



**Bidding Document  
For  
Procurement of**

**METEOROLOGICAL OBSERVATION SYSTEMS TO SUPPORT  
CIVIL AVIATION**

**AUTOMATIC WEATHER OBSERVATION SYSTEM (AWOS)**

**CEILOMETER**

**WIND PROFILER**

**(SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING)**

**Contract ID No: NCHM/HOID/WB(Tender)/2016-17/199**

**Project: Hydro-met Services & Disaster Resilience Regional Project”**

**Purchaser:**

**National Center for Hydrology & Meteorology (NCHM)  
Royal Government of Bhutan**

**Country:**

**Bhutan**

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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 Invitation for Bids, **specified in the Bid Data Sheet (BDS)**, the Purchaser, **as specified in the BDS**, issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section VII, Schedule of Requirements. The name, identification and number of lots (contracts) of this International Competitive Bidding (ICB) procurement are **specified in the BDS**.
  - 1.2 Throughout these Bidding Documents:
    - a. The term “in writing” means communicated in written form (e.g. By mail, e-mail, fax, telex) with proof of receipt;
    - b. If the context so requires, “singular” means “plural” and vice versa; and
    - c. “Day” means calendar day.
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 BDS**, toward the project named **in BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract for which these Bidding Documents are 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 (or other financing) account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, 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. Corrupt and Fraudulent Practices**
    - 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.
    - 3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (where declared or not), sub-contractors, sub- consultants, service providers or suppliers and to permit the Bank to inspect all accounts, records and other documents relating to the submission of the application, bid submission (in case prequalified), 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 government-owned entity—subject to ITB 4.5—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 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. Participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or

- f. 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
  - g. Any of its affiliates has been hired (or is proposed to be hired) by the Purchaser or Borrower for the Contract implementation; or
  - h. 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
  - i. 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 documents 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 procurement process and execution of the contract
- 4.3 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. 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 sub-contractors or sub-consultants for any part of the Contract including related Services.
- 4.4 A Bidder that has been sanctioned by the Bank in accordance with the above ITB 3.1, including in accordance with the Bank's Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), shall be ineligible to be prequalified for, bid 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**.

- 4.5 Bidders that are Government-owned enterprises or institutions in the Purchaser's Country may participate only if they can establish that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Purchaser. To be eligible, a government-owned enterprise or institution shall establish to the Bank's satisfaction, through all relevant documents, including its Charter and other information the Bank may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.
- 4.6 A Bidder shall not be under suspension from bidding by the Purchaser as the result of the operation of a Bid-Securing Declaration.
- 4.7 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.
- 4.8 A Bidder shall provide such evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.

**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 Clause, 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 Bidding Document**

- 6. Sections of Bidding Document** of 6.1 The Bidding Documents 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. Bank Policy-Corrupt and Fraudulent Practices

### **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 Invitation for Bids issued by the Purchaser is not part of the 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 Documents and to furnish with its Bid all information or documentation as is required by the Bidding Documents.

- 7. Clarification of Bidding Documents**
- 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 Documents 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 Documents, the Purchaser shall amend the Bidding Documents 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 Documents by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents 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.

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- 11. Documents Comprising the Bid**
- 11.1 The Bid shall comprise the following:
- a. Letter of Bid in accordance with ITB 12;
  - b. Completed schedules, in accordance with ITB 12 and 14
  - c. Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1;
  - d. Alternative bids, if permissible, in accordance with ITB 13;
  - e. Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
  - f. Documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract if its bid is accepted;
  - g. Documentary evidence in accordance with ITB 17 establishing the Bidder's eligibility to bid;
  - h. Documentary evidence in accordance with ITB 16, that the Goods and Related Services to be supplied by the Bidder are of eligible origin;
  - i. Documentary evidence in accordance with ITB 16 and 30, that the Goods and Related Services conform to the Bidding Documents;
  - 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 20.2. 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  
Discounts**

- 14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Price Schedules shall conform to 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 dis-aggregation 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;
  - (iv) The price of the Goods, obtained as the difference between (i) and (ii) above;

- (v) Any Purchaser's Country sales and other taxes which will be payable on the Goods if the contract is awarded to the Bidder; and
  - (vi) 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:
- (i) The price of each item comprising the Related Services (inclusive of any applicable taxes).

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| <p><b>15. Currencies of Bid and Payment</b></p>   | <p>15.1 The currency(ies) of the bid and the currency(ies) of payments shall be <b>as specified in the BDS.</b> 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 <b>specified in the BDS.</b></p> <p>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.</p>   |
| <p><b>16. Documents Establishing the Eligibility and Conformity of the Goods and Related Services</b></p> | <p>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.</p> <p>16.2 To establish the conformity of the Goods and Related Services to the Bidding Documents, 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.</p> <p>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</p> |

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 their 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 period **specified in the BDS** after the bid submission deadline date prescribed by the Purchaser in accordance with ITB22.1. 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 Clause 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, 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 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 from an eligible country. If the unconditional guarantee is issued by a financial institution located outside the Purchaser's Country, the issuing financial institution shall have a correspondent financial institution located in the Purchaser's Country to make it enforceable. 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 42.
- 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 on 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 ITB41; or
    - (ii) Furnish a performance security in accordance with ITB 42.
- 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 ITB41; or furnish a performance security in accordance with ITB 42; 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 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.
- 20.3 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.
- 20.4 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 enclose the original and all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL”, “ALTERNATIVE” and “COPY.” These envelopes containing the original and the copies shall then be enclosed in one single envelope.

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 24.1;
- c. Bear the specific identification of this bidding process indicated in ITB1.1; 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 no 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 Documents 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 20.2, (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 24, the Purchaser shall publicly open and read out in accordance with ITB25.3 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 choose 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. 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. 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. Only bids that are opened and read out at Bid opening shall be considered further.

25.3 All other 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. Only discounts and alternative bids read out at Bid opening shall be considered for 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**. The Purchaser shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 25.1).

- 25.4 The Purchaser shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts, and alternative bids; and the presence or absence of a Bid Security, if one was required. 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 information on Contract Award is communication 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 Documents;
  - b. “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
  - c. “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Documents
- 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 Documents 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 Documents, 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 Documents, 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 nonconformity 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.

**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 Clause. No other evaluation criteria or methodologies shall be permitted.
- 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 clause 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 14.3;
  - 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;
  - 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 these Bidding Documents allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid Form, 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 prices of all substantially responsive bids established in accordance with ITB 34.2 to determine the lowest evaluated bid. 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. Qualification of the Bidder**

36.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

36.2 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.

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

**37. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids**

37.1 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.

## F. Award of Contract

- 38. Award Criteria** 38.1 Subject to ITB 37.1, the Purchaser shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 39. Purchaser's Right to Vary Quantities at Time of Award** 39.1 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 Documents.
- 40. Notification of Award** 40.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Purchaser will pay the Supplier in consideration of the supply of Goods (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price"). At the same time, the Purchaser shall also notify all other Bidders of the results of the bidding and shall publish in *UNDB online* the results identifying the bid and lot (contract) numbers and the following information:
- (i) Name of each Bidder who submitted a Bid;
  - (ii) Bid prices as read out at Bid Opening;
  - (iii) Name and evaluated prices of each Bid that was evaluated;
  - (iv) Name of bidders whose bids were rejected and the reasons for their rejection; and
  - (v) Name of the successful Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded.
- 40.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.
- 40.3 The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected.

**41. Signing of Contract**

- 41.1 Promptly after notification, the Purchaser shall send the successful Bidder the Contract Agreement.
- 41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.
- 41.3 Notwithstanding ITB 41.2 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.

**42. Performance Security**

- 42.1 Within twenty-eight (28) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC, subject to ITB 34.5, 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.
- 42.2 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 next lowest evaluated Bidder, whose bid is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

## 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.

<b>A. General</b>	
ITB Clause Reference	
<b>ITB 1.1</b>	The reference number of the Invitation for Bids is: <b>NCHM/HOID/WB(Tender)/2016-17/199</b>
<b>ITB 1.1</b>	The Purchaser is: <b>National Center for Hydrology &amp; Meteorology (NCHM), Royal Government of Bhutan.</b>
<b>ITB 1.1</b>	<p>The name of the ICB is: <b><u>Meteorological Observation Systems to Support Civil Aviation: Automatic Weather Observation System (AWOS), Ceilometer, and Wind Profiler</u></b></p> <p><b><u>(Supply, Delivery, Installation and Commissioning)</u></b></p> <p>The identification number of the ICB is: <b>G1</b></p> <p>The number and identification of lots (contracts) comprising this ICB is: <b><u>(Not applicable)</u></b></p>
<b>ITB 2.1</b>	The Borrower is: <b><u>Royal Government of Bhutan</u></b>
<b>ITB 2.1</b>	Loan or Financing Agreement amount: <b><u>USD 3.8 million (Grant) for HSDRRP project</u></b>
<b>ITB 2.1</b>	The name of the Project is: <b><u>“Hydro-met Services &amp; Disaster Resilience Regional Project”</u></b>
<b>ITB 4.1</b>	Maximum number of members in the JV shall be: <b><u>3 (three)</u></b>
<b>IITB 4.4</b>	<p>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>.</p>



<b>B. Contents of Bidding Documents</b>	
<b>ITB 7.1</b>	<p>For <b>Clarification of bid purposes</b> only, the Purchaser's address is:  Attention: <b><u>Trashi Namgyal, Project Manager, World Bank Project.</u></b>  Floor/ Room number: <b><u>1<sup>st</sup> Floor, Energy Building, NCHM, MoEA</u></b>  City: <b><u>Thimphu.</u></b>  ZIP Code: <b><u>11001</u></b>  Country: Bhutan  Telephone: <b><u>+975-17492942</u></b>  Facsimile number: Electronic mail address:  <b><u>tnamgyel@moea.gov.bt</u></b>  Requests for clarification should be received by the Employer no later than:  <b>FIFTEEN (15) days</b> prior to the deadline date for submission of bid.</p>
<b>ITB 7.1</b>	Web page: <a href="http://www.hydromet.gov.bt">www.hydromet.gov.bt</a> or <a href="http://www.moea.gov.bt">www.moea.gov.bt</a>
<b>C. Preparation of Bids</b>	
<b>ITB 10.1</b>	<p>The language of the bid is: <b>English</b>  All correspondence exchange shall be in English language.</p>
<b>ITB 11.1 (j)</b>	The Bidder shall submit the following additional documents in its bid: <b>None</b>
<b>ITB 13.1</b>	Alternative Bids <b>shall not be</b> considered.
<b>ITB 14.5</b>	The prices be quoted by the Bidders <b>shall not</b> be subject to adjustment during the performance of the Contract.
<b>ITB 14.6</b>	Prices quoted for each item of a lot shall correspond to <b>100</b> percent of the quantities specified for this item of a lot.
<b>ITB 14.7</b>	The Incoterms edition is: <b>Incoterm 2000</b>
<b>ITB 14.8 (b) (i)</b>	Place of Destination: <b>CIP ( Paro, Thimphu &amp; Bumthang)</b>

ITB 14.8 (a) (iii);(b)(ii) and (c)(v)	Final destination: <i>Paro International Airport &amp; Bumthang Domestic Airport, Bhutan (For details refer the geo-coordinates provided in clause no. GCC 1.1 (o))</i>
ITB 15.1	<p>The prices shall be quoted by the bidder in: all Currencies</p> <p>However, for bid evaluation and comparison purposes all the bid prices shall be converted into a single currency in <b>Ngultrum (BTN)</b>. The source of exchange rate shall be: <b>Royal Monetary Authority of Bhutan (RMA)</b></p> <p>The date for the exchange rate shall be: 28 days prior to the deadline for original submission of the Bids.</p>
ITB 16.4	Period of time the Goods are expected to be functioning (for the purpose of spare parts): <b>10 years</b>
ITB 17.2 (a)	Manufacturer's authorization is: <b>"required for all Meteorological Equipment of all delivered components listed in Part 2 / Section VII Schedule of Requirements, Tables 3a &amp; 3b"</b> .
ITB 17.2 (b)	After sales service is: <b>"required"</b>
ITB 18.1	The bid validity period shall be <b><u>120 days</u></b>
ITB 18.3 (a)	<p>The bid price shall be adjusted by the following factor(s):_____</p> <p><b>The local currency portion of the Contract price shall be adjusted by a factor reflecting local inflation during the period of extension, and the foreign currency portion of the Contract price shall be adjusted by a factor reflecting the international inflation (in the country of the foreign currency) during the period of extension.</b></p>
ITB 19.1	<p>A Bid Security <b>"shall"</b> be required.</p> <p>A Bid-Securing Declaration <b>"shall not"</b> be required. The amount and currency of the bid security shall be Nu. 1,000,000 One Million (Lump sum) <i>in the following forms payable to Sr. Finance Officer, NCHM, Thimphu :</i></p> <ul style="list-style-type: none"> <li>i. <i>Cash Warrant from Any Intentional banks link with any Banks in the Bhutan</i></li> <li>ii. <i>Demand Draft From any international banks link with any banks in the Bhutan.</i></li> <li>iii. <i>Unconditional Bank Guarantee from any international link with any Banks in Bhutan</i></li> </ul>

	consist of: <b>Letter of Authorization/ Power of attorney</b>
<b>D. Submission and Opening of Bids</b>	
<b>ITB 22.1</b>	<p>For <u>bid submission purposes</u> only, the purchaser's address is</p> <p><b>Attention: Trashi Namgyal, Project Manager, World Bank Project, NCHM, Royal Government of Bhutan.</b></p> <p>Street Address: <b>MoEA Complex</b></p> <p>Floor/ Room number: <b>1<sup>st</sup> Floor, Energy Building, NCHM, MoEA</b></p> <p>City: <b>Thimphu</b></p> <p>ZIP/Postal Code: <b>11001</b></p> <p>Country: <b>Bhutan</b></p> <p><b>The deadline for bid submission:</b></p> <p>Date: <b>01-05-2017(extended)</b></p> <p>Time: <b>12:00 noon</b></p> <p>Bidder "<b>shall not</b>" have the option of submitting their bids electronically.</p>
<b>ITB 25.1</b>	<p>The bid opening shall take place at:</p> <p>Street Address: <b>MoEA complex</b></p> <p>Floor/ Room number: <b>1<sup>st</sup> Floor, Energy Conference Hall, NCHM, MoEA</b></p> <p>City: <b>Thimphu</b></p> <p>Country: <b>Bhutan</b></p> <p>Date: <b>01-05-2017</b></p> <p>Time: <b>14:30 hours(BST)</b></p>
<b>ITB 25.3</b>	The Letter of Bid and Price Schedules of <b>Each Bid shall be initialed by all representatives of the Purchaser conducting Bid opening.</b>
<b>E. Evaluation and Comparison of Bids</b>	
<b>ITB 32.1</b>	The currency that shall be used for bid evaluation and comparison purposes to

	<p>convert all bid prices expressed in various currencies into a single currency is: <b>Ngultrum(BTN)</b></p> <p>The source of exchange rate shall be: <b>Royal Monetary Authority of Bhutan (RMA)</b></p> <p>The date for the exchange rate shall be: 28 days prior to the deadline for original submission of the Bids.</p>
<b>ITB 33.1</b>	<b>A margin of domestic preference “Shall not apply”</b>
<b>ITB 34.2(a)</b>	<b>Bids will be evaluated for Lots (total of all items).</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: No.</li> <li>b. Deviation in payment schedule: No.</li> <li>c. The cost of major replacement components, mandatory spare parts, and service: No.</li> <li>d. The availability in the Purchaser’s Country of spare parts and after-sales services for the equipment offered in the bid: Yes</li> <li>e. The projected operating and maintenance costs during the life of the equipment: No.</li> <li>f. The performance and productivity of the equipment offered; <i>No.</i></li> </ul>
<b>F. Award of Contract</b>	
<b>ITB 39.1</b>	<p>The maximum percentage by which quantities may be increased is: <b>25%</b></p> <p>The maximum percentage by which quantities may be decreased is: <b>25%</b></p>

	consist of: <b>Letter of Authorization/ Power of attorney</b>
<b>D. Submission and Opening of Bids</b>	
<b>ITB 22.1</b>	<p><b>For <u>bid submission purposes</u> only, the purchaser's address is</b></p> <p><b>Attention: Trashy Namgyal, Project Manager, World Bank</b></p> <p><b>Project, NCHM, Royal Government of Bhutan.</b></p> <p>Street Address: <b>MoEA Complex</b></p> <p>Floor/ Room number: <b>1<sup>st</sup> Floor, Energy Building, NCHM, MoEA</b></p> <p>City: <b>Thimphu</b></p> <p>ZIP/Postal Code: <b>11001</b></p> <p>Country: <b>Bhutan</b></p> <p><b>The deadline for bid submission is:</b></p> <p>Date: <b>01-05-2017</b></p> <p>Time: <b>12:00 noon(BST)</b></p> <p>Bidder "<b>shall not</b>" have the option of submitting their bids electronically</p>
<b>ITB 25.1</b>	<p>The bid opening shall take place at:</p> <p>Street Address: <b>MoEA complex</b></p> <p>Floor/ Room number: <b>1<sup>st</sup> Floor, Energy Conference Hall, NCHM, MoEA</b></p> <p>City: <b>Thimphu</b></p> <p>Country: <b>Bhutan</b></p> <p>Date: <b>01-05-2017</b></p> <p>Time: <b>14:30 hours(BST)</b></p>
<b>ITB 25.3</b>	<p>The Letter of Bid and Price Schedules of <b>Each Bid shall be initialed by all representatives of the Purchaser conducting Bid opening.</b></p>
<b>E. Evaluation and Comparison of Bids</b>	
<b>ITB 32.1</b>	<p>The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: <b>Ngultrum(BTN)</b></p> <p>The source of exchange rate shall be: <b>Royal Monetary Authority of Bhutan (RMA)</b></p> <p>The date for the exchange rate shall be: 28 days prior to the deadline for original submission of the Bids.</p>

<b>ITB 33.1</b>	<b>A margin of domestic preference “Shall not apply”</b>
<b>ITB 34.2(a)</b>	<b>Bids will be evaluated for Lots (total of all items).</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>g. Deviation in Delivery schedule: No.</li> <li>h. Deviation in payment schedule: No.</li> <li>i. The cost of major replacement components, mandatory spare parts, and service: No.</li> <li>j. The availability in the Purchaser’s Country of spare parts and after-sales services for the equipment offered in the bid: Yes</li> <li>k. The projected operating and maintenance costs during the life of the equipment: No.</li> <li>l. The performance and productivity of the equipment offered; <i>No.</i></li> </ul>
<b>F. Award of Contract</b>	
<b>ITB 39.1</b>	<p>The maximum percentage by which quantities may be increased is: <b>25%</b></p> <p>The maximum percentage by which quantities may be decreased is: <b>25%</b></p>

## SECTION III. EVALUATION AND QUALIFICATION CRITERIA

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This Section contains all the criteria that the Purchaser shall use to evaluate a bid and qualify the Bidders. in accordance with ITB 34 and ITB 36, no other factors, methods or criteria shall be used.

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1. **Margin of Preference (ITB 33): Not applicable**

2. **Evaluation (ITB 34)**

**2.1 Evaluation Criteria (ITB 34.6)**

The Purchaser's evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.8, one or more of the following factors as specified in ITB34.2(f) and in BDS referring to ITB34.6, using the following criteria and methodologies.

- (a) Delivery schedule. (as per Incoterms specified in the BDS): **Not applicable**
- (b) Deviation in payment schedule: **Not applicable**
- (c) Cost of major replacement components, mandatory spare parts, and service: **Not applicable**
- (d) Availability in the Purchaser's Country of spare parts and after sales services for equipment offered in the bid: **applicable**
- (e) Projected operating and maintenance costs: **Not applicable**
- (f) Performance and productivity of the equipment: **Not applicable**
- (g) Specific additional criteria: **Not applicable**

**2.2 Multiple Contracts (ITB 34.4): Not applicable**

**2.3 Alternative Bids (ITB 13.1): Not applicable**

3. **Qualification (ITB 36)**

**3.1 Post-qualification Requirements (ITB36.1)**

After determining the lowest-evaluated bid in accordance with ITB 35.1, the Purchaser shall carry out the post-qualification of the Bidder in accordance with ITB 36, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

**(a) If Bidder is Manufacturer:**

(i) Financial Capability

The Bidder shall furnish documentary evidence that it meets the following financial requirement(s): **Average annual turnover of at least US\$ 4 (Four) Million in last five years.**

(ii) Experience and Technical Capacity

The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s): The bidder has successfully completed **at least 5 (Five) corresponding contracts (including at least 10 Automatic Weather Observation Systems (AWOS), and 5 Ceilometers, and 2 Wind Profilers in the past 10 years with authorized National Meteorological Services, and in which the equipment has been operating successfully in accordance to World Meteorological Organization (WMO) guidelines operational climate monitoring and weather services.**



(iii) Documentary Evidence.

The Bidder / Manufacturer shall furnish documentary evidence as requested in the specification documents to demonstrate that the Goods it offers meet the requirements stated in the technical specifications

**(b) If Bidder is not 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 that it meets the above qualifications (ii), (iii) **and the Bidder shall demonstrate that it has annual average turnover of US\$ 2,700,000 (Two Million Seven hundred thousand) and the bidder shall identify & appoint the competent & experienced experts (at least who has experiences of installed 2 wind profilers, 10 AWOS, & 5 Ceilometers) from the manufacturer to installed all the equipment during installation & commissioning all systems prior to submission of bid.**

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## SECTION IV. BIDDING FORMS

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## Letter of Bid

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

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

ICB No; **G1**

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

**To:**

**Project Manager, World Bank Project  
Project Management Unit,  
National Center for Hydrology & Meteorology  
Thimphu, Bhutan**

- a. We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8)\_\_\_\_\_;
- b. We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- c. We have not been suspended nor declared ineligible by the Purchaser based on execution of a Bid Securing Declaration in the Purchaser's country in accordance with ITB 4.6
- d. We offer to supplying conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods:

**A total of 2 Automatic Weather Observation Systems (AWOS) at each end of runway, 2 Ceilometers, and one Wind Profiler, with the components, software and technical features, operating as a system at with displays at both Paro International Airport and NCHM offices in Thimphu as specified in this bidding document including delivery, installation and commissioning.**

- e. The total price of our Bid, excluding any discounts offered in item (f) below is:

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**[The total price of the bid in words and figures, indicating the various amounts and the respective currencies]**

- f. 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. Our bid shall be valid for a period of **120 days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- h. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
- i. We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;
- j. 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 a member of 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 Employer's country laws or official regulations or pursuant to a decision of the United Nations Security Council;
- k. We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;<sup>1</sup>
- l. 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.")

<sup>1</sup> Bidder to use as appropriate

- m. We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- n. We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- o. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder\***[insert complete name of person signing the Bid]**

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 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 to 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]

ICB No.: **G1**

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.	<p>Bidder's Authorized Representative Information</p> <p>Name: <i>*insert Authorized Representative's name+</i></p> <p>Address: <i>*insert Authorized Representative's Address+</i></p> <p>Telephone/Fax numbers: <i>*insert Authorized Representative's telephone/fax numbers+</i></p> <p>Email Address: <i>[insert Authorized Representative's email address+</i></p>
7.	<p>Attached are copies of original documents of [check the box(es) of the attached original documents]</p> <p><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 4.3.</p> <p><input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.</p> <p><input type="checkbox"/> In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing:</p> <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 dependent agency of the Purchaser</li> </ul>
8.	Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

## 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]*

ICB No.: *[insert number of bidding process]*

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> <div style="margin-left: 20px;"> <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 4.3.  <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5.         </div>
8.	Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

## 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

Currencies in accordance with ITB 15						Date: _____ ICB No: G1 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>
1								
2								
3								
4								
5								

**Section IV Bidding Forms**

6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
<b>Total Price</b>								

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

*person signing the Bid*] Date *[Insert Date*

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

Currencies in accordance with ITB 15											Date: _____
											ICB No: G1
											Page N° _____ of _____
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 148 (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>
1											
2											

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3											
4											
5											
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7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
										Total Bid Price	

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

#### **Section IV Bidding Forms**

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- \* [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 _____						Date: _____			
Currencies in accordance with ITB 15						ICB No: G1			
						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. 4□5)	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 ICB No: _____ Alternative No: _____ Page N□ _____ of _____ 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: _____	
					ICB No: G1	
					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>
Training to NCHM & DoAT technical staff (10 persons at one time) to install, operate and maintain the stations and to become trainers for other staff.						
1	Hands on training on AWOS, Wind profiler & ceilometer installation and maintenance (3 days for hardware parts) Paro International Airport		Within 12 months from signing of contract	three days		



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2	Training on configuration, data interpretation & visualization of AWOS, wind profiler & ceilometer (2 days for software parts) Paro International Airport		Within 12 months from signing of contract	Two		
Civil works, comprising (but not necessarily limited to) preparation of the site, leveling of ground, clearance of trees, masonry, fencing, installation of equipment, electrification, etc. Please refer to related drawing no 1(Section VII-Schedule of Requirements,4: Drawings).			Within 6 months from signing of contract			
3	Civil works fencing, excavation, filling as require for RWP (20X20) or as needed to accommodate the equipment with room to access all components within fence.		Within 6 months from signing of contract	1 Sites		
4	Civil works excavation for mast foundation, trenching for Optical cable laying & filling as require for AWOS from the station to tower.		Within 6 months from signing of contract	2 sites		

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Maintenance and Technical services:						
5	Routine, Preventive and emergency maintenance service as specified in Technical Specification 3.1.10.2. (Including Monthly maintenance reports and Final maintenance report )		From commissioning of entire network to the end of the warranty period	Lump Sum		
					<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]*

**IFB No.:** *[Purchaser to insert reference number for the Invitation 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 Invitation for Bids No. \_\_\_\_\_ ("the IFB").

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 execute 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.*

## Form of Bid Security (Bid Bond) (Not applicable)

*[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>3</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\_\_\_\_.

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

Corporate Seal (where appropriate)

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

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

\_\_\_\_\_

<sup>3</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.

## Form of Bid-Securing Declaration (Not Applicable)

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

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

Bid No.: *[number of bidding 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 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 execute 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]*

ICB No.: *GI*

To: *[insert complete name of Purchaser]*

### WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured, e.g. data logger, temperature sensor, present weather sensor]*, 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]*

## INTEGRITY PACT

### 1. General:

Whereas Project Manager, World Bank Project, representing the NCHM, Royal Government of Bhutan, hereinafter referred to as the “**Employer**” on one part, and.....representing M/s.....hereinafter referred to as the “**Bidder**” on the other part hereby execute this agreement as follows:

This agreement shall be a part of the standard bidding document, which shall be signed by both the parties at the time of purchase of bidding documents and submitted along with the tender document. This IP is applicable only to “**large**” scale works, goods and services, the threshold of which will be announced by the government from time to time. The signing of the IP shall not apply to framework contracting such as annual office supplies etc.

### 2. Objectives:

Whereas, the Employer and the Bidder agree to enter into this agreement, hereinafter referred to as IP, to avoid all forms of corruption or deceptive practice by following a system that is fair, transparent and free from any influence/unprejudiced dealings in the **bidding process**<sup>8</sup> and **contract administration**<sup>9</sup>, with a view to:

2.1 Enabling the Employer to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works or goods or services; and<sup>1</sup>

2.2 Enabling bidders to abstain from bribing or any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also refrain from bribing and other corrupt practices.

### 3. Scope:

The validity of this IP shall cover the bidding process and contract administration period.

### 4. Commitments of the Employer:

The Employer Commits itself to the following:-

4.1 The Employer hereby undertakes that no officials of the Employer, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favor or any material or immaterial benefit or any other advantage from the Bidder, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process and contract administration.

4.2 The Employer further confirms that its officials shall not favor any prospective bidder in any form that could afford an undue advantage to that particular bidder in the bidding process and contract administration and will treat all Bidders alike.



4.3 Officials of the Employer, who may have observed or noticed or have reasonable suspicion shall report to the head of the employing agency or an appropriate government office any violation or attempted violation of clauses 4.1 and 4.2.

4.4 Following report on violation of clauses 4.1 and 4.2 by official (s), through any source, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings shall be initiated by the Employer and such a person shall be debarred from further dealings related to the bidding process and contract administration.

## **5. Commitments of Bidders**

The Bidder commits himself/herself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of the bidding process and contract administration in order to secure the contract or in furtherance to secure it and in particular commits himself/herself to the following :-

5.1 The Bidder shall not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Employer, connected directly or indirectly with the bidding process and contract administration, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding process and contract administration.

5.2 The Bidder shall not collude with other parties interested in the contract to manipulate in whatsoever form or manner, the bidding process and contract administration.

5.3 If the bidder(s) have observed or noticed or have reasonable suspicion that the provisions of the IP have been violated by the procuring agency or other bidders, the bidder shall report such violations to the head of the procuring agency.

## **6. Sanctions for Violation:**

The breach of any of the aforesaid provisions shall result in administrative charges or penal actions as per the relevant rules and laws.

6.1 The breach of the IP or commission of any offence (forgery, providing false information, misrepresentation, providing false/fake documents, bid rigging, bid steering or coercion) by the Bidder, or any one employed by him, or acting on his/her behalf (whether with or without the knowledge of the Bidder), shall be dealt with as per the terms and conditions of the contract and other provisions of the relevant laws, including De-barment Rules.

6.2 The breach of the IP or commission of any offence by the officials of the procuring agency shall be dealt with as per the rules and laws of the land in vogue.

## 7. Monitoring and Administration:

7.1 The respective procuring agency shall be responsible for administration and monitoring of the IP as per the relevant laws.

7.2 The bidder shall have the right to appeal as per the arbitration mechanism contained in the relevant rules.

We, hereby declare that we have read and understood the clauses of this agreement and shall abide by it.

The parties hereby sign this Integrity Pact at (*place*) \_\_\_\_\_ on (*date*) \_\_\_\_\_

Affix Legal Stamp

EMPLOYER  
CID No.:

Witness:.....  
Name:.....  
CID No.:

Affix Legal Stamp

BIDDER/REPRESENTATIVE  
CID No.:

Witness:.....  
Name:.....  
CID No.:

## **SECTION V. ELIGIBLE COUNTRIES**

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

In reference to ITB 4.7 and 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 4.7(a) and 5.1: **None**

Under ITB 4.7(b) and 5.1: **None**

## SECTION VI. BANK POLICY - CORRUPT AND FRAUDULENT PRACTICES

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Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011.

### “Fraud and Corruption:

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.<sup>4</sup> In pursuance of this policy, 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;<sup>5</sup>
  - (ii) “Fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>6</sup>
  - (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;<sup>7</sup>

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<sup>4</sup> In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

<sup>5</sup> For the purpose of this sub-paragraph, “another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

<sup>6</sup> For the purpose of this sub-paragraph, “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>7</sup> For the purpose of this sub-paragraph, “parties” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other’s bid prices or other conditions.

- (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;<sup>8</sup>
- (v) "Obstructive practice" is:
  - (aa) 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
  - (bb) Acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) Will reject a proposal for award if it determines that the bidder recommended for award, or 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) Will declare mis-procurement and cancel the portion of the loan allocated to a contract if it 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 or the implementation 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;

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<sup>8</sup> For the purpose of this sub-paragraph, “party” refers to a participant in the procurement process or contract execution.

- (d) Will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,<sup>9</sup> including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated<sup>10</sup>;
- (e) Will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank."

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<sup>9</sup> A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

<sup>10</sup> A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either 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.



## **PART 2 – SUPPLY REQUIREMENTS**



**SECTION VII.SCHEDULE OF REQUIREMENTS**

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## **1. Description of overall system, List of Goods and Delivery Schedule**

### **1.1 Background**

Paro International Airport is located among the Himalaya Mountain Range of Bhutan and is often considered one of the more challenging international airports in the world because of the unique location of the airport being in a deep valley within the ominous Himalaya Mountain Range. The unique combination of the geographic setting can produce unsafe flight conditions due to severe turbulence and limited visibility. The airport currently operates under Visible Flight Rules (VFR) where the pilot of the aircraft must have sufficient visibility and cloud ceilings to land. Regardless of actual weather conditions, final decisions to land or take-off is that of the pilot of the particular aircraft. The pilot of the aircraft relies on limited meteorological observations at the airport combined with the pilot's own observations from the cockpit. The purpose of this procurement is to greatly enhance and automate the airport observation system so that pilots using the airport will have accurate, meaningful, and reliable observations meteorological conditions that will be used to safely navigate to and from the airport.

Currently, the weather information available to the pilots includes data collected by an aging AWOS system. Visibility and cloud ceilings are currently made by observers and relayed to the pilot from the control tower.

### **1.2 General Description of the object of bidding**

In Paro International Airport, a total of two Automatic Weather Observing Systems (AWOS), 1 Ceilometers (as part of the AWOS), and one Wind Profiler will be acquired and integrated into a single visualization data collection, visualization, and decision support platform. In Bumthang Domestic Airport, one Ceilometer will be integrated with existing AWOS in the Airport, Bumthang.

There will be two such platforms, one at Paro International Airport and the other at Head quarter, NCHM, Weather Forecast Office, Thimphu, Bhutan.

It is expected that this system will provide valuable guidance on weather conditions for civil aviation. This conditions will include present weather conditions, cloud base information, and wind information, but upper level and surface that will provide indications and warnings of turbulence that affects aircraft approaching and departing from Paro International Airport in Bhutan.

### **1.3 Delivery and installation of stations**

Supply, delivery, Installation and commissioning of the Meteorological Systems to support Civil Aviation and associated civil works shall be completed within 8 months of the signing of the contract. This is to include all civil works, instrumentation, software systems, configuration, training, and maintenance as a turn-key system.

The supplier shall prepare a detailed project plan on the implementation process for all

stations. Subcontractors are allowed.

**Table 3a. Detailed list of Automatic Weather Stations and their components presented in order of priority, Station Name and AWS type. Legend:**  
**x = 1 item delivered per station, 2x = two items delivered per station, (x) = 1 item delivered but reserved as a spare part, xH = sensor requires option for heating.**

S.N.	Station name	Latitude (deg)	Longitude (deg)	Elevation (m asl)	Type of AWS system	AWS central unit (DCP)	Existing Mains	Digital PLMN modem	Landline available	Local display	Temperature & Relative Humidity	Precipitation (tipping bucket)	Precipitation (weighing)	Wind 10m	Air pressure	Visibility & present weather	Cloud Height Ceilometer	Global Solar Radiation
1	Paro International Airport AWOS	27°24' 32.72"	89°25' 13.61"	2236	AWOS	x	X	X	yes	x	x	x	x	2x	2x	2x	x	x
2	Bumthang Domestic Airport	27°33' 46"	90°4' 47"	2700													x	

**2.1 List of Goods and Delivery Schedule**

*\*The Purchaser shall fill in this table, with the exception of the column “Bidder’s offered Delivery date” to be filled by the Bidder]*

## Section VII Schedule of Requirement

Line Item No	Description of Goods	Quantity	Physical units	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery date [to be provided by the bidder]
[insert item No]	[insert description of Goods]	[insert quantity of item to be supplied]	[insert physical units for the quantity]	[insert place of Delivery]	[insert the number of days following the date of effectiveness the Contract]	[insert the number of month following the date of effectiveness the Contract]	[insert the number of days following the date of effectiveness the Contract]
	AWOS System Comprised of the following						
1	AWS -DCP as specified	1	units	Paro International Airport		within 6 months after contract signing	
2	Fiber optic for AWOS & RWP in Paro airport	1	units	Paro International Airport,		As above	

## Section VII Schedule of Requirements

3	A/C Power with Battery Backup for RWP(0.5KM from source)	1	units	As above		As above	
4	Local display(PIA)	2	units	As above		As above	
5	Temperature & Relative Humidity	1	units	As above		As above	
6	Precipitation (tipping bucket)	1	units	As above		As above	
7	Precipitation (weighing)	1	units	As above		As above	
8	Wind 10m	2	units	As above		As above	
9	10m Pole mast for Wind	2	units	As above		As above	
10	Air pressure	2	units	As above		As above	
11	Visibility & present weather	2	units	As above		As above	
12	Cloud Height Ceilometer	2	units	As above		As above	
13	Radar Wind Profiler	1	units	As above		As above	
14	Necessary Enclosures	1	units	As above		As above	

**Section VII Schedule of Requirement**

15	Processing System (Hardware and Software) integrating AWOS Radar Wind Profiler & ceilometer information	1	units	As above		As above	
17	Remote Display and processing of Entire AWOS, Ceilometer and Profiler (including communication equipment)	1	unit	At NCHM Forecasting Center in Thimphu		As above	
18	Color LaserJet Printers with 10 toner replacement cartridge sets	1	unit	At NCHM Forecasting Center in Thimphu		As above	



## 2.2 Related Services and Completion Schedule

Item	Description of Service	Quantity	Physical Unit	Place where Services Performed	Final Completion including installation and commissioning Date(s) of Services	Bidders Offered Completion including installation and commissioning Dates
1	Complete Installation of AWOS and related civil works for necessary and commissioning	1	ea (Each )	Paro International Airport	Within 8 months after contract signing	
2	Complete Installation & commissioning of of Radar Wind Profiler	1	ea	As above	Within 10 months after contract signing	
3	Complete Installation & commissioning of visualization systems at Paro International Airport and at NCHM in Thimphu Forecast Center	1	ea	Paro International Airport and NCHM in Thimphu	Within 12 months after contract signing	
Maintenance and Technical services:		-				

**Section VII Schedule of Requirement**

4	<p>Routine, Preventive and emergency maintenance service as specified in Technical Specification 3.1.10.2. (Including Monthly maintenance reports and Final maintenance report)</p> <p>The bidder shall provide 1 meteorological technician that will provide routine, preventative and emergency maintenance. The routine maintenance will be conducted at least once every six months to each and every station. The maintenance team will also be responsible for documenting maintenance activities and preparing detailed monthly reports on maintenance activities, such as the dates and names of sites visited, the activity at the site, personnel performing the visit and the actions taken. These reports will be backed with relevant photographs and are due from each team. Also allowable down-time is as specified.</p>	1	Two times in a year.	The entire installed AWOS observation network and Radar Profiler	One years from completion and commissioning of all equipment and visualization systems	
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### 2.3 Staff Requirements

The Purchaser requires a minimum of the following personnel at the following sites to be supplied by the supplier

Item	Site	Description	No of Personnel	Man day's charges	Remarks
1	Paro International Airport	One meteorological technicians/Engineer fully trained on the operation and maintenance of the AWOS, Ceilometer, and Radar Wind Profiler and associated data collection and visualization systems during installation. The meteorological technician/engineer will be responsible for also maintaining the visualization system installed at NCHM in Thimphu Weather Forecast Center. This is a full-time position to be assigned at Paro International Airport in support of this equipment for entire installation period.	1	15 days	An engineer/technician to be trained for operational & maintenance of aviation met equipment

## 2.4 Training Requirement

The Bidder is expected to provide an outline or table indicating the contents of each of the required courses. The table shall describe the specific topics to be covered for each day of the training period. The training program is to be included with the bid. The Bidder is responsible for the salaries of the training instructors, travel related costs, and all training materials. The costs of travel, transportation and per diem for the trainees shall be borne by the Purchaser. The venue for the training shall be decided mutually by the Bidder and the Purchaser and provided by the Purchaser. However, all other expenses such as training material, stationery, media, etc. will be borne by the Bidder. It is expected that training will occur at the training facility at NCHM in Thimphu and at Paro International Airport, with the actual equipment installed. The training component will also require a thorough video series that provides detailed training. This will be provided on electronic media, such as a flash drive. The purchaser will have unlimited rights to copy the training material and use it how it wishes.

Service	Description	Quantity	Physical Unit	Place where Services are to be Performed	Final Completion Dates of Service
B 1	<u>Aviation Weather Observations System (AWOS)</u> Training –2 & half days of training on AWOS instrument to train the senior staff and train the trainers (10 persons per training) (Include data interpretation, configuration, maintenance – all aspects to independently operate and use the equipment )	1	1	Training workshop (2 & half days)	Within 12 months after signing of the contract
B 2	<u>Radar Wind Profiler (RWP)</u> Training – 2 & half days of training, to train the senior staff and train the trainers (10 persons per training) (Include data interpretation, configuration, maintenance – all aspects to independently operate and use the equipment to detect wind shear and turbulence.)	1	1	Training workshop (2 & half days)	Within 12 months after signing of the contract



### 3. Technical Specifications

#### 3.1 General Requirements

Note: All requirements below are mandatory unless otherwise noted.

##### 3.1.1 Responsibilities of the bidder

The bidder shall provide equipment and services for the supply, delivery, installation, integration and commissioning of all components in this bidding document. The bidder is responsible for offering all works and supplying all accessories to ensure that the delivered system is ready for operation by the dates indicated in the delivery schedule, even though such requirements may not be explicitly described in the invitation to tender.

The bidder shall, inter alia,

3.1.1.1 Supply, install and commission the system specified in the invitation to tender

3.1.1.2 Supply tools and spares as specified.

3.1.1.3 Arrange tests during the delivery (factory acceptance test, site acceptance test, operational test)

3.1.1.4 Provide a warranty for the system components for one years after a successful completion of the operational test (the final commissioning and acceptance of the network)

3.1.1.5 Update all software procured during the warranty period

3.1.1.6 Provide maintenance support and performance reports of commissioned AWOSs for the warranty period of one years.

3.1.1.7 Provide a guarantee that all system components being delivered will have a maintenance support for at least 10 years after the final commissioning and acceptance

3.1.1.8 Supply detailed operation and maintenance manuals

3.1.1.9 Provide classroom, field training and hands-on training, including operation and maintenance procedures as specified. All training material to also be developed into video modules to be used at the discretion of the Purchaser

3.1.1.10 Provide a complete training set in an electronic form

3.1.1.11 Provide the country of origin for all major components and materials

3.1.1.12 Provide solutions for the electric supply and telecommunications which are appropriate for the infrastructure in Bhutan.

### 3.1.2 Responsibilities of NCHM

NCHM & DoAT will be responsible for:

1. Land ownership issues
2. Obtaining governmental approvals as required
3. Facilitate import / customs clearance
4. Selection of the installation sites
5. Cost of travel and work by the NCHM & DoAT staff
6. Essential support to field visit Team at the installation site at the request of the bidder.

### 3.1.3 Delivery, completion and commissioning schedule

3.1.3.1 Meteorological hardware, software, and services shall be delivered, installed and commissioned according to the following course of schedule:

**--2 no. of AWOS station-equipment including Spares shall be delivered within 6 months after signing of contract**

**-- 1 Radar Wind Profiler shall be installed and commissioned within 10 months after signing of contract**

3.1.3.2 The bidder shall provide a detailed execution plan on manufacturing, delivery, installation and commissioning all equipment and software as well as details of the training program and maintenance arrangements during the warranty period. The bidder shall provide revisions to the program when necessary.

### 3.1.4 Quality assurance

3.1.4.1 The Bidder/Manufacturer shall have the approved ISO 9001 Quality Assurance System certified by an accredited authority. The copy of this certificate must be attached to the technical proposal.

3.1.4.2 As a part of its Quality Assurance System, the Bidder/Manufacturer shall operate the laboratory facilities for sensor testing and calibration. These facilities and the primary standards used shall be traceable to the international standards. Both the quality assurance system and the internationally traceable standards shall be documented in writing in the technical proposal.

### 3.1.5 Goods, materials, specifications and standards

3.1.5.1 All goods and materials shall be new, unused, and of the most recent models, and that they incorporate all recent improvements in design and materials. No equipment or parts will be obsolete or planned to be obsolete within 5 years from the day of final commissioning and operational acceptance.

3.1.5.2 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 agreed.

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.

3.1.5.3 The SI system of units is used throughout.

### 3.1.6 Manufacture, delivery, and installation

3.1.6.1 The bidder shall be responsible for loading, transporting, shipping and unloading of the equipment to be supplied under the contract from the point of manufacture to the final destination of delivery. The bidder shall also be responsible for any storage of the equipment in Bhutan during any interim period between supply and transportation to field locations for installation.

The bidder shall provide such packing of the equipment as is required to prevent any damage or deterioration of goods during the delivery to the final destination.

3.1.6.2 Civil works shall be the bidder's responsibility. Civil works at each site comprise (but are not necessarily limited to) preparation of the site, leveling of ground, clearance of high vegetation, masonry, fencing, installation of supporting structures, electrification, ground work for soil temperature & moisture profile measurements and preparation of the set-up for ground water level measurement. Plans for civil works will be approved by NHCM prior to the ordering of material and installation of proposed civil works.



<p>3.1.6.3 Fencing: Instrument houses and enclosures shall be surrounded by a galvanized or plastic coated chain link or 2” welded steel mesh fence 1.5 m high supported on 2” x 2” galvanized angle iron supports with horizontal straining wires. The compound shall have a 1.85m high lockable steel gate for access. The Security fencing should enclose minimum an area of 6 m x 6 m up to 15 m x 15 m. (See Drawing below )</p>
<p>3.1.6.4 All equipment shall be surge protected as required. Equipment for lightning protection, such as conductors and ground rods, are part of the delivery.</p>
<p>3.1.6.5 All accessories, tools and fixtures required for installation and dismounting/ remounting of the equipment shall be treated as a part of the supply for each type of equipment.</p>
<p>3.1.6.6 The Bidder shall provide a spare parts policy and sufficient financial resources for guaranteeing the availability of the spare parts for minimum of 10 years after finishing the deliveries of the tendered equipment.</p>
<p>3.1.6.7 The bidder shall provide the list of spares as specified in <b>Section VII: 1. ‘List of Goods and Delivery Schedule’</b> with prices which will be valid for at least two years after the Final Acceptance.</p>

### 3.1.7 Warranty

<p>3.1.7.1 The warranty period shall be <b>one years</b> starting from the successful commissioning of all equipment and software (AWOS &amp; Radar Wind Profiler).</p>
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### 3.1.8 Documentation

3.1.8.1 The bidder shall submit full documentation, including user 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

- Specific equipment layout;
- A procedural handbook;
- System block diagrams (logical connections);
- Wiring diagrams;
- Interface specifications, including communication protocols and configuration modes; and
- Software licenses.

The manual shall be provided both as hardcopy (2 copies) and on an appropriate electronic media.

The documents will also be transformed in to a web-based helpline.

### 3.1.9 Training

3.1.9.1 The bidder is required to provide a training program to cover all technical and operative aspects of the systems implemented. The course training schedule for locations of workshops is shown in Section VII chapter 2. List of related services and Completion Schedule.

The training should include class room lecture and practical hands-on training on

- Operation and maintenance course for the system operators (1& half days)
- Specialized maintenance course for the maintenance technicians (1& half days)
- Theory and Interpretation of data for RWP and AWOS (2 days)
- System planning for long term sustainability of equipment and quality system operations.
- Demonstration and instruction to prepare Standard Operational Procedures for maintenance and operation of the observation systems.
- The bidder shall provide a training plan and an outline of the contents of the required courses. The outline shall describe the specific topics to be covered for each day of the training period.
- The bidder shall state the cost of each of the training course all complete. The bidder is responsible for the salaries of the training instructor(s), their associated travel costs and for all the training material.

3.1.9.2 The training material used shall also be provided as a media file (Windows Media Player Compatible) on an appropriate electronic media. The training content will be separated in modules, with each video file being a module. Modules should include AWOS-DCP programming, RWP theory and interpretation, sensor care and handling, troubleshooting, etc. NCHM shall have permission to make copies of the files on an unlimited basis.

### **3.1.10 Maintenance and Technical services**

3.1.10.1 The bidder shall provide maintenance on all hardware and software items during the one year warranty period. All associated cost shall be part of contract price and bid price for evaluation.

3.1.10.2 The bidder shall provide at least 1 meteorological technicians that will provide maintenance activities during warranty period to be located at Paro International Airport. The NCHM & DoAT will arrange office space at International Airport Paro and NCHM office Thimphu, free of cost. The teams will be responsible for their own transportation and equipment necessary to complete their task. Internet access and all IT related components will be provided by the bidder and shall not be the responsibility of NCHM. Preventive and Emergency maintenance will be undertaken as required and Routine maintenance will be conducted at least once every six months for all systems (hardware and software) included in the bid document. Maintenance will also include the documentation of maintenance activities and preparing detailed monthly reports on maintenance activities, such as the dates. These reports will be backed with relevant photographs and are due from each team by the 10<sup>th</sup> of the month following the report period. The reports will be delivered to the Assistant Project Manager of NCHM. NCHM will provide guidance on the precise format of the report. The report is expected to be concise and suggestive.

The payment for the service shall be paid in Upfront against the bank-guarantee acceptable to the Purchaser and bank-guarantee will be released quarterly in consideration of service performed in prorate basis of time. Also, due deduction for excess downtime as mentioned above will be accounted in the process.

3.1.10.3 Emergency maintenance shall be performed as quickly as possible upon notification of a system outage, and within 12 hours of malfunction.

3.1.10.4 The bidder shall provide monthly maintenance reports during the course of the maintenance period. (The monthly maintenance reports will cite system outages.)

3.1.10.5 The bidder shall keep a complete maintenance log of all facilities provided under contract, including sensors and data logger. This maintenance log will be available online and will allow queries of problems/observations at given sites, as well as queries on the status of every piece of equipment that has a serial number.

3.1.10.6 On hand over of the complete system to NHCM at the end of the maintenance period, the bidder shall supply a report specifying all faults experienced by the system together with an account of how such faults have been rectified.

3.1.10.7 The maximum downtime (defined as number of days for which an item of equipment is not usable because of inability of the bidder to repair it) for any item is taken as 15 days. In case an item is not usable beyond the stipulated maximum downtime the bidder will be required to replace equipment.

3.1.10.8 The bidder shall offer a help desk function, which can be contacted by phone and/or electronic means during office hours.

3.1.10.9 After the warranty period the bidder shall offer maintenance support as requested by NCHM.

### 3.2 General Technical Requirements

This section presents the AWOS station and RWP system minimum functional requirements including hardware functions and operating environment.

#### 3.2.1 Design principles

3.2.1.1 The design of the system shall make maximum use of the commercial-off-the-shelf equipment with proven operating record and long expected lifetime. Support for all sensors and AWS-DCP's shall be for at least 10 years from the date of installation. A primary characteristic of the system will be high availability and accuracy of the reported data.

3.2.1.2 The design shall be modular enabling the change of the modules and components without any special tools.

#### 3.2.2 The following AWOS data processing capabilities shall be provided as minimum

3.2.2.1 Measure the analogue sensors with minimum of 16-bit A/D conversion (ADC).

3.2.2.2 Perform data quality check on the parameters as specified in the section 3.7.

3.2.2.3 Process the data using calculation and statistical functions specified in the section 3.7.

3.2.2.4 Offer to the user freedom to configure multiple output messages.
3.2.2.5 Provide alarm functions based on a measured or calculated parameter exceeding its user set threshold value(s).
3.2.2.6 Log the data at the user configurable formats and intervals.
3.2.2.7 The data logger shall have power consumption shall be matched with battery backup to ensure required back-up time as defined in 3.5.1.
3.2.2.8 Provide functions for maintenance technician to access the internal diagnostics including sensors data while on site and remotely.
3.2.3 The system must be compliant with standards and directives in force in Bhutan.
3.2.4 The AWOS and RWP system shall be designed to operate 24 hours a day, 365 days a year.

**3.2.3 The AWOS and RWP equipment shall support various kind of communication equipment, including, but not limited to modems, satellite, radio, cellular phone and TCP/IP-protocol.**

**3.2.4 The bid shall include data communication equipment as specified for both AWOS and RWP**

### **3.3 Environmental Specifications and Device Interfaces**

#### **3.3.1 Environmental specifications**

<p>3.3.1.1 In order to minimize the effects of the environmental and electrical conditions into the quality of the data and reliability of the equipment, the AWS and RWP technology shall be designed and manufactured to operate within the minimal range of the environmental conditions listed below:</p> <ul style="list-style-type: none"> <li>- Operational temperature limits - 40° ... + 60°C</li> <li>- Operational relative humidity limits 0 ... 100 % RH</li> <li>- Tolerant to wind speeds up to 70m/s</li> <li>- Ingress protection class at least IP65</li> </ul>
3.3.1.2 In order to withstand electrical disturbances and prevent interference with other electronic

equipment, the equipment shall be protected or otherwise fulfill the EN55022 or equivalent/similar standard for emissions and IEC61000-4 and equivalent/similar standards for electrostatic discharge immunity, radiated, radio-frequency, electromagnetic field immunity, electrical fast transient/burst immunity, surge immunity and immunity to conducted disturbances, induced by radio-frequency fields.

<b>EMI and ESD Compliance</b>	<b>Standard</b>
Emissions:	CISPR 22 Class B (EN55022) or similar
RF field immunity	IEC 61000-4-3 or similar
EFT immunity	IEC 61000-4-4 or similar
ESD immunity	IEC 61000-4-2 or similar
Surge (lightning pulse)	IEC61000-4-5 or similar
Conducted RF immunity	IEC 61000-4-6 or similar

### 3.3.2 AWOS Device Interfaces

The data logger must have built-in support of different sensor and device interfaces listed below. Final amount of different sensor interfaces needs to be clarified after sensor validation.

3.3.2.1 For enabling the use of sensors with digital interface and device control, an interface for digital I/O channels must be available. The interface shall have at least eight (8) digital input and output channels.

3.3.2.2 The digital interface shall have the following features:

- Have indicators for activity;
- The inputs shall have switch de-bounce and hysteresis circuitry for reliable operation

### 3.3.3 AWOS Serial Interfaces

3.3.3.1 The data processing unit shall be able to communicate with smart sensors having a serial communication interface. There must be at least two spare serial interfaces or similarly functioning interface (USB, MicroUSB, etc) in addition to serial interfaces needed for specified sensors. These communication functions include retrieving data, retrieving self-diagnostic information (if available) and controlling the sensor operation. The serial sensor interfaces shall

support the following standards

- RS-232
- RS-485
- SDI-12

3.3.3.2 The AWOS station must support a pass-through-mode which allows direct communication via maintenance line with any smart sensor connected via serial interface.

### **3.3.4 AWOS and RWP Network Interfaces**

3.3.4.1 The AWOS station must have a 10Base-T Ethernet interface with native TCP/IP support.

### **3.3.5 AWOS Maintenance Connection**

3.3.5.1 The AWOS station must have a connection port to which a computer or tablet can be connected in order to perform system initialization, device software update, configurations, download stored data and monitor the data processing unit operation. Once connected there shall be full access to all programming features. Maintenance connection shall also be remotely accessible as later described.

3.3.5.2 Operations made via the AWOS maintenance port must not interfere with the automatic operation of the data acquisition, registering or transmissions except when this is the user's intention.

3.3.5.3 In order to prevent moisture or dust to enter the electronics enclosure, the access to the maintenance port shall be available without having to open the enclosure using an external connector. An interface cable for the service connection shall be included in the delivery, and must be equipped with a connector, common and widely used in Bhutan.

## **3.4 Equipment Enclosure**

All parts of the electronic and data processing unit of both the AWOS and RWP must be enclosed in a sealed robust enclosure with easy access to all components with mounting options at least to a mast or a wall. The enclosure shall have the following features:

3.4.1 The enclosure complies with the standards of NEMA-4X or IP-66 as minimum.



3.4.2 The AWOS and RWP device connections shall be installed at the underside side of enclosure to reduce the risks of water or humidity penetration or equally effective method.
3.4.3 Sensor and device connections to the enclosure shall be through cable flange or cable glands. A cable cover shall be provided to protect the cable connections from splashes of water or deep snow cover. All connectors must be commonly available in Bhutan.
3.4.4. To connect to telemetry antenna cables, corrosion resistant (N type or similar) connectors shall be used.
3.4.5 The enclosures shall be properly vented with a device, which will not allow humidity to enter in the enclosure.
3.4.7 The enclosures shall be made of corrosion resistant material with high resistance to UV radiation and chemicals.
3.4.8 All wiring inside the enclosures shall be bundled so that no unfastened wires or cables exist inside the enclosure.
3.4.9 Whenever a pressure sensor is used there shall be a provision to install a static pressure head for minimizing the error cause by the wind turbulence at the pressure outlet.

### 3.5 Powering

#### 3.5.1 Power sources and storage

3.5.1.1 It must be possible to power the AWOS station either from mains network, or with a solar panel system or as a combination of both. In each case the station should include rechargeable, sealed and maintenance free backup batteries sufficient for keeping the station running at least for 30 days without recharging. The RWP system will be powered with mains power with battery backup to provide 30 min of operation in the absence of mains power.
3.5.1.2 The backup batteries must have a charge regulator with protection against battery overcharge or deep discharge. The charger must have an indication of the battery condition and charging state. Batteries must be commonly available in Bhutan.

3.5.1.3 AWOS-DCP and RWP must be able to survive reverse polarity of the power supply without any damage or loss of functionality (once power is properly applied)

### **3.5.2 Grounding and Transient Protection**

The station must have a single and secure grounding point for static and safety grounding. The station must be protected against electrical disruptions and lightning induced surges on all input lines. Transient protection of the most vulnerable lines, such as power lines, long communication and sensor/signal lines must be separate and modular so that the protection device can easily be changed. Protection shall be sufficient considering the risk of damage caused by lightning.

Equipment for lightning protection, such as conductors and ground rods, are part of the delivery.

### **3.6 Pole Mast**

3.6.1 The pole mast for the AWOS shall be sufficient to securely mount the wind sensor(s) at 10 meters  $\pm$  0.1 meter in height, or as indicated by ICAO. The structural integrity shall also withstand the load of an optional flight warning light if/when necessary. The pole mast must be tilt-able for easy access to sensors for maintenance.

3.6.2 The AWOS wind mast shall include lightning protection (rod) and electrical grounding.

3.6.3 The AWOS wind mast shall be fully and easily tilt-able, by one person, for sensor maintenance such that the sensor is not more than 1.5 meters above the ground for maintenance. This should be possible as a single person operation.

3.6.4 The mast delivery shall include all parts and material, except concrete, for easy installation.

3.6.5 The mast shall be frangible at stations located at airports, if required by safety regulations.

### **3.7 AWS Functionalities**

#### **3.7.1 Data Acquisition**

3.7.1.1 The AWS-DCP must support various data acquisition modes including at least:

- Scheduled acquisition
- On-demand acquisition
- Alarm based acquisition

3.7.1.2 Data messages shall be sent automatically by the AWS-DCP at the user set intervals. There shall be possibility to configure several data messages to serve different purposes and/or users.

3.7.1.3 It shall be possible to trigger any measurement on-demand basis, i.e. whenever the user wants to have the latest data to be made available.

3.7.2.3 Regardless of when the data logger samples, the user shall be able to set a threshold(s) for any measured or calculated parameter to detect whether a threshold has been exceeded. Once a threshold has been crossed the AWS-DCP shall automatically start using a new user set sampling interval until the value returns below the threshold level.

#### **3.7.2 Data Transmission**

3.7.2.1 The AWS-DCP shall have capability to be equipped with several different telemetry modules such as UHF radio modems, cellular telemetry and satellite transmitters, though it is desirable that communications from both the AWOS & RWP be direct connection or radio modem.

3.7.2.2 To increase the reliability and redundancy, the AWS-DCP shall have capacity to interface with minimum of two different telemetry devices at the same time.

**3.7.3 Data Logging - AWOS**

3.7.3.1 The AWS-DCP must be able to log measured and calculated data into a non-volatile flash memory or equivalent.
3.7.3.2 The logging interval for each variable must be freely configurable.
3.7.3.3 In case the memory should run out of free space, the AWS-DCP must automatically clear more free memory by deleting the oldest data first, so that the most recent data will always be saved.
3.7.3.4 Primary media for data logging must be an exchangeable external memory card to allow fast local data recovery. The capacity of the memory card must be sufficient to store at least two years of data. Support for larger memory card is preferred Memory cards must be a type robust enough to allow outdoor use.
3.7.3.5 The file system on the memory card must be readable with any PC and commercial card reader.
3.7.3.6 The AWS-DCP must also have internal logging capacity at least for seven days of hourly measurements if the memory card should fail.
3.7.3.7 Data collected on the data logger must be remotely accessible and retrievable.
3.7.3.8 The AWS will be expected to update the AWOS display system on a continuous basis and in real-time, with updates to display systems occurring within seconds of data collection. The AWOS display system is to be provided by the bidder as part of the procurement.

**3.7.4 Data Quality Control**

3.7.4.1 The AWS-DCP must be able to check the measurement data quality to ensure accurate and complete data collection. It must be possible to automatically flag incorrect or missing data with a user-configurable symbol or text.
3.7.4.2 Status information from sensors should be available to be included in reports

3.7.4.3 The AWS-DCP must be able to indicate the status of the connected sensors. This indication shall include both analog sensors as well as sensor with digital serial interface. For each sensor, there shall be value in the variable status, which can be included in the report(s) and/or monitored in order to produce an alarm e.g. for maintenance purposes.

### 3.7.5 Calculations

#### 3.7.5.1 Statistical calculations

The station's data processing software must be able to perform statistical calculations for any of the parameters measured. The period over which the calculations are made must be adjustable from 1 second to 24 hours. Data reduction methodologies must fulfill standard WMO recommendations for data reduction.

#### 3.7.5.2 Other calculations

The data processing software must have built-in operations for calculating various derived weather parameters following WMO and ICAO recommendations, including at least:

- Dew Point Temperature
- Frost Point temperature
- QNH, QFE and QFF pressure
- Pressure tendency and pressure trend
- Wind calculation: it shall be possible to make the calculation in scalar and vector formats.
- Calculation of Sunshine Duration

3.7.5.3 The data processing software shall include unit conversion function with multiple scale unit selection (e.g. m/s to knots or m/s to km/h). Unit selection shall be selectable/configurable by the user.

### 3.7.6 ALARM Function

In order to enable alarms for severe weather or system malfunction, the station must support the alarm functions specified below.

3.7.6.1 It shall be possible for the user to freely set threshold limits for any of the measured or calculated parameters. It must be possible to configure an alarm to be launched whenever a parameter:

- Goes beyond a set upper or lower limit (e.g. when the precipitation intensity exceeds 30mm/h),
- Is between a set range (e.g. wind direction is between 90 and 180 degrees),
- Is out of a user set reference range (e.g. 10 minute precipitation rate is 7 mm over the average hourly rate),

- Changes faster than a user set rate, selectable both descending and/ or ascending value.

3.7.6.2 The possible actions to be taken automatically when an alarm is launched shall include:

- Sending an alarm message, configurable by user, to the user configured destination
- Storing the alarm event together with the measured value
- Triggering the logging of user defined data group
- Triggering an external signal e.g. a relay contact, light switch etc.

3.7.6.3 The user shall be able to configure the alarm action to be taken:

- Only once on the first occasion an alarm is detected,
- Always when the alarm condition stays effective
- When the alarm condition disappears, i.e. the parameter return to its normal value

### 3.7.7 System Clock

3.7.7.1 The AWOS station must have a Real Time Clock (RTC) protected against power losses.

3.7.7.2 The RTC must be able to operate in UTC.

3.7.7.3 For supporting real-time messaging and alarm generation, the internal real-time clock's accuracy must be better 10 ppm, but can be synchronized with installed GPS in order to accomplish this provided the unit never operates outside the stated accuracy and is never more than 2 seconds different from the actual time.

3.7.7.4 In addition, it must be possible to adjust the RTC using at least the following methods:

- Locally via terminal commands
- Remote commands over a network
- Using a GPS (global positioning system) signal if such a receiver is connected to the station

### 3.7.8 Power Saving Mode

3.7.8.1 When there is a power failure at a remote station, this shall enter into low power mode. When in low power mode, the AWS system shall switch off the communication module (PSTM modem, satellite transmitter etc.) for most of the time, and will switch it on at user defined time(s) for a narrow time window. Example: Communication module is switched off. It is switched on for 5 minutes at the beginning of the full hour. The low power mode includes also possibility to switch



off sensors which consume a lot of electric power, for example present weather sensor, cloud height sensor and the heating of the wind sensor. The low power mode should switch on after a user selectable time period (default 6 hours). The total functioning time with power back up as defined in 3.5.1 includes hourly based data communication.

3.7.8.2 After the user set period in low power mode, the AWS-DCP shall be capable to switch off the communication device to save the battery. The AWS-DCP shall continue to work as data logging station only.

3.7.8.3 Similarly, in low power mode the AWS-DCP will start using a new time schedule for data transmission. After the power failure, the AWS-DCP shall automatically revert to its original time schedule.

### 3.8 PC based setup program

3.8.1 The AWS-DCP shall be shipped with software to allow for user friendly configuration and modification of all system parameters and operation. All changes must be able to perform remotely.

3.8.2 The software must have a user interface. The software must allow for setup of at least the following features and functions:

- Sensors to be connected into the AWS-DCP
- Measurement intervals for each sensor
- Sensor powering
- Calculations
- Data logging
- Output and messages
- Communications
- Alarms

### 3.9 Sensors for AWOS

#### 3.9.1 General Requirements

All sensors must be interchangeable. All sensors shall be independently operated by the electronics and data processing unit so that a possible failure of any of the sensors shall not affect the performance of the remaining sensors. The sensors must be tested to correctly operate in the AWS-DCP. All sensors must be able to operate in environmental conditions as specified in 3.2 and the required performance must be reached over the whole measurement and operational temperature range. All sensors must be serial line connectable. All sensors shall be easily

detachable to allow quick substitution in the field. Calibration of sensors has to be doable in a NHCM laboratory in Bhutan.

### 3.9.2 Air Temperature

3.9.2.1 Air temperature must be measured using standard Pt-100 resistance temperature detector (RTD). Technique temperature and humidity measurement should be combined in one sensor unit. The unit must be serial line connectable.

3.9.2.2 The air temperature sensor shall comply with the following specifications:

Feature	Specification
Measurement range	-40 °C ... +60 °C
Measurement accuracy	±0.3 °C
Temperature sensor	Probe IP68 for calibration in liquid bath

### 3.9.3 Relative Humidity

3.9.3.1 Relative humidity shall be measured with a thin film type capacitance sensor. The sensor must be protected from pollution by an appropriate, exchangeable filter.

3.9.3.2 The relative humidity sensor shall comply with the following specifications:

Feature	Specification
Measurement range	0...100% HH
Measurement accuracy	±2% RH; 0...+60 °C ±4% RH; -40...0 °C
Long term stability	±2% RH/year

### 3.9.4 Radiation Shield for Temperature and Humidity Sensors

3.9.4.1 Temperature and humidity sensors shall be installed inside a naturally ventilated radiation shield at 1.5-2 m above the ground, protecting measurement result from effect of direct solar radiation.

3.9.4.2 The radiation shield (stacked plate structure) shall be made of an UV stabilized fiber-glass filled polyester with outer surface painted white to reflect the sun radiation. The inner surface shall be painted black to absorb accumulated heat preventing reflections to the temperature sensor. Shields made of metal are not allowed.

**3.9.5 Atmospheric Pressure Sensor**

3.9.5.1 Atmospheric pressure (2 sensors) shall be measured by digital pressure sensor.

3.9.5.2 The pressure sensor shall comply with the following specifications:

Feature	Specification
Type	Pressure sensor
Measuring range	500...1100 hPa
Resolution	0.01 hPa
Accuracy	± 0.2 hPa
Operating temperature	-40 °C ...+60 °C

**3.9.6 Wind Sensor**

3.9.6.1 The Wind Sensor shall use ultrasound to determine horizontal speed and direction of the wind. Sensor heating should be available as option. There will be two (2) wind sensors, at both ends of the runway to be used for take-off and landing.

3.9.6.2 The ultrasonic wind sensors shall comply with the following specifications:

Feature	Specification
Measuring range	0...60 m/s
Resolution	Wind speed: 0.1 m/s Wind direction: 1 °
Accuracy	Wind speed: ±0.5 m/s below 5 m/s, 10% above 5 m/s Wind direction: 5 degrees
Operating temperature	-40 °C ...+60 °C
Sensor heating	Available as an option

**3.9.7 Precipitation**

3.9.7.1 The precipitation shall be measured by both a tipping bucket rain gauge and a storage gauge. The rain gauge shall be fabricated of corrosion resistant and rugged material. The rain gauge shall be installed on a leveled metal platform whose height is such that the rim of the rain gauge is at 1.5 meters from the ground. The gauge will come with a bubble level system which is visible from the outside. The gauge leveling will be possible also externally.

3.9.7.2 The tipping bucket sensor shall comply with the following specifications:

Feature	Specification
Type	Tipping bucket
Sensitivity	0.2 mm per tip
Accuracy	2 % (at 25 mm/h)

3.9.7.3 To measure both liquid and solid precipitation a weighing rain gauge shall be installed at the AWOS station.

3.9.7.4 The weighing rain gauge shall comply with the following specifications:

Feature	Specification
Bucket capacity (measure range)	at least 700 mm
Resolution	0.1 mm
Accuracy	2%
Operating temperature	-40 °C ... +60 °C

**3.9.8 Visibility and Present Weather Sensor**

3.9.8.1 The sensor shall combine the both functions of a forward scatter visibility meter and a present weather sensor in the same device. There will be two sensors one at each end of the runway used for take-off and landing.
3.9.8.2 The sensor must be measured using downward-looking forward scatter principle.
3.9.8.3 The sensor must be able to differentiate between different types of precipitation (both liquid and solid precipitation) and indicate the reason for reduced visibility.
3.9.8.3 It must be possible to measure also precipitation intensity and accumulation with the sensor.
3.9.8.5 There shall be extensive self-diagnostic procedures continuously monitor the sensor status. Dirt and foreign particles on the lens shall be detected automatically in order to minimize the risk of false high values.
3.9.8.6 Reports must be available in WMO 4680; $W_a W_a$
3.9.8.7 The sensor device shall have traceable calibration with reference to highly accurate transmission-meters.
3.9.8.8 A special calibration kit shall be provided as an option for carrying field calibration under all weather conditions.
3.9.8.9 The sensor must have heating for icy conditions.

3.9.8.10 The sensor shall comply with the following specifications:

Feature	Specification
Measurement range for visibility	10 ... 20 000 m
Accuracy	Meets all ICAO and WMO requirements for RVR and Visibility measurements.
Weather analysis period	10...15 minutes
Reported phenomena	Rain, drizzle, snow, sleet (mixed), haze, mist, fog
Present weather code table	WMO code table 4680
Operating temperature range	-40 °C ...+60 °C
Operating humidity range	0 ... 100 % RH
Protection class	IP65

### 3.9.9 Cloud Height

3.9.9.1 Cloud height sensor must be an eye safe laser ceilometers.

3.9.9.2 The sensor must be possible to tilt the sensor for better protection of the optics and enhanced performance during a precipitation event. Tilting angle must be automatically measured and corrected.

3.9.9.3 The sensor must have a heated window cleaning system and self-diagnostics.

3.9.9.4 The sensor must report cloud hits, backscatter profile and status information.

3.9.9.5 An algorithm to automatically report cloud coverage must be available.

3.9.9.6 The sensor shall comply with the following specifications:

Feature	Specification
Measuring range	0...7.5 km
Resolution	10 m
Accuracy (against hard target)	10 m below 100 m / 10% above 100 m
Operating principle	LIDAR with laser diode
Laser classification	Class 1M laser device
Wind	up to 70m/s
Operating temperature	-40 °C ...+60 °C
Protection class	IP65

### 3.9.10 Other Aviation Weather Observation Requirements

All requirements must comply with:

- ICAO Annex 3 Meteorological Service for International Air Navigation (latest 18th Edition, July 2013).

Additional requirements for aviation weather services are defined in documents:

- ICAO Annex 11 Air Traffic Services (latest 13th Edition, July 2001)
- ICAO Annex 14 Aerodromes
  - Vol I Aerodrome Design and Operations (latest 6th Edition, July 2013)
  - Vol II Heliports (latest 4th Edition, July 2013)
- ICAO Robex Handbook (latest 12th edition may 2013)

The minimum AWOS requirements for providing ICAO compliant aviation weather

messages are:

3.9.11.1 The ability to produce Annex 3 compliant METAR/SPECI-code. The bid shall include options for automatic, semi-automatic and manual operations.
3.9.11.2 The ability to disseminate the data for international distribution to AFTN network using the official coding and bulletins.
3.9.11.3 The AWOS shall be able to send measured meteorological parameters in real time to an external recipient using standard protocol and well documented message format.
3.9.11.4 The ability to produce ICAO-Annex 3 compliant METREP/SPECIAL-code
3.9.11.5 Real time data displays for wind and air pressure



**3.13 Requirements for data format**

Message format can be proposed by the bidder. General requirements are ASCII-based, documented format which is easy to read by human and computers.

<b>MANDATORY</b>	
3.13.1 Fully documented	
3.13.2 Stand-alone (i.e. can be decoded without external information)	
<ul style="list-style-type: none"> <li>- Decoding must be possible with freely available tools</li> <li>- Sensor information (identify the sensor which produced parameter)</li> </ul>	
3.13.3 ASCII format which is readable by human and computer, except for special cases, e.g. satellite connections	
<b>DESIRED</b>	
3.13.4 Metadata stored at station is included into the message	
3.13.5 Checksum or some other technique is used for ensuring integrity of message	
3.13.6 Status-messages from loggers	

Messages must support/contain following information:

<b>MANDATORY</b>	
3.13.7 Station identifier (identifying which id is in use is plus i.e. WMO, WIGOS, any local identifier...)	
3.13.8 Timestamp in UTC, including minutes	
3.13.9 Parameter names	
3.13.10 Parameter values	
3.13.11 Sensor numbers	

3.13.12 Status-information of sensors/logger shall be included if such information is available from the sensor.

All stations shall be able to provide the observational data to the user according to NCHM requirements and standard WMO recommendations and ICAO recommendations and requirements. A tentative list of parameter names, sampling intervals and statistical values calculated at the stations before sending is show in the table below. These characteristic should be fixed but changeable by the user through parameter settings:

Observation parameter	Sampling	Remarks
<b>Temperature (°C)</b>		
Air Temperature (°C)	1 min avg <sup>11</sup>	Sampling interval 5 s or less
Average temperature (°C)	1 h avg	Calculated from 1 minute values
Maximum temperature 1h (°C)	1 h max <sup>12</sup>	Calculated from 1 minute values
Minimum temperature 1 h (°C)	1 h min <sup>13</sup>	Calculated from 1 minute values

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<sup>11</sup>avg = average

<sup>12</sup>max= maximum

<sup>13</sup>min = minimum

Maximum temperature 12 h (°C)	12 h max	Calculated from 1 minute values
Minimum temperature 12 h (°C)	12 h min	Calculated from 1 minute values
Dew point temperature (°C)	1 min	Calculated from T & RH
<b>Humidity</b>		
Relative humidity (%)	1 min avg	
Relative humidity 1 h (%)	1 h avg	
<b>Atmospheric Pressure</b>		
Station level air pressure (hPa)	1 min avg	
Sea level pressure 1h (hPa)	1 h avg	
Sea level pressure (hPa)	Calculated at station	

Tendency	Pressure change in previous 3 h	
Characteristic of Pressure Tendency		Specified in Synop code
<b>Wind</b>		
Wind direction (deg) 1 h	1 h avg	
Wind direction (deg) 2 min	2 min avg	
Wind direction (deg) 10 min	10 min avg	
Wind direction (deg) 10 min	10 min deviation (3 s inst <sup>14</sup> )	
Wind gust speed (m/s) 1 h	1 h; max 3 s gust	
Wind gust speed (m/s) 2 min	2 min; max 3 s gust	
Wind gust speed (m/s) 10 min	10 min max (3 savg)	
Wind speed (m/s) 1 h	1 h avg	
Wind speed (m/s) 2 min	2 min avg	
Maximum wind speed (m/s) and time of last 3 h	3 h max value for 10 min avg	Specified in Synop code

<sup>14</sup> instantaneous

Wind speed (m/s) 10 min	10 min avg	
Maximum wind speed (m/s) 1 h	1 h max value for 10 min avg	
Minimum wind speed (m/s) 1 h	1 h min value for 10 min avg	
<b>Visibility</b>		
Visibility (m)		ICAO compliant
RVR (m)		ICAO compliant
<b>Weather</b>		
Present weather		As given in specifications
<b>Clouds</b>		
Low cloud amount (octas)		
Low cloud height (m)		
Total cloud amount (octas)		
<b>Precipitation and snow depth</b>		
Precipitation (mm)	1 h, 12 h, 24 h	Gauge must be specified
Precipitation intensity (mm/h)	10 min avg	

## Section VII Schedule of Requirements - Specification for Automatic Weather Stations

Snow depth (cm)	10 min avg	
<b>Solar radiation</b>		
Global solar radiation (W/m <sup>2</sup> )	10 min avg	

### 3.14 Radar Wind Profiler (RWP)

#### 3.14.1 General Requirements

3.14.1.1 The RWP will have a minimum range of 3km (LAP 3000 or equivalent or higher) under all atmospheric conditions
3.15.1.2 Temporal averaging will provide accurate results at 15 minute intervals.
3.15.1.2 Data Latency will be less than 5 minutes.
3.15.1.3 Wind accuracy will be $\pm 1$ m/s and $\pm 10$ degrees for speeds greater than 5 m/s.
3.15.1.4 User Selectable 75m, 100m, 125m/equivalent or higher
3.15.1.5 Mean Time Between Critical Failures (MTBCF) of 5000 hours.
3.15.1.6 Modular concept whereby the replacement of subsystems does not require tuning or alignment onsite. Designed for the ease of replacement of devices by local technician.
3.15.1.7 Fail-safe whereby the RWP will automatically shut down to prevent damage to the system in the event of radar, HVAC, or other faults or anomalies.
3.15.1.8 Health, Status Monitor with Fault and Status Reporting
3.15.1.9 Electronics Shelter for radar electronics
3.15.1.10 Computer system to be single computer high end specified to easily handle data processing requirements from the RWP. High quality LCD monitor at least 27". Computer system will be configured to store a minimum of two years of profiler data online.
3.15.1.11 Operating System either Windows 10, Windows Server (Latest) for display, or LINUX/equivalent or higher for server.
3.15.1.12 Computer system and associated devices will be rack mounted. Bidder is to provide the rack and pull-out rails, and all connections/devices to make the system 100% operational.
3.15.1.13 Uninterruptable power supply for both the RWP and associated computer system designed to maintain power for 30minutes minimum during mains outage.
3.15.1.14 Software to include calculation and visualization of wind shear and turbulence. Ability to provide alarms based on user selectable thresholds.
3.15.1.15 Multi-peak discrimination and QC software with displays (as described above) for filtering undesired targets such as birds.

3.15.1.16 Data Archive to include the capability to archive time series, radial moments, winds and other data products.
3.15.1.17 Remote displays and control for both Paro International Airport tower and NCHM Weather Forecasting Center in Thimphu.
3.15.1.18 Two color LaserJet printers with 10 high capacity replacement toner cartridges.
3.15.1.19 Fencing and Security enclosing the RWP at a proper distance not to interfere with the access or operation of the RWP. The structure like pole and fencing should be (tangible) fall down its own at the time of accident without much damage to aircraft.

### 3.15 Telemetry

#### 3.15.1 General Requirements

MANDATORY
<p>The AWS and RWP shall be capable to interface with a wide range of modern telemetry technology. As a preferred choice for communications, the technology used shall support at least bi-directional TCP/IPv4 based connections with available media, support for IPV6, including at least:</p> <ul style="list-style-type: none"> <li>- Ethernet (minimum 10Base-T).</li> <li>- Cellular networks</li> <li>- Point-to-point connection over full duplex serial link</li> </ul> <p>The technology used shall also support the use of conventional media including</p> <ul style="list-style-type: none"> <li>- Point-to-point serial links</li> <li>- Serial links in bus mode (RS-485, SDI-12)</li> <li>- PSTN and Cellular (CSD, SMS) modems</li> <li>- Radio modems</li> <li>- Satellite transmitters</li> </ul>

#### 3.15.2 TCP/IP Based File Transfer and Communication

MANDATORY
<p>3.14.2.1 To enable interfacing with different network infrastructure, support at least the following protocols shall be supported:</p> <ul style="list-style-type: none"> <li>- Dynamic Host Configuration Protocol, DHCP</li> <li>- Domain Name Services, DNS</li> <li>- Internet Protocol, IP</li> <li>- Transmission Control Protocol, TCP</li> </ul>

3.14.2.2 For utilizing commonly available network services, the following application level protocols shall be supported:

- Hypertext Transfer Protocol, HTTP
- File Transfer Protocol, FTP
- Simple Mail Transfer Protocol, SMTP Network Time Protocol, NTP

### 3.15.3 Error Recovery and Connection Redundancy

#### MANDATORY

The AWS-DCP shall have functionality for detecting and automatically recovering from any non-permanent connection malfunction. During temporary communication failures, the AWS-DCP shall buffer outgoing messages up to user defined limit so that when communications are restored, the buffered messages are transmitted to the destination system.

### 3.16 Data Collection Software Requirements

The data stations will be operating either direct connection and/or UHF/VFH radio transmission as designed by the bidder. A software system and associated hardware will be required to be provided by the Bidder. This software will manage the communication and information exchange between the AWOS and RWP to the Airport tower and NHCM facilities in Thimphu. The software will provide all data visualization required to fully utilize the equipment. This includes real-time indications of wind speed, wind direction, temperature, relative humidity, present weather, RWP output at a minimum. One display will be located in the PARO flight tower and the other at NHCM headquarters in Thimphu. Bidder will be responsible for establishing and assuring a proper engineering design for communications that will be robust and very high reliability “two nines” (99%).

#### MANDATORY

3.15.1.1 The Data Collection Software will be Windows 10 (and latest) and Microsoft Server 2012 compatible or Linux.

3.15.1.2 Software will be able to perform the following:

- Perform communication between the software system and the remote stations
- Program the stations remotely
- Set station values remotely
- Provide user selectable data download between for user selectable period of time for user selectable number of stations
- Receive alert transmissions from the stations and process the data accordingly
- Disseminate alert messages using: SMS text, email, voice call
- Provide preliminary flagging of quality control
- Provide statistics on the number of stations reporting, and/or the number of hours since the stations last reported.



**3.15 Reliability and Maintainability Requirements****3.15.1 Reliability**

<b>MANDATORY</b>
3.15.1.1 The AWS-DCP and RWP shall have a demonstrated operational data availability of over 99 % for correct, complete and error-free reporting of data. This requirement is exclusive of any third party equipment supplied by the Purchaser.
3.15.1.2 The AWS and RWP systems shall be designed and fabricated so that the Mean Time Between Failures (MTBF) shall not be less than 20,000 hours for the entire system. The MTBF value (reliability prediction) shall be calculated using the MIL-HNDB-217F standard and shall assume 'ground fixed' class of operation. The documented calculation of the MTBF shall be included as a part of the technical proposal.

**3.15.2 Maintainability**

<b>MANDATORY</b>
3.15.2.1 The Mean Time To Repair (MTTR) of a AWS and RWP system failure shall not exceed 1 hour. It is preferable that the MTTR is less than 30 minutes. MTTR shall include failure detection time, remove and replace the faulty FRU and perform a checkout and any necessary calibration, once the parts, tools and manuals are available. The repairs shall be accomplished by a single person.
3.15.2.2 In order to accomplish the ease of maintenance at the field: <ul style="list-style-type: none"> <li>– The AWS-DCP shall have the equipment enclosure with hinged door</li> <li>– Connectors and fasteners inside the equipment enclosure shall be readily accessible to allow for easy field replaceable unit (FRU) removal.</li> <li>– All Field Replaceable Units (FRU) shall be easily accessible and exchangeable without any special tools. Mounting on the DIN- rails is preferred over parts and printed board held in place by screws.</li> <li>– All connectors, fasteners and screws shall be readily available without need to remove other parts/units to gain an access to these.</li> <li>– The technician shall not have to perform preventive maintenance more than once annually.</li> <li>– Connectors should be readily available in Bhutan or in the Region (South Asia)</li> </ul>

**3.15.3 Remote Maintenance**

<b>MANDATORY</b>
3.15.3.1 In addition to the local maintenance port, the AWS-DCP and RWP shall have capability to access the terminal and diagnostics mode remotely via the chosen telecommunication system.
3.15.3.2 The AWS-DCP shall be capable to produce, at the user set interval, a maintenance message containing as minimum the following information: <ul style="list-style-type: none"><li>– Internal temperature</li><li>– Door status: if the equipment enclosure is open</li><li>– Battery voltage</li><li>– Voltage of the solar panel, when solar panel is used.</li><li>– Status of the mains power supply voltage (ON/OFF), when the mains power is used</li><li>– Any status information provided by sensors</li></ul>
3.15.3.3 The data logger has to be remotely configurable (secure remote access via Internet) and there has to be possibility to do remote firmware updates both for the logger and the sensors.

**3.16.3 Calibration and Preventive Maintenance**

<b>MANDATORY</b>
3.16.3.1 The AWS-DCP and RWP shall be designed to eliminate or minimize the need for equipment adjustment, alignments and preventive maintenance.
3.16.3.2 All calibrations needed shall be able to be performed in a calibration a NHCM calibration laboratory or otherwise within the country of Bhutan.

## List of Acronyms

ADC	Analog to Digital Converter
ARP	Address Resolution Protocol
ASL	Above Sea Level
AWOS	Automated Weather Observing System for Aviation
AWS	Automatic Weather Station
AWS-DCP	AWS Data Collection Platform
BCAA	Bhutan Civil Aviation Authority
CAT	Category
CDMA	Code Division Multiple Access
DC	Direct Current
DDNS	Dynamic Domain Name Service
DHCP	Dynamic Host Configuration Protocol
DHMS	The Department of Hydro and Met Services <sup>[MH1]</sup>
DNS	Domain Name Service
DoAT	Department of Air Transport
DSL	Digital Subscriber Line
EFT	Electrical Fast Transients
EMI	Electromagnetic Interference
ESD	Electrostatic discharge
FAT	Factory Acceptance Test
FRU	Field Replaceable Unit
FTP	File Transfer Protocol
GPS	Global Positioning System

**Section VII Schedule of Requirements - Specification for Automatic Weather Stations**

HTTP	Hypertext Transfer Protocol
ICAO	The International Civil Aviation Organization
ICMP	Internet Control Message Protocol
IEC	International Electro technical
IP	International Protection Marking
IPV	Internet Protocol Version
LAN	Local Area Network
LIDAR	Light Detection And Ranging
METAR	Aerodrome Routine Meteorological Report
METREP	Local Routine Meteorological Report
MTBF	Mean Time Between Failure
MTTR	Mean Time To Repair
NCHM	National Center for Hydrology & Meteorology
NTP	Network Time Protocol
OT	Operational Test
PC	Personal Computer
PPP	Point to Point Protocol
QFE	Atmospheric pressure at aerodrome elevation
QFF	Barometric pressure at a place reduced to mean sea level
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
RF	Radio Frequency
RH	Relative Humidity
ROBEX	The Regional OPMET Bulletins Exchange
RTC	Real Time Clock
RTD	Resistance Temperature Detector

**Section VII Schedule of Requirements - Specification for Automatic Weather Stations**

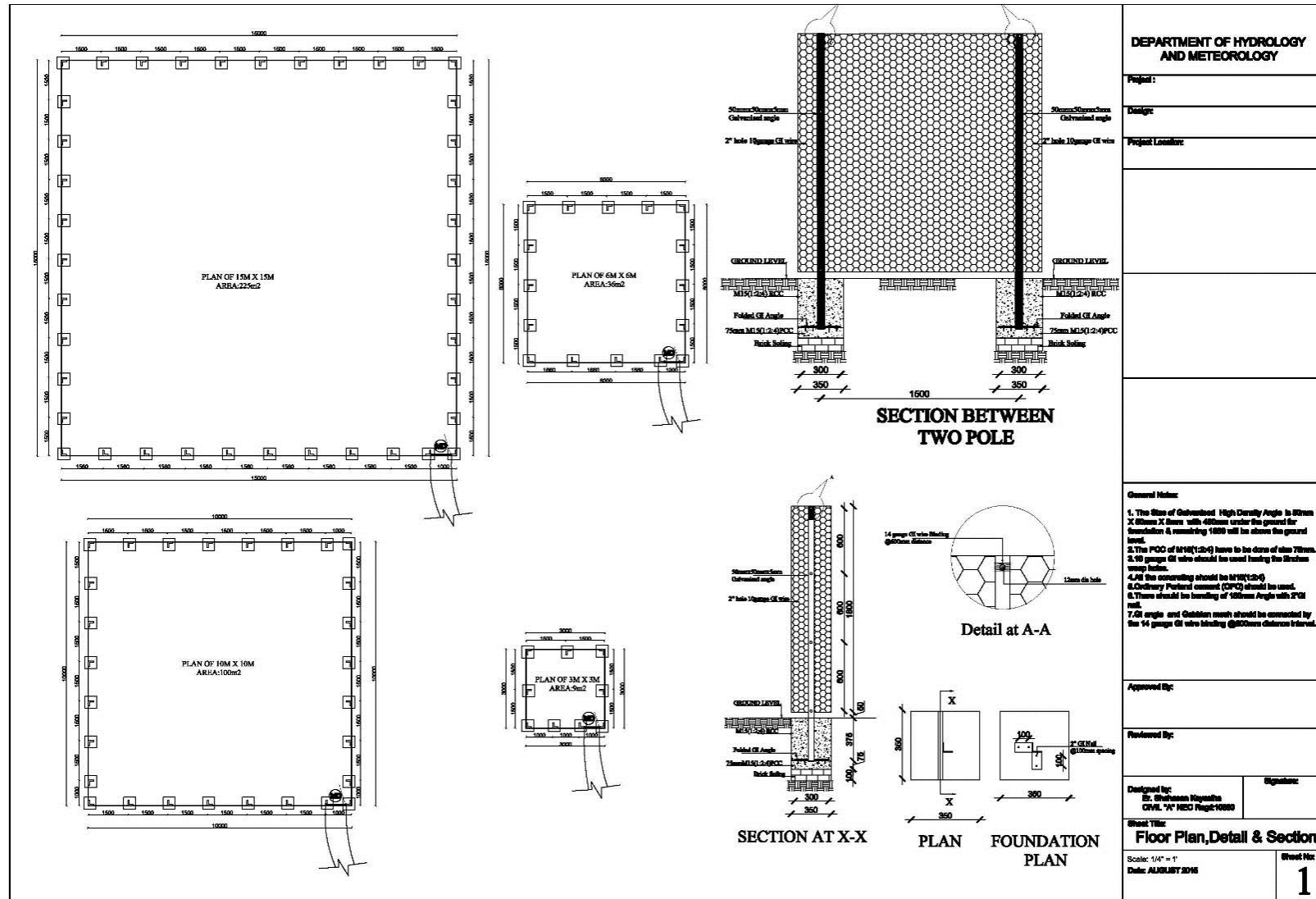
RVR	Runway Visual Range
RWP	Radar Wind Profiler
SAT	Site Acceptance Test
SMTP	Simple Mail Transfer Protocol
SPECI	Aerodrome Special Meteorological Report
SPECIAL	Local special Meteorological Report
TCP/IP	Transmission Control Protocol/Internet Protocol
UDP	User Data Protocol
UTC	Coordinated Universal Time
UV	Ultraviolet
WIGOS	WMO Integrated Global Observing System
WMO	The World Meteorological Organization

#### 4. Drawings

These Bidding Documents includes “**one**” drawing. Besides, a related station map is included.

List of Drawings		
Drawing No.	Drawing Name	Purpose
1.	Typical fence structure(tangible) to protect the AWS installation	To be used and customized to the condition at each site

Section VII Schedule of Requirements - Specification for Automatic Weather Stations



**Drawing 1. Typical fence structure to protect the AWS installation (To be adjusted to Site conditions)**  
**Surface Meteorological Network**

## 5. Inspections and Tests

The following inspections and tests shall be performed:

5.1 It is the bidder's responsibility to ensure that the equipment is sufficiently tested prior to shipment and installation. During final acceptance testing, the tenderer will have to demonstrate full functionality and performance of all system components according to specifications. Prior to final acceptance, all expenditures related to unsatisfactory performance of the equipment, such as the costs of repairs, additional site visits, shipping costs etc., will be at the tenderer's expenses. The costs for all tests and for all inspections to be made under the contract shall be borne by the tenderer and shall be deemed to be included in the contract price.

5.2 **Factory Acceptance Test (FAT).** The bidder shall arrange a FAT with NCHM/DoAT staff or its representatives prior to the shipment. The FAT shall demonstrate the operation of the required functions on a configuration equivalent to the tendered one. The FAT shall also include an inspection of all documentation to be supplied with the system. The FAT shall proceed according to a check plan, previously approved by the buyer. Eventual missing items or malfunctions will be recorded for further consideration and correction by the supplier. A satisfactory FAT will allow the bidder's to proceed into the delivery and installation. The inspection team will comprise of technical officials Engineers, Tender committee members & lead by Project manager. The associated cost for the team shall be borne by NCHM under Bank funded project fund allocated for the project monitoring & evaluation.

5.3 The system is to be inspected in-country, after clearing customs, to ensure that 100 percent of the shipment is received and delivered. The bidder shall arrange for the receiving inspection appropriate storage facilities at Paro International Airport, Bhutan, maintained by the bidder or as mutually agreed between the purchaser and the bidder.

5.4 **Site Acceptance Test (SAT).** A SAT shall be arranged after the completed installation. The purpose of the SAT is to check that all required functions are installed as specified in the contract and that the workings are good enough to start the operation test. The SAT will be conducted according to an agreed plan submitted by the supplier and approved by the buyer.

5.5 **Operational Test (OT).** The reliability and functionality of the individual system items of hardware and software will be checked during an OT. The OT will continue for a period of 30 consecutive working days. During the OT, the various functional items shall achieve an availability figure specified in the contract to be signed. Furthermore, all functional requirements shall be checked to be working as specified. In principle, a failure of the OT shall result in the holding of a new OT after corrections by the supplier of the reasons for failure. The procedure shall be repeated until the OT is satisfactorily completed, after which the system receives its Final Acceptance and will be accepted into operational service.



## **PART 3 - CONTRACT**

## **SECTION VIII.GENERAL CONDITIONS OF CONTRACT**

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**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

Section VIII General Condition of Contract

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. Corrupt and Fraudulent Practices**

- 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices 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 there under shall be as prescribed by Incoterms.
  - 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 Non waiver

- 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.

- |                                  |   |
|----------------------------------|---|
| <b>7. Eligibility</b>            | <p>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.</p> <p>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.</p> |
| <b>8. Notices</b>                | <p>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 <b>SCC</b>. The term “in writing” means communicated in written form with proof of receipt.</p> <p>8.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.</p>   |
| <b>9. Governing Law</b>          | <p>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 <b>SCC</b>.</p> <p>9.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Purchaser’s country when</p> <p>9.3 (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; or</p> <p style="padding-left: 20px;">(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.</p>         |
| <b>10 Settlement of Disputes</b> | <p>10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p>  |

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 The Supplier shall permit, and shall cause its Subcontractors to permit, the Bank and/or persons appointed by the Bank to inspect the Supplier's offices and all accounts and records relating to the performance of the Contract and the submission of the bid, 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 consultants' attention is drawn to Clause 3 [Fraud and Corruption], which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under this Sub-Clause 11.1 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 Supply**

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

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## **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**.

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- 25. Transportation and Incidental Services**
- 25.1 Unless otherwise specified in the **SCC**, responsibility for arranging transportation of the Goods shall be in accordance 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 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.
- 26.3 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.
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- 26.4 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.
- 26.5 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.
- 26.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.
- 26.7 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.
- 26.8 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
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**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 Indemnity**

- 29.1 The Supplier shall, subject to the Purchaser's compliance with 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 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 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 GCC Clause 3, 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

### Bank's Policy- Corrupt and Fraudulent Practices

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

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011:

#### **“Fraud and Corruption:**

1.16 It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.<sup>15</sup> In pursuance of this policy, 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;<sup>16</sup>
  - (ii) “Fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>17</sup>
  - (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;<sup>18</sup>
  - (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;<sup>19</sup>

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<sup>15</sup> In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

<sup>16</sup> For the purpose of this sub-paragraph, “another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

<sup>17</sup> For the purpose of this sub-paragraph, “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>18</sup> For the purpose of this sub-paragraph, “parties” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

<sup>19</sup> For the purpose of this sub-paragraph, “party” refers to a participant in the procurement process or contract

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- (v) "Obstructive practice" is:
  - (aa) 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
  - (bb) Acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or 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) will declare misprocurement and cancel the portion of the loan allocated to a contract if it 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 or the implementation 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) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,<sup>20</sup> including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated<sup>21</sup>;
- (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank."

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*execution.*

<sup>20</sup> A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, *inter alia*, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

<sup>21</sup> A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either 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.

## SECTION IX.SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

<b>GCC 1.1(f) Definitions</b>	“Completion” means that the Facilities (or a specific part thereof where specific parts are specified in the Contract) have been completed operationally and structurally and put in a tight and clean condition, and that the Facilities or specific part thereof are ready for Commissioning.					
<b>GCC 1.1(i) Definitions</b>	The Purchaser’s country is: <b>Bhutan</b>					
<b>GCC 1.1(j) Definitions</b>	The Purchaser is: <b>National Center for Hydrology &amp; Meteorology(NCHM), Royal Government of Bhutan</b> <b>Project Name: Hydromet Services and Disaster Resilience Regional Project</b>					
<b>GCC 1.1 (o) Definitions</b>	The Project Site(s)/Final Destination(s) is/are:					
	<i>Sl. No</i>	<i>Station/Equipment Type</i>	<i>Place/ location</i>	<i>District</i>	<i>Geo-Coordinates</i>	<i>Remarks</i>
	1.	Wind profiler System	Paro international Airport	Paro, Bhutan	27.4038° N, 89.4240° E Elevation:7332ft	
	2	Ceilometer	Paro international Airport	Paro, Bhutan	27.4038° N, 89.4240° E Elevation:7332ft	
	3	Ceilometer	Bumthang Domestic Airport	Bumthang, Bhutan	27°33’46” N, 90°4’47”E Elevation: 8858ft	To be integrated with existing AWOS
	4	Automatic Weather Observation System	Paro international Airport	Paro, Bhutan	27.4038° N, 89.4240° E Elevation:7332ft	
	5	Installation & set up Server & display with visualization soft ware	NCHM head quarter	Thimphu, Bhutan		
<b>GCC 1.1 (p) Definitions</b>	Acceptance Certificate: It is a certificate issued by the authorized personal of the Purchaser upon satisfactory installation and commissioning of the goods (equipment) all complete.					

**Section IX Special Conditions of Contract**

<b>GCC 1.1 (q) Definitions</b>	Bid/Bidder/Bidding is synonymous to Tender/Tenderer/Tendering respectively.
<b>GCC 1.1 (r) Definitions</b>	Unless otherwise specific to the sentence, ‘Employer’ also denotes the ‘Purchaser’
<b>GCC 1.1 (s) Definitions</b>	Unless otherwise specific to the sentence, ‘Engineer’ also denotes the ‘Consultant’
<b>GCC 1.1 (t) Definitions</b>	Unless otherwise specific to the sentence, ‘Contractor’ also denotes the ‘Supplier’
<b>GCC 1.1 (u) Definitions</b>	“Commissioning” means operation of the Facilities or any part thereof by the Contractor following Completion, which operation is to be carried out by the Contractor as provided in the contract.



<b>GCC 1.1 (v) Definitions</b>	“Operational Acceptance” means the acceptance by the Employer of the Facilities (or any part of the Facilities) which certifies the Contractor’s fulfillment of the Contract
<b>GCC 4.2 (a) Interpretations</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 there under shall not be as prescribed by Incoterms, they shall be as prescribed by: <b>Other internationally accepted trade terms</b>
<b>GCC 4.2 (b)</b>	The version edition of Incoterms shall be : <b>Incoterms 2000</b>
<b>GCC 5.1 Language</b>	The language shall be: <b>English</b>
<b>GCC 8.1 Notice</b>	For <b><u>notices</u></b> , the Purchaser’s address shall be: Attention: <b>Trashhi Namgyal, Project Manager</b> Street Address: <b>MoEA Complex, Thimphu</b> Procurement Unit: <b>Project Unit, NCHM</b> Floor/Room number: <b>1<sup>st</sup> Floor,</b> <b>Energy Building</b> City: <b>Thimphu</b> ZIP Code: Not applicable Country: Bhutan Telephone: +975-17492942 Facsimile number: Electronic mail address: <a href="mailto:tnamgyel@moea.gov.bt">tnamgyel@moea.gov.bt</a>
<b>GCC 9.1 Governing Law</b>	The governing law shall be the law of: <b><i>Royal Government of Bhutan</i></b>

## Section IX Special Conditions of Contract

<b>GCC Settlement Disputes</b>	<p><b>10.2 of</b> The rules of procedure for arbitration proceedings pursuant to GCC Clause 10.2 shall be as follows:</p> <p><b>[“Clause 10.2 (a) shall be retained in the case of a Contract with a foreign Supplier and clause 10.2 (b) shall be retained in the case of a Contract with a national of the Purchaser’s country.”]</b></p> <p><b>a) Contract with foreign Supplier:</b></p> <p>GCC 10.2 (a)—Any dispute arising out of or in connection with this Contract, including any question regarding its existence, validity or termination shall be referred to and finally resolved by arbitration under the Governing Law of the Kingdom of Bhutan incorporated by reference to this clause.</p> <p><b>b) Contracts with Supplier national of the Purchaser’s country:</b></p> <p>GCC 10.2 (b)—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>
<b>GCC 13.1 Delivery and Documents</b>	<p>Details of Shipping and other Documents to be furnished by the Supplier are:</p> <ol style="list-style-type: none"> <li>A negotiable bill of lading</li> <li>A non-negotiable sea way bill,</li> <li>An airway bill,</li> <li>A railway consignment note,</li> <li>A road consignment note,</li> <li>Insurance certificate,</li> <li>Manufacturer’s or Supplier’s warranty certificate,</li> <li>Supplier’s factory shipping details etc.</li> </ol> <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>
<b>Sub Clause GCC 14.1 Supplier’s Responsibility</b>	
<b>GCC Contract Price</b>	<p><b>15.1</b> The prices charged for the Goods supplied and the related Services performed <b>“shall not,”</b> be adjustable.</p>

<p><b>GCC 16.1 and 16.2 Terms of Payments</b></p>	<p>Replace GCC 16.1 and 16.2 by the following:</p> <p><b>Payment for Goods supplied from abroad:</b></p> <p>Payment of foreign currency portion shall be made in [currency of the Contract Price] in the following manner:</p> <ul style="list-style-type: none"> <li>(i) Advance Payment: Ten (10) percent of the total CIP amount as an advance payment 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, installed, and commissioned, and in the form provided in the bidding documents or another form acceptable to the Purchaser.</li> <li>(ii) On Shipment: Seventy (70) percent of the CIP amount 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.</li> <li>(iii) On Completion and Commissioning: Ten (10) percent of the CIP amount of Goods installed and commissioned shall be paid <b>for Facilities or any part thereof</b> within thirty (30) days of claim supported by the acceptance certificate issued by the Purchaser.</li> <li>(iv) On Operational Acceptance: Ten (10) percent of the CIP amount of Goods upon issue of Operational Acceptance Certificate, within thirty (30) days after receipt of invoice.</li> </ul> <p>Payment of local currency portion shall be made in Bhutanese Ngultrum (BTN) currencies within thirty (30) 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 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 Ngultrum (BTN) as follows:</p> <ul style="list-style-type: none"> <li>(i) Advance Payment: 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 documents or another form acceptable to the Purchaser.</li> <li>(ii) On Delivery: Seventy (70) percent of the Contract Price shall be paid on receipt of the Goods and upon submission of the documents specified in GCC Clause 13.</li> <li>(iii) On Acceptance: The remaining Twenty (20) 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.</li> </ul> <p><b>Payment for Related Services:</b></p> <p>In respect of installation other related services for both the foreign and local currency portions, the following payments shall be made:</p>
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## Section IX Special Conditions of Contract

	<p>Ten percent (10%) of the total related services amount as an advance payment against receipt of invoice, and an irrevocable advance payment security for the equivalent amount made out in favor of the Employer/ Purchaser. The advance payment security may be reduced in proportion to the value of work performed by the Contractor/ Supplier as evidenced by the invoices for installation and related services.</p> <p>Eighty percent (80%) of the measured value of work performed by the Contractor/ Supplier, as identified in the said Program of Performance, during the preceding month, as evidenced by the Employer's authorization of the Contractor's application, will be made monthly within forty-five (45) days after receipt of invoice.</p> <p>Five percent (5%) of the total or pro rata value of installation and related services performed by the Contractor/Supplier as evidenced by the Employer's/Purchaser's authorization of the Contractor's/Supplier's monthly applications, upon issue of the Completion Certificate, within forty- five (45) days after receipt of invoice.</p> <p>Five percent (5%) of the total or pro rata value of installation and related services performed by the Contractor/Supplier as evidenced by the Employer's/Purchaser's authorization of the Contractor's/Supplier's monthly applications, upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.</p>
<b>GCC 16.5 Terms of Payment</b>	<p>The payment-delay period after which the Purchaser shall pay interest to the supplier shall be <b>45</b> days.</p> <p>The interest rate that shall be applied is: <b>4%</b> for Foreign Currency and <b>8%</b> for local currency.</p>
<b>GCC 18.1 Performance Security</b>	<p>A Performance Security "<i>shall</i>" be required.</p> <p>The amount of the Performance Security shall be: <b>Ten (10) percent of Contract Price including VAT</b></p>
<b>GCC 18.3</b>	<p>Performance Security shall be in the form of : "Performance Security Option 1 : (Bank Guarantee) in attached format"</p>

<b>GCC 23.2</b> <b>packing and Documents</b>	<p>Add following after Sub Clause 23.2</p> <p>The packing, marking and documentation within and outside the packages shall be:</p> <p>A complete packing list indicating the content of each package shall be enclosed in a water proof envelope and shall be secured to the outside of the packing case. In addition, each package shall be marked with indelible ink/paint in bold letters, as follows:</p> <ul style="list-style-type: none"> <li>a. <b>Contract number :</b></li> <li>b. <b>Name and address of the Purchaser:</b></li> <li>c. <b>Country of origin,</b></li> <li>d. <b>Gross weight</b></li> <li>e. <b>Net weight</b></li> <li>f. <b>Package number of total number of packages</b></li> <li>g. <b>Brief description of content</b></li> </ul> <p><b>Upright markings, where appropriate, shall be placed on all four vertical sides of the package.</b></p> <p><b>All materials used for packing shall be environmentally neutral.</b></p>
<b>GCC 24.1</b> <b>Insurance</b>	<p>The insurance coverage shall be as specified in the Incoterms.</p>
<b>GCC 25.1</b> <b>Transportation and Incidental Services</b>	<p>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"</p>
<b>GCC 25.2</b> <b>Transportation and Incidental Services</b>	<p>Additional Incidental services mentioned below for facilitation shall form a part of 'Related Services and completion Schedule-item 5':</p> <ul style="list-style-type: none"> <li>(i) <b>Factory Acceptance Test (FAT) for equipment</b></li> <li>(ii) <b>The Contractor has to include in its Price costing, an arrangement of local transports including logistic arrangements at factory Inspection area/town for inspection period duration for minimum four officials (4)</b></li> </ul>

	<b>inspection members. Actual Inspection of Equipment at factory/site shall be adequate and not less than 5 days. Also, the Purchaser has to be duly informed at least 3 weeks in advance the place, date and itinerary for Factory Acceptance Test (FAT) to ensure availability of Inspection members.</b>
<b>GCC 26.1 Inspection and Test</b>	The inspections and tests shall be: <b>in accordance with provisions stipulated in “5. Inspections and Tests of Section VII- Schedule of Requirements”</b>
<b>GCC 26.2 Inspection and Test</b>	Add the following in Sub Clause 26.2 The Inspections and tests shall be conducted at: <b>Apart from Factory Acceptance Test (FAT), during delivery at NCHM, Thimphu, Bhutan or places deemed appropriate for inspections and tests by purchaser. And other tests at various stages as detailed in the Technical Specification in accordance with provisions stipulated in “5. Inspections and Tests of Section VII- Schedule of Requirements”</b>
<b>GCC 27.1 Liquidated Damages</b>	The liquidated damage shall be: -- Interim liquidated damage of 0.35 % of total Contract price (including VAT) per week will be applied for delay of activities denoted in Table 3a exceeding stipulated of 16 months after signing of contract ;
<b>GCC 27.1 Liquidated Damages</b>	The maximum amount of liquidated damages shall be: <b>10 (Ten) %</b>
<b>GCC 28.3 Warranty</b>	The period of validity of the Warranty shall be: The warranty period shall be one (1) year starting from the successful completion of the final commissioning of all equipment/systems. For purposes of the Warranty, the place(s) of final destination(s) shall be: The Project Sites listed in Table 3a of Section VII (Schedule of Requirements) or any change agreed thereto during execution.
<b>GCC 28.5 Warranty</b>	The period for repair or replacement shall be: Downtime for any item is taken as 15 days.

## Attachment: Price Adjustment Formula (Not applicable)

If in accordance with GCC 15.1, prices shall be adjustable, the following method shall be used to calculate the price adjustment:

- 15.1 Prices payable to the Supplier, as stated in the Contract, shall be subject to adjustment during performance of the Contract to reflect changes in the cost of labor and material components in accordance with the formula:

$$P_1 = P_0 [a + \frac{bL_1}{L_0} + \frac{cM_1}{M_0}] -$$

$$a+b+c = 1$$

in which:

$P_1$  = adjustment amount payable to the Supplier.

$P_0$  = Contract Price (base price).

$a$  = fixed element representing profits and overheads included in the Contract Price and generally in the range of five (5) to fifteen (15) percent.

$b$  = estimated percentage of labor component in the Contract Price.

$c$  = estimated percentage of material component in the Contract Price.

$L_0, L_1$  = \*labor indices applicable to the appropriate industry in the country of origin on the base date and date for adjustment, respectively.

$M_0, M_1$  = \*material indices for the major raw material on the base date and date for adjustment, respectively, in the country of origin.

The Bidder shall indicate the source of the indices and the base date indices in its bid. The coefficients  $a$ ,  $b$ , and  $c$  as specified by the Purchaser are as follows:

$a = [\text{insert value of coefficient}]$

$b = [\text{insert value of coefficient}]$

$c = [\text{insert value of coefficient}]$

Base date = thirty (30) days prior to the deadline for submission of the bids.

## Section IX Special Conditions of Contract

Date of adjustment = *[insert number of weeks]* weeks prior to date of shipment (representing the mid-point of the period of manufacture).

The above price adjustment formula shall be invoked by either party subject to the following further conditions:

- (a) No price adjustment shall be allowed beyond the original delivery dates. As a rule, no price adjustment shall be allowed for periods of delay for which the Supplier is entirely responsible. The Purchaser will, however, be entitled to any decrease in the prices of the Goods and Services subject to adjustment.
- (b) If the currency in which the Contract Price  $P_0$  is expressed is different from the currency of origin of the labor and material indices, a correction factor will be applied to avoid incorrect adjustments of the Contract Price. The correction factor shall correspond to the ratio of exchange rates between the two currencies on the base date and the date for adjustment as defined above.
- (c) No price adjustment shall be payable on the portion of the Contract Price paid to the Supplier as advance payment.



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## SECTION X. CONTRACT FORMS

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*This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.*

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## Letter of Acceptance

[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 the Performance Security within 28 days in accordance with the  
Conditions of Contract, using for that purpose the of the Performance Security 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

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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.*

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.

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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<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 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."*

## Option 2: Performance Bond(Not applicable)

By this Bond[*insert name of Principal*] as Principal (hereinafter called “the Supplier”) and[*insert name of Surety*] as Surety (hereinafter called “the Surety”), are held and firmly bound unto[*insert name of Purchaser*] as Obligee (hereinafter called “the Supplier”) in the amount of [*insert amount in words and figures*], for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Supplier and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Purchaser dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, for [*name of contract and brief description of Goods and related Services*] in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Supplier shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Supplier shall be, and declared by the Purchaser to be, in default under the Contract, the Purchaser having performed the Purchaser’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions; or
- (2) Obtain a Bid or bids from qualified Bidders for submission to the Purchaser for completing the Contract in accordance with its terms and conditions, and upon determination by the Purchaser and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Purchaser and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Purchaser to Supplier under the Contract, less the amount properly paid by Purchaser to Contractor; or
- (3) Pay the Purchaser the amount required by Purchaser to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Purchaser named herein or the heirs, executors, administrators, successors, and assigns of the Purchaser.

In testimony whereof, the Supplier has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this    day of \_\_\_\_\_ 20 \_\_\_\_.

SIGNED ON    on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_

SIGNED ON    on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_



## Advance Payment Security

[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
- 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

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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.*

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.

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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.*