	Ground water sensors for the measurement of Level, Conductivity and Temperature	5
<b>Category III: Automated Full Climate Stations (AFC)</b>		
11.	Solar panel and solar regulator with batteries	2
12.	Tipping bucket rain-gauge	2
13.	Auto-accumulation rain-gauge with shield	2
14.	Temperature Sensor with radiation shield	2
15.	Relative Humidity Sensor	2
16.	Wind Speed/Direction Sensors	2
17.	Atmospheric Pressure Sensors (Barometers)	2

18.	Solar Radiation Sensors	2
19.	Structure on which to mount station sensors and enclosure	2
20.	Data Logger with GPS and GPRS Communications Device (remote telemetry unit) including accessories, cable connectors, surge protection and mounting hardware	2
<b>OTHER EQUIPMENT, BASE STATION &amp; SOFTWARE</b>		
21	Electronic Current Meter (ADC)	2
22	Mechanical Current Meter	2
23	ADCP traveller (downward looking) for River Discharge Measurement	1
24	ADCP (Side looking/horizontal) for velocity, stage & river discharge measurement	1
25	ADCP (downward looking) for River Discharge Measurement	2
26	Tough book laptops	4
27	Computer Server and Software for Network Data Reception, Data Processing and Data Storage (Base station infrastructure)	1
28	Web based data visualization software for the display and dissemination of hydro-meteorological data	1
29	Maintenance tracking software	1
30	Global positioning system (GPS)	10
31	Satellite signal meter finder	1
32	Internet Mi-fi router with active subscription at least 24 months, 24 port network switch, mobile rack(18U), UPS 3000vA, WiFi access points (2)	1
33	Manual Groundwater level meters for measuring water levels for reference levels	10
34	Divers for effective continuous water level data capture	10
35	GNSS RTK Survey Receiver and Transmitter	2
36	Training modules	1
37	Digital Video Camera Recorder each with a set of robust stands	2
38	Unmanned Aerial Vehicles	2
39	Copy stands and digital cameras	3
40	Photocopier	1
41	LED monitor	2
42	HDMI switch	2
43	Solar panels (20,000W solar system)	56
44	PV combiner	1
45	Solar/charge controller	1
46	Inverter	1
47	Solar batteries	38
48	Solar panel rack set	1
49	Cable set	1

## Category I: Digital Water Level Recording Stations

### 3.1.1 Staff Gauges

A series of standard staff gauges will be used for the manual determination of the water level for each hydrometric site. The standard staff gauges will be composed of a concrete staff post with staff gauge plates mounted on the concrete post. Following are the specifications for the staff gauge plate:

#### *Staff Gauge Plate*

Manufactured from 18-gauge or 2 mm enameled steel plate, porcelain coated to resist rust and discoloration with clear dark markings on a white or yellow background	
Length	1.0 m
Wide	100 mm, $\pm$ 10 mm
Markings	Minimum centimetre markings with labeled millimeters, supply with separate metre number plates

### 3.1.2 Data Loggers and Communications Devices

Data loggers must be based on a widely used model produced by a primary brand name and tested in a large number of installations and must have been in production for at least 2 years.

Category I, & II will all use the same data logger make and model.

The feasible options for data communications from the field sites to the data centre include the following:

- Satellite Communications – Geostationary
- Global System for Mobile Communications (GSM) with General Packet Radio Service, GPRS (3G and 4G)

The preferred option for the transmission of field observations to the data centre(s) is the GPRS option. It provides a cost effective and sustainable solution, supports data security using a simple encryption protocol, can support multi-point access, is proven technology, has readily available commercial and open source with standardized data acquisition and telemetry management software, and has proven to be more reliable in adverse environmental conditions.

The satellite transmitter must meet the approval of the satellite operator and must be compatible with the chosen satellite and transmission requirements as authorized. The transmitter and Ground Receive Station must be compatible and allow for collection of transmitted data to other ground stations. The satellite ground station must also have proven use with the supplied DCP. The DCP-satellite radio package must have been used in Uganda, or the company that produces the DCP must have prior experience using the satellite radio system. The data reception in Entebbe shall plan for a Direct Readout Ground Station (DRGS) installed by the Bidder. The functional specifications of the DRGS shall be specified for the chosen satellite system.

The most suitable geostationary satellite telemetry solution is METEOSAT, which is supported by the European Union. Information from Data Collection Platforms (DCP) located at the field can be transmitted to one of the geostationary METEOSAT satellites by the self-timed option, or an alert option. The satellite transmitter must conform to EUMETSAT requirements and must have an EUMETSAT "Data Collection Platform/Radio Set" Certificate. The transmitter will be designed to operate without degradation under the dusty and wet conditions experienced at exposed sites and will be enclosed in a watertight case conforming to IP65. The equipment will function satisfactorily between -10°C and +60°C.

The satellite transmitter must be programmable by an external terminal without modification of the equipment for METEOSAT and GOES international and regional channels, have a GPS interface for auto-synchronization of time and a RS232/V28 serial interface for data transmission and control from the data logger. The antenna is to be either a Yagi or UB6 antenna, but the UB6 antenna is preferred.

The transmitter should have the following minimum features:

- Transmitting performance of 5W directional
- Power consumption in idle mode <10 mA and during transmission <1.4 A
- Data transmission time set by PRC/PMU according to EUMETSAT time allocation
- The input voltage to the system shall be nominal +12 volt DC (from 10.8 to 16V), polarity and surge protected.
- Self-timed and emergency frequencies should be available.
- The desired baud rate is 1200 baud

In addition to the above functions, data loggers must be able to perform the following functions:

- a. Automatic acquisition of hydrometeorological data: the data logger shall make it possible to set acquisition intervals independently for each acquisition channel, and configure the sensors as required.
- b. Data processing: the data logger shall be capable of doing local conversion of measured variables in order to provide reliable data in standard hydro-meteorological engineering units.
- c. Data storage: the data logger shall make it possible to store in memory at least twelve (12) months of 10-minute data for each parameter (precipitation, wind direction, wind speed, barometric pressure, air temperature, soil temperature,

humidity solar radiation, water level, and station health parameters such as battery voltage).

- d. Self-diagnosis and supervision: the data logger shall be able to gather and report alarm conditions upon exceeding specified precipitation and water level warning levels, or upon detecting failures with connected devices.
- e. Programming and display: staff shall be able to program the data logger at the field site and display live as well as stored data readings using a remote device. The data logger is to have an integrated display. An integrated keyboard is optional.

#### *Data Logger*

The data logger must meet or exceed these specifications:

**Inputs:** Supports ten sensors with a minimum of two analog channels, one SDI-12 port, and a tipping bucket event counter

**On-site and Data Download Interface:** Standard RS232 or USB port. USB port preferred for on-site access

**Remote Communication Interface:** Communication port to interface with GPRS modem

**Microprocessor:** 16 or preferred 32-bit

**Logging Memory:** 8 Mb

**Data storage:** Non-Volatile

**Time Stamp:** Individually with 1 sec resolution

**Display:** 8 digit LCD display with backlight or equivalent for bright exposure environments

**Battery:** Internal back-up battery and external power supply

**Enclosure:** Weatherproof NEMA 6 (IP66 or 67) rated

**Protection:** Lighting, over voltage, and reverse voltage

**Operating Voltage:** 10.0 to 16.0 VDC

**Power Consumption:** < 3 mA quiescent

**Operating Temperature:** -10°C to 60°C

**Programmable Functions:** Supports mathematical equation editor, averaging, and customize calculations

The programming environment of the data logger has to be simple, flexible, with built-in data quality control functionality and availability of integrated calculations of derived variables such as minimum, maximum. There must also be an option to convert the input data detected in electrical units into engineering units using conversion formulas.

Data loggers must be based on a widely used model, tested in a large number of installations, and must have been in production for at least 2 years. All data loggers must have programmable data acquisition rates, a large and expandable data storage capability and low power consumption. The data logger must log both the battery level and the solar panel voltage level in addition to the basic hydro-meteorological parameters.

The data logger must be installed in an instrument enclosure. The instrument enclosure is to be complete with wiring and terminal block for the connection of all required sensors as well as provide the required grounding (earthing) and protection from lightning. The external cabling from the sensors are to have a single entry point to the instrument enclosure with appropriate environmental protection.

All necessary cables, connectors, surge protection, and mounting hardware are to be supplied including the communications cable for laptop to data logger communications.

One complete set of technical documentation with user manual in both hard and soft copy in English.

The Instrument Enclosure must meet or exceed these specifications:

**Type:** Weatherproof NEMA 6 (IP67) rated enclosure with a key log sized to house the data logger, batteries, solar regulator, and GPRS modem.

In situations where a GSM/GRPS Option is offered, the following specification will apply.

***GSM with GPRS***

The GSM-GPRS modem must meet or exceed these specifications:

**Module:** Band GSM 900/1800/1900 Mhz Quad band GSM 850/900/1800/1900 MHz

**Output Power:** < 2W (ideally < 1W)

**SIM: Interface:** External standard SIM 1.8V and 3V

**SMS:** Support Text and PDU mode

**Data:** Data circuit Asynchronous and non-transparent up to 14.4 kbps

**GPRS Packet Data Feature:** Coding Scheme CS1 to CS4, Embedded TCP/IP Stack

**Radio Modem:** Work with VHF and UHF user adjustable ranges

**AT Commands Interface:** GSM /GPRS

**Connectors/Switches:** RS-232 Serial or USB, SIM Card Holder, DC power connector, Antenna connector

**Power Supply:** Input 6 - 30V DC with reverse connection protection

**Enclosure:** Water proof and heat resistant material

**Mounting:** Poll, Wall Mounting

**Temperature:** Operating: - 10°C ~ +70°C

**Software:** The software should be in English, compatible with Windows

**Antenna:** High gain with rubber cover or standard for tropical countries

All necessary cables, connectors, surge protection, and mounting hardware are to be supplied including the communications cable. One complete set of technical documentation must be supplied with user manual in English in both hard and soft copy.

### 3.1.3 Data Logger Programming Set

This equipment will be provided to DWRM/ GoU for eventual field maintenance, and shall be of the same type used by the supplier's field maintenance team. The supplier will be responsible in providing their contracted maintenance staff as specified in the Annual Maintenance Contract with the equipment.

Item	Technical specifications
<b>Ambient conditions</b>	ambient temperature: -10 to +60 degrees C relative humidity: 5% to 100%, (non-condensing) altitude: <1,000m
<b>Hardware</b>	input interface compatible with data loggers and telemetry equipment with shock-mounted hard disk drive and flexible internal connectors with outdoor-readable, anti-reflective LCD, 13" minimum with sealed spill-resistant keyboard and touchpad sealed case construction for dust protection with Lithium battery pack, operation minimum 3.5 hours with spare battery. power management: hibernation, standby



	<p>English keyboard + touchpad</p> <p>Processor speed 2.0GHz minimum</p> <p>4GB RAM minimum</p> <p>160GB (minimum) hard disk capacity</p> <p>with LAN connection</p> <p>2 USB ports</p> <p>with serial port and connections / adapters (if required) for interfacing with data loggers and telemetry equipment</p> <p>with both mains and 12V power supplies /chargers</p> <p>3-year warranty</p>
<b>Software</b>	<p>Windows operating system (Windows 7)</p> <p>Standard MS Office software</p> <p>English language version</p> <p>With all software components installed, ready for use, as required for:</p> <ol style="list-style-type: none"> <li>a. communication with data loggers and sensors, all types supplied</li> <li>b. communication with telemetry system components</li> <li>c. display of control values, graphical data control</li> </ol>
<b>Manuals</b>	full documentation and maintenance instructions in English (2 copies)

### 3.1.4 Solar Panel and Solar Regulators

All electrical power to operate the sensors, data logger, and the communication system at the field stations will be provided from a solar charging system. The power supply system will consist of a solar panel and back-up batteries with the appropriate power and protection circuits. The power supply system will be capable of satisfying all power requirements of the field station, considering site and meteorological conditions, guaranteeing uninterrupted operation and data transmission.

Solar panel will be capable of charging 12 V DC batteries to guarantee full charge of the batteries under normal operating conditions. The solar panels must be resistant to any adverse weather condition, ultraviolet radiation, wind, mechanical impacts, and penetration of dust and humidity. The solar panel will be installed in such a way as to defer vandalism and be identifiable in case of theft.

Battery will be rechargeable, suitable for service in solar powered systems and have sufficient capacity to satisfy normal operational loads for a period of at least 60 days without recharging. The batteries will require little or no maintenance and must be available in the region. The expected lifetime of the battery is to be not less than sixty (60) months.

The power and protection circuit will guarantee that the battery is not over-charged and receives the correct voltage, and the circuit will prevent power discharge during low solar radiation conditions.

Item	Technical specifications
<b>Site conditions</b>	ambient temperature: -10 to +60 degrees C; relative humidity: 5% to 100%, (non-condensing) altitude: < 1,000m
<b>Solar power supply</b>	common power supply for data logger, sensors, and transmitter 12 V DC solar panel as required for region, including mounting unit including sealed battery solar panel and battery must be sized according to needs of equipment provided and ensure at least 60 days full operation without recharge (one month of operation without transmission). The bidder must provide a power budget indicating how this requirement will be met. including voltage / charge regulator with battery test indicator Special batteries for cold conditions shall be procured; underground installation for frost prevention should be considered. The batteries must be able to keep charge and power the system a period of at least 4 months without re-charging.
<b>Lightning protection</b>	Single Point Grounding (SPG) with conductors, ground rod, power surge protector
<b>Accessories</b>	fixing units, mounting poles battery chargers (in: 230V AC / out: 12V DC) (10 required), cables compatible with the supplied model (power and signal)
<b>Tools and manuals</b>	complete tool kit compatible with supplied model for installation and routine maintenance giving full details (number of pieces and type) full documentation (wiring diagrams) and maintenance instructions in English (41 copies)

### 3.1.5 Water Level Sensors (Pressure Transducer)

These sensors are to be used at the surface water level stations housed in a protective house with stilling well which will be constructed by a different bidder. The preferred water level sensor technologies are pressure transducer. Each sensor will have certified documentation of performance. the pressure transducer will have the capability to output water temperature.

All water level sensors will be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the selected water level sensor is SDI-12. Following are the specifications for the water level sensors:

#### ***Water Level Sensor - Pressure Transducer***

Measuring Range	0 to 1.5m, 0 to 5m, 0 to 10m and 0 to 30m ranges, User programmable offset and scale range
Measurement Parameters	Water level in m and water temperature in °C
Typical Measurement Range	0 to 20 m
Resolution - Water Level	0.001 m
Resolution - Water Temperature	0.1°C
Accuracy - Water Level	0.05% F.S.
Accuracy – Water Temperature	0.1°C
Long Term Stability	± 0.1% / year FS
Temperature Compensated Range	0°C to 45°C
Safe Pressure Overload	Minimum twice the measuring range
Output Signal	SDI-12 preferred
Material	Stainless Steel DIN 1.4539
Protection	IP 68
Operating Voltage	10.0 to 16.0 VDC
Power Consumption	< 15 mA in active mode
Operating Temperature	-10°C to 60°C
Cable	Integral vented cable with pull strength of 100 kg minimum and suitable for placement under ground
Lightning Protection	Required: Shunts 20,000 Amperes, response time <10 nsecs
Vented Tube - Moisture Protection	Supplied with desiccant and desiccant chamber or humidity absorber

## Category II: Ground Water Level Recording Stations

### 3.1.6 Data Logger with Communications Devices

This item has the same technical specifications as item 3.1.2 in Category I.

### 3.1.7 Dip Meter

The meter should consist of

- Water Level Meter Type 120-LTC
- Length of tape 15 – 100m/ Traingle frame: 120 – 500m
- Power supply 4 x 1.5 Volt Alkaline; Size: C
- Operating temperature range: -30°C to +75°C
- Measuring range: Temperature -1 to +70 degrees Celsius; Conductivity 0 to 200,000 µS/cm; Accuracy Temperature: < 0.1 degrees C; Conductivity: < 0.5 % of current value, min. 2 µS/cm
- Probe : Ø 20 mm; Length: 225 mm, made from high class stainless steel
- Audible and visible alarms activated when the probe makes contact with water
- Measuring tape: Bifilar strip made of white polyethylene with 2 stainless steel wires, UV-resistant and resistant to contaminated water and salt water, Meter imprint in red, cm graduation and dm-numbering in black
- Accessories: Protection bag (adapted to the respective measuring tape length)

### 3.1.8 Data Logger Programming Set

This item has the same technical specifications as item 3.1.3 in Category I.

### 3.1.9 Solar Panel and Solar Regulators

This item has the same technical specifications as item 3.1.4 in Category I.

### 3.1.10 Ground water sensors for the measurement of Level, Conductivity and Temperature.

Item	Technical specifications
<b>Description</b>	This sensor will be used with the data loggers as described previously (CTD-Diver). The sensor shall be made of Zirconia (ZrO <sub>2</sub> ) stainless steel with a capacitive ceramic pressure cell. Diameter 22mm, Protection class: 10 years continuously submerged in water at 100 m; Memory capacity 48,000 measurements
<b>Cable Length</b>	100 m minimum
<b>Environmental</b>	All components IP 68 0 to 50 degrees C operational 0 to 100% Humidity (Non-condensing)
<b>Water Level</b>	
<b>Water Level Range</b>	0 – 10m
<b>Water Level Accuracy</b>	0.01% FS
<b>Water Level Resolution</b>	0.05% FS
<b>Conductivity</b>	
<b>Conductivity Range</b>	0 – 2000 $\mu$ S/cm
<b>Conductivity Accuracy</b>	$\pm$ 1 $\mu$ S/cm or $\pm$ 0.5% of measured value
<b>Conductivity Resolution</b>	1 $\mu$ S/cm
<b>Temperature</b>	
<b>Temperature Range</b>	0 to 70 degrees C
<b>Temperature Resolution</b>	0.1 degrees C
<b>Battery and Charging System</b>	
<b>Type</b>	Self-contained (no external charging device required)
<b>Operational Battery Life</b>	8-10 years, depending on use
<b>Accessories</b>	Reading unit;
	Baro Diver - DI500
<b>Water column</b>	Range 1.5 mH <sub>2</sub> O; Accuracy (max) $\pm$ 2 Accuracy (typical) $\pm$ 0.5

measurement	cmH2O
Long-term	$\pm 2$ cmH2O
Stability	
Resolution	0.1 cmH2O
Display resolution	0.058 cmH2O
Burst pressure	15 mH2O

### Category III: Automated Full Climate Stations

#### Sensors for Climate Stations

The typical suite of sensors located at an Automatic Weather Station will be: wind speed and wind direction at a ten-metre height, barometric pressure, air temperature and relative humidity housed in a radiation shield mounted on an arm from the ten-metre tower at a two metre height, solar radiation, an auto-accumulation precipitation gauge with a shield, a tipping bucket rain gauge, and a manual rain gauge. The solar radiation sensor will be mounted on an arm at two metres extending to the south at least one metre from the ten-metre tower. The Sensors for automatic weather stations can be single sensors or compact weather sensors connected via SDI-12 interface. The frequency of the automatic observations using sensors will be every 15 minutes. Evapo-transpiration will be calculated from the sensor data using the Penman-Monteith method. The requirements for a typical Automatic Weather Station are as follows;

Major Component	Quantity	Description
1. Site Infrastructure	1	2 metre high fence of galvanized chain link, with concrete posts, gate, and post foundations. Typical compound will be 10 by 15 metres
	1	Ten-metre free standing tower with foundation designed according to WMO guidelines with a method for accessing the top of the tower
	1	Weatherproof NEMA 6 (IP67) rated enclosure for data logger, communications device, battery, etc.
	1	Foundation and pedestal for auto accumulation rain gauge
		Foundation and pedestal for tipping bucket rain gauge
	1	Foundation for manual rain gauge

Major Component	Quantity	Description
	1	Mounting arm from the ten-metre tower for the radiation shield and barometric pressure sensor
	1	Mounting arm from ten-metre tower for a solar radiation sensor
	1	Underground conduit with inspection pits for placement of cables
	1	Flexible metal conduit with fire resistant protection for all above-ground cables with connectors, as required
	1	Grounding system for lightning protection
2. Instrumentation	1	Data logger with GPS and GPRS communications device
	1	Solar charging system with batteries
	1	Wind speed and wind direction sensor
	1	Temperature sensor with radiation shield
	1	Humidity sensor
	1	Barometric Pressure sensor
	1	Solar Radiation sensor
	1	Auto-accumulation raingauge with shield
	1	Tipping Bucket Raingauge
	1	Cabling, connectors, and mounting hardware for all sensors, as required

(i) Precipitation Sensors

Reliable precipitation measurement is critical to water management and flood forecasting and, as a result, highly reliable and suitable technologies that can record intense rainfall events as well as low rainfall amounts are required. Auto-accumulation precipitation gauges complete with a shield will be installed at all Automatic Weather Stations as well as a tipping bucket rain gauge and a manual rain gauge.

The Automatic Rain Gauge stations will use a tipping bucket rain gauge. The proposed precipitation gauge must have successfully passed WMO laboratory inter-comparison tests or be recognized by the WMO. The sensor is to be connected to a data logger for automatic data storage and transmission. The precipitation gauges will be capable of providing reliable observations for both low and high intensity rain events. In general, the precipitation sensors must be made of non-corrosive material. The standard manual rain gauges must be recognized by WMO. Refer to table below with specifications.

### 3.1.11 Temperature Sensor

Air temperature is required at each of the Automatic Weather Stations. The sensor is to be an industry standard electronic sensor mounted within a naturally aspirated radiation shield. The sensor must be recognized by the WMO. The sensor is to be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the sensor is SDI-12. Refer to table below with specifications.

### **3.1.12 Relative Humidity Sensor**

Humidity is required at each of the Automatic Weather Stations. The sensor will be an industry standard electronic sensor mounted within a naturally aspirated radiation shield. The sensor must be recognized by the WMO. The sensor is to be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the sensor is SDI-12. Refer to table below with specifications.

#### **(ii) Vented Enclosure**

The temperature and humidity sensors will be placed in a vented enclosure to shield the sensors from direct sunlight, wind, and precipitation. The enclosure is to be vented on all sides and bottom to provide exposure to ambient conditions while excluding direct sunlight and precipitation. Refer to table below with specifications.

### **3.1.13 Wind Speed/Wind Direction Sensors**

Wind speed and wind direction is required at each of the Automatic Weather Stations. The sensor is to be an industry standard ultrasonic sensor and will be mounted on a tower at a height of 10 meters. The sensor must be recognized by the WMO. The sensor should output instantaneous, average 10 minute, and 1 minimum, and maximum values. The sensor is to be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the sensor is SDI-12. Refer to table below with specifications.

### **3.1.14 Atmospheric Pressure Sensors**

Barometric pressure is required at each of the Automatic Weather Stations. The sensor will be an industry standard electronic sensor and mounted within a vented enclosure. The sensor must be recognized by the WMO. The sensor is to be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the sensor is SDI-12. Refer to table below with specifications.

### **3.1.15 Solar Radiation Sensors**

Net solar radiation is required at each of the Automatic Weather Stations. The sensor will be mounted on a tower. The sensor must be recognized by the WMO.

The sensor is to be connected to a data logger for automatic data storage and transmission. The preferred communications protocol of the sensor is SDI-12.

### **3.1.16 Evaporation**

Information on evaporation and potential evapo-transpiration is required to estimate water losses for agro-meteorological purposes and is critical to perform water balance analyses. The Penman-Monteith method will be used to estimate evapo-transpiration using an appropriate configuration of meteorological sensors at each of the Automatic

Weather Stations. Data from a suite of sensors, including wind speed and direction, air temperature, radiation, air humidity, and barometric pressure will be processed using a standard algorithm at the data centre to estimate evapo-transpiration.

The suite of required sensors required for the determination of evaporation will be connected to a data logger for automatic data storage and transmission. The preferred communications protocol for the suite of sensors is SDI-12.

(iii) Compact Multi Weather Sensor

A fully integrated and compact multi sensor is the preferred designed for the Automatic Weather Stations. The multi sensor incorporates all the required measurement parameters such as wind, solar radiation, temperature, humidity, barometric pressure, and solar radiation. The multi sensor will have a built in GPS and compass. The multi sensor must conform to international standards, be easy to use, and have minimum maintenance.

The multi-sensor will be of a design that enables the measurement of wind at 10 metres and the other parameters at 1.5 to 2.0 metres.


The multi sensor will satisfy the specification for each of the above noted meteorological sensors as well as the following requirements:

Specifications for the Automatic weather station

Sensor	Particulars	Details
<b>Thermometer</b>	Model	TR2
	Sensor Element	Pt 1000 DINA
	Material Sensor Body	Tecapet
	Measuring Range	-40 °C to 80 °C
	Resolution	0.01 °C
	Output Signals	SDI-12
	Cable Connector	7-pin Binder jack
<b>Relative Humidity</b>	Model	TR2
	Sensor Element	HC101
	Material	Tecapet
	Measuring Range	0 to 100%
	Resolution	1%
	Output Signals	SDI-12
	Cable Connector	7-pin Binder jack
<b>Barometer</b>	Model	B1
	Sensor Element	piezoresistive pressure element
	Material	Stainless Steel 316L
	Measuring Range	500 ... 1500mbar
	Resolution	0.1mbar
	Output Signals	voltage
	Cable Connector	7-pin Binder jack
<b>Rain gauge</b>	Model	RG Professional
	Sensor Element	Double tipping bucket
	Orifice	200cm <sup>2</sup>



Sensor	Particulars	Details
	Sensor Material	Stainless steel
	Body Material	Anodized aluminum
	Measuring Range	0 ... 16mm/min
	Resolution	0.2mm
	Output Signals	pulse
	Cable Connector	7-pin Binder jack
<b>Wind Speed, Wind Direction, Cross Bar</b>	Measuring principle	magnetic
	Measuring element	3-arm cup anemometer, aluminum
	Measuring range	<0.4 ... 75m/s (1.44 ... 270km/h)
	Linearity	< ± 0.5m/s
	Starting value	< 0.4m/s (1.44 km/h)
	Output signal	0 ... 2.5V DC
	Case	sea water resistant aluminum
	Weight	approx. 700g.
	Standards	VDI 3786, sheet 2 / WMO No.8
	Cable	Binder, 1m, shielded, PUR
	Connector	Binder M9 male 7-pin
<b>Wind Direction,</b>	Measuring principle	magnetic
	Measuring element	aluminum/stainless steel wind vane
	Measuring range	0° - 360
	Linearity	< ± 2.5°
	Starting value	< 0.4m/s (1.44 km/h)
	Output signal	0 ... 2.5V DC
	Dead angle	5° ± 1°
	Switching point	North
	Case	sea water resistant aluminum
	Temperature range	-40°C ... +70°C (non-icing)
	Weight	approx. 720g.
	Standards	VDI 3786, sheet 2 / WMO No.8
	Cable	Binder, 1m, shielded, PUR
	Connector	Binder M9 male 7-pin
<b>Solar radiation</b>	Dimensions	460 x 90 x 88mm
	Weight	615 g (incl. arm & cable)
	Sensitivity	~75 µV/Wm <sup>2</sup>
	Spectral Range	400 ... 1100nm
	Max. Irradiance	2000 W/m <sup>2</sup>
	Temperature response	+/- 0.15% /°C
	Non-stability	< 2% per year
	Directional Error	± 5% at 80 degrees
	Operating Temperature	-30°C ... 70°C
	Power Supply	5,6 ... 10V @ 3mA
	Output Signal	0 ... 2,5VDC
	Cable and Connector	2m cable, shielded, PUR coating; 7-pin Binder jack M9 male

Equipment	Particulars	Details
<b>Remote Telemetry Unit (RTU)</b>	Model	A753 GPRS addWave
	Device Type	Data Logger and Cell Modem
	Sensor Interfaces	1 SDI port and 3 Pulse ports
	Data memory	2MBs
	Data Transmission	GMS/GPRS
	Sim card size	Regular "mini"
	Sim card network	Any
	Cable Connector	7-pin Binder jack
	Power Source	Solar and Battery
<b>Solar Panel</b> 	Uoc	~ 11,2V
	Umpp ~	~9,4V
	Isc	578mA
	Impp	540mA
	Ppeak	5,11W (±3%)
	Connector	male 5-pin Binder
	Dimensions	210 x 164mm
	<b>Battery Pack</b>	Model
Type		nickel metal hydride
Nominal Voltage		1.2V
Total Voltage		6.0V
Rechargeable		Yes
Capacity		3300 m/Ah
<b>Physical Environment</b>	Protection Class	IP65
	Operating Humidity	0 to 100% humidity
	Operating Temperature	-10°C to 60°C
	Colour	White
	Material	Non-metal
	Output	SDI-12
All necessary cabling, connections, and mounting hardware to be supplied. Mounting is to be on a mast. Cabling must be UV resistant and suitable for placement under- ground.		
Software and a communications cable required to configure the multi sensor and for the display of real-time and logged data must be supplied.		

## OTHER EQUIPMENT, BASE STATION & SOFTWARE

### 3.1.19 Electronic Current Meters (ADC)

The use of acoustic Doppler current meters as a substitute for mechanical current meters has become acceptable for the measurement of stream discharge in low to medium to high flow situations. The acoustic Doppler current meter will be used to measure flow velocity for determining river flow using the velocity area method by wading and suspended measurement techniques. The specifications are tabulated below:

	Particulars	Details
<b>Velocity measurement</b>	Measuring range	-0.2 m/s to +2.4 m/s

	Particulars	Details
	Accuracy	±1% of the measured value ±0.25 cm/s
	Resolution	0.001 m/s
	<b>Measured volumes</b>	
	Distance from sensor	10 cm
	Diameter	1 cm per sound pulse
	Length	5 cm
	Acoustic frequency ultrasonic transducer	6MHz
<b>Depth measurement</b>	Piezoresistive pressure cell(absolute)	
	Measuring range	0 to 5 cm
	Accuracy	0.1 % FS
	Resolution	0.01 % FS
	Max. overload	1.5 times the measuring range
<b>Temperature measurement</b>	Measuring range	-5 °c to 35 °c
	Accuracy	±0.5 °c
	Resolution	0.1 °c
	Salinity range	0 ppt to 50 ppt (mg/l)
<b>Power supply</b>	Type	fixed battery pack, NiMH
	Nominal voltage	9.6 VDC
	Life	Typically > 14 hours
	Charging cycles	< 500
	Output voltage / current of power supply	18 VDC / 1 A
<b>Operating conditions</b>	Operating temperature range	-20 °c to +60 °c
	Storage temperature range	-40 °c to +85 °c
	Shock resistance	Compatible with EN 60068 – 2 - 32
<b>Dimensions and weight</b>	Cylindrical sensor body	∅ 40 mm
	Length	14.5 cm
	Weight in air	800 g
	Weight in water	620 g
	<b>Handheld unit</b>	
	Weight	700 g
	Dimensions (L x W x H)	23.3 cm x 8.3 cm x 3.2 cm
<b>Material</b>	Sensor housing	Delrin / Stainless steel
	Screws	Stainless steel
	Handheld unit	Aluminium, powder coated
	Keyboard	Autotex V 150 X1
<b>IP protection class</b>	<b>Handheld unit</b>	
	Plug (sensor connection cable) connected	IP 65
	Plug (sensor connection cable) not connected	IP 40
	Sensor (except for the plug)	IP 68
<b>Internal data memory</b>	Capacity	4 MB (flash)
<b>Ultrasonic transducers</b>	Frequency	6 MHz
	Beam angle	20 °
<b>OTT QReview software</b>	Operating system	Windows 98, windows ME
		Windows NT, windows 2000 or higher version
		Windows XP, windows Vista
	Functionality	Data check and processing
		Data export (XML, ASCII)
<b>Wading Rod</b>	Instrument to come complete with high quality top setting wading rods and all necessary operational and instrument mounting hardware. Wading rod to be available in up to 5 m lengths marked in minimum of 2 cm increments. Each rod should be 1 m in length and 20mm diameter.	

### 3.1.20 Mechanical Current Meters

Two mechanical flow meters complete with all accessory equipment and materials are required for the conduct of discharge measurements in low to medium to high flow situations. The metering equipment will be used to measure flow velocity for determining river flow using the velocity area method by wading and suspended measurement techniques. Accessories are to include wading and suspension rods, weights, sounding reels, and cranes.

The mechanical flow meters units are to be supplied with a keypad and display as well as have the ability to manually determine velocity by counting audio beeps. The specifications for mechanical current meters are indicated below:

<p>The mechanical measurement system is to be complete and include meter, a stabilizer tail fin, top setting wading rod, sounding reel, hanger bar, sounding weights, and tagline to take measurements from a bridge, cableway, or by wading.</p> <p>Sounding weights for carrying out discharge measurements by suspension will include weights of 5 kg, 10 kg, and 15 kg.</p>	
Sensor Configuration	Cup-type meter with interchangeable buckets with durable tungsten tip pivot. Bucket configuration to be six (6) durable glass filled nylon buckets. Reed switch to be encapsulated.
Construction	Cast brass body, nickel plated with stainless steel bucket wheel frame
Velocity Measurement	0.025 m/s to 8.0 m/s
Velocity Measurement Accuracy	± 1% of measured value
Velocity Measurement Resolution	0.001 m/s
Output Signal	Voltage free digital signal, with one (1) full revolution of the bucket assembly producing one pulse.
Standard Kit	3.0 meters connecting lead, calibration certificate, 30 mls of current meter oil, and screw driver, heavy-duty case with durable moulded foam. Instrument to come complete with all necessary operational and instrument mounting hardware.
Counter	Basic counter that can be set to count pulses for a specific time period (10-200 secs). The counter stops when the time period has elapsed and shows a digital reading for the number of pulses. A rating table is to be used to convert the number of pulses to velocity.
Wading Rod	Instrument to come complete with high quality top setting wading rod. Wading rod to be available in up to 5 m lengths marked in minimum of 2 cm increments. Each rod piece should be 1 m in length and 20mm diameter.

### **3.1.21 ADCP (downward looking) for River Discharge Measurement**

The ADCP will come complete with a tethered boat, communications to shore radios, and field-ruggedized laptop. The ADCPs technology shall be based on the most recent available series of Acoustic Doppler Current Profilers that can profile depths of up to 30 metres with high levels of suspended sediment.

The ADCP measurement systems are to include measurement platform, measurement computer and software, differential GPS, all cabling, and power supply. The software must handle both moving boat and discrete panel measurements.

<p>The Acoustic Doppler Current Profiler (ADCP) is to be used for automated discharge measurements on rivers and canals. The ADCP will be deployed in a roving mode, being transported from the one site of interest to the other. Functionally it is required to measure discrete river discharges in conditions ranging from streams with cross sections up to 10 m wide and 1 m deep to rivers with cross sections up to 400 m wide and 40 m deep. Measurements are based on the measurement of three dimensional water velocity vectors and platform position using acoustic bottom tracking. The ADCP software must handle moving boat and discrete panel type measurements.</p> <p>ADCP measurement systems are to be complete and fully functioning including ADCP, GPS, power system, measurement controller (laptop or PDA complete with software), and measurement platform or boat.</p>	
Depth Profiling Range	0.3 m to 40 m
Velocity Profiling Range	±10 m/s
Measurement Profiling Range (minimum effective depth of water required to obtain a valid velocity profile including the draft of the instrument as mounted on the operational floating platform, blanking distances, and one valid depth cell)	Minimum required depth 0.4 m. Maximum required depth 40 m.
Velocity Measurement Accuracy	0.3% of relative velocity with a minimum of 3 mm/s
Velocity Resolution	1 mm/s
Maximum Number of Depth Cells	100
Minimum Cell Size	20 cm
Depth Profiling	Independent vertical beam
Depth Profiling Range	0.3 m to 70 m
Depth Profiling Accuracy	1% of measured depth
Depth Profiling Resolution	1 mm
Temperature Measurement Range	1°C - 50°C
Temperature Measurement Accuracy	± 0.5°C
Temperature Measurement Resolution	0.01°C
Tilt Sensor Measurement Range	±15°
Tilt Sensor Accuracy	±1°
Tilt Sensor Resolution	.05°
Compass Measurement Range	0 - 360°
Compass Measurement Accuracy	± 2°
Compass Measurement Resolution	0.1°
Measurement Control	PDA, lap op or equivalent using Bluetooth, WiFi, or spread spectrum radio.
Moving Platform Software	Intuitive software including ship track, measured velocity profile, velocity contour plot, measurement statistics and quality assurance parameters.
Stationary Position, Velocity Area, based	Intuitive stationary position software including measurement

***The complete system should consist of the following:***

- Carrying Vessel i.e. Small Boat;
- Acoustic Doppler Current Profiler with bottom tracking;
- DGPS / RTK GPS;

- Power Supply;
- Communication System;
- Data Receiver;
- Application Software.

***The following additional specifications will apply:***

***Carrying Vessel:***

- The vessel must be robust, corrosion resistant, stream lined and the hull design should preferably be of the Catamaran or Trimaran type.
- The vessel shall be designed and be tested to be stable in rough water conditions and currents of up to 5 m/s.
- The vessel should preferably not exceed the following dimensions and weight:  
1 500 mm long x 900 mm wide and 10 kg (boat alone).
- The profiler shall be fitted to the vessel in such a manner that minimum damage to the profiler could be caused by any floating debris.
- The power supply and communication system shall be built into a compartment on/in the vessel and should be watertight.

***Power Supply:***

- The power supply for the profiler and communication system should be commercially available dry cell battery / batteries or rechargeable sealed lead-acid battery / batteries.
- The power switch to power up the complete system should be placed on the boat in such a manner that it has easy access to the operator – no unscrewing of lids, etc.
- The instrument should measure continuously for a period of 10 hours using an external 8 amp hour sealed, lead-acid battery.
- Provision must be provided to protect against damage in the event of reverse polarity connection. In the event of such a connection, it should not be necessary to open the water-tight case to replace fuses or to reset the profiler.

### 3.1.22 ADCP (Side looking/horizontal) for River Discharge Measurement

No	Item	Details
1	ADCP Type	Side-looking ADCP for continuous measurement of discharge
<b>Water Level and Velocity</b>		
2	Depth Range	0.3-20m of depth
3	Depth Accuracy	The greater of +/-0.6 cm or 0.1% of measured depth
4	Sampling Range	1.5-100m or as determined upon inspection site
5	Vertical Beam Range	0.2-15m
6	Horizontal Beam Width	1.4 degrees
7	Vertical Beam Width	3.8 degrees /
8	Signal Output	SDI-12
9	Water velocity range	6-7m/s
10	Water velocity accuracy	+ - 1% of measured velocity
11	Water level vertical beam range	0.2 – 18m
12	Water level vertical beam accuracy	Depth < 6m: + - 0.6cm
13	Pressure sensor range	30m
14	Pressure rating and maximum depth	30m
<b>Power</b>		
15	Voltage (input)	12 - 15VDC input
16	Power consumption	0.7 – 1.0 W
<b>Other Requirements</b>		
17	Accessories	All mounting equipment, conduit for a secure installation along the river bed. The bidder may suggest alternative solution that yields the same or higher accuracy and precision
18	Tools and Manuals	<ul style="list-style-type: none"> <li>• Complete tool kit for installation and routine maintenance giving full details (number of pieces and type)</li> <li>• Full documentation (wiring diagrams) and maintenance instructions in English</li> </ul>

***The complete system should consist of the following:***



- Carrying Vessel i.e. Small Boat;
- Acoustic Doppler Current Profiler with bottom tracking;
- DGPS / RTK GPS;
- Power Supply;
- Communication System;
- Data Receiver;
- Application Software.

***The following additional specifications will apply:***

***Carrying Vessel:***

- The vessel must be robust, corrosion resistant, stream lined and the hull design should preferably be of the Catamaran or Trimaran type.
- The vessel shall be designed and be tested to be stable in rough water conditions and currents of up to 5 m/s.
- The vessel should preferably not exceed the following dimensions and weight:  
1 500 mm long x 900 mm wide and 10 kg (boat alone).
- The profiler shall be fitted to the vessel in such a manner that minimum damage to the profiler could be caused by any floating debris.
- The power supply and communication system shall be built into a compartment on/in the vessel and should be watertight.

***Power Supply:***

- The power supply for the profiler and communication system should be commercially available dry cell battery / batteries or rechargeable sealed lead-acid battery / batteries.
- The power switch to power up the complete system should be placed on the boat in such a manner that it has easy access to the operator – no unscrewing of lids, etc.
- The instrument should measure continuously for a period of 10 hours using an external 8 amp hour sealed, lead-acid battery.
- Provision must be provided to protect against damage in the event of reverse polarity connection. In the event of such a connection, it should not be necessary to open the water-tight case to replace fuses or to reset the profiler.

### 3.1.23 ADCP Traveller for River Discharge Measurement

The ADCP traveller shall be able to traverse and tow an unmanned gauging boat such as the StreamPro, across a measurement cross section at a steady speed. Although Acoustic Doppler Current Profilers (ADCPs) work using bottom tracking and do allow for uneven crossing speeds the results obtained by using a steady and repeatable speed for traversing gives demonstrably more reliable results. The ADCP traveller shall mainly consist of two components; (i) A lightweight motorized traveller unit that attaches to a survey rope strung across the river or stream and (ii) The controller module that is attached to the 'boat'.

No	Item	Details
1	Traveller Power:	12V 1.2Ah sealed lead acid battery
2	Max speed (appx)	8 m/min
3	Min speed (appx)	0.5 m/min
4	Remote Battery:	12V alkaline (eg Duracell MN21; Energizer A23, etc)
5	Traveller weight:	>=530g
6	Control module weight:	140
7	Additional Items	2 x remote control transmitter
		1x charging lead for the control module internal battery
		1 x carabiner to attach the StreamPro to the traveller
		2 x rope clips to limit the travel at the river edge
		Survey rope (rectangular profile 5mm*2mm)

***The complete system should consist of the following:***

- Carrying Vessel i.e. Small Boat;
- Acoustic Doppler Current Profiler with bottom tracking;
- DGPS / RTK GPS;
- Power Supply;
- Communication System;
- Data Receiver;
- Application Software.

***The following additional specifications will apply:***

***Carrying Vessel:***

- The vessel must be robust, corrosion resistant, stream lined and the hull design should preferably be of the Catamaran or



Trimaran type.

- The vessel shall be designed and be tested to be stable in rough water conditions and currents of up to 5 m/s.
- The vessel should preferably not exceed the following dimensions and weight:  
1 500 mm long x 900 mm wide and 10 kg (boat alone).
- The profiler shall be fitted to the vessel in such a manner that minimum damage to the profiler could be caused by any floating debris.
- The power supply and communication system shall be built into a compartment on/in the vessel and should be watertight.

**Power Supply:**

- The power supply for the profiler and communication system should be commercially available dry cell battery / batteries or rechargeable sealed lead-acid battery / batteries.
- The power switch to power up the complete system should be placed on the boat in such a manner that it has easy access to the operator – no unscrewing of lids, etc.
- The instrument should measure continuously for a period of 10 hours using an external 8 amp hour sealed, lead-acid battery.
- Provision must be provided to protect against damage in the event of reverse polarity connection. In the event of such a connection, it should not be necessary to open the water-tight case to replace fuses or to reset the profiler.

**3.1.24 Tough Book Laptop**

<b>Durability</b>	<p>MIL-STD-810G certified (6' drop, shock, vibration, rain, dust, sand, freeze/thaw, high/low temperature, temperature shock, humidity, explosive atmosphere)</p> <p>MIL-STD-461F certified</p> <p>IP65 certified sealed all-weather design</p> <p>Hard drive heater</p> <p>Full magnesium alloy case with handle</p> <p>Shock-mounted flex-connect hard drive with quick-release</p> <p>Reinforced locking port covers</p>
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	Pre-installed replaceable screen film for touchscreen protection
<b>software</b>	Windows® 8 Pro 64-bit (with Windows® 7 downgrade option) Recovery Partition
<b>CPU</b>	Intel® Core i5-3380M vPro Processor 2.9GHz with Turbo Boost up to 3.6GHz Intel Smart Cache 3MB
<b>Storage &amp; Memory</b>	8GB SDRAM (DDR3L-1333MHz)
<b>Display</b>	13.1" XGA sunlight-viewable touchscreen LED 1024 x 768 2-1200 nit Circular polarizer Anti-reflective and anti-glare screen treatments 3380M CPU with switchable graphics in BIOS: ATI Radeon HD7750, 512MB dedicated VRAM Intel QM77 video controller, max. 1785MB shared VRAM with 32-bit 3340M CPU External video support up to 1280 x 1024 at 16.7 million colors
<b>Audio</b>	Intel® high-definition audio compliant Integrated front-facing speaker Keyboard volume and mute controls
<b>keyboard &amp; input</b>	Touchscreen Integrated stylus holder 87-key with dedicated Windows key Optional backlit keyboard Sealed rubber or plastic emissive Pressure-sensitive touchpad with vertical scrolling support
<b>expansion slots</b>	PC card type II x 1 SD card (SDXC) Express Card/54 x 1
<b>interface</b>	Docking connector            80-pin HDMI                            Type A VGA                              D sub 15-pin Headphones/speaker        Mini-jack stereo Microphone/line in         Mini-jack stereo Serial                            D-sub 9-pin Ext. antenna connection    50 ohm coaxial USB 3.0 (x 1), USB 2.0 (x 3) 4-pin
<b>Power supply</b>	Battery operation: 14.5 hours (3340M), up to 12 hours (3380M)

	<p>Long life Li-Ion battery pack (10.65V, typical 8550mAh, minimum 8100mAh)</p> <p>Battery charge time: 3.5 hours off, 4.5 hours on</p> <p>Optional media bay 2nd battery: 6.5 additional hours</p> <p>AC Adapter: AC 100V-240V 50/60Hz, auto sensing/switching</p> <p>Worldwide power supply</p>
<b>Power Management</b>	Suspend/Resume Function, Hibernation, Standby, ACPI BIOS

### 3.1.25 Computer Server and Software for Network Data Reception, Data Processing and Data Storage (Base Station Infrastructure)

The Base Station will be equipped with software to manage the acquisition of hourly data from both the EUMETSAT Satellite system as well as the GSM-GPRS communications system. The Base Station will be composed of a PC-Based Central Receiving Station. The basic requirement for the data communications is one-way, scheduled transmission with a non-redundant transition system on a minimum of an hourly schedule from the field station to the Data Center. To allow future system upgrade and maintenance, the telemetry data format shall be based on well know international industrial standards (not proprietary protocols).

The entire system for the automatic transmission and reception of data from the remote field stations must ensure the permanent operation of the entire network, with virtually no loss of data under all weather conditions, including significant rainfall and storm events. The reception level of data must meet or exceed 98% of the data transmitted. The delay in the reception of data from remote field stations as viewed from the Data Centre must not be greater than one (1) hour.

The Base Station will be located at the DWRM data processing center where processing and analysis of hydro-meteorological data for station monitoring and maintenance will also take place. The specifications for Base Station Infrastructure are as follows:

<b>Item</b>	<b>Technical specifications</b>
<b>Site conditions</b>	<p>ambient temperature: -30 to +60 degrees C</p> <p>relative humidity: 5% to 100% with condensation</p> <p>altitude: &lt; 1000m</p>
<b>System characteristics</b>	<p>Flexible number of remote station data collection with the capability to collect all GoU stations and co-operator stations in or near the GoU watershed.</p> <p>overall telemetry system performance better than 99.9% of error free data</p>

Item	Technical specifications
	backup power supply for up to 72hrs.
<b>Hardware</b>	<b>Processing Server:</b> For processing with the capability to process 600 stations through the Mobile Network.
<b>Server Specifications</b>	<p><b>Chassis Configuration:</b> 16 x 2.5 2U Rack Chassis, 16 SAS/SATA bays, GPU Capable, 2/4 CPU Configuration</p> <p><b>Processor:</b> 4x Intel® Xeon® Gold 5217 3.0G, 8C/16T, 10.4GT/s, 11M Cache, Turbo, HT (115W) DDR4-2666</p> <p><b>PCIe Riser:</b> Risers with up to 1, x8 PCIe Slots + 2, x16 PCIe Slots</p> <p><b>Memory DIMM Type and Speed :</b> 2133MT/s LRDIMMs</p> <p><b>Memory Capacity:</b> Minimum of 128GB LRDIMM, 2133MT/s, Quad Rank, x4 Data Width</p> <p><b>RAID Configuration:</b> RAID 0 for H330/H730/H730P (1-16 HDDs or SSDs)</p> <p><b>RAID Controller:</b> PERC H730P RAID Controller, 2GB NV Cache</p> <p><b>Hard Drives:</b> Minimum of 4TB 7.2K RPM SATA/SSD 6Gbps 2.5in Hot-plug Hard Drive</p> <p>Network Daughter Card Options Rear ports: Video, serial, 2 x USB 3.0, 4 x 1GE, 4 x 10GE, 2 x 10GE+2 x 1GE, or 2 x 25GE Internal port: 1 x USB 3.0, Front ports: Video, 2 x USB 2.0, 1 managed (micro-sub), Video card: VGA, dedicated IDRAC Direct USB. (Optional 1 x USB 3.0 only PCIe: Up to 6 x Gen3 slots, (4x16 slots or 2x16 + 4x8 slots) offered on the 8-drive configuration</p> <p><b>Additional Network Cards:</b> QLogic 57810 DP 10Gb DA/SFP+ Converged Network Adapter</p> <p><b>Host Bus Adapter/Converged Network Adapter:</b> Qlogic 2660, Single Port 16GB, Fibre Channel HBA, Full Height</p> <p><b>Internal Optical Drive:</b> DVD+/-RW, SATA, Internal</p> <p><b>Rack Rails:</b> ReadyRails™ Sliding Rails With Cable Management Arm</p> <p><b>Power Supply:</b> Dual, Hot-plug, Redundant Power Supply (1+1), 750W, Titanium, 200-240VAC</p> <p><b>Power Cords:</b> C13 to C14, PDU Style, 10 AMP, 2 Feet (.6m) Power Cord, Argentina</p> <p><b>Operating System:</b> Latest Windows Server Operating System</p> <p><b>OS Partitions:</b> Maximum Microsoft OS Partition Override, GPT Enabled</p> <p><b>Hardware Support Services:</b> 3Yr Basic HW Warranty Repair, 5x10 NBD Onsite</p> <p><b>Product Form Factor:</b> Rack-mountable - 2U</p> <p><b>Number of Cores:</b> 6-core</p>

Item	Technical specifications
	<p><b>Installed Cache:</b> Size 15 MB</p> <p><b>Other options:</b> The Keyboard (Multimedia full size) , Mouse (OEM mouse)from the same manufacturer. The keyboard and mouse shall be wireless</p> <p><b>Rack:</b> 22 U rack with Sidewalls, Split rear doors, Baying Kits, toolless Shelves, casters, Bolt Down Kits, Cable Management, Power Strips – vertical or Rackmount, Enclosure Monitoring System, Toolless Blanking Panels, Fans</p> <p><b>1U KMM Rack Console :</b> 24-inch LCD TFT active-matrix, 1U 24-inch, rackmount drawer design with tow (2) USB 2.0 ports, Card reader slots, etc. Input Device: Keyboard, Touchpad, Keyboard Layout: 83 Key Layout with Full 101-Key Functionality, Touchpad: Integrated 16mm Touchpad, Mouse Buttons: 2 Mouse Buttons, Input Device: Interfaces USB connector for both Keyboard and Touchpad, PS/2 connector for Touchpad (USB to PS/2 adapter available for Keyboard) Rail Options Rapid Rails Tool-less mounting for square-hole racks Versa Rails Tooled mounting in unthreaded round-hole racks.</p>
<b>Server Room Specifications</b>	<p>Critical alarms related to the functioning of the AC system and physical data</p> <p>Emergency/ back-up power : not tied into the building life safety system</p> <p>Shutdown capability of automatic systems based on return air temperature monitor</p> <p>Adequate fire suppression system; pre-action system</p> <p>Video camera system required to monitor and record individuals entering or working in the space</p> <p>Dedicated circuits for all equipment, plus one or more additional circuits, as needed for flexibility in the event a circuit fails</p> <p>Cabling must be maintained in an orderly fashion to reduce the possibility of an accidental outage</p> <p>Two distribution switches and a router to improve on the connectivity of the server to the monitoring stations.</p>
<b>Software</b>	<p>software for data processing, communications handling as well as control and customization of ground station operations</p> <p>Decoding and routing of data from the Data Center</p> <p>Complete data collection diagnostics, including signal strength from each station, time of message reception, frequency as well as</p>

Item	Technical specifications
	<p>other indicators deemed necessary for data receive operation and remote data station data communication</p> <p>Graphical and Tabular Data viewing facility</p> <p>Real-time as well as Historical Trending</p> <p>Statistics (Minimum, Maximum, Average, Standard Deviation, etc)</p> <p>Equation and Rating table lookup capability</p> <p>Graphs and Data exporting features</p> <p>Aquarius, RDBMS PostGreSQL, ACCESS, or compatible for Data Storage</p> <p>Data Exporting capabilities either in real-time, or in bulk</p> <p>Automatic and Scheduled Reporting features</p> <p>Diagnostic Reports</p>
<b>UPS</b>	<p><b>Output Power capacity:</b> 1980-Watt, Minimum Volt Amps: 2200 VA</p> <p><b>Output Voltage:</b> 120 V</p> <p><b>Output Nominal Voltage:</b> 120 V</p> <p><b>Input Nominal Voltage:</b> 120 V</p> <p><b>Typical backup time:</b> Up to 180 minutes</p> <p><b>LEDs:</b> On Battery, Low, Online, Overload.</p> <p><b>Alarms:</b> Alarm when on battery, distinctive low battery alarm, configurable delays.</p> <p><b>Interface:</b> USB Port, Serial Port and 8 output connectors.</p> <p><b>Control Panel:</b> Multi-function LCD display status and control console.</p> <p><b>Input Nominal input voltage:</b> 230 V</p> <p><b>Input frequency:</b> 50/60 Hz +/- 3 Hz (automated sensing)<b>Others:</b> Automatic Voltage regulation and Overload protection, Surge protection filter, Data line protection, Multi-function LCD status and control console and ECO mode.</p>
<b>Accessories</b>	<p>including all necessary cables and connectors</p> <p>including air conditioning equipment</p>
<b>Documentation</b>	<p>operators hand book and maintenance instructions for all parts of the system in English (3 copies)</p>



Item	Technical specifications
	full documentation (in English, 3 copies), including system block diagram and circuit wiring diagram

### 3.1.26 Data Collection Software for the collection of data over Satellite or GSM/GPRS

Software will be provided for reception of incoming data, which will also be subjected to quality control procedures through a quality control software package provided by the bidder. The quality control software will be used to screen incoming data for artifacts and flag data based on the following criteria:

1. Minimum threshold
2. Maximum threshold
3. Change in data value over time

These thresholds will be changeable through a simple interface.

### 3.1.27 Computer for Database, data processing, and data visualization

Item	Technical specifications
<b>Site conditions</b>	ambient temperature: -30 to +60 degrees C relative humidity: 5% to 100% with condensation altitude: < 1,000m
<b>PC Specifications</b>	CPU and Memory - Core i7 or better or the equivalent GHz minimum or greater if required by Data Management Software Memory –8 GB or greater. The Hard disk size capable of storing 10 years' worth of data in addition to all software components or 1 TB, whichever is greater. Monitor - A minimum of three computer screens that can be used to display screens from data collection and data processing processes. These screens will be a minimum of 21 inches and shall incorporate Flat Screen technology. Computer hardware will have the proper interface to use a minimum of four screens. Keyboard and Mouse – The keyboard and mouse shall be wireless Other Devices - CD/DVD RW+ Network – Giga Ethernet 10/100/1000Mbps (RJ45) Interfaces - Serial, parallel, USB, 5V PCI Slot Electrical - Supply Voltage: 230V, 450W Computer Form Factor - Rack mount. Please include computer rack with

	offer to house computer(s) data receivers, network devices as required by the DCS. The rack space available shall be twice that which is actually required for the equipment that is being offered.  Operating systems - Windows Server 2010 or newer
<b>Power Supply</b>	220 - 230V AC power supply  UPS equipment

### 3.1.27 Database Software for the Storage of raw and processed hydro-meteorological data

Software will be provided for the development of discharge rating curves, and the real time computation of discharges from the real time water levels, such that both real time water levels and corresponding discharges are made available to other subsystems as required for all discharge measurement stations.

<b>Data Processing</b>	<p>automatic storage in the server database</p> <p>conversion of raw data (e.g. voltages) to engineering units</p> <p>data validation (e.g. data out of range, discharge less than zero)</p> <p>database management for measurement data, maintenance data, configuration data, event logger</p> <p>upload of data retrieved by portable computer / mobile unit into database</p> <p>manual data input / editing</p> <p>SQL tools for generation of queries</p> <p>basic statistical capabilities</p> <p>graphical visualization and presentation of data (e.g. hydrographs) for control purposes, with adjustable scales</p> <p>printing of graphic and tabular output</p> <p>pre-defined reporting capabilities</p> <p>real-time data conversion (water level to discharge)</p> <p>management of rating curves</p> <p>data aggregation (e.g. hourly to daily data), determination of totals, maxima and minima</p>
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### 3.1.28 Time Series Software for the processing of hydro-meteorological data

<b>Software Time Series</b>	Hydrologic Time Series Data Base, including rating table workup
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	<p>Software package must not require annual maintenance contract or any other agreement that would prevent the software from operating indefinitely. Software types include Aquatic Informatics - Aquarius, Seveno - Data Sight, or comparable.</p> <p>Software for data processing, communications handling as well as control and customization of ground station operations</p> <p>Graphical and Tabular Data viewing facility</p> <p>Real-time as well as Historical Trending</p> <p>Statistics (Minimum , Maximum, Average, Standard Deviation, etc)</p> <p>Equation and Rating table lookup capability</p> <p>Graphs and Data exporting features</p> <p>RDBMS PostgreSQL, ACCESS, or compatible</p> <p>Data Exporting capabilities either in real-time, or in bulk</p> <p>Automatic and Scheduled Reporting features</p> <p>Diagnostic Reports</p> <p>The Data Management Computer will possess similar Data Management and related Software modules to the ERS</p> <p>Alarms – Email, SMS Text, Fax user definable triggers to evaluate the following conditions</p> <ul style="list-style-type: none"><li>- Missing Station</li><li>- Low Battery</li><li>- Solar Power Failure</li><li>- Data out of limits</li><li>- Bad transmissions</li></ul>
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### 3.1.29 Web based data visualization software for the display and dissemination of hydro-meteorological data

<b>Software: Data Visualization</b>	<p>Web Server Software Apache (Open Source)</p> <p>Connectivity programs to allow complete access to the database</p> <p>Web application software that produces tabular data of any time selectable by the user</p> <p>Web application to provide a download of data in EXCEL (xls) and CSV formats, selectable by the user</p> <p>Web application to provide graphical presentation of the data. Graphical presentation will allow the user to plot up to four variable on a graph using a time scale selectable by the user</p> <p>Web application to provide map presentation using GOOGLE maps or similar. Map presentation to allow for various presentations of data including stage data, rainfall data, ground water level and conductivity. Presentation tool to allow for pan and zoom function.</p> <p>Map presentation will also allow for presentation of alert and alarm information such as rapidly rising water and exceptional rainfall events</p> <p>Software must be easily configurable by the user such as the remote station alarm thresholds</p> <p>Software must work seamlessly with the database to provide information quickly and simultaneously to multiple users.</p> <p>Software must be COTS (Commercially Off-The-Shelf), and be a mature product being at least two years old.</p>
<b>Export Interfaces</b>	<p>export function for data transfer to other software packages (e.g. ASCII format, Excel)</p> <p>open, well-documented Application Programming Interface</p> <p>sufficient database documentation and user rights to allow for integration of the software provided with a tailor-made hydrological software package to be developed for analysis, modelling and forecasting purposes</p>
<b>Accessories</b>	<p>all necessary cables and connectors compatible with the computer</p> <p>air conditioning</p> <p>battery backup provided by the online UPS shall be 1hr at full load</p>
<b>Documentation</b>	<p>database structure must be well documented, including entity-relationship diagrams</p> <p>operators hand book and maintenance instructions for all parts of the system in English (3 copies)</p> <p>full documentation (in English, 3 copies), including system block diagram and circuit wiring diagram</p>

### 3.1.30 Maintenance Tracking Software

Software will be provided that tracks maintenance visits, and equipment failures by model and serial number, tracking equipment repairs through the supplier. As part of the

maintenance agreement the bidder ( a separate contract will be signed) will provide monthly reports to DWRM/ GoU which will provide a review of the DCS operational readiness, including a list of station/sensors that are not in operation, as well as a review of maintenance activities and repair visits.

The bidder will provide a draft template of the reporting form in the bid.

The software to be provided by the bidder will include all functionalities required for the configuration, control and operation of all network components (sensors, data loggers, telemetry system). Features required at the data processing centre include real-time data decoding, processing and storing of incoming messages, database management, basic statistical, graphical and reporting capabilities as well as data conversion.

Specific software for hydro meteorological analyses, modeling and forecasting purposes is not part of this procurement process. The software provided by the bidder must be open for integration with the specialized software package to be developed, and the bidder must provide sufficient database documentation and user rights for this purpose.

### 3.1.31 Global Positioning System Receivers (GPS)

Specification for high accuracy mapping grade hand held GPS for data collection with attribute value and office software for post processing and exporting/importing the data to/from GIS

The handheld device specification must be equivalent to below mentioned specifications or higher/latest with compatible software.

No	Specifications
1	Integrated high sensitivity GPS/SBAS receiver & antenna capable to record Longitude, Latitude, and Altitude
2	Positional Accuracy (HRMS) <ul style="list-style-type: none"> <li>a. Less than 3 meter post processed</li> <li>b. Less than 5 meter in real time with SBAS</li> <li>c. Less than 10 m standalone GPS accuracy</li> </ul>
3	Integrated GPS receiver should have minimum 48 channels and should be capable of tracking <ul style="list-style-type: none"> <li>a. GPS –L1 code</li> <li>b. SBAS</li> </ul>
4	Processor –800 MHz (minimum)
5	Memory <ul style="list-style-type: none"> <li>a. 256 MB RAM (minimum)</li> <li>b. 2 GB flash Memory (minimum)</li> <li>c. Support microSD card up to 16GB</li> </ul>
6	Display <ul style="list-style-type: none"> <li>a. 3.5 inch diagonal length</li> <li>b. Sunlight Readable</li> <li>c. Color and touch screen with alphanumeric</li> <li>d. 640 x 480 pixel (minimum)</li> </ul>
7	Integrated Camera with LED flash

	<ul style="list-style-type: none"> <li>a. 3.2 megapixel resolution (minimum)</li> <li>b. Auto focusing facility</li> <li>c. Geo-tagging facility</li> </ul>
8	<p>Battery</p> <ul style="list-style-type: none"> <li>a. Min 10 hours with GPS on</li> <li>b. Removable &amp; Rechargeable Li-Ion Battery</li> </ul>
9	<p>Communications</p> <ul style="list-style-type: none"> <li>a. Integrated Voice Calling Facility (GSM)</li> <li>b. Integrated 3G Modem</li> <li>c. Integrated Bluetooth</li> <li>d. Integrated Wireless LAN</li> <li>e. USB client port for data transfer</li> </ul>
10	<p>Operating System</p> <ul style="list-style-type: none"> <li>a. Windows Handheld 6.5 or better</li> <li>b. English language</li> </ul>
11	Dust/Water resistance –as per IP54 ratings or better standard
12	Weight –Should be less than 350g with battery
13	Audio -Built in speaker and microphone
14	Data logging interval –1 second
15	<p>Data logging software should be capable of logging post process data based on Arcpad OEM solution.</p> <ul style="list-style-type: none"> <li>a. Provide second by second global display of the number of satellites tracked, satellite geometry and differential GPS position status including current estimated accuracy and predicted post processed accuracy</li> <li>b. Provide audio and visual warnings and alarms for loss of GPS position</li> <li>c. Provide in field mission planning module for daily planning of GPS data collection schedule</li> <li>d. Provide a counter indicating the number of positions logged to the current feature.</li> <li>e. Log data from external sensors output in ASCII format including Laser rangefinders for distance and bearing measurements.</li> <li>f. Display map of collected features and GPS coordinates in UTM and other standard coordinate system.</li> <li>g. Provide easy to use zoom in, zoom out, pan, autopan, select, query, measure, search, and filter capabilities for flexible and powerful map display.</li> <li>h. Provide clear map symbology and coloring, including GPS position, navigation targets, and start points.</li> <li>i. Display background layers including JPEG, JPEG 2000, TIFF, MrSID, ECW, BMP, SHP etc.</li> <li>j. Display multiple background layers concurrently in the map window.</li> <li>k. Collecting point, line, and polygon with attribute</li> <li>l. Support customized user interfaces allowing field workers to see the overview of a data form more clearly, avoiding confusion and guiding them through only required form sections, speeding up form completion without sacrificing accuracy.</li> <li>m. Support point offsets including distance-bearing, bearing-bearing, triple bearing, distance-distance and triple distance offset types.</li> <li>n. Include time saving features for attribute entry including repeat functions, default values, menu pick lists, auto-incrementing, and auto generation of date and time attributes.</li> <li>o. Support for digitizing of points, lines or areas for simple feature capture when</li> </ul>

	<p>GPS is not available.</p> <p>p. Should collect raw data for post-processing the data for improving GPS accuracy.</p> <p>q. Support for logging data directly to a removable storage card</p> <p>r. Allow configuration of navigation information including distance, bearing, heading, velocity, go east, go north, go up, go down, ETA and time to go, cross track error, altitude and turn direction.</p> <p>s. Provide easy to follow arrow or guidance indicators for intuitive navigation to a target.</p> <p>t. Support for waypoint upload and display.</p> <p>u. Office post process software based on Arc GIS, Desktop, edition, one license.</p>
16	<p>Accessories to be supplied</p> <p>a)USB cable for data transfer</p> <p>b)Stylus with lanyard for touch screen operation</p> <p>c)Wrist lanyard for the handheld unit</p> <p>d)Li-Ion battery (rechargeable)</p> <p>e)AC Power Supply</p>
17	Warranty of preferably 2years and extended warranty of 1 year for the device.
18	Continues training for departmental officers at least for 5 yr's with a minimum of 25% in each yr

### 3.1.32 HDMI Switch

Item	Details
<b>Product Group:</b>	SPLITTERS, SWITCHES & EXTENDERS
<b>TAA Compliant:</b>	No
<b>OVERVIEW Display Style:</b>	Splitter
<b>Model Type:</b>	HDMI
<b>CONNECTIONS:</b>	<b>Connector A:</b> HDMI (FEMALE) <b>Connector B:</b> HDMI (FEMALE) (X4)
<b>Number of Connectors:</b>	5
<b>Ports:</b>	4
<b>HDMI cables (15m):</b>	4
<b>HDMI Cable (20m):</b>	1
<b>Color:</b>	Black
<b>WARRANTY</b>	<b>Product Warranty Period Worldwide:</b> 1-year limited warranty

**3.1.33 LED Monitor**

<b>Item</b>	<b>Detail</b>
Screen Size:	80"
4K Ultra HD streaming (Youtube, Netflix):	Yes
Resolution:	3840 x 2160
USB Music Playback Formats:	MP3/WAV/OGG/WMA/DTS/Dolby Digital
Backlight Type:	LED
USB Photo Playback Formats:	JPEG/PNG/BMP
Field Refresh Rate:	200Hz
Wi-Fi Built-In (802.11 a/b/g/n/ac):	Yes
Motion Clarity Index:	1 800
Local Dimming:	Yes
Ultra-Luminance:	Yes
Dual Play:	Yes
<b>CONNECTIONS</b>	
HDR (High Dynamic Range)2:	Yes
HDMI 2.0a	Input15 (3), USB Input (3), Tuner MPEG-2/4 DVB-T2 (HD), Antenna Input (1)
Composite/Component Input (Shared) :	Yes
HbbTV4:	Yes Audio (Optical) Output (1), Headphone (3.5mm) Output (1), LAN Port (1) Real Cinema, Noise Reduction, 3D Type Cinema 3D (FPR), 3D Glasses (2 glasses) AUDIO VESA Size 300 x 200 Speaker System harman/kardon® design, Sound Channels Stereo (2-way, 4 speakers), Audio Output 40W, Sound Modes 6 55": 4 ½ Stars 65":5 Stars Smart Sound Mode.
<b>WARRANTY:</b>	1 Year Warranty
<b>OTHER FEATURES</b>	
Smart TV Operating System webOS 3.0:	Yes
Web Browser:	Yes
Magic Remote Compatible:	Yes
Processor Quad Core:	Yes
Miracast:	Yes
Time Machine (External USB HDD Required):	Yes
Intel® Wireless Display (WiDi):	Yes
Smartphone Remote App Compatible:	Yes



Universal Remote (HDMI connected BD Players, Set-top/Cable box, Sound Bar and HTS):	Yes
My Channels:	Yes
Simplink (HDMI-CEC):	Yes
Smart Share (DLNA):	Yes
Wireless Sound Sync13:	Yes
Magic Mobile Link:	Yes
USB Video Playback Formats	DivX (XViD, H.264/MPEG-4 AVC)/ WMV/AVI/M4V/MOV/3GP/3G2/ /HEVC 60P (up to 2160p)/MKV/TS/TP

### 3.1.34 Photocopier

Item	Details
<b>General type:</b>	Multifunctional for A3 format B/W
<b>Engine speed:</b>	Up to 30/15 pages per minute A4/A3
<b>Resolution:</b>	600 x 600 dpi, Multi-bit technology for print quality of 9,600 dpi equivalent x 600 dpi
<b>Warm-up time:</b>	Approx. 23 seconds or less from power on
<b>Time to first copy:</b>	Approx. 3.6 seconds
<b>Dimensions (W x D x H) Main unit:</b>	594 x 738 x 683 mm
<b>Power source:</b>	AC 220 V ~ 240 V, 50/60 Hz
<b>RAM:</b>	Standard 2048 MB and
<b>Storage Memory:</b>	160 GB HDD
<b>Input capacity:</b>	100-sheet multi-purpose tray, 45–256 g/m <sup>2</sup> , A6R–A3, 2 x 500-sheet universal paper cassette, 60–163 g/m <sup>2</sup> , A5R–A3
<b>Duplex unit:</b>	Yes
<b>Processor:</b>	Freescale QorIQ P1022 (Dual Core) 800 MHz
<b>Emulations:</b>	PCL6 (PCL5c/PCL-XL), KPDL3 (PostScript 3 compatible), PDF Direct Print, XPS Direct Print
<b>Other Features:</b>	Encrypted PDF Direct Print, IPP printing, e-mail printing, WSD print, secure printing via SSL,

	IPsec, SNMPv3, quick copy, proof and hold, Private Print, job storage and job management functionality, Scan-once-copy-many, electronic sort, 2in1 and 4in1 function, image repeat copy, page numbering, cover mode, booklet copy, interrupt copy, form overlay, margin shift, stamp function and skip blank page function, Scan-to-email, Scan-to-FTP, Scan-to-SMB, Scan-to-USB Host, Scan-to-box, Network TWAIN, WSD scan
<b>Max. original size (Copy, Print and Scan):</b>	A3
<b>Zoom range:</b>	25 - 400 in 1% steps
<b>Continuous copy:</b>	1 - 999
<b>Image adjustments:</b>	Text + photo, text, photo, map
<b>Scan File type:</b>	PDF (high compression PDF), Searchable PDF (Option), TIFF, JPEG, XPS
<b>Scan resolution :</b>	600, 400, 300, 200, 200x100, 200x400, (256 greyscales)
<b>Scan speed:</b>	(A4, 300 dpi, Dual Scan with DP-772) 160 originals per minute in b/w , 80 originals per minute in colour
<b>Modem speed:</b>	33.6 kbps
<b>FAX Transmission speed:</b>	Max. 3 seconds (JBIG)
<b>Scanning density:</b>	Normal: 200 x 100 dpi Fine: 200 x 200 dpi Superfine: 200 x 400 dpi Ultrafine: 400 x 400 dpi
<b>Standard interface:</b>	USB 2.0 (Hi-Speed) x 4, USB Host 2.0, Fast Ethernet 10BaseT/100BaseTX/1000BaseT, slot for optional print server, slot for optional SD-card, slot for optional Fax System

### 3.1.35. GNSS RTK Survey Receiver and Transmitter

<b>Power</b>	
Operating power:	min. [V] 11
Operating power:	max. [V] 24
Typical consumption	[W] 4.2
Internal power supply	Y
External power supply	Y
Operating time with internal power supply [hr]	6.5
Certifications: FCC, CE, RCM, KC, MIC, PTCRB, WFA, BT SIG	
Rechargeable with (auto)battery via external charger	
Direct car connection cable available:	Y

<b>Operating Environment</b>	
Operating temperature:	min. [°C] -40
Operating temperature:	max. [°C] 65
Humidity resistance	100%, condensing
Water sand and dust proof	IP67
Shock and vibration proof	MIL-STD-810F, FIG.514.5C-1
ROHS compliance	Y
WEEE compliance	Y
<b>Performance</b>	
Max. simultaneous tracked channels 672	
Tracked satellite signals:	GPS (L1C/A, L2C, L2E, L5), GLONASS (L1C/A, L1P, L2C/A, L3), BeiDou (B1, B2, B3), Galileo (E1, E5A, E5B, E5 AltBOC, E6), QZSS (L1C/A, L1-SAIF, L1C, L2C, L5), NavIC (L5), SBAS (L1C/A, L5)
SBAS differential signals:	WAAS, EGNOS, MSAS, GAGAN
Type of measurements:	Full wavelength carrier phase; C/A; P; C
Reacquisition time [s]	1
RTK Network Compatibility	Y
MRS functionality	Y
No. channels	672
<b>Horizontal uncertainty</b>	
code: DGNSS/RTC (constant part) [m]	0.25
code: DGNSS/RTC (variable part) [ppm]	1
phase: RTK rapid static (constant part) [m]	0.008
phase: RTK rapid static (variable part) [ppm]	1
phase: RTK kinematic (constant part) [m]	0.008
phase: RTK kinematic (variable part) [ppm]	1
phase: static post processing (constant part) [m]	0.003
phase: static post processing (variable part) [ppm]	0.5
phase: kinematic post processing (constant part) [m]	0.008
phase: kinematic post processing (variable part) [ppm]	1
Initialization time on the fly [s]	2
Range on the fly [km]	30
RTK network solution methods	Y
<b>Recording</b>	
Memory medium	Internal
Data capacity [MB]	10000
Type of data (on board recording)	Trimble compact format
Data input multiple data controllers are available	
<b>communication general</b>	
Communication ports	Serial, USB, TCP/IP, Bluetooth
Simultaneous links	Y
PPS Out	Y
Bluetooth	Y
<b>Communication (Links)</b>	
Radio modems	Internal
GSM;	UMTS phone modems Internal

CDMA phone modems	External
Landline modems	External
<b>Communication protocols</b>	
RTCM standards for differential data	2.1; 2.3; 3.0; 3.1; 3.2
CMR standards for differential data	CMR; CMR+; CMRx
Other formats for differential data	GSOE, RT17, RT27, smoothed carrier
NMEA output format	24 NMEA messages
other output formats	No
L-Band Compatible	Yes
Configuration method	Web interface, Handheld Controller, PC software

### 3.1.36. Unmanned Aerial Vehicle with Camera

The unmanned aerial vehicle shall be supplied together with corresponding high-resolution multispectral camera for hydraulic engineering survey purposes. It should have RTK horizontal and vertical positioning.

#### AIRCRAFT

Take off Weight	1391 g
Diagonal Distance	350 mm
Max Service Ceiling Above Sea Level	19685 ft (6000 m)
Max Ascent Speed	6 m/s (automatic flight); 5 m/s (manual control)
Max Descent Speed	3 m/s
Max Speed	31 mph (50 kph)(P-mode) 36 mph (58 kph)(A-mode)
Max Flight Time	> 30 minutes
Operating Temperature Range	32° to 104° F (0° to 40°C)
Operating Frequency	2.400 GHz to 2.483 GHz (Europe, Japan, Korea) 5.725 GHz to 5.850 GHz (United States, China)
Transmission Power (EIRP)	2.4 GHz CE (Europe) / MIC (Japan) / KCC (Korea) : < 20 dBm  5.8 GHz SRRC (China) / FCC (United States) /NCC(Taiwan,China) : < 26 dBm
Hover Accuracy Range	RTK enabled and functioning properly : Vertical : ±0.1 m ; Horizontal : ±0.1 m  RTK disabled Vertical : ±0.1 m (with vision positioning) ;

	$\pm 0.5$ m (with GNSS positioning) Horizontal : $\pm 0.3$ m (with vision positioning) ; $\pm 1.5$ m (with GNSS positioning)
Image Position Offset	The position of the camera center is relative to the phase center of the onboard D-RTK antenna under the aircraft body's axis:(36, 0, and 192 mm) already applied to the image coordinates in Exif data. The positive x, y, and z axes of the aircraft body point to the forward, rightward, and downward of the aircraft, respectively.

### MAPPING FUNCTIONS

Mapping Accuracy **	Mapping accuracy meets the requirements of the ASPRS Accuracy Standards for Digital Orthophotos Class III ** The actual accuracy depends on surrounding lighting and patterns, aircraft altitude, mapping software used, and other factors when shooting.
Ground Sample Distance(GSD)	(H/36.5) cm/pixel, H means the aircraft altitude relative to shooting scene (unit: m)
Data Acquisition Efficiency	Max operating area of approx. 1 km <sup>2</sup> for a single flight(at an altitude of 182 m, i.e., GSD is approx. 5 cm/pixel, meeting the requirements of the ASPRS Accuracy Standards for Digital Orthophotos Class III

### VISION SYSTEM

Velocity Range	$\leq 31$ mph(50 kph) at 6.6 ft(2 m) above ground with adequate lighting
Altitude Range	0-33 ft(0 - 10 m)
Operating Range	0-33 ft(0 - 10 m)
Obstacle Sensing Range	2-98 ft(0.7-30 m)
FOV	Forward/Rear: 60° (horizontal), $\pm 27^\circ$ (vertical) Downward: 70° (front and rear), 50° (left and right)
Measuring Frequency	Forward/Rear : 10 Hz; Downward : 20 Hz
Operating Environment	Surfaces with clear patterns and adequate lighting(> 15 lux)

### CAMERA

Focal length	RGB Camera: >15mm Multispectral Camera: >10mm
Sensor Size (Width x Length)	RGB Camera: > 17.3 x 13mm Multispectral Camera: >6.66 x 5.32mm
Sensor	1" CMOS; Effective pixels: 20 M

Lens	FOV 84° ; 8.8 mm / 24 mm(35 mm format equivalent:24 mm) ; f/2.8 - f/11, auto focus at 1 m - ∞
ISO Range	Video:100-3200(Auto) 100-6400(Manual) ;  Photo:100-3200(Auto) 100-12800(Manual)
Mechanical Shutter Speed	8 - 1/2000 s
Electronic Shutter Speed	8 - 1/8000 s
Max Image Size	4864×3648 (4:3) ; 5472×3648 (3:2)
Video Recording Modes	H.264, 4K : 3840×2160 30p
Photo Format	JPEG
Video Format	MOV
Supported File Systems	FAT32 (≤ 32 GB) ; exFAT (> 32 GB)
Supported SD Cards	MicroSD, Max Capacity: 128 GB. Class 10 or UHS-1 rating required Write speed≥15 MB/s
Operating Temperature Range	32° to 104° F (0° to 40°C)

#### **INTELLIGENT FLIGHT BATTERY(PH4-5870MAH-15.2V)**

Capacity	5870 mAh
Voltage	15.2 V
Battery Type	LiPo 4S
Energy	89.2 Wh
Net Weight	468 g
Charging Temperature Range	14° to 104°F(-10° to 40°C)
Max charging Power	160 W

#### **INTELLIGENT BATTERY CHARGING HUB(WCH2)**

Input Voltage	17.3 - 26.2 V
Output Voltage and Current	8.7 V, 6 A ; 5 V, 2 A
Operating Temperature	41° to 104°F(5° to 40°C)

#### **SDK REMOTE CONTROLLER**

Operating Frequency	2.400 GHz to 2.483 GHz (Europe, Japan, Korea) 5.725 GHz to 5.850 GHz (Other countries/regions)
EIRP	2.4 GHz

	CE / MIC / KCC: < 20 dBm 5.8 GHz FCC / SRRC / NCC: < 26 dBm
Max Transmission Distance	FCC / NCC: 4.3 mi (7 km); CE / MIC / KCC / SRRC: 3.1 mi (5 km) (Unobstructed, free of interference)
Built-in Battery	6000 mAh LiPo 2S
Operating Current / Voltage	1.2 A @ 7.4 V
Mobile Device Holder	Tablets and smartphones
Operating Temperature	32° to 104° F (0° to 40° C)

### 3.1.37. Digital Video Camera Recorder

<b>SENSOR TYPE:</b>	1/2.3 type (7.82mm) Exmor R CMOS sensor
<b>NUMBER OF PIXELS (EFFECTIVE):</b>	Approx. 18.2 Megapixels
Lens	
<b>LENS TYPE:</b>	ZEISS Vario-Sonnar T* Lens, 11 elements in 10 groups (5 aspheric elements)
<b>F-NUMBER (MAXIMUM APERTURE):</b>	F3.5 (W) - 6.4 (T)
<b>FOCAL LENGTH:</b>	f=4.25-118mm
<b>ANGLE OF VIEW (35MM FORMAT EQUIVALENT):</b>	84deg.-3deg.30min.(24-720mm <sub>1</sub> )
<b>FOCUS RANGE (FROM THE FRONT OF THE LENS):</b>	Auto: AF (W: Approx. 5cm (0.16 ft.) to Infinity, T: Approx. 250cm (8.20 ft.) to Infinity) / Program Auto: AF (W: Approx. 5cm (0.16 ft.) to Infinity, T: Approx. 250cm (8.20 ft.) to Infinity)
<b>OPTICAL ZOOM:</b>	28x
<b>CLEAR IMAGE ZOOM (STILL IMAGE):</b>	18M Approx.60x / 10M Approx.80x / 5.0M Approx.113x / VGA Approx.459x / 13M(16:9) Approx.60x / 2.1M(16:9) Approx.153x <sub>3</sub>
<b>CLEAR IMAGE ZOOM (MOVIE):</b>	4K:Approx. 45x, HD:Approx. 60x <sub>3</sub>
<b>DIGITAL ZOOM (STILL IMAGE):</b>	18M Approx.120x / 10M Approx.161x / 5.0M Approx.226x / VGA Approx.459x / 13M(16:9) Approx.120x / 2.1M(16:9) Approx.306x <sub>3</sub>
<b>DIGITAL ZOOM (MOVIE):</b>	Approx. 120x
Screen	
<b>SCREEN TYPE:</b>	7.5cm (3.0type) (4:3) / 921,600 dots / Xtra Fine / TFT LCD
<b>ADJUSTABLE ANGLE:</b>	Up by approx. 180 degrees
<b>TOUCH PANEL:</b>	Yes
Camera	
<b>IMAGE PROCESSING ENGINE:</b>	Yes (BIONZ X)
<b>STEADYSHOT (STILL IMAGE):</b>	Optical
<b>STEADYSHOT (MOVIE):</b>	Yes (Intelligent Active Mode, Optical type with electronic compensation, Anti Rolling type)
<b>FOCUS TYPE:</b>	Contrast detection AF
<b>FOCUS MODE:</b>	Single-shot AF, Continuous AF (Movie Only)
<b>FOCUS AREA:</b>	Wide,Center,Flexible Spot (S/M/L),Expanded Flexible Spot
<b>LOCK ON AF:</b>	Yes
<b>LIGHT METERING MODE:</b>	Multi Pattern,Center Weighted,Spot,Entire Screen Avg,Highlight
<b>EXPOSURE COMPENSATION:</b>	+/- 3.0 EV, 1/3 EV step

<b>ISO SENSITIVITY (STILL IMAGE)(RECOMMENDED EXPOSURE INDEX):</b> Auto(ISO80-3200, selectable with upper / lower limit),80/100/200/400/800/1600/3200(Extendable to ISO6400),Multi-Frame NR:Auto(ISO80-3200 same as selected range in Auto), 100/200/400/800/1600/3200/64004/1280045
<b>ISO SENSITIVITY (MOVIE):</b> Auto(ISO80-3200, selectable with upper / lower limit),80/100/200/400/800/1600/3200(Extendable to ISO6400)
<b>MINIMUM ILLUMINATION (MOVIE):</b> Auto: 9lux (Shutter Speed 1/30)
<b>WHITE BALANCE MODES:</b> Auto,Daylight,Shade,Cloudy,Incandescent,Fluor.: Warm White,Fluor.: Cool White,Fluor.: Day White,Fluor.: Daylight,Flash,C.Temp./Filter,Custom1,Custom2,Custom3,Custom Setup
<b>WB MICRO ADJUSTMENT:</b> G7-M7 (57 steps) , A7-B7 (29 steps)
<b>SHUTTER SPEED:</b> iAuto (4" - 1/2000) / Program Auto (1" - 1/2000) / Aperture Priority (8" - 1/2000) / Shutter Priority (30" - 1/2000) / Manual (30" - 1/2000) <u>6</u>
<b>APERTURE:</b> iAuto(F3.5-F6.3(W)) / Program Auto(F3.5-F6.3(W) ) / Manual(F3.5-F8.0(W)) / Aperture Priority(F3.5-F8.0(W)) / Shutter Priority(F3.5-F6.3(W))
<b>IMAGE CONTROL:</b> Contrast,Saturation,Sharpness,Creative Style,Color Space,Quality(Extra fine, Fine, Standard)
<b>NOISE REDUCTION:</b> high ISO NR:Normal/Low, Multi Frame NR:Auto, ISO100-12800
<b>DYNAMIC RANGE FUNCTIONS:</b> Off, Dynamic Range Optimizer (Auto/Level 1-5), Auto High Dynamic Range: Off, Auto Exposure Difference, Exposure difference Level (1.0-6.0EV, 1.0EV step)
<b>SHOOTING MODE:</b> Auto(Intelligent Auto/Superior Auto),Program Auto,Aperture Priority,Shutter Speed Priority,Manual Exposure,MR(Memory Recall) 1,2,Movie Mode(Program Auto,Aperture Priority,Shutter Speed Priority,Manual Exposure),Sweep Panorama,Scene Selection
<b>SCENE SELECTION:</b> Portrait,Macro,Landscape,Sunset,Night Scene,Handheld Twilight,Night Portrait,Anti Motion Blur,Pet,Gourmet,Fireworks,High Sensitivity
<b>CONTINUOUS SHOOTING SPEED (MAXIMUM) (WITH MAX. RECORDING PIXELS):</b> Spd Priority Cont. Approx. 10 fps, Cont. Shooting Approx. 3 fps <u>789</u>
<b>SELF-TIMER:</b> Off / 10sec. / 5sec. / 2sec. / 3 consecutive shots with 10sec. 5sec. or 2sec. / 5 consecutive shots with 10sec. 5sec. or 2sec.
<b>DRIVE MODES:</b> Single,Continuous shooting,Spd Priority Cont,Self-timer,Self-timer(cont.),Cont.-bracketing,Single-bracketing,White balance bracketing,DRO bracketing
<b>PANORAMA (SHOOTING):</b> Sweep Panorama
<b>PICTURE EFFECT:</b> [Still Image]:Toy camera, Pop Color, Posterization, Retro Photo, Soft High-key, Partial Color, High Contrast Mono., Soft Focus, HDR Painting, Richtone Monochrome, Miniature, Watercolor, Illustration; [Movie]:Toy camera,Pop Color, Posterization, Retro Photo, Soft High-key, Partial Color, High Contrast Mono.
<b>CREATIVE STYLE:</b> Standard, Vivid, Portrait, Landscape, Sunset, Black & White, Sepia
<b>NUMBER OF RECOGNISED SCENES:</b> [Still Image]:Superior Auto: 44 / iAuto: 33; [Movie]:44
Flash
<b>FLASH MODE:</b> Flash Off / Autoflash / Fill Flash / Slow Sync. / Rear Sync.
<b>FLASH TYPE:</b> Built-in, manual pop-up
<b>AF ILLUMINATOR:</b> Auto / Off
<b>BRACKETING:</b> Yes
<b>FLASH RANGE:</b> ISO Auto: Approx.0.3m to 5.4m(11 13/16 inches to 17 feet 8 19/32 inches)(W) / Approx.2.5m to 3.0 m(8feet 2 27/64 inches to 9 feet 10 7/64 inches)(T)
Recording
<b>COMPATIBLE RECORDING MEDIA:</b> Memory Stick Micro,Memory Stick Micro (Mark2),microSD Memory Card,microSDHC Memory Card,microSDXC Memory Card
<b>RECORDING FORMAT:</b> [Still Image]:JPEG(DCF Ver.2.0,Exif Ver.2.31,MRF Baseline compliant), [Movie]:XAVC S,Movie:AVCHD format Ver.2.0 compatible
<b>RECORDING FORMAT (MOVIE AUDIO):</b> XAVC S:LPCM 2ch,AVCHD:Dolby Digital(AC-3) 2ch(Dolby Digital Stereo Creator)
<b>COLOUR SPACE (STILL):</b> sRGB,Adobe RGB
<b>DCF/DPOF:</b> DCF/DPOF/EXIF/MPF



<b>STILL IMAGE NUMBER OF RECORDED PIXELS (IMAGE SIZE):</b> 3:2mode:16M(4,896×3,264)/8.9M(3,648×2,432)/4.5M(2,592×1,728),4:3mode:18M(4,896×3,672)/10M(3,648×2,736)/5M(2,592×1,944)/VGA(640×480),16:9mode:13M(4,896×2,752)/7.5M(3,648×2,056)/2.1M(1,920×1,080),1:1mode:13M(3,664×3,664)/7.5M(2,736×2,736)/3.7M(1,920×1,920),Sweep Panorama:Wide(12,416×1,856/5,536×2,160),Standard(8,192×1,856/3,872×2,160)
<b>MOVIE RECORDING MODE (NTSC):</b> PAL/NTSC Selector: [NTSC] AVCHD: 24M FX(1,920x1,080/60i)/ 17M FH(1,920x1,080/60i), XAVC S 4K: 30p 100M(3,840x2,160/30p)/ 30p 60M(3,840x2,160/30p)/ 24p 100M(3,840x2,160/24p)/ 24p 60M(3,840x2,160/24p), XAVC S HD: 60p 50M(1,920x1,080/60p)/ 60p 25M(1,920x1,080/60p)/ 30p 50M(1,920x1,080/30p)/ 30p 16M(1,920x1,080/30p)/ 24p 50M(1,920x1,080/24p)/ 120p 100M(1,920x1,080/120p)/120p 60M(1,920x1,080/120p)
<b>MOVIE RECORDING MODE (PAL):</b> PAL/NTSC Selector:[PAL] AVCHD: 24M FX(1,920x1,080/50i)/ 17M FH(1,920x1,080/50i), XAVC S 4K: 25p 100M(3,840x2,160/25p)/ 25p 60M(3,840x2,160/25p)/ XAVC S HD: 50p 50M(1,920x1,080/50p)/ 50p 25M(1,920x1,080/50p)/ 25p 50M(1,920x1,080/25p)/ 25p 16M(1,920x1,080/25p)/ 100p 100M(1,920x1,080/100p)/ 100p 60M(1,920x1,080/100p)
<b>PROXY RECORDING:</b> Yes
Interface
<b>INPUT AND OUTPUT TERMINALS:</b> Multi/Micro USB Terminal <sup>11</sup> , Hi-Speed USB (USB2.0), Micro HDMI
<b>NFC:</b> NFC forum Type 3 Tag compatible, One-touch remote, One-touch sharing
<b>WI-FI:</b> Yes(IEEE802.11b/g/n(2.4GHz band))
<b>BLUETOOTH:</b> Yes(Ver.4.1)
Power
<b>POWER SOURCE:</b> DC3.6V(supplied battery)/ DC5.0V(supplied AC adaptor)
<b>BATTERY SYSTEM:</b> NP-BX1
<b>POWER CONSUMPTION (CAMERA MODE):</b> Approx. 1.5W (CIPA standard)
<b>USB CHARGE/USB POWER SUPPLY:</b> Yes (with supplied AC adaptor and supplied battery)
<b>BATTERY LIFE(STILL IMAGES)(CIPA):</b> Approx. 370 / Approx. 185min. (When Auto Monitor off is set to 2sec):Approx. 460 / Approx. 230min
<b>BATTERY LIFE(MOVIES ACTUAL SHOOTING)(CIPA):</b> Approx. 55min
<b>BATTERY LIFE(MOVIES CONTINUOUS SHOOTING)(CIPA):</b> Approx. 95min
Others
<b>SHOOTING FUNCTIONS:</b> Eye AF,Face Detection,Face Registration,Smile Shutter,Grid Line,Digital Level Gauge,WB Bracketing,DRO Bracketing,Zebra,Marker Display,Micref Level,Zoom Assist,My Menu Setting,Self-portrait timer
<b>PLAYBACK FUNCTIONS:</b> BRAVIA Sync(Control for HDMI),9/25-frame index view,Auto Orientation,Slide Show,Forward/Rewind (Movie),Delete,Protect,Motion Shot Video,Automatic Image Rotation,Cont Shoot Grouping
<b>TRILUMINOS COLOR:</b> Yes
<b>4K IMAGE OUTPUT:</b> Yes
<b>OPERATING TEMPERATURE:</b> 0 degrees C. - +40 degrees C. / 32 degrees F. - 104 degrees F.
Print
<b>PRINT:</b> Exif Print,PRINT Image Matching (PIM3)
Size & Weight
<b>DIMENSIONS (W X H X D) (APPROX.):</b> 101.6mm x 58.1mm x 35.5mm(4 1/8 in. x 2 3/8 in. x 1 7/16 in.)
<b>WEIGHT (CIPA COMPLIANT):</b> Approx. 233g (8.3oz) (Battery and Memory Card are included)/Approx. 207g (7.3oz) (Body Only)

### 3.1.38. Copy Stand and Digital Cameras

The copy stand will be a heavy-duty copy stand for analogue and digital image capturing work with two-level motor-driven adjustment. Each copy stand shall be supplied with a digital camera and 2 lights.

The base should not reflect light and should accept originals up to 120 x 85 cm. extremely sturdy column, made of a multisection special extrusion, black anodized, with printed cm and inch scales. The column foot should be made of double strutted steel tube. Steel socket for bolting the column. Four levelling feet. Base board made of 4 mm aluminium with stabilizing substructure. The camera carrier should be made of die-cast aluminium, horizontally adjustable by parallel guides with friction drive and hand cranks for righthand/left-hand operation. Two blocking screws. The camera mounting plate tiltable by +/- 90°. Built-in spirit level. Camera carrier and base board with individual motorized height adjustment. Two travel speeds, independent of load. Self-limiting worm gear: any height position is exactly held. Automatic end switch by photo sensors. Anti-collision device with cable remote control.

Item	Detail
Total height:	>= 227 cm
Maximum working span:	>= 160 cm
Column cross section:	120 x 80 mm
Maximum load:	on camera carrier: 10 kg on base board: 15 kg
Base board:	120 x 85 cm
Camera platform:	13 x 13 cm
Connecting thread:	1/4" / 3/8" (interchangeable)
Required floor space:	100 x 126 cm (WxD)
Copy lights & carriers:	Yes, 2 lights with carriers on each side

Digital Camera
SENSOR TYPE 1/2.3" type (7.76mm) Super HAD CCD
NUMBER OF PIXELS (EFFECTIVE) 20.1MP
Lens
F-NUMBER (MAXIMUM APERTURE) F3.2 (W) - 6.4 (T)
FOCAL LENGTH f=4.6-23 mm
ANGLE OF VIEW (35MM FORMAT EQUIVALENT) 80deg.-19deg. (26-130mm) 2
FOCUS RANGE (FROM THE FRONT OF THE LENS) 5 cm - Infinity (W), 0.6 m - Infinity (T)
OPTICAL ZOOM 5x
DIGITAL ZOOM (STILL IMAGE) Up to 40x (VGA)
DIGITAL ZOOM (MOVIE) Approx. 10
Screen
SCREEN TYPE 2.7" (6.7 cm) (4:3) / 230,400 dots / Xtra Fine / TFT LCD
BRIGHTNESS CONTROL 5(Bright) / 4 / 3 / 2 / 1(Dark)
Viewfinder VIEWFINDER
Camera
IMAGE PROCESSING ENGINE Yes
STEADYSHOT (STILL IMAGE) EIS (without GYRO)

FOCUS MODE Multi Point AF, Center Weighted AF, Tracking Focus, Face Tracking Focus
LIGHT METERING MODE Multi Pattern
EXPOSURE COMPENSATION +/- 2.0 EV (1/3 EV steps)
ISO SENSITIVITY (STILL IMAGE)(RECOMMENDED EXPOSURE INDEX) ISO 100-3200
ISO SENSITIVITY (MOVIE) Auto: (ISO100-800 level)
WHITE BALANCE MODES Auto, Daylight, Cloudy, Fluor.: White Balance 1 / 2 / 3, Incandescent, Flash
SHUTTER SPEED iAuto (2 - 1/1500) / Program Auto (1 - 1/1500)
SHOOTING MODE Intelligent Auto, Panorama, Program Auto, Easy Shooting, Picture Effect, Scene Selection, Steady shot, Party
SCENE SELECTION High Sensitivity, Night Scene, Night Portrait, Landscape, Portrait, Beach, Snow, Gourmet, Pet Mode
CONTINUOUS SHOOTING SPEED (MAXIMUM) (WITH MAX. RECORDING PIXELS) 0.52 fps (for up to 100 shots)
SELF-TIMER Off / 10sec. / 2sec. / portrait1 / portrait2
PANORAMA (SHOOTING) 360 Sweep Panorama
PICTURE EFFECT Still: Toy camera / Pop Color / Partial Color / Soft High-key, Movie: Toy camera, Pop Color, Partial Color, Soft High-key
AUTO IMAGE ROTATION Yes
MINIMUM ILLUMINATION Auto: 28lux (Shutter Speed 1/30)
BUILT-IN FLASH RED-EYE CORRECTION Auto / On / Off
Flash
FLASH MODE Auto , Flash On , Slow Synchro , Flash Off , Advanced Flash
AF ILLUMINATOR Auto / Off
EXTERNAL FLASH MODE Auto / Flash On / Slow Synchro / Flash Off / Advanced Flash
FLASH RANGE ISO Auto: Approx.0.4m to 3.5m(1.3 ft to 11.5 ft)(W) /Approx.0.6m to 1.76 m(1.96 ft to 5.77 ft)(T),ISO3200: up to Approx.7 m(23 ft)(W) /Approx.3.5 m(11.5 ft)(T)
Recording
COMPATIBLE RECORDING MEDIA Memory Stick™ Duo; Memory Stick PRO Duo™; Memory Stick PRO Duo™(high speed); Memory Stick PRO HG Duo™; Memory Stick XC-HG Duo™; Memory Stick Micro; Memory Stick Micro (Mark2); SD Memory Card; SDHC Memory Card; SDXC Memory Card; microSD Memory Card; microSDHC Memory Card; microSDXC Memory Card
RECORDING FORMAT Still Images: JPEG (DCF, Exif, MPF Baseline) compliant, DPOF compatible
MOVIE RECORDING MODE (NTSC) 1280x720 (1,280x720/30fps) / VGA (640x480/30fps) / QVGA (320x240/30fps)
STILL IMAGE RESOLUTION 4:3 mode: 20M(5,152 x 3,864) / 10M(3,648 x 2,736) / 5M(2,592 x 1,944) / VGA, 16:9 mode: 15M(5,152 x 2,896) / 2M(1,920 x 1,080), Sweep Panorama: 360°(11,520x1,080) / Wide (7,152 x 1,080/4,912 x 1,920) / Standard (4,912 x 1,080/3,424 x 1,920)
PANORAMA (RECORDING) Intelligent Sweep Panorama (supports 360 format)
INTERNAL MEMORY Approx. 29MB
Interface
INPUT AND OUTPUT TERMINALS Hi-Speed USB (USB 2.0), Multi (AV/USB)
Power
POWER CONSUMPTION (CAMERA MODE) Approx. 1W
BATTERY LIFE(STILL IMAGES)(CIPA) Up to 200 shots / 100 minutes
SUPPLIED BATTERY Rechargeable Battery Pack NP-BN
Others
SHOOTING FUNCTIONS Intelligent Auto, Easy Shooting, Program Auto, Panorama, Scene Selection, Picture Effect, Steady Shot, Party
PLAYBACK FUNCTIONS Slideshow with Music
INDEX PLAYBACK 16 / 25 images
PLAYBACK ZOOM 8x

Size & Weight
DIMENSIONS (W X H X D) (APPROX.) 96.8 x 55.5 x 20.8 mm
WEIGHT (CIPA COMPLIANT) 109 g (Body only), 125 g (With battery and media)
External Flash
EXTERNAL FLASH RANGE ISO Auto: Approx.0.4m to 3.5m(1.3 ft to 11.5 ft)(W) /Approx.0.6m to 1.76 m(1.96 ft to 5.77 ft)(T),ISO3200: up to Approx.7 m(23 ft)(W) /Approx.3.5 m(11.5 ft)(T)

### 3.1.33 Digital Satellite Signal Meter Finder

It should automatically recognize the LNBF frequency and at the same time work with any C band, Ku band, or Ka band satellite. It should have no need to input transponder frequency, symbol rate, or polarity. Truly plug & play. Below are specifications;

No	Description	Specification
1	Frequency range	950-2150MHz
2	Supply voltage	13-18V DC
3	Input level range	-40dBm~ -10dBm
4	Operating temperature	0-40
5	Impedance	75Ω
6	Display	-LCD With signal intensity -LCD backlight / buzzer and attenuation control function -Built-in signal alert buzzer -User manual

### 3.1.34. 20,000W Solar System

No	Item	Specifications
01	Solar Panel	FS355W mono solar panel (poly optional) Vmp: 38.89V Voc: 47.13V Imp: 9.25A Size: 1956*992*40mm Coated steel Glass: 3.2mm Tempered Terminal block: IP65 with MC4 connector Efficiency performance: 25 years 80 %, 20 year 85%, 10 years 90%. 25 years life time (CE RoHS)
02	PV combiner	Multiple PV strings inputs Simplify wiring between PV array and controller, protections to controller, Prevent hot spot effect Wide range of DC input voltage Reliable thunderstorm & surge protection Product Size: 400*425*145mm
03	Solar/ Charge Controller	MPPT controller:192V/100A Charging efficiency; 90%-95%, charging mode, intelligent control, various protection functions
04	Inverter	Pure sine wave inverter: 30kw DC input:192v AC charger 15-20A 100% Germany brand IGBT materials Double protection, easy after sales service O/P: 110V, 220VAC Product Size: 590*470*730mm
05	Solar Battery	Capacity: 12V/200AH Full sealed Solar power gel battery, Service life: 6-8 years, Size: 522*240*219mm
06	Solar Panel Rack	Slope Roof or Flat roof including complete Fittings. Wind load: 55m/s, structure: Anodized Aluminum + stainless steel
07	Cables	38pcs 32mm <sup>2</sup> *35CM battery cable 4pcs 50mm <sup>2</sup> *1M battery cable 4mm <sup>2</sup> PV cable 200M, Terminals and MC4

### 3.1.35 Training modules

The bidder will provide training for all installed softwares in all relevant areas for knowledge transfer to DWRM Data Management Staff. The bidder shall provide in the bid, details of the information that will included in the training.

### 3.1.36 Spares

1. The supplier should maintain a 10% spare stock, i.e. 10% of the total installed base for that piece of equipment, including data logger, sensors, cables, etc. The supplier will identify the critical equipment for uninterrupted operations of the network and keep one set as spare to ensure reliability/sustainability of the system. However, these spares will not be a part of the 10% spares indicated above. Computers and associated computer equipment and software will require spare stock.
2. The stock of spares will be tracked in the routine maintenance reports submitted by the supplier.

The supplier shall carry sufficient inventories to assure ex-stock supply of consumables and spares at the facilities provided by DWRM/ GoU. The supplier shall ensure availability of after sales service for a period of at least five years after commissioning.

## **LOT 2:**

### **SUPPLY AND INSTALLATION OF WATER QUALITY EQUIPMENT FOR WET PRECIPITATION AND DRY DEPOSITION**

#### **3.1. Water Quality stations for wet precipitation and dry deposition**

Civil works for the water quality precipitation and deposition stations are incorporated as part of the supply of equipment and will be executed alongside the supply. Prospective bidders will be expected to make adequate provision for power supply at the installation.

#### **3.2. Station Installation**

The Bidder will be fully responsible for the installation, commissioning and site acceptance testing of the functionality for sampling equipment. Upon completion of installation, the stations shall be commissioned jointly by the purchaser (DWRM/GOU) and the Bidder upon inspection for completeness. Installation shall be considered complete when the stations have been commissioned and operating successfully for a 14 days period with no break in service for no longer than 24 hours.

#### **3.3. Geographical and Ambient Specifications**

All materials and equipment supplied under these specifications shall be suitable for delivery, storage and operation under tropical conditions with extreme changes in temperature between rainy/dry days and nights.

#### **3.4. Units**

Standard measurement units for sensors shall correspond to the ISO/DIN or any of the associated recognized.

#### **3.5. Station Autonomy**

The conditions and constraints of the stations operation may require long periods of station autonomy. The sampling equipment shall therefore offer capability for unattended operation taking into consideration supply and data logging capacities. Provision for solar panels to enable the stations operates during low power supply or power outages will be made. In this respect, all accessories for solar to optimally operate will be provided, this include, battery (12V DC, sealed, maintenance-free) sufficient for normal operation for at least 14 days without recharge and the data logger memory must be non-volatile.

#### **3.6. Lightening Protection**

The bidder shall advise whether the effects of lightening can cause malfunction and if so, provide Single Point Grounding (SPG) to protect the equipment from Electromagnetic Pulse (EMP) surge and lightening damage.

#### **3.7. Consumables**

The bidder shall provide an initial supply of consumables, for at least three years of operation, which shall be included in the cost of the equipment offered.

### **3.8. Documentation**

The bidder must submit full documentation, including user's manuals and guidelines for operation and maintenance in English, for all equipment and software components supplied. In addition, a project-specific system operation manual has to be prepared, including

- g. Specific equipment layout
- h. A procedural handbook
- i. System block diagrams (logical connections)
- j. Wiring diagrams
- k. Interface specifications, including communication protocols and configuration modes
- l. Software licenses where possible.

The manual shall be provided both as hardcopy (3 copies) and on CD-ROM (3 copies) each for all equipment.



#### 4. List of Goods and Delivery Schedule -Lot 2

Line Item N°	Description of Goods	Qty.	Unit	Final Destination or Project Site	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery Date (Bidder to Provide Dates)
50.	Water quality Station for wet precipitation collection complete with accessories	3	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	
51.	Water Quality Station –Dry deposition complete with accessories	2	Nos.	DWRM, Entebbe	12 weeks from the date of signing of agreement	16 weeks from the date of signing of agreement	

#### 5. List of Related Services and Completion Schedule -Lot 2

Service	Description of Service	Quantity <sup>1</sup>	Physical Unit	Place where Services shall be performed	Intended completion period for the supply and installation contract
6.	Installation of Wet Precipitation stations	3	No.	Entebbe, Kampala and Hoima	8 Months
7.	Installation of Dry Deposition stations	2	No.	Kampala and Hoima	8 Months

## INSTALLATION SITES

The coordinates and elevations of the GoU stations in the following lists have been verified by GPS, and are reasonably accurate. Station coordinates and elevations are less accurate and should be taken as indicative of the location. Local site conditions may require some relocation of the stations, which will be made in consultation with DWRM/GoU.

### Category I – Digital Water Level Recording Stations

S/N	Proposed Town	Category	Reason
1	Entebbe/DWRM complex	Wet	Background pollution, wind effects
2	Kampala/Nakawa Industrial area	Wet and Dry	Industrial pollution
3	Hoima/District Headquarter ground	Wet and Dry	Oil and gas activities, including refinery, oil and gas exploratin and production activities and ariport

### Training requirements

The bidder is expected to provide training of 10 personnel in operation and maintenance of the equipment. The training program shall be included with the bid. The venue for the training shall be the point of delivery of the equipment.

The training costs shall be included in the bid.

### Incidental Services

All costs related to training during the installation and maintenance at the sites will be the responsibility of the **Bidder** and should be included in the Bid. DWRM/GoU will however provide office space at all the WMZ Sub-centers for the **Bidder's** technicians.

## 6. Specifications-Lot 2

### 3.1. General Specification

- iii. All goods and materials to be incorporated in the supply have to be new, unused, and of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the contract. The specifications offered by the supplier will be part of the contract between DWRM/GoU and the selected supplier, and will be used by the inspection authority to verify compliance on delivery.
- iv. Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest current edition or revision of the relevant standards or codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable

### Summary of Requirements

No.	Description	Quantity Required
<b>Water Quality Stations for Wet precipitation and Dry Depositions</b>		
21.	Stations for Wet precipitation	3
22.	Stations for Dry deposition	2

## Technical specification of wet and dry water quality sampling stations

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
<b>1.0</b>	<b>Wet Precipitation Monitoring Equipment</b>	03			
1.1	Automatic measurement of pH, electrical conductivity, precipitation amount, complete ready for connection, consisting of;				
1.1.1	Housing: <ul style="list-style-type: none"> <li>a) Housing</li> <li>b) Double walled, insulated housing, white color coated</li> <li>c) Easy to handle from the front side through lockable door</li> <li>d) Basic frame out of Alu-profiles, inside with 6 mm PVC-plates and outside with 4 mm PVC-plates planked</li> <li>e) Insulating material 20 mm high-resistance foam, Alufoil coated.</li> <li>f) Funnel and funnel Lid</li> <li>g) Collection funnel out of HD-PE, approx. 500 cm<sup>2</sup> collecting surface, easy to remove for service. Maximum theoretical collecting capacity for 1mm precipitation 50ml</li> <li>h) Funnel cover unit with lid out of HD-PE</li> </ul>				
1.1.2	Duran Configuration <ul style="list-style-type: none"> <li>a) Specific for collection of precipitation for analysis of organic components</li> <li>b) Supplied with Duran bottles</li> </ul> Funnel and funnel lid <ul style="list-style-type: none"> <li>a) Provision of collection funnel for collecting samples for acidification component and organic residues</li> <li>b) Materials made of out PTFE or Duran Glass materials (approx 490m<sup>3</sup> with theoretical collecting capacity of 49m<sup>3</sup>, easy to remove for service</li> <li>c) Equipped with particle filter chamber with glass wool filter elements.</li> </ul>				
1.1.3	Electronics: <ul style="list-style-type: none"> <li>a) Programmable logic controller (PLC) for drive and distributor</li> </ul>				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	LCD operating hour meter <ul style="list-style-type: none"> <li>a) Must count the lid open hours of the instrument.</li> <li>b) Provision for SD card logger allows for retrieving data, easy to operate with push in and logging of data.</li> </ul> Event data logger <ul style="list-style-type: none"> <li>a) Stores data and time of the opening and closure times of the lid. The data can be read out on PC or lap top via RS 232 interface or USB interface.</li> </ul>				
1.1.4	Measuring insert and tipping bucket: <ul style="list-style-type: none"> <li>a) Temperature controlled measurement block with electrical conductivity measurement, pH measurement cell and temperature sensor.</li> <li>b) Tipping bucket for precipitation amount and intensity</li> <li>c) Digital multi-meter for pH (resolution of 0.01 pH unit) and electrical conductivity (resolution measurement and water temperature</li> </ul>				
1.1.5	Precipitation sensor: <ul style="list-style-type: none"> <li>a) Sensitive gold plated surface Standard precipitation sensor suitable for tropical climate conditions.</li> <li>b) Pyramid shape of the sensor allows detection of precipitation from all directions. Sensitivity 0.05mm/h</li> <li>c) Ideal for polluted areas</li> <li>d) Can work in low power applications with solar and or battery power supply</li> </ul>				
1.1.6	Ventilation: <ul style="list-style-type: none"> <li>a) Automatic ventilation with sample-room temperatures maintained at 25°C</li> <li>b) Temperature monitoring device for sample room: Pt100 temperature sensor</li> </ul>				
1.1.7	Documentation: <ul style="list-style-type: none"> <li>c) Description and instruction manual</li> <li>d) Technical documentation with electrical diagrams</li> </ul>				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	e) Electrical protocol Declaration of conformity a) Protection class IP56 b) CE conform design of the unit				
1.1.8	Power supply a) Power requirements: Mains grid electrical supply 220-240 V AC /50/60Hz b) Capable of running on alternative solar power supply(with battery backup capable of maintaining charge and power for minimum of 4 months without charge)	03			
1.1.9	No heating required of funnel/sample room required	03			
<b>1.2</b>	<b>Dry Sample container Unit</b>	03			
1.2.1	a) Container surface 200cm <sup>3</sup> . b) Height 400cm c) ISO standard	03			
<b>1.3</b>	<b>Stand base</b>	03			
1.3.1	Zinc plated, approx. 400cm				
<b>1.4</b>	<b>Data acquisition</b>	03			
1.4.1	Multi signal PCB providing instrument status as serial string, built in digital relay output, potential free, galvanically separated from other power circuits.				
1.4.2	Serial RS 232/RS485 bi-directional for receiving the data and also for programming the setting.				
1.4.3	Ethernet (LAN) interface	03			
1.4.4	a) Data acquisition to SD card b) 1xSD memory minimum 1GB c) 1xSUB D 9 pole socket, RS232 in sample room for programming the signal PCB				
<b>1.5</b>	<b>Portable laptop computer rugged for field data logging</b>	<b>02</b>			
1.5.1	<b>Durability</b> MIL-STD-810G certified (6' drop, shock, vibration, rain, dust, sand, freeze/thaw, high/low temperature, temperature shock, humidity, explosive atmosphere) MIL-STD-461F certified IP65 certified sealed all-weather design Hard drive heater				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	<p>Full magnesium alloy case with handle Shock-mounted flex-connect hard drive with quick-release Reinforced locking port covers Pre-installed replaceable screen film for touchscreen protection</p> <p><b>software</b> Windows® 8 Pro 64-bit (with Windows® 7 downgrade option) Recovery Partition</p> <p><b>CPU</b> Intel® Core i5-3380M vPro Processor 2.9GHz with Turbo Boost up to 3.6GHz Intel Smart Cache 3MB</p> <p><b>Storage &amp; Memory</b> 8GB SDRAM (DDR3L-1333MHz)</p> <p><b>Display</b> 13.1" XGA sunlight-viewable touchscreen LED 1024 x 768 2-1200 nit Circular polarizer Anti-reflective and anti-glare screen treatments 3380M CPU with switchable graphics in BIOS: ATI Radeon HD7750, 512MB dedicated VRAM Intel QM77 video controller, max. 1785MB shared VRAM with 32-bit 3340M CPU External video support up to 1280 x 1024 at 16.7 million colors</p> <p><b>Audio</b> Intel® high-definition audio compliant Integrated front-facing speaker Keyboard volume and mute controls</p> <p><b>keyboard &amp; input</b> Touchscreen Integrated stylus holder 87-key with dedicated Windows key</p>				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks														
	<p>Optional backlit keyboard Sealed rubber or plastic emissive Pressure-sensitive touchpad with vertical scrolling support</p> <p><b>expansion slots</b> PC card type II x 1 SD card (SDXC) Express Card/54 x 1</p> <p><b>Interface</b></p> <table border="0" data-bbox="321 682 885 982"> <tr> <td>Docking connector</td> <td>80-pin</td> </tr> <tr> <td>HDMI</td> <td>Type A</td> </tr> <tr> <td>VGA</td> <td>D sub 15-pin</td> </tr> <tr> <td>Headphones/speaker</td> <td>Mini-jack stereo</td> </tr> <tr> <td>Microphone/line in</td> <td>Mini-jack stereo</td> </tr> <tr> <td>Serial</td> <td>D-sub 9-pin</td> </tr> <tr> <td>Ext. antenna connection</td> <td>50 ohm coaxial</td> </tr> </table> <p>USB 3.0 (x 1), USB 2.0 (x 3) 4-pin</p> <p><b>Power supply</b> Battery operation: 14.5 hours (3340M), up to 12 hours (3380M) Long life Li-Ion battery pack (10.65V, typical 8550mAh, minimum 8100mAh) Battery charge time: 3.5 hours off, 4.5 hours on Optional media bay 2nd battery: 6.5 additional hours AC Adapter: AC 100V-240V 50/60Hz, auto sensing/switching Worldwide power supply</p> <p><b>Power Management</b> Suspend/Resume Function, Hibernation, Standby, ACPI BIOS</p>	Docking connector	80-pin	HDMI	Type A	VGA	D sub 15-pin	Headphones/speaker	Mini-jack stereo	Microphone/line in	Mini-jack stereo	Serial	D-sub 9-pin	Ext. antenna connection	50 ohm coaxial				
Docking connector	80-pin																		
HDMI	Type A																		
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Headphones/speaker	Mini-jack stereo																		
Microphone/line in	Mini-jack stereo																		
Serial	D-sub 9-pin																		
Ext. antenna connection	50 ohm coaxial																		
<b>1.6</b>	<b>Accessories</b>																		
1.6.1	Sampling containers, Duran glass bottles. Capacity: 300ml and 1000ml Quantity: 100 each	200																	
1.6.2	Organic residues micro syringes, manufactured in from high-quality, heat and shock resistant to protects against breakage from shock and sudden																		



Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	<p>or extreme fluctuations in temperature.</p> <p>DURAN type 3.3 borosilicate glass provides a product with maximum chemical resistance and ultra-low expansion glass to furnish superior precision and calibration.</p> <p>Capacity: 5µl, 10 µl, 20 µl, 50 µl, 100 µl, 500 µl, 1000 µl and 5000 µl Quantity: 3 each</p>	24			
1.6.3	Event Data logger	03			
1.6.4	Quality Control module software: Qsoft Data management System (DMS) with full license	01			
<b>2</b>	<b>Dry Deposition equipment : Polyurethane Foam Sampler (PUF)</b>	<b>02</b>			
2.1	<p><b>Description:</b></p> <ul style="list-style-type: none"> <li>a) Ambient Air Sampler</li> <li>b) The PUF sampler is a polyurethane foam sampler used for the collection of volatile organic compounds and particulates. The PLUS technology flow controller uses ambient temperature, ambient pressure, and the orifice differential pressure to maintain the set flow rate. This should be the most accurate flow controller available. It shows features and auto calibration function and digital timer.</li> <li>c) Utilizes a dual sampling module to collect air borne particulate as well as ambient semi volatile organic compounds.</li> <li>d) The VOC'S are trapped in the polyurethane foam substrates which are collected and sent to a laboratory for further analysis.</li> <li>e) Suited for applications that require the use of a high volume VOC sampler</li> </ul>				
2.2	<p><b>Technical details</b></p> <ul style="list-style-type: none"> <li>a) Meets EPA CFR, for TO-4A, TO-9A, TO-13A</li> <li>b) Polyurethane Foam Sampler</li> <li>c) Brush or Brushless Motor</li> <li>d) Manual Motor Control</li> <li>e) Elapsed Time Indicators</li> </ul>				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	<ul style="list-style-type: none"> <li>f) 7 Day Digital Timer</li> <li>g) Flow Venturi, this device is a critical orifice used to control the amount of flow through the sample media. It has a set of barbed hose fittings to record the differential pressure as it passes through the orifice. The tubing on the hose barb is either connected to the magnehelic gauge to report the pressure drop or to the flow controller on systems that are equipped with PLUS technology</li> <li>h) Robust Aluminum Shelter</li> <li>i) 125-250 Liters per Minute</li> </ul>				
2.3	<p>General systems specifications</p> <ul style="list-style-type: none"> <li>a) Particulate Size: Volatile Organic Compounds</li> <li>b) EPA Designation: TO-4A, TO-9A, TO-13A</li> <li>c) Flow Controller: Manual Flow Speed Control</li> <li>d) Motor Style: Brushless Style Motor Assembly.</li> <li>e) Elapsed Time Indicator: Hours and Tenths. A digital Timer: Recommended by the US EPA, the digital timer allows for 1 in 3, 1 in 6, 1 in 7, and custom sampling schedules. Its internal battery backup ensures that the timer will not have to be reset after a power failure. It also includes an LCD screen and soft press buttons for easy use</li> <li>f) Pressure PUF air samplers are housed in an anodized aluminum shelter with a gabled roof assembly. The shelter is designed to allow particulate matter to be drawn on to the filter from all four sides. The rugged construction of the outdoor enclosure allows it to withstand the elements with minimal maintenance.</li> <li>g) Flow Range: 125-250 Lpm</li> <li>h) Housing: Anodized Aluminum</li> <li>i) Filter Holder: Dual Sampling Module</li> </ul>				
2.4	Spare components and accessories				

Code	Specification	Quantity	Bidder Offer	Indicate page in brochure	Remarks
	<p>a) 3" Foam Plugs:3-inch thick sheet stock polyurethane type (density 0.022 g/cm ). The PUF should be of the polyether type used for furniture upholstery, pillows, and mattresses. The PUF cylinders (plugs) should be slightly larger in diameter than the internal diameter of the cartridge</p> <p>b) 4" Round Quartz Filters: 102 millimeter bindless quartz microfiber filter, Whatman International Ltd, QMA-4</p> <p>c) Sample cartridge aluminum shipping containers</p> <p>d) Glass sample cartridge for sample collection with glass PUF cartridges, plugs, and end caps: Typical absorbent cartridge assembly for sampling common pesticides and PCBs, Supplied with replaceable parts to run for over 5 service period</p> <p>e) Aluminum canister for transportation</p> <p>f) Motor Brush Set (220volt)</p> <p>g) Replacement Brush Motor (220volt)</p> <p>h) Calibration kit: Positive displacement roots meter used to calibrate orifice transfer standard.</p> <p>i) Soxhlet extraction manifold, 1-100% 6pcs/batch, 0.5-300g, 80 300ml, solvent recovery &gt;80%,reproducibility±1%, power; 20V, 50Hz, rating; 1 -3.5kw, automatic with pre-drying option, color touch screen monitoring devise. Supplied with suitable thimbles for 1000 test</p> <p>j) Silica gel clean up column, with packing material</p>	<p>300</p> <p>150</p> <p>50</p> <p>4</p> <p>5</p> <p>2</p> <p>2</p> <p>1</p> <p>10</p> <p>1</p>			
2.5	<p>Physical Specifications</p> <p>a) Weight: 75lbs Shelter</p> <p>b) Shipping Dimensions: 48"W x 20"L x 20" H Shelter 19"W x 19"L x 20"H, Lid</p> <p>c) Applications Assembled Dimensions: 28"W x 28"L x 61"H</p> <p>Power supply</p> <p>a) Mains grid connection 220v-240V;</p>				

<b>Code</b>	<b>Specification</b>	<b>Quantity</b>	<b>Bidder Offer</b>	<b>Indicate page in brochure</b>	<b>Remarks</b>
	50/60Hz b) Provision for solar power with batter capable of maintaining charge for at least 2 months without charging,				
<b>3</b>	<b>Installation, training and commissioning</b>	<b>05</b>			
<b>3.1</b>	Installation, training and commissioning, include cost for slab base.	05			
3.3	Personnel Training on equipment operation, calibration and optimization	20			
<b>4</b>	<b>Warranty</b>				
4.1	2 years				

## **PART 3 - Contract**

# Section VIII - General Conditions of Contract

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## Section VIII - General Conditions of Contract

### 1. Definitions

- 1.1 The following words and expressions shall have the meanings hereby assigned to them:
- (a) “Bank” means the World Bank and refers to the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
  - (b) “Contract” means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
  - (c) “Contract Documents” means the documents listed in the Contract Agreement, including any amendments thereto.
  - (d) “Contract Price” means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
  - (e) “Day” means calendar day.
  - (f) “Completion” means the fulfillment of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
  - (g) “GCC” means the General Conditions of Contract.
  - (h) “Goods” means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
  - (i) “Purchaser’s Country” is the country specified in the **Special Conditions of Contract (SCC)**.
  - (j) “Purchaser” means the entity purchasing the Goods and Related Services, as **specified in the SCC**.
  - (k) “Related Services” means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.
  - (l) “SCC” means the Special Conditions of Contract.



- (m) “Subcontractor” means any person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.
- (n) “Supplier” means the person, private or government entity, or a combination of the above, whose Bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
- (o) “The Project Site,” where applicable, means the place named in the **SCC**.

## 2. **Contract Documents**

2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

## 3. **Fraud and Corruption**

3.1 The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Appendix to the GCC.

3.2 The Purchaser requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

## 4. **Interpretation**

4.1 If the context so requires it, singular means plural and vice versa.

### 4.2 Incoterms

(a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms **specified in the SCC**.

(b) The terms EXW, CIP, FCA, CFR and other similar terms, when used, shall be governed by the rules prescribed in the current edition of Incoterms specified in the **SCC** and published by the International Chamber of Commerce in Paris, France.

### 4.3 Entire Agreement

The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether written or oral) of the parties with respect thereto made prior to the date of Contract.

#### 4.4 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

#### 4.5 Nonwaiver

(a) Subject to GCC Sub-Clause 4.5(b) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

(b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

#### 4.6 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

### 5. Language

5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be written in the language specified in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

- 6. Joint Venture, Consortium or Association**
- 6.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.
- 7. Eligibility**
- 7.1 The Supplier and its Subcontractors shall have the nationality of an eligible country. A Supplier or Subcontractor shall be deemed to have the nationality of a country if it is a citizen or constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country.
- 7.2 All Goods and Related Services to be supplied under the Contract and financed by the Bank shall have their origin in Eligible Countries. For the purpose of this Clause, origin means the country where the goods have been grown, mined, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.
- 8. Notices**
- 8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the **SCC**. The term “in writing” means communicated in written form with proof of receipt.
- 8.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.
- 9. Governing Law**
- 9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Purchaser’s Country, unless otherwise specified in the **SCC**.
- 9.2 Throughout the execution of the Contract, the Supplier shall comply with the import of goods and services prohibitions in the Purchaser’s Country when
- (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; or
- 9.2 (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.
- 10. Settlement of**
- 10.1 The Purchaser and the Supplier shall make every effort to

**Disputes**

resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

10.3 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

(b) the Purchaser shall pay the Supplier any monies due the Supplier.

**11. Inspections and Audit by the Bank**

11.1 The Supplier shall keep, and shall make all reasonable efforts to cause its Subcontractors to keep, accurate and systematic accounts and records in respect of the Goods in such form and details as will clearly identify relevant time changes and costs.

11.2 Pursuant to paragraph 2.2 e. of Appendix to the General Conditions the Supplier shall permit and shall cause its subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and/or the accounts and records relating to the procurement process, selection and/or contract execution, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Supplier's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 3.1 which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures).

**12. Scope of**

12.1 The Goods and Related Services to be supplied shall be as

- Supply** specified in the Schedule of Requirements.
- 13. Delivery and Documents** 13.1 Subject to GCC Sub-Clause 33.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. The details of shipping and other documents to be furnished by the Supplier are specified in the **SCC**.
- 14. Supplier's Responsibilities** 14.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with GCC Clause 12, and the Delivery and Completion Schedule, as per GCC Clause 13.
- 15. Contract Price** 15.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its Bid, with the exception of any price adjustments authorized in the **SCC**.
- 16. Terms of Payment**
- 16.1 The Contract Price, including any Advance Payments, if applicable, shall be paid as specified in the **SCC**.
- 16.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to GCC Clause 13 and upon fulfillment of all other obligations stipulated in the Contract.
- 16.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.
- 16.4 The currencies in which payments shall be made to the Supplier under this Contract shall be those in which the Bid price is expressed.
- 16.5 In the event that the Purchaser fails to pay the Supplier any payment by its due date or within the period set forth in the **SCC**, the Purchaser shall pay to the Supplier interest on the amount of such delayed payment at the rate shown in the **SCC**, for the period of delay until payment has been made in full, whether before or after judgment or arbitrage award.
- 17. Taxes and Duties** 17.1 For goods manufactured outside the Purchaser's Country, the Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's Country.

17.2 For goods Manufactured within the Purchaser's Country, the Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

17.3 If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in the Purchaser's Country, the Purchaser shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.

**18. Performance Security**

18.1 If required as specified in the SCC, the Supplier shall, within twenty-eight (28) days of the notification of contract award, provide a performance security for the performance of the Contract in the amount specified in the SCC.

18.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

18.3 As specified in the SCC, the Performance Security, if required, shall be denominated in the currency(ies) of the Contract, or in a freely convertible currency acceptable to the Purchaser; and shall be in one of the format stipulated by the Purchaser in the SCC, or in another format acceptable to the Purchaser.

18.4 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in the SCC.

**19. Copyright**

19.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party

**20. Confidential Information**

20.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the

Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under GCC Clause 20.

20.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.

20.3 The obligation of a party under GCC Sub-Clauses 20.1 and 20.2 above, however, shall not apply to information that:

- (a) the Purchaser or Supplier need to share with the Bank or other institutions participating in the financing of the Contract;
- (b) now or hereafter enters the public domain through no fault of that party;
- (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
- (d) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

20.4 The above provisions of GCC Clause 20 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

20.5 The provisions of GCC Clause 20 shall survive completion or termination, for whatever reason, of the Contract.

**21. Subcontracting** 21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the Bid. Such notification, in the original Bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.

21.2 Subcontracts shall comply with the provisions of GCC Clauses 3 and 7.

**22. Specifications and Standards**

22.1 Technical Specifications and Drawings

- (a) The Goods and Related Services supplied under this

Contract shall conform to the technical specifications and standards mentioned in Section VI, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the Goods' country of origin.

- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 33.

### **23. Packing and Documents**

- 23.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 23.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in the SCC, and in any other instructions ordered by the Purchaser.

### **24. Insurance**

- 24.1 Unless otherwise specified in the SCC, the Goods supplied under the Contract shall be fully insured—in a freely convertible currency from an eligible country—against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the SCC.

### **25. Transportation and Incidental**

- 25.1 Unless otherwise specified in the SCC, responsibility for arranging transportation of the Goods shall be in accordance



**Services**

with the specified Incoterms.

25.2 The Supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

25.3 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services

**26. Inspections and Tests**

26.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the **SCC**.

26.2 The Supplier shall at its own expense and at no cost to the Purchaser facilitate a team of up to 4 technical officers nominated by the purchaser to carry out inspections of selected Goods at his/her factory before any shipment is done to Uganda.

26.3 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place in the Purchaser's Country as specified in the **SCC**. Subject to GCC Sub-Clause 26.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the

inspectors at no charge to the Purchaser.

26.4 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 26.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

26.5 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.

26.6 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods comply with the technical specifications codes and standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.

26.7 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.

26.8 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 26.4.

26.9 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 26.6, shall release the Supplier from any warranties or other obligations under the Contract.

## **27. Liquidated Damages**

27.1 Except as provided under GCC Clause 32, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or

perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the **SCC** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in those **SCC**. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to GCC Clause 35.

## **28. Warranty**

28.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

28.2 Subject to GCC Sub-Clause 22.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.

28.3 Unless otherwise specified in the **SCC**, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the **SCC**, or for eighteen (18) months after the date of shipment from the port or place of loading in the country of origin, whichever period concludes earlier.

28.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.

28.5 Upon receipt of such notice, the Supplier shall, within the period specified in the **SCC**, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.

28.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the **SCC**, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

## **29. Patent**

29.1 The Supplier shall, subject to the Purchaser's compliance with

**Indemnity**

GCC Sub-Clause 29.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:

- (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
- (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

29.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 29.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

29.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.

29.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.

29.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the

Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

**30. Limitation of Liability**

30.1 Except in cases of criminal negligence or willful misconduct,

- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
- (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the Purchaser with respect to patent infringement

**31. Change in Laws and Regulations**

31.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser's Country where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with GCC Clause 15.

**32. Force Majeure**

32.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

32.2 For purposes of this Clause, "Force Majeure" means an event or

situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

32.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

**33. Change Orders and Contract Amendments**

33.1 The Purchaser may at any time order the Supplier through notice in accordance GCC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:

- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) the method of shipment or packing;
- (c) the place of delivery; and
- (d) the Related Services to be provided by the Supplier.

33.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.

33.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

33.4 **Value Engineering:** The Supplier may prepare, at its own cost, a value engineering proposal at any time during the performance of the contract. The value engineering proposal shall, at a minimum,

include the following;

- (a) the proposed change(s), and a description of the difference to the existing contract requirements;
- (b) a full cost/benefit analysis of the proposed change(s) including a description and estimate of costs (including life cycle costs) the Purchaser may incur in implementing the value engineering proposal; and
- (c) a description of any effect(s) of the change on performance/functionality.

The Purchaser may accept the value engineering proposal if the proposal demonstrates benefits that:

- (a) accelerates the delivery period; or
- (b) reduces the Contract Price or the life cycle costs to the Purchaser; or
- (c) improves the quality, efficiency or sustainability of the Goods; or
- (d) yields any other benefits to the Purchaser,

without compromising the necessary functions of the Facilities.

If the value engineering proposal is approved by the Purchaser and results in:

- (a) a reduction of the Contract Price; the amount to be paid to the Supplier shall be the percentage specified **in the PCC** of the reduction in the Contract Price; or
- (b) an increase in the Contract Price; but results in a reduction in life cycle costs due to any benefit described in (a) to (d) above, the amount to be paid to the Supplier shall be the full increase in the Contract Price.

33.5 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

### **34. Extensions of Time**

34.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 13, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its

cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

34.2 Except in case of Force Majeure, as provided under GCC Clause 32, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 26, unless an extension of time is agreed upon, pursuant to GCC Sub-Clause 34.1.

## **35. Termination**

### **35.1 Termination for Default**

- (a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:
  - (i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 34;
  - (ii) if the Supplier fails to perform any other obligation under the Contract; or
  - (iii) if the Supplier, in the judgment of the Purchaser has engaged in Fraud and Corruption, as defined in paragraph 2.2 a of the Appendix to the GCC, in competing for or in executing the Contract.
- (b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 35.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

### **35.2 Termination for Insolvency.**

- (a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier,



provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

### 35.3 Termination for Convenience.

- (a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- (b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
  - (i) to have any portion completed and delivered at the Contract terms and prices; and/or
  - (ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

## **36. Assignment**

36.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

## **37. Export Restriction**

37.1 Notwithstanding any obligation under the Contract to complete all export formalities, any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, which arise from trade regulations from a country supplying those products/goods, systems or services, and which substantially impede the Supplier from meeting its obligations under the Contract, shall release the Supplier from the obligation to provide deliveries or services, always provided, however, that the Supplier can demonstrate to the satisfaction of the Purchaser and of the Bank that it has completed all formalities in a timely manner, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract. Termination of the Contract on this basis shall be for the Purchaser's convenience pursuant to Sub-Clause 35.3.

## APPENDIX TO GENERAL CONDITIONS

### Fraud and Corruption

*(Text in this Appendix shall not be modified)*

#### 1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

#### 2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

- i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
- iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- v. "obstructive practice" is:
  - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
  - (b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;<sup>1</sup> (ii) to be a nominated<sup>2</sup> sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect<sup>3</sup> all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

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<sup>1</sup> For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

<sup>2</sup> A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

<sup>3</sup> Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.



## Section IX - Special Conditions of Contract

<b>GCC 1.1(i)</b>	The Purchaser's Country is: <b>Uganda</b>
<b>GCC 1.1(j)</b>	The Purchaser is: <b>Ministry of Water and Environment</b>
<b>GCC 1.1 (o)</b>	<p>The Project Site(s)/Final Destination(s) is/are:</p> <p><b>Station Sites &amp; Offices of DWRM/WRI, Entebbe.</b></p> <p>The delivery of all equipment shall be to the offices of the Directorate of Water Resources Department /WRI on Plot 12, Mpigi Road, Entebbe. Installation and training in operation and maintenance will be undertaken at all sites under each category specified under Part 2 (employer's requirements). The civil works required for preparation of installation are to be procured under a separate contract.</p>
<b>GCC 4.2 (a)</b>	The meaning of the trade terms shall be as prescribed by Incoterms. If the meaning of any trade term and the rights and obligations of the parties thereunder shall not be as prescribed by Incoterms, they shall be as prescribed by: <i>N/A</i>
<b>GCC 4.2 (b)</b>	The version edition of Incoterms shall be: <b>Intercoms 2010</b>
<b>GCC 5.1</b>	The language shall be: <b>English</b>
<b>GCC 8.1</b>	<p>For <b>notices</b>, the Purchaser's address shall be:</p> <p><b>The Permanent Secretary, Ministry of Water &amp; Environment</b>  <b>Attention: Head, Procurement &amp; Disposal Unit</b>  Street Address: Plot 3-7 Kabalega Crescent Road, Luzira  City: <b>Kampala</b>  Country: <b>Uganda</b>  Telephone: <b>+256 414 220 229</b>  Facsimile number: <b>+256 414 505 941</b></p>
<b>GCC 9.1</b>	The governing law shall be the law of: <b>Uganda</b>
<b>GCC 10.2</b>	The rules of procedure for arbitration proceedings pursuant to GCC Clause 10.2 shall be as follows:

	<p><b>(a) Contract with foreign Supplier:</b></p> <p>GCC 10.2 (a)—Any dispute, controversy or claim arising out of or relating to this Contract, or breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.</p> <p><b>(b) Contracts with Supplier national of the Purchaser’s Country:</b></p> <p>In the case of a dispute between the Purchaser and a Supplier who is a national of the Purchaser’s Country, the dispute shall be referred to adjudication or arbitration in accordance with the laws of the Purchaser’s Country.</p>
<p><b>GCC 13.1</b></p>	<p>Details of Shipping and other Documents to be furnished by the Supplier are: <i>a negotiable bill of lading, an airway bill, insurance certificate, Manufacturer’s or Supplier’s warranty certificate, inspection certificate issued by nominated inspection agency, Supplier’s factory shipping details etc</i>].</p> <p>The above documents shall be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
<p><b>GCC 15.1</b></p>	<p>The prices charged for the Goods supplied and the related Services performed <b>shall not</b> be adjustable.</p> <p>If prices are adjustable, the following method shall be used to calculate the price adjustment: <i>N/A</i></p>
<p><b>GCC 16.1</b></p>	<p>GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:</p> <p><b>Payment for Goods supplied from abroad:</b></p> <p>Payment of foreign currency portion shall be made in <b>agreed currency</b> in the following manner:</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered and in the form provided in the bidding document or another form acceptable to the Purchaser.</p> <p>(ii) <b>On Shipment:</b> Thirty (30) percent of the Contract Price of the Goods shipped shall be paid through irrevocable confirmed letter of credit opened in favor of the Supplier in a bank in its country, upon submission of documents specified in GCC Clause 13.</p>

	<p>(iii) <b>On Acceptance:</b> Sixty (60) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods upon submission of claim supported by the acceptance certificate issued by the Purchaser.</p> <p>If Bank Guarantee is from a foreign financial institution, the foreign institution will have a local corresponding Bank in the borrower's country to facilitate enforcement of the Guarantee.</p> <p>Payment of local currency portion shall be made <u>in the currency specified in the bid</u> within Sixty (60) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed.</p> <p><b>Payment for Goods and Services supplied from within the Purchaser's Country:</b></p> <p>Payment for Goods and Services supplied from within the Purchaser's Country shall be made in <b>Uganda shillings</b>, as follows:</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract against a simple receipt and a bank guarantee for the equivalent amount and in the form provided in the bidding document or another form acceptable to the Purchaser.</p> <p>(ii) <b>On Delivery:</b> Sixty (60) percent of the Contract Price shall be paid on receipt of the Goods and upon submission of the documents specified in GCC Clause 13.</p> <p>(iii) <b>On Acceptance:</b> The remaining Thirty (30) percent of the Contract Price shall be paid to the Supplier within thirty (30) days after the date of the acceptance certificate for the respective delivery issued by the Purchaser.</p>
<b>GCC 16.5</b>	<p>The payment-delay period after which the Purchaser shall pay interest to the supplier shall be <b>120 days</b>.</p> <p>The interest rate that shall be applied is: the supplier's bank's prime lending rate at the date when the interest starts to apply</p>
<b>GCC 18.1</b>	<p>A Performance Security <b>shall</b> be required</p> <p>The amount of the Performance Security shall be: <b>10%</b> of the Contract Price</p>

<b>GCC 18.3</b>	<p>The Performance Security shall be in the form of: <b>Unconditional Bank Guarantee from a recognized financial institution and enforceable in the purchaser’s country.</b></p> <p>The Performance security shall be denominated in a <b>freely convertible currency acceptable to the Purchaser”</b></p>
<b>GCC 23.2</b>	<p>The packing, marking and documentation within and outside the packages shall be: <b>Ministry of Water and Environment, Directorate of Water Resources Management, Monitoring and Assessment Department, Mpigi Road, Entebbe, Uganda</b></p>
<b>GCC 24.1</b>	<p>The insurance coverage shall be as specified in the Incoterms.</p>
<b>GCC 25.1</b>	<p>Responsibility for transportation of the Goods shall be as specified in the Incoterms- CIP Entebbe.</p> <p>In addition, <b>The Supplier is required under the Contract to transport the Goods to a specified place of final destination within the Purchaser’s Country, defined as the Project Site, transport to such place of destination in the Purchaser’s Country, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price</b></p>
<b>GCC 25.2</b>	<p>Incidental services to be provided are: N/A</p>
<b>GCC 26.1</b>	<p>The inspections and tests shall be: done both at the manufacture’s factory prior to shipment of the goods and at the Directorate of Water Resources Management</p>
<b>GCC 26.2</b>	<p>The Inspections and tests shall be conducted at: the station sites indicated under Section VIII of Supply requirements</p>
<b>GCC 27.1</b>	<p>The liquidated damage shall be: <b>0.5%</b> per week</p>
<b>GCC 27.1</b>	<p>The maximum amount of liquidated damages shall be: <b>10%</b></p>
<b>GCC 28.3</b>	<p>The period of validity of the Warranty shall be: <b>180</b> days</p> <p>For purposes of the Warranty, the place(s) of final destination(s) shall be:</p> <p><b>This is Provided at statement of requirements attached</b></p>
<b>GCC 28.5, GCC 28.6</b>	<p>The period for repair or replacement shall be: <i>Within 20</i> days.</p>
<b>GCC 33.4</b>	<p>If the value engineering proposal is approved by the Purchaser the amount to be paid to the Supplier shall be 50% of the reduction in the Contract Price.</p>



# Section X - Contract Forms

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## Notification of Intention to Award

***[This Notification of Intention to Award shall be sent to each Bidder that submitted a Bid.]***

***[Send this Notification to the Bidder's Authorized Representative named in the Bidder Information Form]***

For the attention of Bidder's Authorized Representative

Name: *[insert Authorized Representative's name]*

Address: *[insert Authorized Representative's Address]*

Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]*

Email Address: *[insert Authorized Representative's email address]*

***[IMPORTANT: insert the date that this Notification is transmitted to Bidders. The Notification must be sent to all Bidders simultaneously. This means on the same date and as close to the same time as possible.]***

**DATE OF TRANSMISSION:** This Notification is sent by: *[email/fax]* on *[date]* (local time)

## Notification of Intention to Award

**Purchaser:** *[insert the name of the Purchaser]*

**Project:** *[insert name of project]*

**Contract title:** *[insert the name of the contract]*

**Country:** *[insert country where RFB is issued]*

**Loan No. /Credit No. / Grant No.:** *[insert reference number for loan/credit/grant]*

**RFB No:** *[insert RFB reference number from Procurement Plan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

- a) request a debriefing in relation to the evaluation of your Bid, and/or
- b) submit a Procurement-related Complaint in relation to the decision to award the contract.

### 1. The successful Bidder

<b>Name:</b>	<i>[insert name of successful Bidder]</i>
<b>Address:</b>	<i>[insert address of the successful Bidder]</i>
<b>Contract price:</b>	<i>[insert contract price of the successful Bid]</i>

**2. Other Bidders** *[INSTRUCTIONS: insert names of all Bidders that submitted a Bid. If the Bid's price was evaluated include the evaluated price as well as the Bid price as read out.]*

Name of Bidder	Bid price	Evaluated Bid price (if applicable)
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]

**3. Reason/s why your Bid was unsuccessful**

*[INSTRUCTIONS: State the reason/s why this Bidder's Bid was unsuccessful. Do NOT include: (a) a point by point comparison with another Bidder's Bid or (b) information that is marked confidential by the Bidder in its Bid.]*

**4. How to request a debriefing**

**DEADLINE:** The deadline to request a debriefing expires at midnight on [insert date] (local time).

You may request a debriefing in relation to the results of the evaluation of your Bid. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Bidder, contact details; and address the request for debriefing as follows:

**Attention:** [insert full name of person, if applicable]

**Title/position:** [insert title/position]

**Agency:** [insert name of Purchaser]

**Email address:** [insert email address]

**Fax number:** [insert fax number] *delete if not used*

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall

promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

## 5. How to make a complaint

**Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [insert date] (local time).**

Provide the contract name, reference number, name of the Bidder, contact details; and address the Procurement-related Complaint as follows:

**Attention:** [insert full name of person, if applicable]

**Title/position:** [insert title/position]

**Agency:** [insert name of Purchaser]

**Email address:** [insert email address]

**Fax number:** [insert fax number] *delete if not used*

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

Further information:

For more information see the [Procurement Regulations for IPF Borrowers \(Procurement Regulations\)\[https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=4005\]](https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=4005) (Annex III). You should read these provisions before preparing and submitting your complaint. In addition, the World Bank’s Guidance “[How to make a Procurement-related Complaint](http://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework#framework)” [<http://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework#framework>] provides a useful explanation of the process, as well as a sample letter of complaint.

In summary, there are four essential requirements:

1. You must be an ‘interested party’. In this case, that means a Bidder who submitted a Bid in this bidding process, and is the recipient of a Notification of Intention to Award.
2. The complaint can only challenge the decision to award the contract.
3. You must submit the complaint within the period stated above.
4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III).

**6. Standstill Period**

**DEADLINE: The Standstill Period is due to end at midnight on [insert date] (local time).**

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended as stated in Section 4 above.

If you have any questions regarding this Notification please do not hesitate to contact us.

On behalf of the Purchaser:

**Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Title/position:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

## Beneficial Ownership Disclosure Form

***INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM***

*This Beneficial Ownership Disclosure Form (“Form”) is to be completed by the successful Bidder<sup>1</sup>. In case of joint venture, the Bidder must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.*

*For the purposes of this Form, a Beneficial Owner of a Bidder is any natural person who ultimately owns or controls the Bidder by meeting one or more of the following conditions:*

- *directly or indirectly holding 25% or more of the shares*
- *directly or indirectly holding 25% or more of the voting rights*
- *directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder*

**RFB No.:** *[insert number of RFB process]*

**Request for Bid No.:** *[insert identification]*

**To:** *[insert complete name of Purchaser]*

In response to your request in the Letter of Acceptance dated *[insert date of letter of Acceptance]* to furnish additional information on beneficial ownership: *[select one option as applicable and delete the options that are not applicable]*

(i) we hereby provide the following beneficial ownership information.

### Details of beneficial ownership

Identity of Beneficial Owner	Directly or indirectly holding 25% or more of the shares (Yes / No)	Directly or indirectly holding 25 % or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Bidder (Yes / No)
<i>[include full name (last, middle, first), nationality, country]</i>			

<i>of residence]</i>			
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**OR**

(ii) *We declare that there is no Beneficial Owner meeting one or more of the following conditions:*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder

**OR**

(iii) *We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Bidder shall provide explanation on why it is unable to identify any Beneficial Owner]*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder]"

**Name of the Bidder:** \**[insert complete name of the Bidder]*\_\_\_\_\_

**Name of the person duly authorized to sign the Bid on behalf of the Bidder:** \*\**[insert complete name of person duly authorized to sign the Bid]*\_\_\_\_\_

**Title of the person signing the Bid:** *[insert complete title of the person signing the Bid]*\_\_\_\_\_

**Signature of the person named above:** *[insert signature of person whose name and capacity are shown above]*\_\_\_\_\_

**Date signed** *[insert date of signing]* **day of** *[insert month]*, *[insert year]*\_\_\_\_\_

\* In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder. In the event that the Bidder is a joint venture, each reference to "Bidder" in the Beneficial Ownership Disclosure Form (including this Introduction thereto) shall be read to refer to the joint venture member.

\*\* Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.

# Letter of Acceptance

*[use letterhead paper of the Purchaser]*

*[date]*

To: *[name and address of the Supplier]*

Subject: *Notification of Award Contract No. . . . .*

This is to notify you that your Bid dated *[insert date]* for execution of the *[insert name of the contract and identification number, as given in the SCC]* for the Accepted Contract Amount of *[insert amount in numbers and words and name of currency]*, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish (i) the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms and (ii) the additional information on beneficial ownership in accordance with BDS ITB 45.1 within eight (8) Business days using the Beneficial Ownership Disclosure Form, included in Section X, - Contract Forms, of the Bidding Document.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

**Attachment: Contract Agreement**



## Contract Agreement

*[The successful Bidder shall fill in this form in accordance with the instructions indicated]*

THIS AGREEMENT made

the *[insert: number]* day of *[insert: month]*, *[insert: year]*.

BETWEEN

- (1) *[insert complete name of Purchaser]*, a *[insert description of type of legal entity, for example, an agency of the Ministry of ... of the Government of {insert name of Country of Purchaser}, or corporation incorporated under the laws of {insert name of Country of Purchaser}]* and having its principal place of business at *[insert address of Purchaser]* (hereinafter called “the Purchaser”), of the one part, and
- (2) *[insert name of Supplier]*, a corporation incorporated under the laws of *[insert: country of Supplier]* and having its principal place of business at *[insert: address of Supplier]* (hereinafter called “the Supplier”), of the other part:

WHEREAS the Purchaser invited Bids for certain Goods and ancillary services, viz., *[insert brief description of Goods and Services]* and has accepted a Bid by the Supplier for the supply of those Goods and Services

The Purchaser and the Supplier agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other contract documents.
  - (a) the Letter of Acceptance
  - (b) the Letter of Bid
  - (c) the Addenda Nos. \_\_\_\_\_ (if any)
  - (d) Special Conditions of Contract
  - (e) General Conditions of Contract
  - (f) the Specification (including Schedule of Requirements and Technical Specifications)

- (g) the completed Schedules (including Price Schedules)
  - (h) any other document listed in GCC as forming part of the Contract
3. In consideration of the payments to be made by the Purchaser to the Supplier as specified in this Agreement, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
  4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of *[insert the name of the Contract governing law country]* on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*  
in the capacity of *[insert title or other appropriate designation]*  
In the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*  
in the capacity of *[insert title or other appropriate designation]*  
in the presence of *[insert identification of official witness]*

## Performance Security

### Option 1: (Bank Guarantee)

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of Purchaser]*

**Date:** *\_ [Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *\_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *\_ [insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_) *[insert amount in words]*,<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

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<sup>1</sup> *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

<sup>2</sup> *Insert the date twenty-eight days after the expected completion date as described in GC Clause 18.4. The Purchaser should note that in the event of an extension of this date for completion of the Contract, the Purchaser would need to request an extension of this guarantee from the Guarantor. Such request must be*

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

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*in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Purchaser might consider adding the following text to the form, at the end of the penultimate paragraph: “The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”*

## Advance Payment Security Demand Guarantee

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Insert name and Address of Purchaser]*

**Date:** *[Insert date of issue]*

**ADVANCE PAYMENT GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *[insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* () *[insert amount in words]* is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_) *[insert amount in words]*<sup>1</sup> upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than toward delivery of Goods;  
or

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<sup>1</sup> *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Purchaser.*

- (b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant's bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, has been certified for payment, or on the *[insert day]* day of *[insert month]*, 2 *[insert year]*, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.

\_\_\_\_\_  
*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***