

# **BIDDING DOCUMENTS**

**for**

## **Procurement of Goods and Related Services for**

**'Implementation (Supply, Installation including civil work,  
Testing, Commissioning, Operation and Maintenance etc)  
of a Real Time Data Acquisition System (RTDAS) for  
Bagmati -Adhwara basin in Bihar, India'**

**ICB No:- FMIS-II /01 /2011-12**

**India: FMIS Phase-II  
(Grant Number: 096841-TF)**

**Joint Director  
Flood Management Improvement Support Centre  
Water Resources Department  
Government of Bihar  
Patna- 800002 (India)**

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**Bidding Document issued to :-**

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..... on ...../...../2011.

Joint Director  
FMISC, Water Resources Department  
Government of Bihar  
Patna- 800002 (India)

Only for Viewing for Bidding Purchase from FMIS as IFB

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## **PART 1 – Bidding Procedures**

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# Section I. Instructions to Bidders

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## Section I. Instructions to Bidders

### General

#### Scope of Bid

- 1.1 The Purchaser **indicated in the Bidding Data Sheet (BDS)**, issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section VI, Schedule of Requirements. The name and identification number of this International Competitive Bidding (ICB) procurement are **specified in the BDS**. The name, identification, and number of lots of are **provided 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.

#### 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”) toward the cost of the project **named in the 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 Payments 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 financing agreement between the Borrower and the Bank (hereinafter called the Loan Agreement), and will be subject in all respects to the terms and conditions of that Loan Agreement. The Loan Agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, 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 Agreement or have any claim to the funds.

#### Fraud and Corruption

- 3.1 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), as well as bidders, suppliers, and contractors and their agents (whether declared or not), personnel,

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subcontractors, sub-consultants, service providers and suppliers under Bank-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts.<sup>1</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>2</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>3</sup>;
  - (iii) “collusive practice” is an arrangement between two or more parties<sup>4</sup> designed to achieve an improper purpose, including to influence improperly the actions of another party;
  - (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party<sup>5</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

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<sup>1</sup> In this context, any action taken by a bidder, supplier, contractor, or any of its personnel, agents, subcontractors, sub-consultants, service providers, suppliers and/or their employees to influence the procurement process or contract execution for undue advantage is improper.

<sup>2</sup> “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>3</sup> “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>4</sup> “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non- competitive levels.

<sup>5</sup> “Party” refers to a participant in the procurement process or contract execution.



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- (bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under sub-clause 3.1 (e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;
- (c) will cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur; and
- (d) will sanction a firm or an individual, at any time, in accordance with prevailing Bank's sanctions procedures<sup>a</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>b</sup> subcontractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract.

3.2 In further pursuance of this policy, Bidders shall permit the Bank to inspect any accounts and records and other documents relating to the Bid submission and contract performance, and to have them audited by auditors appointed by the Bank.

3.3 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 35.1 (a) (iii) of the General Conditions of Contract.

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

<sup>b</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 either has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the bidder's pre-qualification application or the bid; or (ii) appointed by the Borrower.

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## Eligible Bidders

- 4.1 A Bidder, and all parties constituting the Bidder, may have the nationality of any country, subject to the restrictions specified in Section V, Eligible Countries. A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registered and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including Related Services.
- 4.2 A Bidder shall not have a conflict of interest. All bidders found to have conflict of interest shall be disqualified. Bidders may be considered to have a conflict of interest with one or more parties in this bidding process, if they:
- (a) are or have been associated in the past, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under these Bidding Documents; or
  - (b) submit more than one bid in this bidding process, except for alternative offers permitted under ITB Clause 13. However, this does not limit the participation of subcontractors in more than one bid;
- 4.3-4.4 A firm that has been sanctioned by the Bank in accordance with the above ITB Clause 3.1 (d), or in accordance with the Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, shall be ineligible to 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 determine. The list of debarred firms is available at the electronic address specified in the **BDS**.
- 4.5 Government-owned enterprises in the Borrower's Country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the Purchaser.
- 4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.

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**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.

**Contents of Bidding Documents**

**Sections of Bidding Documents**

- 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 Addendum issued in accordance with ITB Clause 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

**PART 2 Supply Requirements**

- Section VI. Schedule of Requirements

**PART 3 Contract**

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

- 6.2 The Invitation for Bids issued by the Purchaser is not part of the Bidding Documents.
- 6.3 The Purchaser is not responsible for the completeness of the

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Bidding Documents and their addendum, if they were not obtained directly from the Purchaser.

- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid.

**Clarification of  
Bidding  
Documents**

- 7.1 A prospective Bidder requiring any clarification of the Bidding Documents 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 no later than twenty-one (21) days prior to the deadline for submission of bids. The Purchaser shall forward copies of its response to all those who have acquired the Bidding Documents directly from it, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Clause 8 and ITB Sub-Clause 24.2.

- 7.2 The bidders or his official representatives are invited to attend a pre-bid meeting which will take place at the address on date and time specified in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. The bidders are requested to submit any questions in writing or by cable to reach the Purchaser not later than one week before the meeting. The minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be transmitted without delay to all bidders who have purchased the bidding documents. Any modification of the bidding documents listed in ITB Sub-Clause 6.1 which may become necessary as a result of the pre-bid meeting shall be made by the Purchaser exclusively through the issue of an Addendum pursuant to ITB Clause 8 and not through the minutes of the pre-bid meeting. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

**Amendment of  
Bidding  
Documents**

- 8.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum.
- 8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained

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the Bidding Documents directly from the Purchaser.

- 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 Sub-Clause 24.2

### **Preparation of Bids**

- 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.

- 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.

- Documents  
Comprising the  
Bid** 11.1 The Bid shall comprise the following:
- (a) Bid Submission Form and the applicable Price Schedules, in accordance with ITB Clauses 12, 14, and 15;
  - (b) Bid Security or Bid-Securing Declaration, in accordance with ITB Clause 21, if required;
  - (c) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 22;
  - (d) documentary evidence in accordance with ITB Clause 16 establishing the Bidder's eligibility to bid;
  - (e) documentary evidence in accordance with ITB Clause 17, that the Goods and Related Services to be supplied by the Bidder are of eligible origin;
  - (f) documentary evidence in accordance with ITB Clauses 18 and 30, that the Goods and Related Services conform to the Bidding Documents;
  - (g) documentary evidence in accordance with ITB Clause 19 establishing the Bidder's qualifications to perform the contract if its bid is accepted; and

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(h) any other document **required in the BDS.**

**Bid Submission  
Form and Price  
Schedules**

12.1 The Bidder shall submit the Bid Submission Form using the form furnished in Section IV, Bidding Forms. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.

12.2 The Bidder shall submit the Price Schedules for Goods and Related Services, according to their origin as appropriate, using the forms furnished in Section IV, Bidding Forms

**Alternative Bids**

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

**Bid Prices and  
Discounts**

14.1 The prices and discounts quoted by the Bidder in the Bid Submission Form and in the Price Schedules shall conform to the requirements specified below.

14.2 All lots and items must be listed and priced separately in the Price Schedules.

14.3 The price to be quoted in the Bid Submission Form shall be the total price of the bid, excluding any discounts offered.

14.4 The Bidder shall quote any unconditional discounts and indicate the method for their application in the Bid Submission Form.

14.5 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**.

14.6 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

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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**.
- (iv) Bidders may like to ascertain availability of Deemed Export or other Benefits. They are solely responsible for obtaining such benefits which they have considered in their bid and in case of failure to receive such benefits for reasons whatsoever, the Purchaser will not compensate the bidder separately.

Where the bidder has quoted taking into account such benefits, he must give all information required for issue of the Project Authority/ Payment and other Certificates in terms of the Import Export Policy or Central Excise Notifications along with his bid in Form Serial No. 8 of Section VI. The Project Authority/payment/other Certificates will be issued on this basis only and no subsequent change will be permitted. Where such Certificates are issued by the Purchaser, Excise Duty will not be reimbursed separately. Bids which do not conform to this provision, will be treated as non-responsive and rejected.

- (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, or CIF named port of destination, 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**;
  - (iii) in addition to the CIP prices specified in (b)(i)



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above, the price of the Goods to be imported may be quoted FCA (named place of destination) or CPT (named place of destination), if so specified in the **BDS**;

- (c) For Goods manufactured outside the Purchaser's Country, already imported:

*[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.]*

- (i) the price of the Goods, including the original import value of the Goods; plus any mark-up (or rebate); plus any other related local cost, and custom duties and other import taxes already paid or to be paid on the Goods already imported.
  - (ii) the custom duties and other import taxes already paid (need to be supported with documentary evidence) or to be paid on the Goods already imported;
  - (iii) the price of the Goods, obtained as the difference between (i) and (ii) above;
  - (iv) any Purchaser's Country sales and other taxes which will be payable on the Goods if the contract is awarded to the Bidder; and
  - (v) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) specified in the **BDS**.
- (d) for Related Services, other than inland transportation and other services required to convey the Goods to their final destination, whenever such Related Services are specified in the Schedule of Requirements:
- (i) the price of each item comprising the Related Services (inclusive of any applicable taxes).



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- 14.7 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 non responsive and shall be rejected, pursuant to ITB Clause 30. 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.
- 14.8 If so indicated in ITB Sub-Clause 1.1, bids are being invited for individual contracts (lots) or for any combination of contracts (packages). Unless otherwise indicated 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 any price reduction (discount) for the award of more than one Contract shall specify the applicable price reduction in accordance with ITB Sub-Clause 14.4 provided the bids for all lots are submitted and opened at the same time.
- Currencies of Bid**
- 15.1 The Bidder shall quote in the currency of the Purchaser's Country the portion of the bid price that corresponds to expenditures incurred in the currency of the Purchaser's country, unless otherwise specified in the **BDS**.
- 15.2 The Bidder may express the bid price in the currency of any country in accordance with Section V, Eligible countries. 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 currencies in addition to the currency of the Purchaser's Country.
- Documents Establishing the Eligibility of the Bidder**
- 16.1 To establish their eligibility in accordance with ITB Clause 4, Bidders shall complete the Bid Submission Form, included in Section IV, Bidding Forms.
- Documents Establishing the Eligibility of the Goods and Related Services**
- 17.1 To establish the eligibility of the Goods and Related Services in accordance with ITB Clause 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.
- Documents Establishing the Conformity of**
- 18.1 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

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**the Goods and  
Related  
Services**

technical specifications and standards specified in Section VI, Schedule of Requirements.

- 18.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Schedule of Requirements.
- 18.3 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.
- 18.4 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 Schedule of Requirements.

**Documents  
Establishing the  
Qualifications  
of the Bidder**

- 19.1 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

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

**Period of Validity  
of Bids**

- 20.1 Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non responsive.
- 20.2 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 21, 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 Sub-Clause 20.3.
- 20.3 In the case of fixed price contracts, 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 adjusted as specified in the request for extension. Bid evaluation shall be based on the Bid Price without taking into consideration the above correction.

**Bid Security and  
Bid-Securing  
Declaration**

- 21.1 The Bidder shall furnish as part of its bid, a Bid Security or a Bid-Securing Declaration, if required, as **specified in the BDS**.
- 21.2 The Bid Security shall be in the amount specified in the BDS and denominated in the currency of the Purchaser's Country or a freely convertible currency, and shall:
- (a) at the bidder's option, be in the form of either a letter of credit, or a bank guarantee from a banking institution, or a bond issued by a surety;
  - (b) be issued by a reputable institution selected by the bidder and located in any eligible country. If the institution issuing the bond is located outside the Purchaser's Country, it shall have a correspondent financial institution located in the Purchaser's Country to make it enforceable.
  - (c) be substantially in accordance with one of the forms of Bid Security included in Section IV, Bidding Forms, or other form approved by the Purchaser prior to bid submission;
  - (d) be payable promptly upon written demand by the Purchaser

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in case the conditions listed in ITB Clause 21.5 are invoked;

- (e) be submitted in its original form; copies will not be accepted;
  - (f) remain valid for a period of 28 days beyond the validity period of the bids, as extended, if applicable, in accordance with ITB Clause 20.2;
- 21.3 If a Bid Security or a Bid- Securing Declaration is required in accordance with ITB Sub-Clause 21.1, any bid not accompanied by a substantially responsive Bid Security or Bid Securing Declaration in accordance with ITB Sub-Clause 21.1, shall be rejected by the Purchaser as non-responsive.
- 21.4 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the Performance Security pursuant to ITB Clause 44.
- 21.5 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 Bid Submission Form, except as provided in ITB Sub-Clause 20.2; or
  - (b) if the successful Bidder fails to:
    - (i) sign the Contract in accordance with ITB Clause 43;
    - (ii) furnish a Performance Security in accordance with ITB Clause 44.
- 21.6 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 at the time of bidding, the Bid Security or Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in Section IV "Bidding Forms," Bidder Information Form Item 7.
- 21.7 If a bid security is **not required in the BDS**, and
- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in ITB 20.2, or
  - (b) if the successful Bidder fails to: sign the Contract in accordance with ITB 43; or furnish a performance security

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in accordance with ITB 44;

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

**Format and  
Signing of Bid**

- 22.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB Clause 11 and clearly mark it "ORIGINAL." 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.
- 22.2 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.
- 22.3 Any interlineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

**Submission and Opening of Bids**

**Submission,  
Sealing and  
Marking of  
Bids**

- 23.1 Bidders may always submit their bids by mail or by hand. When so specified in the **BDS**, bidders shall have the option of submitting their bids electronically.
- (a) Bidders submitting bids by mail or by hand, shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB Clause 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Clauses 23.2 and 23.3.
- (b) Bidders submitting bids electronically shall follow the electronic bid submission procedures specified in the **BDS**.
- 23.2 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 Sub-Clause 24.1;
- (c) bear the specific identification of this bidding process indicated in ITB 1.1 and any additional identification marks as **specified in the BDS**; and
- (d) bear a warning not to open before the time and date for bid

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opening, in accordance with ITB Sub-Clause 27.1.

- 23.3 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.

**Deadline for  
Submission of  
Bids**

- 24.1 Bids must be received by the Purchaser at the address and no later than the date and time **specified in the BDS.**
- 24.2 The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB Clause 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.

**Late Bids**

- 25.1 The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB Clause 24. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

**Withdrawal,  
Substitution,  
and  
Modification of  
Bids**

- 26.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice in accordance with ITB Clause 23, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB Sub-Clause 22.2, (except that no copies of the withdrawal notice are required). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:
- (a) submitted in accordance with ITB Clauses 22 and 23 (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 Clause 24.
- 26.2 Bids requested to be withdrawn in accordance with ITB Sub-Clause 26.1 shall be returned unopened to the Bidders.
- 26.3 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 Bid Submission Form or any extension thereof.

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## Bid Opening

- 27.1 The Purchaser shall conduct the bid opening in public at the address, date and time **specified in the BDS**. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB Sub-Clause 23.1, shall be as **specified in the BDS**.
- 27.2 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 envelopes that are opened and read out at Bid opening shall be considered further.
- 27.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the Bid Prices, including any discounts and alternative offers; the presence of a Bid Security or Bid-Securing Declaration, if required; and any other details as the Purchaser may consider appropriate. Only discounts and alternative offers read out at Bid opening shall be considered for evaluation. No Bid shall be rejected at Bid opening except for late bids, in accordance with ITB Sub-Clause 25.1.
- 27.4 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 if applicable, including any discounts, and alternative offers if they were permitted; and the presence or absence of a Bid Security or Bid-Securing Declaration, if one was required. The Bidders' representatives who are present shall be requested to sign the attendance sheet. A copy of the record shall be distributed to all Bidders who submitted bids in time, and posted



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online when electronic bidding is permitted.

### **Evaluation and Comparison of Bids**

#### **Confidentiality**

- 28.1 Information relating to the examination, evaluation, comparison, and post qualification of bids, and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the Contract Award.
- 28.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and postqualification of the bids or contract award decisions may result in the rejection of its Bid.
- 28.3 Notwithstanding ITB Sub-Clause 28.2, 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.

#### **Clarification of Bids**

- 29.1 To assist in the examination, evaluation, comparison and post-qualification of the bids, 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 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 Clause 31.

#### **Responsiveness of Bids**

- 30.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself.
- 30.2 A substantially responsive Bid is one that conforms to all the terms, conditions, and specifications of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:
  - (a) affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
  - (b) limits in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
  - (c) if rectified would unfairly affect the competitive position of



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other bidders presenting substantially responsive bids.

- 30.3 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.

**Non-conformities,  
Errors, and  
Omissions**

- 31.1 Provided that a Bid is substantially responsive, the Purchaser may waive any non-conformities or omissions in the Bid that do not constitute a material deviation.
- 31.2 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.
- 31.3 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.

- 31.4 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be rejected.

**Preliminary  
Examination of  
Bids**

- 32.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 11 have been provided, and to determine the completeness of each document submitted.
- 32.2 The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these

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documents or information is missing, the offer shall be rejected.

- (a) Bid Submission Form, in accordance with ITB Sub-Clause 12.1;
- (b) Price Schedules, in accordance with ITB Sub-Clause 12.2;
- (c) Bid Security or Bid Securing Declaration, in accordance with ITB Clause 21, if applicable.

**Examination of  
Terms and  
Conditions;  
Technical  
Evaluation**

- 33.1 The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation.
- 33.2 The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clause 18, to confirm that all requirements specified in Section VI, Schedule of Requirements of the Bidding Documents have been met without any material deviation or reservation.
- 33.3 If, after the examination of the terms and conditions and the technical evaluation, the Purchaser determines that the Bid is not substantially responsive in accordance with ITB Clause 30, it shall reject the Bid.

**Conversion to  
Single Currency**

- 34.1 For evaluation and comparison purposes, the Purchaser shall convert all bid prices expressed in amounts in various currencies into an amount in a single currency **specified in the BDS**, using the selling exchange rates established by the source and on the date **specified in the BDS**.

**Domestic  
Preference**

- 35.1 Domestic preference shall not be a factor in bid evaluation, unless otherwise **specified in the BDS**.

**Evaluation of Bids**

- 36.1 The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive.
- 36.2 To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined in ITB Clause 36. No other criteria or methodology shall be permitted.
- 36.3 To evaluate a Bid, the Purchaser shall consider the following:
  - (a) evaluation will be done for Items or Lots, 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

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accordance with ITB Sub-Clause 31.3;

- (c) price adjustment due to discounts offered in accordance with ITB Sub-Clause 14.4;
- (d) adjustments due to the application of the evaluation criteria **specified in the BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria;
- (e) adjustments due to the application of a margin of preference, in accordance with ITB Clause 35 if applicable.

36.4 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.

36.5 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 Clause 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 Section III, Evaluation and Qualification Criteria. The factors, methodologies and criteria to be used shall be as specified in ITB 36.3 (d).

36.6 If so **specified in the BDS**, these Bidding Documents shall allow Bidders to quote separate prices for one or more lots, and shall allow the Purchaser to award one or multiple lots to more than one Bidder. The methodology of evaluation to determine the lowest-evaluated lot combinations, is specified in Section III, Evaluation and Qualification Criteria.

#### **Comparison of Bids**

37.1 The Purchaser shall compare all substantially responsive bids to determine the lowest-evaluated bid, in accordance with ITB Clause 36.

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**Post qualification  
of the Bidder**

- 38.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid is qualified to perform the Contract satisfactorily.
- 38.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 19.
- 38.3 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 capabilities to perform satisfactorily.

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

- 39.1 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.

**Award of Contract**

**Award Criteria**

- 40.1 The Purchaser shall award the Contract to the Bidder whose offer 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.

**Purchaser's Right  
to Vary  
Quantities at  
Time of Award**

- 41.1 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 VI, 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.

**Notification of  
Award**

- 42.1 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.
- 42.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.
- 42.3 The Purchaser shall publish in UNDB online and in the dgMarket the results identifying the bid and lot 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

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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 winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. After publication of the award, unsuccessful bidders may request in writing to the Purchaser for a debriefing seeking explanations on the grounds on which their bids were not selected. The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, after Publication of contract award, requests a debriefing.

- 42.4 Upon the successful Bidder's furnishing of the signed Contract Form and performance security pursuant to ITB Clause 44, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 21.4.

**Signing of Contract** 43.1 Promptly after notification, the Purchaser shall send the successful Bidder the Agreement and the Special Conditions of Contract.

- 43.2 Within twenty-eight (28) days of receipt of the Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.

- 43.3 Notwithstanding ITB 43.2 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, 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.

**Performance  
Security**

- 44.1 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, using for that purpose the Performance Security Form included in Section IX Contract forms, or another Form acceptable to the Purchaser. The Purchaser shall promptly notify the name of the winning Bidder to each unsuccessful Bidder and discharge the Bid Securities of the unsuccessful bidders pursuant to ITB Sub-Clause 21.4.

- 44.2 Failure of the successful Bidder to submit the above-mentioned

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Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid-Securing Declaration. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

Only for Viewing, for Bidding Purchase it from FMIS as IFB

## Section II. Bidding Data Sheet (BDS)

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

ITB Clause Reference	Data
	<b>A. General</b>
<b>ITB 1.1</b>	The Purchaser is <i>Joint Director, Flood Management Improvement Support Centre, Water Resources Department, 2nd Floor Jal Sansadhan Bhawan, Anisabad, Patna-800002, (India), Tel/fax: 0612-2256999, Email: fmisc_bihar@yahoo.co.in</i>
<b>ITB 1.1</b>	<p>The name of the ICB: <i>'Implementation (Supply, Installation including civil work, Testing, Commissioning, Operation and Maintenance etc) of a Real Time Data Acquisition System (RTDAS) for Bagmati - Adhwara basin in Bihar, India'</i></p> <p>Identification Number of the ICB:- <b>FMIS- II /01/ 2011-12</b></p> <p>The number, identification and names of the lots comprising this ICB: <i>FMIS- II /01/2011-12 comprises single lot.</i></p>
<b>ITB 2.1</b>	The Borrower is <i>Water Resources Department (WRD), Govt. of Bihar, Patna</i>
<b>ITB 2.1</b>	The name of the Project: <i>Bihar: FMIS Phase-II (Grant No.:096841 TF)</i>
<b>ITB 4.3</b>	A list of firms debarred from participating in World Bank projects is available at <a href="http://www.worldbank.org/debarr">http://www.worldbank.org/debarr</a>
	<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:</p> <p>Attention: <i>Joint Director, Flood Management Improvement Support Centre</i>  Address: <i>2nd floor, Jal Sansadhan Bhawan, Anisabad</i>  City: <i>Patna</i>  Pin Code: <i>800002</i>  Country: <i>India</i>  Telephone: <i>0612 2256999</i>  Facsimile No. : <i>0612 2256999</i>  Electronic mail address: <i>fmisc_bihar@yahoo.co.in</i></p>

<b>ITB 7.2</b>	<p>The pre-bid meeting shall take place at: <i>Office of Joint Director, Flood Management Improvement Support Centre</i>  Address: <i>2nd floor, Jal Sansadhan Bhawan, Anisabad</i>  City: <i>Patna</i>  Pin Code: <i>800002</i>  Country: <i>India</i>  Telephone: <i>0612 2256999</i>  Facsimile No. : <i>0612 2256999</i>  Electronic mail address: <i>fmisc_bihar@yahoo.co.in</i>  Date: <i>02 /12 / 2011</i>  Time: <i>1100 hrs (IST)</i></p>
	<b>C. Preparation of Bids</b>
<b>ITB 10.1</b>	The language of the bid is <b>English</b> .
<b>ITB 11.1(h)</b>	<p>The Bidder shall submit the following additional documents in its bid:</p> <ol style="list-style-type: none"> <li><i>1. Operation and maintenance plan for 5 (five) years in accordance with TS para 5.8</i></li> <li><i>2. Training course plan, in accordance with TS para 5.9</i></li> <li><i>3. Manufacturer's certificate for equipments proposed regarding model is well proven and widely used, produced by a primary brand name and tested in large number of installations including model being in production at least 2 years, in accordance with TS para 5.2.</i></li> <li><i>4. Diagrams showing the application of grounding and surge protection with model, make and manufacturer, in accordance with TS para 5.1.5</i></li> <li><i>5. Details and standard drawings for civil works, in accordance with TS para 5.1.3.</i></li> <li><i>6. A letter from the manufacturer that all equipment's being provided, spares would be available for a minimum of 10 years after the commissioning of RTDAS</i></li> </ol>
<b>ITB 13.1</b>	Alternative bids <i>shall not be considered</i> .
<b>ITB 14.5</b>	The Incoterms edition is <i>Incoterms 2000</i>
<b>ITB 14.6 (b) (i) and (c) (iii)</b>	Place of Destination : <i>As per details given in Appendix A and drawings showing the locations of the proposed RTDAS stations (Figure 1 to 5). However, destination for data centre equipments would be FMISC Anisabad, Patna.</i>
<b>ITB 14.6 (a) (iii);(b)(ii) and (c)(v)</b>	Final destination (Project Site): <i>As per details given in Appendix A and drawings showing the locations of the proposed RTDAS stations (Figure 1 to 5).</i>
<b>ITB 14.6</b>	In addition to the CIP price specified in ITB 14.6 (b)(i), the price of the Goods



<b>(b) (iii)</b>	manufactured outside the Purchaser's Country shall be quoted: <i>FOB</i>
<b>ITB 14.7</b>	The prices quoted by the Bidder <i>shall not</i> be adjustable.
<b>ITB 14.8</b>	<p><i>Prices quoted for each lot shall correspond at least to 100 % of the items specified for each lot.</i></p> <p><i>Prices quoted for each item of a lot shall correspond at least to 100 % of the quantities specified for this item of a lot.</i></p> <p><i>The bid is being requested as a single lot / system and prices should be quoted for the full system as per the technical specifications.</i></p>
<b>ITB 14.9</b>	<p>Bidders may like to ascertain availability of Deemed Export or other Benefits. They are solely responsible for obtaining such benefits which they have considered in their bid and in case of failure to receive such benefits for reasons whatsoever, the Purchaser will not compensate the bidder separately.</p> <p><i>Where the bidder has quoted taking into account such benefits, he must give all information required for issue of the Project Authority/ Payment and other Certificates in terms of the Import Export Policy or Central Excise Notifications along with his bid in Form Serial No. 8 of Section VI. The Project Authority/payment/other Certificates will be issued on this basis only and no subsequent change will be permitted. Where such Certificates are issued by the Purchaser, Excise Duty will not be reimbursed separately. Bids which do not conform to this provision, will be treated as non-responsive and rejected.</i></p>
<b>ITB 15.1</b>	The Bidder is required to quote in the currency of the Purchaser's Country the portion of the bid price that corresponds to expenditures incurred in that currency.
<b>ITB 18.3</b>	Period of time the Goods are expected to be functioning (for the purpose of spare parts): <i>ten years after Final Acceptance.</i>
<b>ITB 19.1(a)</b>	Manufacturer's authorization is <i>required</i>
<b>ITB 19.1(b)</b>	After sales service is <i>required</i>
<b>ITB 20.1</b>	The bid validity period shall be <i>120 days.</i>
<b>ITB 21.1</b>	Bid shall include a Bid Security (issued by bank) included in Section IV Bidding Forms.
<b>ITB 21.2</b>	The amount of the Bid Security shall be ₹ 1,200,000/- or its equivalent in a freely convertible currency.
<b>ITB 22.1</b>	In addition to the original of the bid, the number of copies is <i>Five (5)</i>

	<b>D. Submission and Opening of Bids</b>
<b>ITB 23.1</b>	Bidders <i>shall not</i> have the option of submitting their bids electronically.
<b>ITB 23.1(b)</b>	If bidders shall have the option of submitting their bids electronically, the electronic bidding submission procedures shall be: <b><i>Not applicable</i></b>
<b>ITB 23.2(c)</b>	The inner and outer envelopes should clearly state the detail of procurement and bear a warning 'NOT TO BE OPENED BEFORE (time and date of bid opening)'.
<b>ITB 24.1</b>	<p>For <b><u>bid submission purposes</u></b> only, the Purchaser's address is :</p> <p>Attention: <i>Joint Director, Flood Management Improvement Support Centre</i>  Address: <i>2nd floor, Jal Sansadhan Bhawan, Anisabad</i>  City: <i>Patna</i>  Pin Code: <i>800002</i>  Country: <i>India</i>  Telephone: <i>0612 2256999</i>  Facsimile No. : <i>0612 2256999</i>  Electronic mail address: <i>fmisc_bihar@yahoo.co.in</i></p> <p><b>The deadline for bid submission is:</b>  Date: <i>21<sup>st</sup> December 2011</i>  Time: <i>15:00 hrs (IST).</i></p>
<b>ITB 27.1</b>	<p>The bid opening shall take place at:</p> <p><i>Office of Joint Director, Flood Management Improvement Support Centre</i>  Address: <i>2nd floor, Jal Sansadhan Bhawan, Anisabad</i>  City: <i>Patna</i>  Pin Code: <i>800002</i>  Country: <i>India</i>  Telephone: <i>0612 2256999</i>  Facsimile No. : <i>0612 2256999</i>  Electronic mail address: <i>fmisc_bihar@yahoo.co.in</i>  Date: <i>21<sup>st</sup> December 2011</i>  Time: <i>15:30 hrs (IST).</i></p>
<b>ITB 27.1</b>	If electronic bid submission is permitted in accordance with ITB sub-clause 23.1, the specific bid opening procedures shall be: <b><i>Not applicable</i></b>
	<b>E. Evaluation and Comparison of Bids</b>
<b>ITB 34.1</b>	Bid prices expressed in different currencies shall be converted in <i>Indian</i>

	<p><i>National Rupee (INR)</i></p> <p>The source of exchange rate shall be <i>State Bank of India BC Selling Rate</i>.</p> <p>The date for the exchange rate shall be <i>deadline for submission of bids</i></p>
<b>ITB 35.1</b>	Domestic preference <i>shall not</i> be a bid evaluation factor.
<b>ITB 36.3(a)</b>	<p>Bids will be evaluated for total cost of the bid.</p> <p>Note: The bidders are requested to read the technical specifications and quote a lump sum price for the establishment of RTDAS system. The Line items do not generally give a full description of the System to be supplied, installed, and operationally accepted, or the Services to be performed under each item. However, it is assumed that Bidders shall have read the Technical Requirements and other sections of these Bidding Documents to ascertain the full scope of the RTDAS System and provide a complete price for the system.</p> <p>In addition to the complete quote for the system, bidders are requested to indicate the unit price against the items indicated in the schedule which would form the basis for any increase or decrease in the quantity of such line items.  <b>The quoted rates and prices shall be deemed to cover the full scope of these Technical Requirements, as well as overhead and profit.</b></p> <p>For bid evaluation, the cost quoted for the Annual Maintenance Contract will be included. For this item the rate quoted will be discounted using a rate of 10% to Net Present Value, and the discounted total used in the evaluation.</p>
<b>ITB 36.3(d)</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: <b>No</b></li> <li>(b) Deviation in payment schedule: <b>No</b></li> <li>(c) The cost of major replacement components, mandatory spare parts, and service: <b>Yes</b></li> <li>(d) The availability in the Purchaser's Country of spare parts and after-sales services for the equipment offered in the bid: <b>Yes</b></li> <li>(e) The projected operating and maintenance costs during the life of the equipment: <b>No</b></li> <li>(f) The performance and productivity of the equipment offered: <b>No</b></li> </ul>
<b>ITB 36.6</b>	Bidders <b>shall not</b> be allowed to quote separate prices for one or more lots.

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	<b>F. Award of Contract</b>
<b>ITB 41.1</b>	At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of sub items and Related Services originally specified in Section VI, Schedule of Requirements by 20 %, and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.

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

This Section complements the Instructions to Bidders. It contains the criteria that the Purchaser may use to evaluate a bid and determine whether a Bidder has the required qualifications. No other criteria shall be used.

### **Contents**

1. Domestic Preference (ITB 35.1)
2. Evaluation Criteria (ITB 36.3 (d))
3. Multiple Contracts (ITB 36.6)
4. Post qualification Requirements (ITB 38.2)

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## 1. Domestic Preference (ITB 35.1)

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

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

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

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

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

All evaluated bids in each group will then be compared to determine the lowest evaluated bid of each group. Such lowest evaluated bids shall be compared with each other and if as a result of this comparison a bid from Group A or Group B is the lowest, it shall be selected for the award.

If, as a result of the preceding comparison, the lowest evaluated bid is from Group C, the lowest evaluated bid from Group C bids will then be further compared with the lowest evaluated bid from Group A, after adding to the evaluated bid price of goods offered in the bid for Group C, for the purpose of further comparison only an amount equal to fifteen (15) percent of the CIP (named place of destination) bid price. The lowest-evaluated bid determined from this last comparison shall be selected for the award."

## 2. Evaluation Criteria (ITB 36.3 (d))

The Purchaser's evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.6, one or more of the following factors as specified in ITB Sub-Clause 36.3(d) and in BDS referring to ITB 36.3(d), using the following criteria and methodologies.

- (a) Delivery schedule: No deviation in delivery schedule

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The Goods specified in the List of Goods are required to be delivered within the acceptable time range (after the earliest and before the final date, both dates inclusive) specified in Section VI, Delivery Schedule. No credit will be given to deliveries before the earliest date, and bids offering delivery after the final date shall be treated as non responsive. Similarly no credit will be given to deliveries within the acceptable period.

- (b) No deviation in payment schedule is allowed.
- (c) Cost of major replacement components, mandatory spare parts, and service: The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation specified in the BDS Sub-Clause 18.3 shall be identified by the bidder along with their unit cost and an adjustment equal to the total cost of these items, shall be added to the bid price, for evaluation purposes only. Similarly, the operation and maintenance costs and GSM/GPRS usage fees for five years shall be added to the bid price for bid evaluation only. **The cost quoted for the Annual Maintenance Contract (AMC) shall be discounted at the rate of 10% to a Net Present Value and included for bid evaluation only.**
- (d) Availability in the Purchaser's Country of spare parts and after sales services for equipment offered in the bid and an adjustment equal to the cost to the Purchaser of establishing the minimum service facilities and parts inventories, as outlined in BDS Sub-Clause 36.3(d), if quoted separately, shall be added to the bid price, for evaluation purposes only.
- (e) Projected operating and maintenance costs during the life of equipments: **No.**

### 3. Multiple Contracts (ITB 36.6)

Not applicable as bid consists of single lot.

### 4. Post qualification Requirements (ITB 38.2)

After determining the lowest-evaluated bid in accordance with ITB Sub-Clause 37.1, the Purchaser shall carry out the post qualification of the Bidder in accordance with ITB Clause 38, 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) Financial Capability

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

- i. Capacity to have a cash flow - The bidder must provide a letter from a reputed bank stating the availability of liquid assets and/or credit facilities exclusively for this contract only, of no less than **INR -7.5 Million**. In the case of joint Ventures, the cumulative liquid assets of the members of joint venture will be considered.

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ii. The Minimum required annual turnover in respect of supply, Installation and commissioning of goods for the successful bidder in any two of the last five (5) years shall be of **INR 25** Million. In the case of joint Ventures, the cumulative turnover of the members of joint venture will be considered, but each member of joint venture must at least meet 40% of this requirement.

**(b) Experience and Technical Capacity**

The bidder should be a manufacturer who must have manufactured, tested and supplied the equipment (s) similar to the offered type specified in the 'schedule of requirements' up to at least 50 sensors coupled with a datalogger in any one of the last 3 years. The equipment offered should strictly conform to or exceed the product specification and be in satisfactory operation for 6 months as on date of bid opening. Further, bidder should be in continuous business of manufacturing products similar to that specified in the schedule of requirements during the last three years prior to bid opening.

Bids of bidders quoting as authorized representative of an equipment manufacturer, meeting with the above requirement in full, can also be considered provided :

(i) the manufacturer furnishes authorization in the prescribed format assuring full guarantee and warranty obligations as per GCC and SCC and

(ii) the bidder, as authorized representative, of the manufacturer, has supplied, installed and commissioned satisfactorily at least 15 of the quantity similar to the type specified in the Schedule of Requirements in any one of the last three years which must be in satisfactory operation for at least 6 months on the date of bid opening. The bidder must provide evidence of providing maintenance services for the above type of sensors coupled with data logger installations in at least ONE centre in the Country for over one year. In case the bidder is unable to provide evidence for maintaining such systems the bidder should provide a plan for provision of after sales service and annual comprehensive maintenance for the next five years along with the evidence of maintaining instruments using similar technology (a sensor coupled with the data logger) with similar coverage and amounting to at least 70% of the total cost of the offered bid in any one of the last three years.

(iii) The bidder shall guarantee that adequate specialized maintenance capability and expertise will be made available in the country.

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

The list of supplied & installed equipment's shall include:

i. Name and address of Purchaser with contact details as email address/ phone No

ii. Contract no and date



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iii. Equipment's /items ordered/supplied & installed with their respective quantities.

iv. Scheduled completion date and actual completion date

v. Details of Complaint, if any, received from the purchaser about the performance of the Equipment's /items

All the equipment's need not be in one contract, it could be in different contracts.

(c) The Bidder shall furnish documentary evidence to demonstrate that the Goods it offers meet the following usage requirement and also the usage requirements specified in Technical Specifications of this bidding document.

i. Flow, level, velocity and cross section etc.

ii. Control panels etc.

In case the bidder is not the manufacturer or producer of the goods it offers to supply and has submitted the bid in accordance with ITB clause 19.1 (b), the bid shall include the above information about the manufacturer whose goods has been offered

The Manufacturer/bidder should furnish the information on all past supplies and satisfactory performance for both (a) and (b) above duly supported with relevant documentation.

(d) Bids from two or more firms as Joint Venture partners shall comply with the following requirements:

(i) The bid, and in case of a successful bid the Form of Agreement, shall be signed by all the partners so as to be legally binding on all partners;

(ii) One of the partners shall be nominated as being in-charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all partners;

(iii) The partner in-charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the Joint Venture and the entire execution of the contract including payment shall be done exclusively with the partner in-charge;

(iv) Bid and performance securities of a Joint Venture must be in the name of Joint Venture submitting the bid;

(v) All partners of the Joint Venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under (ii) above as well as in the Form of Bid and in the Form of Agreement (in the case of a successful bid);

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(vi) In the event of any default by any partner/partners of Joint Venture, the other partner/partners shall accept the liability and execute the contract in full;

(vii) Responsibilities in respect of supply of the lead firm as well as each of the Joint Venture partners shall be clearly indicated in the JV agreement;

(viii) The Joint Venture agreement shall not be cancelled or amended unilaterally without consent of the Purchaser and a statement to this effect should appear in the JV agreement;

(ix) A copy of the JV agreement entered into by the Joint Venture partners and registered shall be submitted with the bid; Alternatively a letter of intent to execute a JV agreement in the event of a successful bid shall be signed by all partners and submitted with the bid together with a copy of proposed agreement;

(x) The JV partner in-charge should be responsible for supply of at least up to 40% of the total requirement. The other partners shall be responsible for not less than 25% of the total requirement.

(xi) Reports on the financial standing of each partner including profit and loss statements, balance sheets and auditor's reports for the past 5 years, and an estimated financial projection for the next two years shall be furnished along with the bid;

(xii) A firm can submit only one bid in the same bidding process, either individually as a bidder or as a partner of a Joint Venture. A bidder who submits or participates in more than one bid will cause all the bids in which the bidder has participated to be disqualified.

(xiii) Bids from agents are not acceptable in the case of JV and such bids will be treated as non-responsive.

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## **Proforma1**

### **FORMAT FOR QUALIFICATION APPLICATION**

All the bidders must submit the qualification application along with the information in the following formats together with the relevant documentation:

#### **FINANCIAL BUSINESS AND TECHNICAL CAPABILITY**

Name and address of Bidder

Phone:

Telex:

Fax :

1. Latest Balance Sheet filed with-----on-----

(Attach audited copies of annual accounts of past 5 years. Indigenous bidders to attach copy of accounts audited under section 44 AB of Income Tax Act. In case the accounts are not required to be audited, the information in this statement should be attested by a Chartered Accountant or Manager of a reputable Bank.

2. Latest Profit & Loss Statement from-----to-----filed with-----on----- (Attach an audited copy)

3. Net Sales (in respective currency)

- a) Current period
- b) During the last financial year
- c) During the year before last financial year

4. Bidders' Financial arrangements (check appropriate item)

- a) Own Resources
- b) Bank Credits
- c) others (specify)

5. Certificate of Financial Soundness from bankers of Bidders.

6. Income Tax clearance [for Bidders from India only]

Please enclose copies of following documents:

- a) Details of Income Tax registration; and
- b) Last Income Tax clearance certificate

7. SALES:

- a) Value of current orders to be executed in respective currency
  - i) Govt. Department
  - ii) Commercial

---

b) Value of anticipated sales for next financial year in respective currency

i) Govt. Department

ii) Commercial

8. Licensed capacity to manufacture

Description of equip.	Size cap.	Licensed capacity	No. of Units Manufactured		
			Current Yr	Last Yr	2nd Last Yr

9. List, if any of bidder's rate contract with the following organizations:

	Organization	Yes/No	If Yes, date contract finalized
a.	Directorate General of Supplies and Disposal, Government of India		
b.	Central equipment Stores Purchase Organization for state Governments		
c.	Others		

## **Proforma2**

### **CAPABILITY STATEMENT OF PERSONNEL, EQUIPMENT, PLANT AND PAST PERFORMANCE**

1. Name and address of the bidder

Phone :

2. Classifications:

Circle what is applicable

1) Manufacturer

2) Authorized Agent

3) Dealer

4) Others, please specify

3. Plant:

a) Location

b) Description, Type and size of building

c) Is property on lease or free hold? If on lease indicate date of expiry of lease in each case.

4.

a) Type of equipments relevant to this bid/assignment manufactured and supplied during last 5 years

Name of equipment	Capacity/ Size	Nos. Manufactured	Projects to which supplies are made	No. of orders on hand	Are the equipments functioning satisfactorily? (Attach a certificate from the Purchaser)

b) Type of equipments relevant to this bid/assignment manufactured, supplied, installed and commissioned during last 5 years.

Name of equipment	Capacity/ Size	Nos. Manufactured	Projects to which supplied, installed and commissioned	No. of orders on hand	Are the equipments functioning satisfactorily? (Attach a certificate from the Purchaser)

5. a) Types of equipments relevant to this bid/assignment supplied during last 5 years other than those covered under 4 (a) & 4 (b) above.

Name of equipment	Capacity / Size and model	Nos. Manufactured and Country of origin	Total Nos. supplied in India	Projects to which supplies are made	No. of orders on hand	Are the equipments functioning satisfactorily? (Attach a certificate from the Purchaser)

- b) Type of equipments relevant to this bid/assignment supplied, installed and commissioned during last 5 years other than those covered under 4 (a) and (b) above

Name of equipment	Capacity / Size and model	Nos. Manufactured and Country of origin	Total Nos. supplied in India	Projects to which supplies are made	No. of orders on hand	Are the equipments functioning satisfactorily? (Attach a certificate from the Purchaser)

6. Plant facilities:

	<u>Sq. Meter</u>	<u>Remarks</u>
a) Space available for manufacture	----- ---	
b) Space available for storage	----- ---	
c) Space available for inspection items offered	----- ---	
d) Space available for storage items offered	----- ---	
e) Are buildings fire resistant?		Yes/ No
f) Are premises approved by Municipal fire Production?		-----
g) Are buildings under Municipal fire Productions?		-----

- 
- h) Are power and fuel supply adequate to meet production requirements? -----
  - i) Are adequate transportation facilities available? -----
  - j) Are safety measures adequate for performance of proposed contract? -----
  - k) Is adequate material handling available? -----

7. Details of testing / Quality Control facilities available

- a. List testing-equipment available
- b. Give details of tests which can be carried out on items offered.
- c. Details of the testing / Quality Control organization available.

8. Personnel/ Organization:

- 1. Production
- 2. Marketing
- 3. Installation and Commissioning
- 4. Service
- 5. Spare parts
- 6. Administrative

9. Nearest service center to Purchaser:

Location.....  
Phone No.....

10. Details of organization at Service Centre

- a) No. of skilled employees -----
- b) No. of unskilled employees -----
- c) No. of engineering employees -----
- d) No. of administrative employees -----
- e) List of special repair/ workshop facility available -----

- 
- f) The storage space available for spare parts -----Sq.m
- g) Value of minimum stock of spares available at all -----  
the service centers in respective currency -
- h) List of the models/ types by number of equipment serviced by the center in last 2 years.

11. Names of two buyers to whom similar equipment are supplied installed and commissioned in the past and to whom reference may be made by the purchaser regarding the bidder's technical and delivery ability :

1. -----

2. -----

12. List of components usually subcontracted.....

13. Schedules for furnishing technical data and certified drawings after receipt of orders.....

14. Workload as percentage of total capacity for the current and forthcoming financial year on quarterly basis.....

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### **Proforma 3**

(Name of the Project)

(Declaration regarding Deemed Export Benefits)

(Bidder's Name and Address):

To: .....

(Name of the Purchaser)

Dear Sir:

1. We confirm that we are solely responsible for obtaining deemed export benefits which we have considered in our bid and in case of failure to receive such benefits, Purchaser will not compensate us.
2. We are furnishing below the information required by the Purchaser for issue of Project Authority/Payment certificate in terms of the Export and Import Policy of the Government of India:

- |     |       |  |  |
|-----|-------|--|--|
| (A) | (i)   | Value of import content of supply to be made by the Bidder:                                | Rs. _____<br>(exchange rate one US\$ = Rs ____)          |
| (B) | (i)   | Name of the sub-contractor, if any, and whose name is to be included in the main Contract: | _____<br>_____   |
|     | (ii)  | Description, quantity and value of the goods to be supplied by the above sub-contractor:   | Description _____<br>Quantity _____<br>Value (Rs.) _____ |
|     | (iii) | Value of import content of supply to be made by the sub-contractor:                        | Rs. _____<br>(exchange rate one US\$ = Rs ____)          |

*(The requirements listed above are as per current Export and Import Policy of Government of India. These may be modified, if necessary, in terms of the Export and Import Policy in force.)*

Date: \_\_\_\_\_ (Signature) \_\_\_\_\_

Place: \_\_\_\_\_ (Printed Name) \_\_\_\_\_

\_\_\_\_\_ (Designation) \_\_\_\_\_

(Common Seal) \_\_\_\_\_

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## Section IV. Bidding Forms

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## 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.: *[insert number of bidding process]*

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

1. Bidder's Legal Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each party: <i>[insert legal name of each party 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 Legal Address in Country of Registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.  <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB Sub-Clause 4.1.  <input type="checkbox"/> In case of government owned entity from the Purchaser's country, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB Sub-Clause 4.5.

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## Joint Venture Partner Information Form

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

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

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

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

1. Bidder's Legal Name: <i>[insert Bidder's legal name]</i>
2. JV's Party legal name: <i>[insert JV's Party legal name]</i>
3. JV's Party Country of Registration: <i>[insert JV's Party country of registration]</i>
4. JV's Party Year of Registration: <i>[insert JV's Party year of registration]</i>
5. JV's Party Legal Address in Country of Registration: <i>[insert JV's Party legal address in country of registration]</i>
6. JV's Party Authorized Representative Information Name: <i>[insert name of JV's Party authorized representative]</i> Address: <i>[insert address of JV's Party authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Party authorized representative]</i> Email Address: <i>[insert email address of JV's Party authorized representative]</i>
7. Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation or Registration of firm named in 2, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.  <input type="checkbox"/> In case of government owned entity from the Purchaser's country, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB Sub-Clause 4.5.

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## Bid Submission Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated 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.: *[insert number of bidding process]*

Invitation for Bid No.: *[insert No of IFB]*

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

To: *[insert complete name of Purchaser]*

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda No.: \_\_\_\_\_ *[insert the number and issuing date of each Addenda]*;
- (b) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services \_\_\_\_\_ *[insert a brief description of the Goods and Related Services]*;
- (c) The total price of our Bid, excluding any discounts offered in item (d) below, is: \_\_\_\_\_ *[insert the total bid price in words and figures, indicating the various amounts and the respective currencies]*;
- (d) The discounts offered and the methodology for their application are:

**Discounts.** If our bid is accepted, the following discounts shall apply. \_\_\_\_\_ *[Specify in detail each discount offered and the specific item of the Schedule of Requirements to which it applies.]*

**Methodology of Application of the Discounts.** The discounts shall be applied using the following method: \_\_\_\_\_ *[Specify in detail the method that shall be used to apply the discounts]*;

- (e) Our bid shall be valid for the period of time specified in ITB Sub-Clause 20.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 24.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 44 and GCC Clause 18 for the due performance of the Contract;
- (g) We, including any subcontractors or suppliers for any part of the contract, have nationality from eligible countries \_\_\_\_\_ *[insert the nationality of the Bidder]*,

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*including that of all parties that comprise the Bidder, if the Bidder is a JV, and the nationality each subcontractor and supplier]*

- (h) We have no conflict of interest in accordance with ITB Sub-Clause 4.2;
- (i) Our firm, its affiliates or subsidiaries—including any subcontractors or suppliers for any part of the contract—has not been declared ineligible by the Bank, under the Purchaser's country laws or official regulations, in accordance with ITB Sub-Clause 4.3;
- (j) The following commissions, gratuities, or fees have been paid or are to be paid 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.”)

- (k) 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.
- (l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed: \_\_\_\_\_ *[insert signature of person whose name and capacity are shown]*  
In the capacity of \_\_\_\_\_ *[insert legal capacity of person signing the Bid Submission Form]*

Name: \_\_\_\_\_ *[insert complete name of person signing the Bid Submission Form]*

Duly authorized to sign the bid for and on behalf of: \_\_\_\_\_ *[insert complete name of Bidder]*

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

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## 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.]*

The bidders are requested to read the technical specifications and quote a lump sum price for the establishment of RTDAS system. The Line items do not generally give a full description of the System to be supplied, installed, and operationally accepted, or the Services to be performed under each item. However, it is assumed that Bidders shall have read the Technical Requirements and other sections of these Bidding Documents to ascertain the full scope of the RTDAS System and provide a complete price for the system. In addition to the complete quote for the system, bidders are requested to indicate the unit price against the items indicated in the schedule which would form the basis for any increase or decrease in the quantity of such line items. **The quoted rates and prices shall be deemed to cover the full scope of these Technical Requirements, as well as overhead and profit.**

## Price Schedule 1: Goods Manufactured Outside the Purchaser's Country, to be Imported

(Group C bids, goods to be imported)						Date: _____ ICB No: _____		
Currencies in accordance with ITB Sub- Clause 15						Alternative No: _____ Page N° _____ of _____		
1	2	3	4	5	6	7	8	9
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price CIP [insert place of destination] in accordance with ITB 14.6(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>RTDAS System as per the Technical Specifications consisting of major items as below</i>		<i>1</i>					
<i>1</i>	<i>Automated Rainfall Stations</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>
	<i>Data Logger with GPRS data communication</i>		<i>20</i>					
<i>2</i>	<i>Automated River Water Level (stage) and River Discharge Stations</i>							
	<i>Data Logger with GPRS data communication</i>							
	<i>(i) Bubbler system</i>		<i>6</i>					
	<i>(ii) Acoustic Doppler Current Profiler (ADCP) side looking</i>		<i>1</i>					
	<i>(iii) Acoustic Doppler Current Profiler (ADCP) down looking</i>		<i>2</i>					



3	Establishment of Data Center with GPRS Receiving Station and web dissemination portal including quality control function, design, manufacture, testing, delivery at Patna along with the software solution, associated interface wiring, termination, commissioning, site acceptance testing, supply of mandatory spares, etc. as per technical specifications		1					
	Rackmount Computer Server (1) for data collection over GPRS Internet Connection, Windows Server Software, Data Collection Software		1					
	Rackmount Computer Server (2) for Quality Control Process and Database, Windows Server Software, Time Series Software		1					
	Rackmount Computer Server (3) for Web Server to Disseminate data in real-time, Windows Server Software, Data Visualization (over the web) software		1					
	Computer Rack to mount all computer servers, UPS, Router, switches, etc.		1					
	Uninterruptable Power Supply		1					
	Router and firewall as specified in the tech.spec		1					
4	Current Meter		2					
5	Process Meters		4					
							Total Price	

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

## Price Schedule 2: Goods Manufactured Outside the Purchaser's Country, already imported

<div style="display: flex; justify-content: space-between;"> <div> <p>(Group C bids, Goods already imported)</p> <p>Currencies in accordance with ITB Sub-Clause 15</p> </div> <div> <p>Date: _____</p> <p>ICB No: _____</p> <p>Alternative No: _____</p> <p>Page N° _____ of _____</p> </div> </div>											
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 14.6(c)(i)	Custom Duties and Import Taxes paid per unit in accordance with ITB 14.6(c)(ii), [to be supported by documents]	Unit Price net of custom duties and import taxes, in accordance with ITB 14.6(c)(iii) (Col. 6 minus Col.7)	Price per line item net of Custom Duties and Import Taxes paid, in accordance with ITB 14.6(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 14.6(c)(v)	Sales and other taxes paid or payable per item if Contract is awarded (in accordance with ITB 14.6(c)(iv))	Total Price per line item (Col. 9+10)
	RTDAS System as per the Technical Specifications consisting of major items as below		1								
1	Automated Rainfall Stations	[insert country of origin of the Good]	[insert quoted Delivery Date]	[insert number of units to be supplied and name of the physical unit]	[insert unit price per unit]	[insert custom duties and taxes paid per unit]	[insert unit price net of custom duties and import taxes]	[insert price per line item net of custom duties and import taxes]	[insert price per line item for inland transportation and other services required in the Purchaser's country]	[insert sales and other taxes payable per item if Contract is awarded]	[insert total price per line item]
	Data Logger with GPRS data communication		20								
2	Automated River Water Level (stage) and River Discharge Stations										

	Data Logger with GPRS data communication										
	(i) Bubbler system		6								
	(ii) Acoustic Doppler Current Profiler (ADCP) side looking		1								
	(iii) Acoustic Doppler Current Profiler (ADCP) down looking		2								
3	Establishment of Data Center with GPRS Receiving Station and web dissemination portal including quality control function, design, manufacture, testing, delivery at Patna along with the software solution, associated interface wiring, termination, commissioning, site acceptance testing, supply of mandatory spares, etc. as per technical specifications		1								
	Rackmount Computer Server (1) for data collection over GPRS Internet Connection, Windows Server Software, Data Collection Software		1								
	Rackmount Computer Server (2) for Quality Control Process and Database, Windows Server Software, Time Series Software		1								

	Rackmount Computer Server (3) for Web Server to Disseminate data in real-time, Windows Server Software, Data Visualization (over the web) software		1								
	Computer Rack to mount all computer servers, UPS, Router, switches, etc.		1								
	Uninterruptable Power Supply		1								
	Router and firewall as specified in the tech.spec		1								
4	Current Meter		2								
5	Process Meters		4								
										Total Bid Price	

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

## Price Schedule 3: Goods Manufactured in the Purchaser's Country

Purchaser's Country <hr style="width: 100%;"/>		(Group A and B bids)		Date: _____ ICB No: _____ Alternative No: _____ Page N° _____ of _____					
Currencies in accordance with ITB Sub-Clause 15									
1	2	3	4	5	6	7	8	9	10
Line Item N°	Description of Goods	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price EXW	Total EXW price per line item (Col. 4x5)	Price per line item for inland transportation and other services required in the Purchaser's Country to convey the Goods to their final destination	Cost of local labor, raw materials and components from within 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 14.6(a)(ii))	Total Price per line item (Col. 6+7)
	<i>RTDAS System as per the Technical Specifications consisting of major items as below</i>		<i>1</i>						
<i>1</i>	<i>Automated Rainfall Stations</i>	<i>[insert quoted Delivery Date]</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>
	<i>Data Logger with GPRS data communication</i>		<i>20</i>						
<i>2</i>	<i>Automated River Water Level (stage) and River Discharge Stations</i>								
	<i>Data Logger with GPRS data communication</i>								
	<i>(i) Bubbler system</i>		<i>6</i>						
	<i>(ii) Acoustic Doppler Current Profiler (ADCP) side looking</i>		<i>1</i>						
	<i>(iii) Acoustic Doppler Current Profiler (ADCP) down looking</i>		<i>2</i>						

3	Establishment of Data Center with GPRS Receiving Station and web dissemination portal including quality control function, design, manufacture, testing, delivery at Patna along with the software solution, associated interface wiring, termination, commissioning, site acceptance testing, supply of mandatory spares, etc. as per technical specifications		1						
	Rackmount Computer Server (1) for data collection over GPRS Internet Connection, Windows Server Software, Data Collection Software		1						
	Rackmount Computer Server (2) for Quality Control Process and Database, Windows Server Software, Time Series Software		1						
	Rackmount Computer Server (3) for Web Server to Disseminate data in real-time, Windows Server Software, Data Visualization (over the web) software		1						
	Computer Rack to mount all computer servers, UPS, Router, switches, etc.		1						
	Uninterruptable Power Supply		1						
	Router and firewall as specified in the tech.spec		1						
4	Current Meter		2						
5	Process Meters		4						
									</

## Price and Completion Schedule 4 - Related Services

Currencies in accordance with ITB Sub-Clause 15						Date: _____
						ICB No: _____
						Alternative No: _____
						Page N° _____ of _____
1	2	3	4	5	6	7
Service N°	Description of Services (excludes inland transportation and other services required in the Purchaser's country to convey the goods to their final destination)	Country of Origin	Delivery Date at place of Final destination	Quantity and physical unit	Unit price	Total Price per Service (Col. 5*6 or estimate)
<i>[insert number of the Service ]</i>	<i>[insert name of Services]</i>	<i>[insert country of origin of the Services]</i>	<i>[insert delivery date at place of final destination per Service]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per item]</i>	<i>[insert total price per item]</i>
1	Training as per technical specifications			Lump sum		
2	Installation and commissioning of entire RTDAS system including civil works as per technical specifications					
	(i) Automated Rainfall stations			20		
	(ii) Automated River Water Level(stage) and River Discharge stations			7		
	(iii) Data Center with GPRS Receiving station			Lump sum		
3	Integration of real time data acquisition system and back-up acquisition system with manual entry as per technical specifications			Lump sum		
4	Inspections and tests as per technical specifications			Lump sum		
5	Tool kit for assembly, installation and maintenance as per technical specifications			Lump sum		
6	Manuals, documentation and reports as per technical specifications			Lump sum		
7	Initial maintenance upto Final Acceptance of the entire system as per technical specifications			Lump sum		
8	Operation and maintenance system during the 2 year warranty period following final acceptance			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]*

**Price Schedule- 5: Post Warranty Related Services**

Sl no.	Item Description	Qty	Unit Annual Maintenance and Repair Charges			Total all inclusive costs (col (3) times Annual charge)		
			Y3	Y4	Y5	Y3	Y4	Y5
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	Maintenance of all electronic devices sensors , civil and equipment parts of rain gauges and water level , with services to disseminate data using GSM / GPRS technology like sending SMS to all concern senior / Middle and Junior level officers , storage and generate reports in desired formats etc							
	Technical Services including							
(2)	i. Operating & maintenance staff [to be detailed]							
(3)	ii. Telecommunication costs							
(4)	iii. Identify other recurrent costs [as may apply]							
	TOTAL PRICE (In figure)							
	(In words)							



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**Note:- The costs of post-warranty related services (Annual Maintenance Contract or AMC) shall be a Criteria in the bid evaluation using a discounted Net Present Value (NPV) calculated using a discount rate of 10%.**

- (a) In case of discrepancy between unit price and total Price, the unit price shall prevail.
- (b) The Bidder shall give list of spares of three years operations separately indicating description, quantity, unit price and total price in the above format for those items whose scope of supply includes spares part as per technical specifications given in **Section-VI**.
- (c) The detailed operation & maintenance manual of the equipment supplied ( 2 nos) for each unit at each site shall be provided.
- (d) Rates quoted should be inclusive of all taxes.
- (e) All exterior material shall be of non corrosive Material with expected life time of minimum of 10 years.
- (f) The equipments shall comply with IS Standard or relevant International Standards.
- (g) For column 9, break-up of the cost of labour, raw materials and components provided from within India should also be indicated separately as specified in clause 14 of the Instructions to Bidders
- (h) Charges for annual maintenance for 3 years after warranty of 2 years should be quoted separately as indicated above in Price schedule

## Price Schedule- 6. Grand Summary

Item	Description	Total Price <sup>1</sup>	
		Foreign	Local
1.	Total Price Schedule No. 1.		
2.	Total Price Schedule No. 2.		
3.	Total Price Schedule No. 3.		
4.	Total Price Schedule No. 4.		
5.	Total Price Schedule No 5		
<b>TOTAL (to Bid Form)</b>			
	<b>Name of Bidder</b>		
	<b>Signature of Bidder</b>		

<sup>1</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 15. Create and use as many columns for max 3 Foreign Currency requirement as there are foreign currencies

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## Bid Security (Bank Guarantee)

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

\_\_\_\_\_  
*[Bank's Name, and Address of Issuing Branch or Office]*

**Beneficiary:** \_\_\_\_\_ *[Name and Address of Purchaser]*

**Date:** \_\_\_\_\_

**BID GUARANTEE No.:** \_\_\_\_\_

We have been informed that *[name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of *[name of contract]* under Invitation for Bids No. *[IFB number]* ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form; or (ii) fails or refuses to furnish the performance security, if required, in accordance with the Instructions to Bidders.

This guarantee will expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful bidder, or (ii) twenty-eight days after the expiration of the Bidder's Bid.

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

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

\_\_\_\_\_  
*[signature(s)]*

## Bid Security (Bid Bond)

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

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

BY THIS BOND *[name of Bidder]* as Principal (hereinafter called "the Principal"), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Purchaser]*, as Surety (hereinafter called "the Surety"), are held and firmly bound unto *[name of Purchaser]* as Obligee (hereinafter called "the Purchaser") in the sum of *[amount of Bond]*<sup>6</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 a written Bid to the Purchaser dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, for the construction of *[name of Contract]* (hereinafter called the "Bid").

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

- (a) withdraws its Bid during the period of bid validity specified in the Form of Bid; or
- (b) having been notified of the acceptance of its Bid by the Purchaser during the period of Bid validity; (i) fails or refuses to execute the Contract Form; or (ii) fails or refuses to furnish the Performance Security, if required, in accordance with the Instructions to Bidders.

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 as stated in the Invitation to Bid or extended by the Purchaser at any time prior to this date, notice of which extension(s) to the Surety being hereby waived.

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

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

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

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

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

<sup>6</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.

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## Bid-Securing Declaration

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

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

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

Alternative No.: *[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 Form 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.

Signed: *[signature of person whose name and capacity are shown]* In the capacity of *[legal capacity of person signing the Bid Securing Declaration]*

Name: *[complete name of person signing the Bid Securing Declaration]*

Duly authorized to sign the bid for and on behalf of: *[complete name of Bidder]*

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ *[date of signing]*  
Corporate Seal (where appropriate)

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

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## 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.: *[insert number of bidding process]*

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

To: *[insert complete name of Purchaser]*

### WHEREAS

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

We hereby extend our full guarantee and warranty in accordance with Clause 27 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]*

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## Section V. Eligible Countries

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

1. In accordance with Para 1.8 of the Guidelines: Procurement under IBRD Loans and IDA Credits, dated May 2004, the Bank permits firms and individuals from all countries to offer goods, works and services for Bank-financed projects. As an exception, firms of a Country or goods manufactured in a Country may be excluded if:

Para 1.8 (a) (i): as a matter of law or official regulation, 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 the Goods or Works required, or

Para 1.8 (a) (ii): 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 persons or entities in that Country.

2. For the information of bidders, at the present time firms, goods and services from the countries as specified in BDS referring to ITB 4.3 are excluded from this bidding.

## **PART 2 – Supply Requirements**



## Section VI. Schedule of Requirements

### Contents

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Only for Viewing, for Bidding Purchase it from FMIS as/FB

## List of Goods and Delivery Schedule

The procurement of RTDAS system as per the details of the technical specifications should be set up and the bidders are requested to quote for the complete system as a single source responsibility

Line Item No.	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery date
<b>1</b>	<b>Automated Rainfall Stations</b>						
	Data Logger with GPRS data communication	20	one set	Refer note 2 below this table	180 days following the date of effectiveness of the contract	270 days following the date of effectiveness of the contract  365 days following the date of effectiveness of the contract	
<b>2</b>	<b>Automated River Water Level (stage) and River Discharge Stations</b>						
	Data Logger with GPRS data communication				270 days following the date of effectiveness of the contract		
	(i) Bubbler system	6	one set	Refer note 2 below this table			
	(ii) Acoustic Doppler Current Profiler (ADCP) side looking	1	one set	Refer note 2 below this table			
	(iii) Acoustic Doppler Current Profiler (ADCP) down looking	2	one set	At field office (Bihar)			

Line Item No.	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery date
3	Establishment of Data Center with GPRS Receiving Station and web dissemination portal including quality control function, design, manufacture, testing, delivery at Patna along with the software solution, associated interface wiring, termination, commissioning, site acceptance testing, supply of mandatory spares, etc. as per technical specifications	1	one set	At Patna (Bihar)			
	Rackmount Computer Server (1) for data collection over GPRS Internet Connection, Windows Server Software, Data Collection Software	1	one set	At Patna (Bihar)			
	Rackmount Computer Server (2) for Quality Control Process and Database, Windows Server Software, Time Series Software	1	one set	At Patna (Bihar)			
	Rackmount Computer Server (3) for Web Server to Disseminate data in real-time, Windows Server Software, Data Visualization (over the web) software	1	one set	At Patna (Bihar)			
	Computer Rack to mount all computer servers, UPS, Router, switches, etc.	1	one set	At Patna (Bihar)			
	Uninterruptable Power Supply	1	one set	At Patna (Bihar)			

Line Item No.	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery date
	<i>Router and firewall as specified in the tech.spec</i>	1	one set	At Patna (Bihar)			
4	Current Meter	2	one number	At Patna (Bihar)			
5	Process Meters	4	One set	At Patna (Bihar)			

**Note:** 1) The bidder shall fill in the column "Bidder's offered Delivery date", i.e., the number of days following the date of effectiveness of the Contract.

2) The Final (Project Site) Destination will be: As per details given in Appendix A and drawings showing the locations of the proposed RTDAS stations (Figure 1 to 5).

3) Set includes required sensors, data collection platform, solar power charging system & battery backup, grounding and surge protection, pole/mast and sensor supports and brackets, lightening protection, GPRS radio and antenna as per the requirement of particular category of stations or their combinations as specified in the Schedule of Requirements and as per the Technical Specifications

## 2. List of Related Services and Completion Schedule

Service No.	Description of Service	Quantity	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
1	Training as per technical specifications	Lump sum	Job	As specified in technical specifications	18 months following the date of effectiveness of the contract
2	Installation of entire RTDAS system including civil works as per technical specifications				
	(i) Automated Rainfall stations	20	one set	Refer note 2 below this table	15 months following the date of effectiveness of the contract
	(ii) Automated River Water Level(stage) and River Discharge stations	7	one set	Refer note 2 below this table	15 months following the date of effectiveness of the contract
	(iii) Data Center with GPRS Receiving station	Lump sum	Job	At Patna (Bihar)	15 months following the date of effectiveness of the contract
3	Integration of real time data acquisition system and back-up acquisition system with manual entry as per technical specifications	Lump sum	Job	As specified in Schedule of Requirements: Drawings	15 months following the date of effectiveness of the contract
4	Inspections and tests as per technical specifications	Lump sum	Job	As specified in Schedule of Requirements: Inspections and Tests	18 months following the date of effectiveness of the contract
5	Tool kit for assembly, installation and maintenance as per technical specifications	Lump sum	Job	At Patna (Bihar)	18 months following the date of effectiveness of the contract
6	Manuals, documentation and reports as per technical specifications	Lump sum	Job	At Patna (Bihar)	18 months following the date of effectiveness of the contract
7	Initial maintenance upto Final Acceptance of the entire system as per technical specifications	Lump sum	Job	As specified in Schedule of Requirements: Drawings	18 months following the date of effectiveness of the contract

Service No.	Description of Service	Quantity	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
8	Operation and maintenance system during 2 year warranty period	Lump sum	Job		24 months following the date of final acceptance
9	Annual Maintenance Contract	Lump sum	Job		36 months following the contract performance period of two years after commissioning & final acceptance of the system

**Note:** 1. Final completion period from the date of effectiveness of the Contract to Final Acceptance of the entire system is 18 (Eighteen) calendar months followed by a warranty period of 2 (two) years and then an annual maintenance period of 3 (three) years.

2. Places where services shall be performed: As per details given in Appendix A and drawings showing the locations of the proposed RTDAS stations (Figure 3 to 10).

3. The approximate size required for all categories of stations: 7m x 7m.

4. a) The approximate trench size for the bubbler line is 0.6 m wide x 1m deep and its average approximate length is 300 m. It may vary as per site situation.  
b) The average distance of RTDAS stations from Patna is approximately 150 km. The distance may vary as per actual locations of stations.

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### **3. Technical Specifications**

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### 3. Technical Specifications

#### 1. General

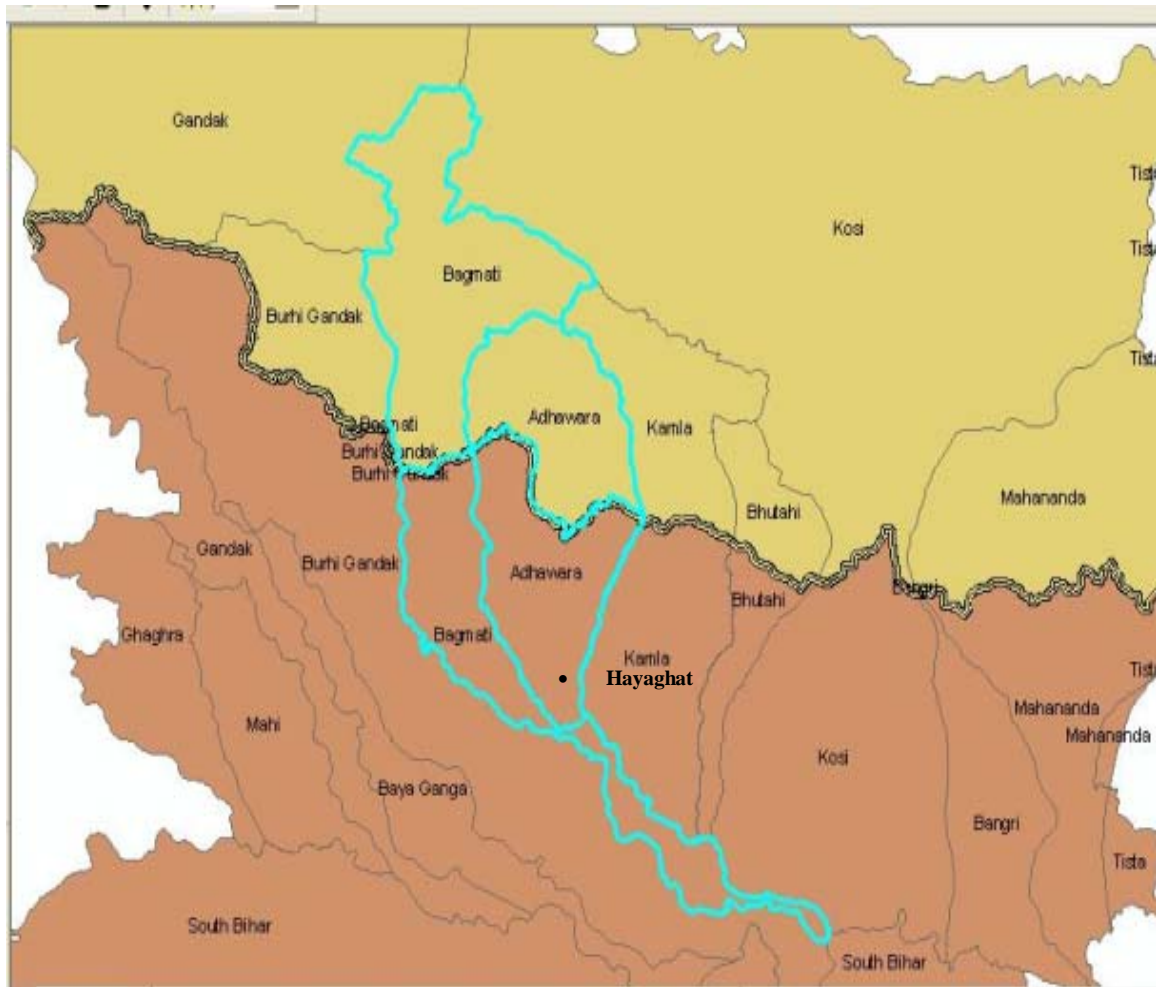
The State of Bihar is situated in the middle of Gangetic Plain and River Ganga flows through the State dividing it into two parts- North & South, popularly called as North Bihar & South Bihar (before bifurcation of Jharkhand this part was called Central Bihar). The state's rivers originate from the Himalayas in the north and from Chhotanagpur Hills and the Vindhya Ranges in the south traverse the State and join the river Ganga which is the master drainage channel of the State.

The State of Bihar is predominantly an agricultural State. Agriculture contributes about 47.6% towards Gross Domestic Products (GDP) of the State, while the share of agriculture in the GDP of the country is only 25 %. The state has plenty of plain and fertile land and sufficient water resources. Significant developments in the field of water resources have taken place. Notwithstanding all these facts, the state continues to remain one of the most economically backward states.

#### **Bagmati-Adhwara Basin Characteristics**

The Bagmati River originates in the Mahabharat range of mountains, at an altitude of 2700 m. Bagmati is embanked on both sides in between Khoripakar and Kalanjarghat to contain the shifting river course. The Darbhanga-Bagmati drains the Adhwara group of rivers as Adhwara, Jamura, Mohini, Khirai, Hardi, Rato, Dhaus, Jamuni, Bighi etc. Adhwara group of rivers originate from the foot hills of Himalayas in Nepal and join together to form two distinct drainage channels, mainly Khirai and Darbhanga-Bagmati. These two channels join together at Ekmighat, and after the confluence with Darbhanga-Bagmati, the river Bagmati is commonly known as Kareh. The reach between Kalanjarghat and Hayaghat is relatively stable and is embanked on both sides from Surmarhat to Hayaghat. The last reach of the river Bagmati, from Hayaghat to Khormaghat, is the longest reach of 191 km and is embanked on both sides, on the left bank from Hayaghat to Phuhia





**Fig.1 Bagmati-Adhwara basin**

and on the right bank from Hayaghat to Badlaghat, since 1951. After Badlaghat, the river flows eastward and outfalls in the river Kosi.

The total catchment area of the basin is about 14,384 Sq Km, with 6500 Sq Km in Bihar. Out of the total length of 597 km, 195 km lies in Nepal and the remaining portion in India. Flooding is mainly caused by the intense rainfall over its catchment that generates high volumes of run-off, which spills into the riverbank or breaches the embankment. The average annual rainfall of the catchment area is more than 1200 mm, mostly distributed between June and September.

## **2. Real Time Data Acquisition System (RTDAS)**

### **2.1 Objectives**

The objective of the real time data acquisition system for the Bagmati-Adhwara groups of river in North Bihar is to provide reliable hydrologic and hydromet information which is required to improve capabilities of flood management and flood forecasting. There are several objectives that are addressed within this specification document. The key objectives of the real time hydrologic data acquisition system consist of the following:

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- 1) Install new equipment capable of providing measurements in real time at proposed stations.
  - 2) Provide a number of rain-fall, river water level (stage), river discharge to improve assessments of hydrologic conditions in the Bagmati-Adhwara basin.
  - 3) Utilize GPRS data communications to relay data in real time.
  - 4) Contract station installation and maintenance to assure the proper operation of real time data acquisition system.
  - 5) Contract extensive training for WRD, Govt. of Bihar engineers to fully understand the operation of the equipment in the event Hydrology Directorate in conjunction with FMISC will assume operation and maintenance of the real time data acquisition system.
  - 6) Establish a real time data center at Patna.
  - 7) Acquire hardware and software to collect the hydrologic data in real-time through GPRS reporting stations as necessary to receive data from all proposed stations.
  - 8) Acquire software to evaluate the real time hydrologic data in real time before passing the information to dissemination and forecasting models.

## **2.2 General Technical Concept**

### **2.2.1 General Approach**

The concept of implementation on which the present technical specifications and special conditions are based intends to combine the advantages of modern Data Collection Platform (DCP), data storage, processing and data communication technologies with the requirements of high availability and sustainability required by such an important project. Preference will be given to robust, reliable technology. The real-time data acquisition system networks have the greatest possible reliability, thus minimizing the maintenance to the extent possible. Special protection against vandalism and possible theft should be kept consideration while planning for civil works.

The sensors based rainfall and gauge site should be combined within a single station which will eliminate the costs of GPRS communication and the recurring costs associated with these devices. This specifically means that it is encouraged to combine data from multiple stations through the use of wired or wireless technology to minimize the number of GPRS data transmission systems.

To minimize corrective maintenance and to increase the performance of the monitoring network, a well-organized preventative maintenance plan is highly recommended. The preventative maintenance is required for all system components as well as the infrastructure in place to house the electronic data collection components. A strong maintenance plan will be the foundation for sustaining the State of Bihar's monitoring network operation over the expected lifetime of the technology, which is considered to be 10-15 years.

The Govt. of Bihar has proposed the data communication by station, which is included in the Appendix A tables. Data communication will be GPRS. The bidder will be responsible for making all arrangements for the sites requiring GPRS. This includes, but is not limited to acquiring service, and maintaining all aspects of the service during the warranty period as well as the maintenance period.

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The Technical Specifications consist of the installation of the real time data acquisition system for the Bagmati-Adhwara river basins in North Bihar. This shall include the design, manufacture, factory testing, deliver to site, installation (including the associated interface wiring/termination), commissioning and site acceptance testing, supply of mandatory spares, training and documentation. Data Collection Platforms (DCP), monitoring system hardware and software shall interface and be fully integrated and tested with the new Receiving Station to be provided and established. The requirements are given below in respect of each major component of the system. The bidder shall ensure that the fundamental requirements stated in this document are not compromised. Further details are also provided in Inspections and Tests.

### 3. Scope of Work

The bidder shall be required to provide all of the following services for implementation of real time data acquisition system for the Bagmati-Adhwara river basins in Bihar:

- (1) Supply, installation, testing, commissioning of the real time hydrologic data collection network and establish data communications using GPRS between the remote stations and the data center. This includes, but is not limited to acquiring service, and maintaining all aspects of the service during the warranty period as well as the maintenance period.
- (2) Provide maintenance services for a three (3) year period to commence immediately after the warranty period of two (2) year. The warranty period begins after the Final Acceptance to include all components at the remote stations as well as all newly acquired equipments in the data center.
- (3) Provide installation and maintenance reports as required by the Purchaser.
- (4) Perform on-site assembly, start-up of the supplied goods.
- (5) Establish a GPRS Receiving Station to collect DCP data at Patna. This shall include a computer that will support the reception of GPRS data collection. This consists of acquiring all hardware and software, installation, configuration, operation and maintenance services for five years.
- (6) Establish data center at Patna to process information from the GPRS data stream. This includes the supply of high availability servers.
- (7) Provide software to be used in the data center at Patna. This software shall store data collected by the GPRS receive station as well as electronic data files or other forms of manually collected data. A non-proprietary software solution such as PostGreSQL is recommended to reduce out-year operating costs; however the bidder may propose other solutions. The software system will include data quality control that shall allow for the flagging and/or removal of data using threshold analysis. Easy to use interface allowing sensor by sensor quality control for threshold and rate of change data screening is required. The software will include a web based dissemination tool to allow for the viewing of graphs, plots and the export of data in comma separated variable (CSV) format. The software shall also export data to the DCP centre via XML tagged data (or some other non-proprietary format) in real time, but just after the data has been screened by the automatic data quality control process. Data delivery to the FMIS will be to a hot directory, with

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records being written to this directory after data is collected through GPRS. Hydrologic and Statistical validation is required.

- (8) Provide ancillary equipment to the data to route data through an intranet and provide backup resources, such as high availability hard disk drives capable of backing up all system software with 20 years of data.
- (9) Supply current meter to be used for flowing water velocity and thus discharge measurements in rivers as specified in the Equipment Specifications.
- (10) Supply tools required for assembly and maintenance of supplied goods.
- (11) Troubleshooting in case the system does not work with one or more than one stations. This includes, but is not limited to, DCP, sensors and accessories required in the operation of the real time data acquisition system.
- (12) Supply detailed operation and maintenance manual for each component in the system.
- (13) Provide classroom and field training to the sufficient number of engineers of WRD, Govt. of Bihar on the data acquisition system. This includes operation and maintenance procedures. Training will also occur at selected field locations as selected by the Purchaser. Video training shall also be provided as specified in later in this section
- (14) Provision for Warranty services for two years after the Final Acceptance of real time data acquisition system.
- (15) Provide discharge measurements using the ADCP and develop a rating curve for each site. Where the side-looking ADCP is used, the supplier shall measure the channel with the profiling ADCP to calibrate the side-looking system. Discharge measurements will be performed at the discretion of WRD.
- (16) A guarantee by the manufacturer that all equipment being provided will be supported for a minimum of five years after the commissioning of the real time data acquisition system.
- (17) Integrate with real time data acquisition system and back-up acquisition system with manual entry.
- (18) For procured software, all licenses and maintenance agreements should be in the name of Purchaser and should seek full support and updates for such software for the duration of the warranty period.

#### **4. Functional Requirements**

Transition to automated observations with real time data communication can lead to a discontinuity in the measurement record if the process is not specified and managed carefully. The benefits of automation with real time data communication include cost effectiveness, high frequency data, better ability to detect problems with measurements, faster access to data, consistency and objectiveness in measurement, and ability to perform automatic quality monitoring.

All selected sites should conform to the extent practical to WMO guidelines. The new real time data collection network sites have been proposed by the Govt. of Bihar. The State will be responsible for obtaining permission to use property. River stage will be logged every 15 minutes and transmit using both self-timed and random (event) transmission. Precipitation data (rainfall) will also be measured and

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logged every 15 minutes and transmitted using both self-timed and random transmissions. The receiving station shall collect the field data, store it and then pass the data to the data center and then on to the FMIS and long term data storage (see Figure 5.6).

The remote stations shall hold the data for at least one year, and shall record the latest data by replacing the oldest data.

## **5. Technical Specifications**

The following equipment specifications will apply for all stations listed in Appendix A and equipment listed below. All sensors shall have operating temperature from 0 to +60°C, relative humidity 0% to 95% non-condensing and located at an altitude ranging from sea level to 1000m. Improvements/modifications in the specifications as per suitability of technology adopted but for betterment and smooth running may be suggested. The complete tool kit for installation and routine maintenance along with manuals, documentation etc. in English shall be provided in sufficient numbers in hard copy and also in appropriate electronic format for all the documents. The documentation will include user's manuals and guidelines for operation and maintenance for all equipment and software components. The manuals shall also include the following:

- Specific equipment lay out
- A procedural handbook
- System block diagrams (logical connections)
- Wiring diagrams
- Interface specifications, including communication protocols and configuration models
- Software licenses

The bidder shall clearly specify any additional requirement other than what has been stated in the Technical Specification beforehand.

### **5.1 Real time Hydrologic Data Collection Network**

#### **5.1.1 Automated Rainfall Stations:**

This category describes either new or upgraded data collection stations that will measure precipitation and transmit this data to data center at Patna. The supplier shall provide bids for GPRS Data Communications. All rain gauges will be tipping bucket type gauges. There are no requirements to measure frozen precipitation.

The automated rainfall stations will often be remotely located. The bidder will be required to provide civil works for these sites which amounts to a pedestal and a secure data collection cabinet. At some sites FMIS Patna may request that the data collection system be placed inside a nearby building. In no instance will the bidder be required to put up buildings at the precipitation sites, but either use existing buildings or an instrument enclosure mounted to a mast on which the solar panel and transmitting antenna can also be mounted. The mast must be a suitable distance from the precipitation gauge being no closer to the gauge than twice the difference between the orifice and top of the mast. The precipitation stations will be placed within compounds owned by the Govt. of Bihar, Patna.



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The bidder will provide an enclosure along with required accessories to secure the DCP and radio and any other accessories needed for mounting the DCP or sensors. The bidder will provide a secure enclosure (lockable with lock and keys) to mount the data logger, telemetry radio/modem, batteries, solar charger and polyphasor. The enclosure must be water proof and sealed against the infestation of insects and rodents even if the enclosure is located in an existing building. All enclosures will be identical.

The rain gauge shall be mounted 0.8 to 1m above the ground and will be located in such a way where the WMO guidelines on exposure are followed (i.e. structures, trees cannot be closer than twice the difference between the orifice height and the height of the object).

### **Precipitation Gauge Specifications**

**The precipitation/rainfall sensor shall meet or exceed the following specifications:**

- Tipping bucket base and collector: durable and rigid of cast metal, moulded thermoplastic, FRP, Powder coated aluminum, or equivalent; galvanized iron sheet is not permitted
- Rim material: gun metal/ brass/ stainless steel or better
- Rainfall shall be measured using a tipping bucket method and shall be able to record rainfall cumulatively with the data collection platform
- Rainfall sensor shall be of such a design that it operates reliably and accurately under prevailing environmental and weather conditions
- Rain gauge is easy to operate and easy to calibrate
- Minimum expected operational lifetime shall be 15 years or greater
- Bucket capacity: 1 mm equivalent rainfall
- Focus on rainfall gauge is the accurate measurement of rainfall totals, not necessarily rainfall rates. The use of a siphon system to normalize rainfall rate to achieve accurate total rainfall or software which will normalize varying rainfall rates and errors caused by changing rainfall rates is specified
- Accuracy: 0-250 mm/hr within 2% and 250-500 mm/hr within 3% of reading for total precipitation
- Contact system using dual reed switches with varistor protection
- Insect covers on all openings
- Collecting funnel diameter: close to 200 mm internal diameter
- The gauge will have leg adjusters to set the level horizontally
- Certified calibration test document shall be included with every gauge. The calibration may be performed just prior to installation to assure accuracy of certified calibration test.
- Ability to service tipping bucket gauge without re-leveling the gauge.
- Calibration kit for tipping buckets (2 units)
- Necessary cables to connect precipitation gauge to data logger as required

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These specifications will also apply for all automated rainfall stations.

### **5.1.2 Automated River Stage/Discharge Stations**

This category describes either new or upgraded data collection stations that will measure river stage and river profile and then transmit this data to data center at Patna. The supplier will provide bids for GPRS Data Communications.

The bidder will provide all civil works for these stations, including a gauge house to protect the equipment from theft as well as environmental effects such as insect/rodent infestations or water intrusion. The gauge house will be made with brick or similar material and be 10 ft by 10 ft. A secure metal door will be used and will be equipped with a tamper-proof locking system. Bidder will provide exhibits of the locking system to be used. This information will be evaluated by FMIS. All cabling will be run within conduit, including the coaxial cable for the satellite transmitting antenna. No wire shall be exposed and thus exposing the wire being tampered. The bidder will provide an enclosure along with required accessories to secure the DCP and radio and any other accessories needed for mounting the DCP or sensors. The bidder will provide a secure enclosure (lockable with lock and keys) to mount the data logger, telemetry radio/modem, batteries, solar charger and polyphaser. The enclosure must be water proof and sealed against the infestation of insects and rodents even if the enclosure is located in an existing building. All enclosures will be identical, and match the instrument enclosures used for the precipitation stations.

The water measurement technology will either be a bubbler system or side-looking ADCP, with a profiling ADCP used to develop ratings and measure channel profiles. The supplier will be required to develop a stage/discharge curve at all sites. The precise sensor used is provided on a site by site basis as shown in Appendix A.

#### **5.1.2.1 Water Level and Discharge Sensors Specifications**

The WRD stations will employ a bubbler system for water level measurement at all but one site. The site not using a bubbler will use a side looking ADCP to measure instantaneous discharge. The type of technology to be applied is specified in Appendix A. The bubbler system shall be compatible with the data collection platform and capable of measuring once every minute. Discharge at the bubbler sites will be calculated using a stage-discharge table that shall be devised by the bidder using the stream gauging equipment specified later in this document. The ADCP shall be capable of providing real-time discharge measurements once every 15 minutes. The number of units required shall be established by the number of stations using a given technology as identified in Appendix A.

**(a) The bubbler system includes non-submersible pressure transducer, automatic bubble system, orifice line and orifice which shall meet or exceed the following specifications:**

- Continuous bubbler (line under pressure continuously) utilizing supply tank
- Bubble rate adjustable from 30 – 120 bubbles per minute
- Manual line purge with supply tank
- Output shall be SDI-12
- Range: 0 – 20 m water column or as required by the site for the measurement of the total range of water levels

- Water level sensor technology shall be a non-submersible pressure transducer that will be located in the gauge house
- Range of bubbler and pressure transducer shall be 30 psi. In the case that the range of water levels is greater than 20 m, an orifice manifold system with 5 m of orifice line overlap will be used to cover the entire range of water level with a single sensor. The manifold system does not need to be automated.
- Maintenance free operation (no desiccant replacement) for up to two years.
- Digital readout on pressure transducer with ability to set water level within the sensor
- Accuracy: 0.02% FSO or better
- Anodized pipe or similar material, orifice line and orifice cap will be supplied by the bidder
- The Schedule of Requirements gives the numbers to be quoted for and their associated ranges and is provided in Appendix- A. The bidder shall specify for the closest standard range of the offered product with respect to the required measuring range. The quoted range shall be equal or larger than the required range.

**(b) The ADCP will be side looking and mounted on the bank of the river. The device shall meet or exceed the following specifications:**

- Two horizontal beams minimum
- Velocity range  $\pm 5.0$  m/s minimum
- Velocity measurement error not more than  $\pm 1.5\%$  of measured velocity or better
- Velocity resolution 0.2 cm/s maximum
- Water level  $\pm 0.1\%$  of actual depth
- Sampling range to match channel width as inspected by the bidder prior to bid
- Output Signal SDI-12, Version 1.3.
- Output parameters range bin velocity, total discharge, data quality parameters
- Power Supply 10 - 15 VDC
- Operating temperature 0 to 40 °C
- Autonomous operation of one year minimum
- Accessories to include all components to be included in mounting, cables, connectors
- The Schedule of Requirements gives the numbers to be quoted for and their associated ranges and is provided in Appendix- A. The bidder shall specify for the closest standard range of the offered product with respect to the required measuring range. The quoted range shall be equal or larger than the required range.

#### **5.1.2.2 ADCP River Discharge Measurement**

The WRD Bihar requires two ADCPs (Acoustic Doppler Current Profiler). These ADCPs will be down-looking system that shall be used for manual stream gauge measurement. The ADCP will be provided with all accessories to make measurements from a bridge, boat, tag line and from a cableway. This includes a floating platform. This equipment will be used by the bidder and serviced by the bidder for repair due to malfunction or other equipment breakdown. This equipment will be used by the Purchaser during the maintenance transition period and stay in the possession of Purchaser at the end of the operation and maintenance contract.



ADCP Type	: Down-looking ADCP for manual measurement of discharge
Profiling Distance	: 0.3–10m
Profiling Velocity	: +/-10m/s
Velocity Accuracy	: 0.25% of measured velocity
Depth Range	: 0.3–30m of water column
Depth Accuracy	: 1%
Discharge Distance	: 0.3–10m
Computations	: All performed internally
Accessories	: Floating platform for the ADCP (2); All necessary tethers and taglines (2 sets); Real-time display for instantaneous readings (2); Bridge crane to suspend ADCP from bridge (2); All other accessories needed to make measurements from bridges

### 5.1.3 Construction Requirements and Workmanship

#### Civil Works

The civil works shall be the bidder's responsibility. The bidder shall furnish details and standard drawings of equipment mounting arrangements and installation. The bidder shall also provide detailed instructions regarding the requirements for lightening protection and power supply as well as recommendations for security arrangements needed for systems and sensors installed in open areas (e.g. fencing, locks etc.). The civil works shall be executed as per details given below and with the standard specifications of either BIS (Bureau of Indian Standards) or Public Works Department: Bihar as relevant.

#### Materials

##### 1) Storage, handling and use of materials

Materials and components shall be handled in such a manner as to avoid any damage or contamination and in accordance with all applicable recommendations of the manufacturers.

##### 2) Bricks

Bricks, blocks and tiles shall be regular and uniform in shape and colour and all of a similar size to the respective type.

##### 3) Cement

Cement shall be factory produced by a reputed manufacturer and stored in dry conditions until required.

##### 4) Mortar

Mortar shall be mixed only as and when required in the proportions of 1 part cement to 3 parts sand with fresh, clean and clear water, until its colour and consistency are uniform. It shall be conveyed fresh as required for use and used within 20 minutes of mixing. Fine aggregates for mortar shall be washed natural sand or crushed natural stone.

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5) **Timber**

All timber to be used in the permanent works shall be new and free from bows or warps or significant knots.

6) **Ferrous metal work**

Ferrous metal work exposed to the outside shall be treated with a continuous coating of bituminous primer over the whole exposed area. Where the metal work is of a decorative nature, it shall be primed and painted with paint suitable for external use.

7) **Nuts and bolts**

Bolt lengths shall be sufficient to ensure that nuts are full-threaded when tightened in their final position, with minimum two threads showing. Where bolting is incompatible with the material being fixed, suitable isolation washers and sleeves shall be used. Washers shall be provided under the head of the bolt and under the nut.

8) **Natural stone**

Natural stone shall be of durable quality, uniform in texture and free from iron bands, spots, sand holes, flaws, shakes and other imperfections which would adversely affect its strength or appearance. The dimensions of stones shall be adequate for proper coursing and bonding.

## **Excavation, Backfilling and Reinstatement**

### **1) Excavation**

- i. The bidder shall carry out his operations in such a manner as to avoid damage to or deterioration of, the formation of excavations.
- ii. The sides of excavations shall be adequately supported at all times.
- iii. The bidder shall be responsible for the disposal off site of all surplus excavated material, but no excavated material suitable for re-use shall be removed from the site. No surplus material shall be disposed off on the site.
- iv. The bidder shall not allow water to lie anywhere on the site. Where water is encountered in excavation operations, it shall be disposed off to a suitable area away from the works and so as not to inconvenience others. Any temporary sumps which are constructed for dewatering shall be backfilled at the end of operations, with material similar to that excavated.
- v. The bidder shall carry out excavation operations in all types of strata met with.

### **1. Trenches**

- i. Trenches in rock for pipes up to 100 mm nominal bore shall be excavated to provide a minimum clearance of 100 mm around the outside of the pipe barrels and joints. For pipes with nominal bores exceeding 100 mm, the minimum clearance shall be 200 mm.

- ii. Trenches for pipes shall be excavated to a sufficient depth to ensure a minimum cover of 500 mm to the top of the pipes. For pipes carrying water under pressure or for pipes laid with a water load above, this depth shall be increased to 900 mm.
- iii. Where trench excavations encounter obstructions in the ground conditions (e.g. hard rock or major tree roots), the obstruction shall be bypassed by a separate trench enabling a straight line or minimum suitable radius, between the pipe source and destination locations. The trench shall be backfilled in a similar manner to other excavations as per the specification given below.

## **2. Backfilling**

- i. Backfilling shall, where practicable, be undertaken immediately the specified operations preceding it have been completed. Backfilling shall not, however, be commenced until the works to be covered have achieved a strength sufficient to withstand all loading imposed thereon.
- ii. Backfilling shall be undertaken in such a manner as to avoid uneven loading or damage.
- iii. Filling material to the permanent works shall be of a granular type, without clay or siltaceous material (a well assorted mixture of grain size between 2 mm and 40mm diameter), deposited in 300 mm layers and compacted at each layer.
- iv. Backfilling to a roadway surface shall be compacted and completed such that the finished surface is of a level flush and comparable to the adjoining area, after any settlement has occurred. Where the surrounding surface is of a bituminous (tarmac) type, the backfilling shall be finished with similar.
- v. Where the excavations have been supported and the supports are to be removed, these, where practicable, shall be withdrawn progressively as backfilling proceeds, in such a manner as to minimise the danger of collapse and all voids formed behind the supports shall be carefully filled and compacted.

## **4) Reinstatement**

- i. Kerbs, channels and edgings disturbed by the works shall be re-laid with existing units, provided they are not damaged. Where existing units are not suitable for re-use, the bidder shall provide replacement units of similar texture, colour, type and quality, consistent with those adjacent.
- ii. The frames of all manholes and surface boxes shall be reinstated by bedding and haunching in mortar as specified. Chamber or frame tops shall be flush with the existing surface on all sides.
- iii. On completion of work in unpaved land, the bidder shall break up the surface of all land affected, to a depth of at least 300 mm and clear stones and extraneous material greater than 50 mm in size before placing and raking topsoil of at least 300 mm in depth, to the finished surface level.

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- iv. The utmost care shall be taken to protect trees, crops and significant shrubs in the vicinity of the site area. Any that are damaged or killed shall be replaced with a new plant or plants, of a similar species and type, in the area of the original.
  - v. Any existing services of pipes or cables shall be avoided if possible. Where temporary removal is required, the service shall be turned off and an accurate location of the point or points of interception marked. The bidder shall record these positions, depths, pipe and cable diameters and types of construction and shall reinstate them to their previous standard, following construction of the new works. Backfill shall be to the standard specified above.
  - vi. The bidder shall ensure that all pipes, whether new or reinstated, shall be clear of debris upon completion of the works.
  - vii. Embankments and other areas of fill shall be formed of suitable materials capable of normal compaction to form stable fill, deposited and compacted evenly as soon as practicable after excavation, in a maximum of 300 mm layers.

## **Concrete, Formwork and Reinforcement**

### **1) Concrete**

- i. The cementitious content of any concrete shall be between 350 kg/m<sup>3</sup> and 400 kg/m<sup>3</sup>, with a maximum free water / cementitious content ratio of between 0.45 and 0.50. The mix and strength of such concrete shall not be inferior to M20.
- ii. Calcium chloride or admixtures containing calcium chloride shall not be used in the production of concrete.
- iii. The nominal size of coarse aggregate shall be from 6 mm to 20 mm.
- iv. The bidder shall not permit any cement to come into contact with water at a temperature above 60 degrees Celsius.
- v. The concrete shall be mixed only as and when required, to a uniform colour and consistency.
- vi. Workability of fresh concrete shall be such that the concrete can be handled and placed without segregation and after compaction can completely fill the formwork and surround all reinforcement and ducts.
- vii. The quantity of water to be used shall not exceed that required to produce a concrete with appropriate workability to be placed and compacted in the required location. Water used in the concrete mix shall be fresh, clean and clear.

### **2) Formwork**

- i. Formwork shall be sufficiently rigid and tight to prevent loss of mortar from the concrete and to maintain the correct position, shape and dimensions of the finished work. It shall be so constructed as to be removable from the cast concrete without shock or damage.

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- ii. The forms shall be capable of producing a consistent quality of surface.
  - iii. Where holes are required in forms to accommodate projecting reinforcement, fixing devices or other built-in items, precautions shall be taken to prevent loss of mortar matrix.
  - iv. Formwork shall give access for the preparation of joint surfaces before the concrete has hardened.
  - v. Top formwork shall be provided to slopes 30 degrees or more from the horizontal.
  - vi. The bidder's method of constructing formwork shall allow for props to soffit forms to remain in position until the formwork is struck.
  - vii. Formwork shall be removed without shock to or disturbance of the concrete.
  - viii. Formwork to vertical or sloping surfaces shall not be removed until the concrete strength shall be sufficient to meet any wind loading upon the concrete likely to arise at the time when the formwork is removed. This shall be a period of minimum 2 days.
  - ix. The formwork for elevated slabs and beams shall remain in place for a minimum of 7 days.
  - x. All concrete surfaces shall have a fair finish, formed by formwork which is designed to produce a hard, smooth surface with true, clean arises. Only minor surface blemishes shall be permitted and there shall be no staining or discolouration. Any projections shall be removed and the surfaces made good. For finishes to surfaces not formed by formwork, the concrete shall be levelled and screeded with a wooden trowel, following which a fair finish shall be formed with firm pressure from a steel trowel, to produce a dense, smooth, uniform surface free from trowel marks.
  - xi. If any blemishes to the finished surface appear, they shall be made good with fresh, specially prepared cement and fine aggregate paste, whilst the concrete is still green where possible. After the concrete has been properly cured, the faces shall be rubbed down to produce a smooth and even surface, making every effort possible to match the colour of the concrete.

### **3) Reinforcement and other built-in items**

- i. Reinforcement and other built in items (such as pipes and sleeves) shall be firmly supported in position and of sufficient strength to secure against displacement during the concrete pour.
- ii. Non-structural connections for the positioning of reinforcement and other built in items shall be made with tying wire or other fixing device. Precautions shall be made to ensure that projecting end of tying wire or other fixing device or clips do not encroach into the concrete cover.
- iii. All reinforcement and other built-in-items shall be clean and free of rust or other debris bonding.
- iv. Reinforcement shall be of HYSD/TMT variety manufactured by SAIL or its subsidiaries. Cover to all reinforcement shall be 50 mm minimum.

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- v. Tie bolts for formwork shall be of the high tensile variety and shall be cast directly into the concrete. Only tie bolts which avoid embedding any metal parts permanently within 50 mm of the concrete surface shall be permitted. Voids remaining after the removal of all, or part of each tie bolt shall be filled flush with the surrounding concrete using a freshly prepared cement and fine aggregate paste. All such voids shall be prepared by removing surface laitance prior to filling to ensure bond is achieved.

#### **4) Placing of concrete**

- i. The interiors of all formwork shall be thoroughly cleaned out before any concrete is placed. The faces of the forms in contact with the concrete shall be clean and treated with a suitable releasing agent, where possible.
- ii. Each batch of concrete shall be continuously and thoroughly compacted in its final position within 20 minutes of mixing. Sufficient compaction shall take place until the expulsion of air has virtually ceased, and in a manner which does not promote segregation of the ingredients, in order to avoid surface blemishes.
- iii. Concrete to each discrete section shall be placed in one pour or in a continuous fashion such that fresh concrete shall not adjoin concrete which has been in place for more than 30 minutes. If this does occur, concreting to this section shall be stopped until the placed concrete has set, but not hardened and a construction joint shall be formed.
- iv. The surface of any set concrete against which new concrete is to be cast, otherwise known as a construction joint, shall be free from water or loose debris and shall be roughened to the extent that the large aggregate is exposed but not disturbed. The joint surface shall be cleaned immediately before the fresh concrete is placed against it.
- v. All measures shall be taken to keep the temperature of fresh concrete below 32 degrees Celsius and to prevent excessive evaporation of surface water. This shall include placing and constantly keeping moist with cold water, hessian (or similar coarse weave natural material) and spraying the surface with curing agents to aid temperature escape, as soon after the formwork had been removed as possible.
- vi. Where a kicker is used, it shall be at least 70 mm high and shall be incorporated with the previous concrete.
- vii. Concrete shall not be allowed to taper off to a thickness of less than 50 mm. Vertical joints shall be formed against a stop board suitably notched to accommodate the reinforcement. The top surface of each lift of concrete shall be straight and level, unless described otherwise in the contract.

#### **5) Tolerance for concrete structures**

Concrete structures in the final work shall have no abrupt irregularities which are, to an extent, observable by eye. Subject to retaining the required concrete cover to reinforcement, other deviations from the surfaces described in the contract shall not deviate from line, level, vertically, cross sectional dimension or length by more than 10 mm.

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## Construction of Pipe Work

The cable runs along the ground for connecting the sensors to the DCP shall be made through the pipes of HDPE. The materials and manufacturing quality of the pipes shall be as per relevant Indian Standards.

### (1) General

- i. Suitable measures shall be taken to prevent extraneous material from entering pipes and to anchor each pipe to prevent flotation or other movement before the works are complete.
- ii. Pipeline marker tape shall be laid between 100 mm and 300 mm above the pipe.

### (2) Pipe bedding and covering

- i. In case of laying pipes for carrying the air tubing for the bubbler system, the care should be taken to embed the pipe at a depth below the general profile of the river bank slope such that the same shall not be exposed on account of rainfall/drainage induced gully erosion in the monsoons. Such depths shall be determined by the Purchaser's site in charge and the representative of the bidder.
- ii. For making horizontal runs of embedded pipes, crossing open ground and/ or walk ways frequented by traffic or cattle, a layer of warning bricks shall be laid over the pipe before filling up the trench.
- iii. Bedding for pipes shall be constructed by spreading and compacting granular bedding material of at least 100 mm thick over the full width of the pipe trench. After the pipes have been laid, additional material shall be placed and compacted equally on each side of the pipe. Where practicable, this shall be done in sequence with the removal of the trench supports.
- iv. Bedding, haunching and fill material to pipe or cabling work shall be of a granular type, without clay or siltatious material (a well assorted mixture of grain size between 2 mm and 40 mm diameter).
- v. After completion of the relevant operations, fill material shall be placed and compacted over the full width of the trench in layers not exceeding 150 mm before compaction, to a finished thickness of 250 mm above the crown of the pipes. Thereafter, layers shall be filled and compacted in 300 mm thicknesses, to 300 mm from the surrounding ground surface level. Topsoil shall then be placed to a level flush with the surrounding ground surface.

### (3) Pipe jointing

- i. Pipe jointing surfaces and components shall be kept clean and free from extraneous matter until the joints have been made or assembled. Care shall be taken to ensure that there is no ingress of grout or other extraneous material into the joint annulus after the joint has been made.
- ii. Where pipes with flexible joints are required to be laid to curves, the deflection at any joint as laid shall not exceed three quarters of the maximum deflection recommended by the manufacturer.



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- iii. Fusion welding joints in high density and medium density polythene shall be made only between pipes having the same physical characteristics. No fusion joints between pipes from dissimilar materials shall be made. When solvent welding HDPE pipes are jointed outside the trench, they shall not be lowered into place until the period recommended by the manufacturer for complete setting of the joints has elapsed. A pipe section containing a completed weld shall achieve the same strength characteristics as the parent pipe.
  - iv. Flanged joints shall be properly aligned before any bolts are tightened.
  - v. For weld jointing of steel pipes, the ends of the pipes shall be cut and prepared, and be free from fins, planar defects, tears and other surface defects, prior to welding. Cleaning to base metal shall extend for at least 25 mm from the end of the pipe on both internal and external faces.
  - vi. For cement mortar joints, the spigot of the pipe shall be entered into the socket of the last pipe laid until it bears on the back face of the socket and it shall be centered in the socket. Two turns of tarred yarn shall then be caulked into the back of the socket and cement mortar shall be pressed into the joint to fill the socket and shall be leveled off at 45 degrees from the outside edge of the socket.

#### **(4) Pipe protection**

- i. Where concrete surrounds are provided to pipes, they shall be supported on precast setting blocks, the top face of each block being covered with two layers of compressible packing.
- ii. Where pipes with flexible joints are used, any concrete protection shall be interrupted over its full cross section of each pipe by a shaped compressible filler.
- iii. Plastic pipes shall be wrapped with a layer of plastic sheeting before being surrounded by any concrete.
- iv. Ferrous pipes shall be protected by a continuous coating of bitumen primer over the whole area to be protected.

#### **(5) Pipe cutting**

Pipes shall be cut by a method which provides a clean, square profile, without splitting or fracturing the pipe wall and which causes minimal damage to any protective coating.

### **Enclosures and Fencing**

All enclosures should withstand hostile environments and must be protected against vandalism. The door must be secured using a tamper proof lock. Additional security devices may be recommended. Outdoor enclosures will contain all instrumentation except solar panels and sensors. The required degree of protection is IP65 or NEMA4. A radiation shield of a double wall must protect the enclosure against excessive heating by radiation.

### **Cabling**



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- i. The term cable shall always include necessary type of connectors at both the ends for connecting between two equipments. The connectors shall be properly anchored with protective sheathing of the cable in such a way that the loads due to pulling and twisting shall be borne by the protective sheathing and the conductors shall not be subjected to any stress.
  - ii. The connectors shall be so fixed on the individual components of the system that the metal/plastic connector shall always transfer the loads due to pulling and twisting directly to the protective body of the component and the internal interface cords / connections shall not be subjected to any load.
  - iii. Laying of necessary data and power supply cables connecting various components and embedding them or protecting them with necessary conduits.
  - iv. Wherever the cables are to be laid indoors and the length of the individual cable run exceeds 1 metre, the cable shall be housed in a protective conduit made of electrical supply grade conduit of appropriate diameter and the conduit shall be fixed with the wall at a height not less than 1 metre above the floor surface. Whenever the indoor cable is required to cross the floor, it shall be housed in a Galvanised Iron pipe of 12.5 mm internal diameter and the pipe shall be fixed to the floor with suitable protective covering to avoid tripping of personnel using the area or disturbance to the pipe due to such movement.
  - v. Wherever cables are to run through open ground including the public road and pathways, the cable shall be armoured and shall be water ingress proof upto static water pressure of 5 kg/cm<sup>2</sup>. All joints made in cable shall also meet the water proofing criteria. In addition, the cable shall be protected by housing the same in 12.5 mm Galvanised Iron pipe embedded at a depth of not less than 1.5 metre below the ground surface with a warning brick on the same. A sketch of the cable layout with respect to the identifiable marks of the area shall be prepared and handed over to the Purchaser for each such cable run on completion of the work of cable laying operation.
  - vi. The joints in the cable connecting between the sensor and data collection platform shall be avoided by measuring the appropriate length of the cable required and attaching the same in one piece. If the cable joints become necessary, prior permission of the Purchaser shall be obtained before executing the same. The joint fabricated through a splicing and jointing kit shall be stronger than the parent cable.
  - vii. The cable carrying data and electrical power shall be housed separately in different conduits separated by adequate distance to prevent leakage currents. The data cables shall also be laid out in such a way that the data integrity is not compromised due to mutual interference.

### **Mast and Supports Specifications**

These shall satisfy the following specifications:

#### **Mast:**

- Height: as per need to achieve effective signal transmission and prevent vandalism or theft based on a site-by-site evaluation
- Can be manufactured locally, according to the bidder's instructions, if good (corrosion resistant) quality is available

- Including guys and all accessories/ tools for mast mounting must be able to resist a wind speed of 110 km/hour
- Bidder can propose alternative mounting according to site conditions but meet the strength conditions for wind

#### **Sensor Supports and Brackets:**

- Aluminum or stainless steel
- Sensor mounting supports and other accessories as required

#### **Lightning Protection:**

- Lightning rod, ground rod and conductors as required
- Lightning/ over voltage protection devices for sensors, data logger(DCP), transmitter and solar power supply as required

### **5.1.4 Solar Power and Battery Specifications**

All systems will rely on solar power charging system and battery backup for extended operation during periods of extended cloudiness or loss of charging system. The solar panel and battery system shall satisfy the following specifications:

- 12V solar photo voltaic system with the capacity to power all equipment associated with the station
- The solar panels shall be capable of not only powering the equipment, but charging the batteries to provide continuous operations
- The battery system must be capable of operating all components of the monitoring station for 20 days without charging
- The solar panel system shall be capable of full charging the battery system that has gone 20 days without charge within 2 days in full sunlight.
- A solar regulator will be supplied at each station to regulate power and maintain optimum battery and data collection platform operation
- Power consumption and supply calculations shall be provided to the bidder after the award to assure solar power charging and storage capacity is sufficient.

### **5.1.5 Grounding and Surge Protection Specifications**

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

## **5.2 Data Collection Platform**

The conditions and constraints of hydrologic monitoring with such a large network in the subject river basins in Bihar require long periods of autonomy. The Data Collection Platforms shall be capable of unattended operation for up to one year. The continuous power is not available for most of the network, so the power will need to be supplied on-site with the use of solar panels. The Data Collection Platforms shall meet or exceed the following specifications:

- The Data Collection Platform shall be a well proven and widely used model, produced by a primary brand name and tested in a large number of installations. A manufacturer's certificate shall be provided that the model proposed has been in production at least 2 years.
- All data collection platforms shall be of the same make and model, with identical configurations so that the data collection platforms can be used throughout the entire network.
- If Data Collection Platform power is interrupted the platform will have the option to restart data collection and transmissions automatically, and without technician intervention.
- Data collection platform shall survive reverse polarity connections (system will operate normally when polarity is applied properly without any other changes, such as fuses)
- Open design, operating a wide variety of sensors
- Flash memory that can store one year of data, expandable to five years of storage or better
- The flash memory shall be non-volatile
- A/D resolution  $\geq 16$  bit
- Sensors shall have individual recording intervals
- Multi-tasking operating system capable of simultaneous data collection and transmission
- Digital display for the viewing of current data and setting datum
- 4 analog channels minimum
- 2 programmable digital input/output minimum
- Input channels as required by the sensor configuration
- Internal clock with drift less than 2 second per day
- Internal battery backup for clock
- GPS time synching programmable, and as often as once per day
- 1 input channels for tipping bucket precipitation gauges (switch closure)
- SDI-12 input with a minimum of 20 addressable sensors and 5 parameters per addressable sensor.
- 2 input/output interfaces for the exclusive use of data communication, including the simultaneous use of any two of the following: VSAT, GPRS, INSAT
- GPRS shall employ TCP/IP protocol capable of sending data based on exceeding a threshold, as well as responding to queries through GPRS
- One programming interface which shall be separate from the two input/output interfaces used for real-time data communication mentioned previously
- Software to configure data collection platforms shall be compatible with Windows XP and Windows 7
- Language shall be in English
- Data collection platform shall have access restricted to authorized personnel via a password that can be invoked at the choosing of the client
- Input power 12V DC operating from 11 – 16 V DC
- Operating temperature -20 to +60 °C

- Full documentation and maintenance instructions in English, 5 printed copies, and 5 USB drives with one complete copy of documentation and maintenance instruction on each USB driver.
- Serial cable plus adaptor (if required) for notebook connection
- All accessories (fixing units etc.) as required

### 5.3 Current Meter

#### Conditions & Requirements:

- The current meter shall be of such a design that it operates reliably and accurately under the prevailing flow and environmental conditions.
- The current meter shall be easy to operate and maintain.
- The current meter shall be supplied with the accessories as needed for effective deployment.
- All materials of the current meter shall be non-corrosive.
- An operator's manual, related to the type and model of the current meter, shall be part of the delivery.
- The current meter shall come with the calibration data, i.e. actual calibration velocity versus actual revolutions per second as collected during the calibration process. Calibration data shall uniquely identify the instrument body, the propeller, observer, rating tank, way of suspension, methodology and similar information.
- The current meter shall come with a rating table and a rating chart in m/s versus revolutions per second, uniquely related to the propeller by propeller serial number. Each impeller (propeller) of the current meter is calibrated individually and calibration chart for individual impeller is supplied (multiple calibration)
- The propeller calibration shall be independent of the current meter body, propellers shall be interchangeable from one body to another body of the same model with change in calibration.
- The current meter shall have a provision to adjust its trimming.
- The design shall be sediment resistant and have an oil-filled bearing chamber.
- The bearings shall be field exchangeable.
- The current meter shall come without a protection ring/yoke in front of the propeller; such a yoke would make the current meter sensitive to its alignment into the flow, which should be avoided.
- The current meter shall be as slim as possible to avoid excessive drag.
- The electrical connections shall be small, of a reliable and sturdy construction.
- The current meter and accessories shall be supplied in a sturdy carrying case.
- An appropriate tool-set shall be included in the delivery.

- The current meter shall generally comply with IS 3910-1992
- For operation, adequate fish weight shall be attached below the current meter or integrated with current meter body and tail.
- The fish weight shall have a streamlined form and shall be suspended from a bar of adequate strength.
- Horizontal and vertical tail fins at the rear end shall align the fish weight in the direction of flow.
- Except for the suspension bar, no elements shall protrude from the body.
- The fish weight shall generally comply with IS 4073-1967 and ISO 3454-1983.

#### Specifications:

The purchaser may exercise his judicious discretion in the choice of configuration and options for the current meter which will contain the following components:

#### 1. Current meter

Current meter range: 0.025 to 5 m/s (starting to maximum operational velocity)

Propeller: 2 to 4 blades

Propeller diameter:  $\geq 0.1$  to  $\leq 0.2$  m

Propeller length: about 0.1 m

- The current meter may be provided with one propeller or with a set of propellers that differ in their pitch and/or in their diameter.
- The propellers shall be made interchangeable.
- The propellers shall be made of cast material, e.g. bronze, polycarbonate or similar tough, high impact resistant and corrosion proof material.
- The response shall be instantly and consistent to all changes in velocity.
- The rate of change of the angular velocity of the propeller shall be synchronous with the rate of change of the flow velocity.
- Propellers of the same model shall be interchangeable without affecting calibration.
- The propellers shall be uniquely identifiable by engraved serial number.

Materials: all materials of the current meter and combinations thereof shall be corrosion proof

Bearing: low friction, field replaceable without affecting the calibration

Rotation Sensor: reed switch closure, one closure per revolution

Accuracy: for velocities up to 0.3 m/s - 1 % Full Scale  
for velocities  $>0.3$  m/s - 0.5 % Full Scale

#### 2. Suspension

Wading

Wading rod: total length 3 m, graduation in cm

Electrical cable: running from current meter to counter, 10 m

From a cable

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Suspension cable: suspension cable with single integrated electrical wire for rotation sensor and bottom detector

Length: 30 m

Diameter: 2.5 to 3.5 mm

Electrical Cable: from winch to counter, 7 m

Cable Torque: torque free suspension cable

The suspension cable should not exert any torque that may adversely affect the alignment of the flow sensor into the direction of flow. In particular in case a heavy suspension weight is used, there is a risk of cable induced torque.

Suspension-rod: for cable suspended measurements with light weight sinkers

The suspension rod shall have sufficient freedom of movement to allow it to accommodate to inclination of the suspension cable under high current velocities.

Inclination range:  $-45^{\circ}$  (forward) to  $10^{\circ}$  (backward) from vertical.

Tail fin length:  $>0.6$  m beyond the attach point of the suspension

The tail fin shall be capable of aligning the current meter in the direction of flow and keep it stable in that position throughout the full velocity range.

### 3. Fish weight

Model: USGS Columbus or similar

Material: cast iron or lead

Finish: smooth, painted surface

Mass of fish weights: 25, 50 and 100 kg, as required for depth and current velocity.

The fish weight may be integrated in the instrument or an addition below the instrument.

Bottom detector: the bottom detector shall be small and sturdy

Bottom detection: bottom detection will be signalled by permanently closing a reed switch. That switch will override the rotation sensor switch. The bottom detection signal will be sent on the same integrated wire as the rotation signals.

Suspension: bar, fitting current meter and cable terminal

#### Option

- Propeller for velocities up to 10 m/s
- If the instrument is used from a cable way then an integrated bottom detector is required

#### Accessories

- Standard instrument tools
- Spare bearings
- Carrying case for current meter with counter
- Carrying case for fish weight(s)

#### Consumables

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- Bearing oil

## **5.4 Telemetry**

The data communications shall use GPRS Data Communication. All data loggers will be capable of using INSAT and VSAT also, and shall be capable of using any two transmission paths simultaneously (i.e. VSAT/GPRS, VSAT/INSAT, INSAT/GPRS).

## **5.5 GPRS Receiving Station (GRS)**

One GRS shall be established at Patna. The WRD will provide a suitable location. The GRS shall be used to perform all GPRS Data Communication which will include the secondary processing function of data validation and data distribution. Data shall be distributed by flat files using XML or some similar non-proprietary text format. The GRS shall be able to store at least one year of data from which any period can be reprocessed and distributed via the flat file distribution mechanism. The GRS shall be able to distribute validated data within 5 seconds of reception to at least 25 nodes. It is envisioned that these nodes can be as simple as a data directory, with the flat files sent to each directory for processing by the respective process/user. The GRS shall be able to communicate to up to 500 stations which allows for growth of the system. The GRS shall be configurable to poll stations automatically at intervals from every five minutes to once a day. The GRS shall be able to poll stations either one at a time or in groups. The polling of stations shall be automatic, though an operator can poll any station or group of stations as desired on an ad-hoc basis.

The bidder will provide all civil works related to the installation of the antenna, including cabling, wiring and other such infrastructure required to operate the GRS.

### **5.5.1 GPRS Radio and Antenna Specifications**

GPRS data radio communication equipment shall meet the requirements of the Indian regulatory agencies. This not only consists of the transmitting radios located at each station, but also the GPRS Receiving Station (GRS). Evidence of meeting these requirements or certification will be required as part of the bid. The GPRS radio antenna shall also meet the requirements of regulating agencies of India. The bidder will make all arrangements for GPRS use and will include the usage fees in the operation and maintenance contract.

## **5.6 Data Center**

The objective of establishing of a Data Center is to ensure that the high quality data collection, compilation, processing and analyses are available for making sound water management decisions. The data center will be located at Patna, in office space provided by the WRD. WRD will provide the necessary electrical connections as well as LAN network connections. The WRD will also be responsible for providing environmental control, such as air conditioning.

The bidder will make arrangements for a GPRS internet connection at the Data Center. This GPRS connection to the Data Center shall specifically be used as a redundant route for data communication from the field to the Data Center and would be employed if the regular internet serving the Data Center fails. The bidder will provide the technology (hardware/software) to be able to switch between the two



internet services. This GPRS connection will not serve any corporate traffic from the government offices out to the internet, and will only serve data communication between the Data Center and remote stations.

The data center will receive data from the remote stations transmitting data over GPRS and will store this data (raw data) for up to five year period. The WRD requires the ability to reprocess any portion of that data and redistribute that data to selected processes on an ad-hoc basis. The data collection computer validation software shall permit the user to set limits on all parameters, including all sensors, battery voltage, transmissions, etc. The data center validation software shall provide alarms through SMS text and/or email based on the user configurable alarm conditions. The alarms shall be issued within 5 minutes of data transmission from the field.

In case of Hardware or Software failure, the Data Centre computer must be capable to recover to the point of failure. The process of recovery must be automated as far as practicable. In case of manual intervention if at all needed must be clearly documented.

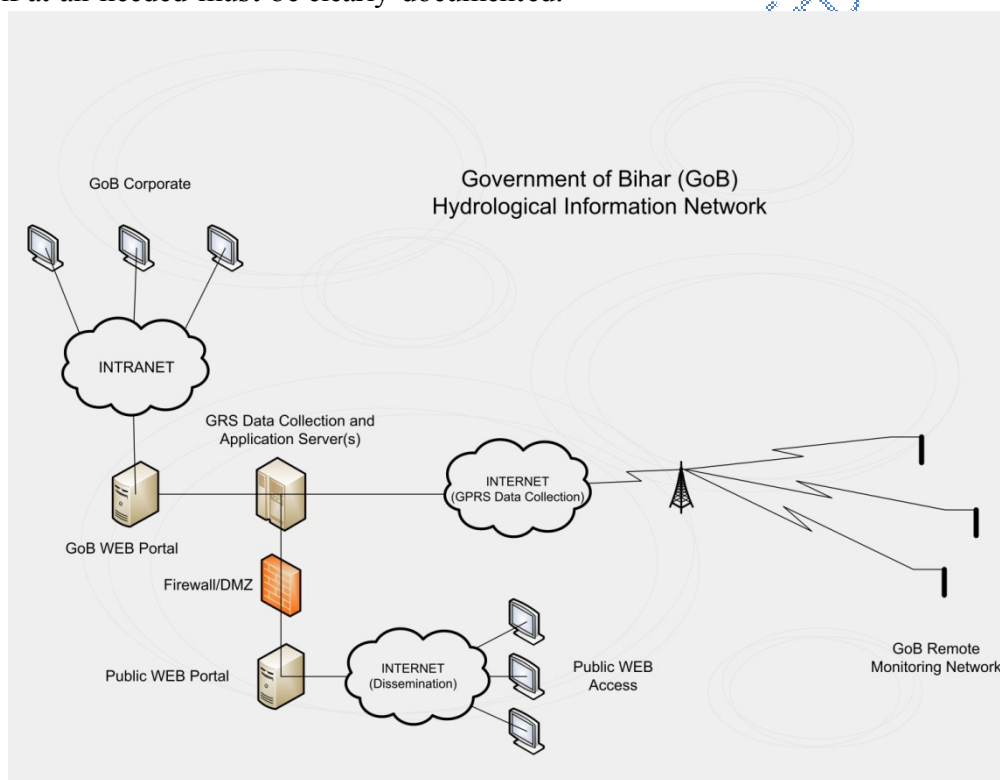


Figure 5.6 A System Block Diagram of Data Center Components

The data flow will be as follows:



- 1) Each DCP will automatically measure precipitation and river water level at an interval desired by WRD. Initial thoughts are precipitation and water measurements will be made every 15 minutes. It will store this observed data in its memory and provide the data when polled or provide the data in the event a certain sensor threshold is observed. This means that remote stations will also transmit based on event, such as a rise of water elevation over time, or the rate of precipitation as well as responding to being interrogated.
- 2) Data communication will utilize GPRS and receive the data in Patna.
- 3) The data will be brought into an application server(s) which will perform quality control processing, data visualization function, as well as passing the data off to the other offices in WRD (modeling, forecasting). The transfer to these units entail creating XML or SHEF (Standard Hydrological Exchange Format), or other standardized open source data format, data files in real time and placing them on a network directory.
- 4) The application server(s) will also function as a tool to determine stations that are in need of maintenance and repair. Software will provide station outage reports and a summary of total hours of station outage for each station as well as the entire network, by day, month and year or any period of time of interest to the State.
- 5) There will be one Web Portal, for use only by the Water Resources Department, Patna.
- 6) A firewall will be provided to prevent unauthorized access from the INTERNET and will be located between the public web portal and the application server(s). There will be both hardware and software firewalls, with the hardware firewall being part of the router, and software firewalls on each of the computers supplied under this contract.

The bidder is only required to provide the workstations to receive data, and to validate and distribute data. The public web server shown in the diagram is provided separately, and are not the responsibility of the bidder.

### **5.6.1 Data Center Equipment Specifications**

A data center will be established by the bidder. The Purchaser will provide the office space, power and environmental control required for the data center. The data center will comprise of three computer systems and ancillary equipment. The data center will have the following functions:

- House the GRS transceiver and ancillary equipment which will be used to collect GPRS DCP data
- House the computer system used with the GRS to collect data
- House a quality control computer which will be used to provide initial quality control, storage and visualization of data through both graphs and reports. Provide Alert and Alarms based on the evaluation of the network performance statistics
- House a webserver for the dissemination of data in real-time

#### **Computer 1**

The GRS Receive Platform shall meet or exceed the following specifications:

- Processor capable of running GRS Applications and ancillary functions as specified below
- Windows Server 2008 or better
- 1 TB Hard drive with RAID 1 Technology or better as required by application
- GRS will be a complete ground station including all components required for the collection of GPRS DCP data
- Rackmount computer to be provided with cabinet (Cabinet can be shared with the other two computers)
- GRS to come complete with software to allow for user control of polling cycle station by station or in groups of stations. Polling cycle shall be configurable to continuously to once per day. The GRS shall also be capable of receiving FTP or HTTP(POST) data triggered by the remote station alarms or as part of a regular interval data transmission
- GRS shall allow for automatic (unattended) polling or automatic reception of data being transmitted on an event basis
- GRS base station shall utilize the internet connection provided by GoB as well as a GPRS internet connection that will be provided by the bidder. The GPRS internet connection is intended to be used solely for Data Center-Remote Station data communication.
- GRS shall be able to collect data from 500 stations in real time, with delays of not more than 5 seconds from/to each station.
- GRS shall pass data to the Quality Control and data visualization computer in real time

#### Computer 2

The quality control and data storage function shall meet or exceed the following specifications:

- Processor suitable for running quality control function, database application, web browser and all code to visualize the data
- Rackmount computer to be provided with cabinet (Cabinet can be shared with the other two computers)
- Windows Server 2008 or better
- 1 TB Hard Drive with RAID 1 Technology or better
- Provide a data base to store raw as well as processed data. An open source data base (PostgreSQL or similar) is desired.
- Provide software to produce rating curves with an organized method to maintain rating curves as well as historical rating curves.
- Provide time series software such as Hydstra, Kisters, or Aquatic Informatics, for the development of corrected data record, including the application of rating shifts
- Production of qualified data to be sent to a hot directory in a standardized format to be picked up by other services in WRD. The data can be passed in XML or other formats that are non-proprietary and can be easily parsed
- Export data to Modeling, Flood Forecasting and other systems through hot directories that can be easily parsed without the use of proprietary software other than what is available on Microsoft Office.
- Ability to re-process historical data to the hot directory.. The data format will support at a minimum XML and/or SHEF (Standard Hydrological Exchange Format).
- Web page or other interface to view data stream, tabular reports, plots, alarm conditions and acknowledgement and GRS data collection system status
- **Software to evaluate the streams of data from GPRS to include the following features:**

- Error checking of data streams for artifacts with limit checking, delta checking, statistical and hydrological data checking (i.e. real-time comparison to sites in the area to put conditional flag on the data point)
- Error checking of data streams for artifacts with limit checking, delta checking, statistical and hydrological data checking (i.e. real-time comparison to sites in the area to put conditional flag on the data point)
- Tabular reports indicating network operation and station outages
- Alert and Alarm conditions set based on low signal strength, battery and/or solar power condition, sensor malfunction, station outage. Alert and alarms to be issued over SMS Text and email to be user configurable.
- If XML is used, the XML tagging scheme shall be well documented and open source.
- The requirements of software have been described in the “Scope of Work”, para 3 of technical specifications.

### Computer 3

#### Webserver:

Processor capable of running webserver Applications and ancillary functions to support 500 simultaneous users as specified:

- (a) Windows Server 2008 or better and
- (b) 1 TB Hard drive with RAID 1 Technology or better as required by application
- Rackmount computer to be provided with cabinet. (Cabinet can be shared with the other two computers)
- Webserver software (Apache or Windows IIS)
- Connectivity programs that allow complete access to the database on Computer 2.
- Web application to produce a tabular data of any time frame selectable by the user
- Web Application to provide a download of data in EXCEL (xls) and CSV formats, selectable by the user
- Web Application to provide graphical presentation of data. The graphical presentation will allow the user to plot up to four variables on a graph using a time scale selectable by the user
- Web application to provide map presentation using GOOGLE Maps or similar. Map presentation will allow for various presentations of data including stage data and precipitation data. The presentation tool will allow for pan and zoom function.
- Map presentation will also allow for the presentation of alert and alarm information such as high water or exceptional precipitation events.
- All presentation products shall be easily configurable by the user. the remote station alarms or as part of a regular interval data transmission
- Software shall work seamlessly with the database to provide information quickly and simultaneously to multiple users.

#### Other requirements of the Data Center are as below:

- Network routers/ modems to connect computer in a network and to the Purchaser's intranet. The routers shall come equipped with a firewall. The firewall solution shall have web interface to configure the firewall.
- Uninterruptable Power Supply to provide 60 minutes of operation on all data collection and data processing computers in the data center as mentioned above
- Computer cabinet to hold all computers and Uninterruptable Power Supply

- Power strips with surge suppression for use on all equipment supplied by the bidder
- The Purchaser will provide environmental control, such as heating and air conditioning. The environmental control will be designed by the bidder based on the requirements of the computer systems purchased, and also based on the area being supplied by the purchaser. The bidder shall inspect the area being provided by the purchaser in order to design a fully capable environmental control system
- The bidder shall install the electrical service required at the purchaser's proposed location of the data center. This includes furnishing subpanels, electrical outlets, wires, and all other parts needed to complete the electrical work. The electrical work shall meet the electrical code as required at the location of the data center. The bidder should inspect the area being provided by the purchaser in order to determine the electrical power requirements and installation.
- The Purchaser will provide power distribution to computer cabinet(s)

### 5.6.2 Ancillary Equipment and Tools Specifications

Ancillary equipment and tools will be provided by the bidder to the Purchaser for the sole use by the Purchaser. Equipment required for maintenance will be supplied in addition to the equipment provided by the bidder and shall remain the property of the Purchaser. The bidder will provide 4 Process Meters (Digital Volt Meter).

The process meter shall meet or exceed the following specifications:

- Fluke 789 Process Meter of better
- Current Measurement:
  - o Range 0-1A AC or DC
  - o Resolution 1 mA
  - o Accuracy 0.2% + 2 LSD
- Current Sourcing:
  - o Range 0-20 mA or 4-20 mA Resolution 0.05% of span
- Drive Capability: 24V Compliance or 1200 Ohms @ 20 mA
- Frequency to 19.999 kHz, 0.005% +1 LSD
- Voltage Measurement:
  - o Range 0-1000 V AC (true rms) or DC
  - o Resolution 0.1mV to 1.0V
  - o Accuracy 0.1% Rdg + 1 LSD (VDC)
- Resistance Measurement to 40 MOhms, 0.2% +1 LSD
- Diode Test 2.0V shows diode voltage drop
- Display Current and % of span
- Auto step, auto ramp
- Operating Temperature: 0 to +60° C
- Storage Temperature: -5 to +60° C
- Batteries AA Alkaline
- Warranty 3 years
- Battery life 140 hours typical, 10 hours typical if sourcing @ 20 mA

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## 5.7 Installation

Installation of all data collection stations, sensors and data center components shall be provided by the bidder. The bidder will be required to devise acceptable mounts for sensors, as sensor placement should abide by WMO convention as applicable or by standard hydrological practices. The bidder shall also devise acceptable mounts to the existing bridges that should take into account obtaining a good measurement as well as adequately securing the sensor from tampering and/or vandalism. The Purchaser may inspect some or all equipment prior to installation to assure the products meet specifications. The Purchaser may also delegate this activity to a third party. Each station shall be commissioned by the Purchaser upon inspection of complete installation and functioning data collection activities. Installation shall be considered complete when all stations have been commissioned and operating for a 30 day period with no break in service for any station/sensor longer than 24 hours.

## 5.8 Operation and Maintenance

The bidder will undertake the Operation & Maintenance (O&M) of all stations/components of the network during the warranty & contract performance period of two years after commissioning & final acceptance of the system and for another period of three years following the contract performance period. FMISC will enter into a 3-year separate contract for an Annual Maintenance Contract (AMC)/O&M support for all stations/components with the supplier and the bidders will provide the price for the same in this bid itself.

This operation and maintenance support contract shall refer to the complete real time hydrologic data collection network, proper functioning of GRS data receive system and data center including the hardware and software components. Troubleshooting and repair will be provided for all components, including remote data collection (i.e. sensors, data loggers, GPRS communication), GRS, and all hardware and software supplied for the data center. The bidder shall respond to outages of remote data collection stations, communication, GRS, and Data Center components and provide repair within 24 hours. The maintenance will require plans for both preventive maintenance as well as corrective maintenance.

The bidder will provide prompt maintenance for all equipment/computers, transportation and internet connectivity, necessary to maintain the network (with the exception of the necessary electrical connections as well as LAN network connections provided by WRD). Emergency maintenance shall be performed immediately (within 24 hours) upon notification of a sensor/station outage. Preventative maintenance will be provided twice per year, once just prior to the monsoon season and once just after the monsoon season. The bidder will provide monthly maintenance reports during the course of the maintenance period. The monthly maintenance reports will cite station and sensor outages, including the amount of time stations/sensors have been out of operation or incorrectly reporting.

On hand over of the complete system to the WRD at the end of the 2 year warranty period, the bidder shall supply a manual specifying all faults experienced by the system together with an account of how such faults have been rectified. The objective is that the Purchaser will learn from the lessons acquired during the warranty period.

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The winning bidder shall keep a complete maintenance log of all facilities provided under contract, including data stations, sensors, and the GRS. This maintenance log will be available online and available to the WRD on a 24x7 basis.

The bidders estimate for warranty and maintenance shall consider that payment will be made on a quarterly basis. Maintenance will be performed as quickly as possible considering the technical staff limitations. Sensors not working for more than 24 hours shall incur a deduction of Rs 500 per day per station beyond the first 24 hours. Failed data communication in real-time shall incur a deduction of Rs 500 per day per station beyond the first 24 hours. A station failure shall incur a deduction of Rs 500 per day per station beyond the first 24 hours. Only one deduction will be made at a given station for a given day, limiting the maximum deduction to Rs 500 per day for each station.

The FMISC staff will be adequately trained in the operation and maintenance of the network by the bidder as described below in the training section. This process will also be applied to stream gauging stations.

This annual maintenance contract shall refer to the complete real time hydrologic data collection network, proper functioning of GRS data receive system and data center including the hardware and software components. Assistance during troubleshooting will be provided for all necessary maintenance, servicing, testing and recalibration operations.

The bidder will intervene with his personnel within the agreed dates, on site, in case of damage or malfunctioning of equipment or software, and will proceed to the investigation of the cause and search for a prompt solution to ensure proper working of the system.

The other requirements for maintenance will be as under: -

1. Maintenance services for equipment and other related accessories like cables, etc, shall be provided by the **Bidder** during the period of warranty. The price for this service should be included in the bid. After the warranty period, annual maintenance and repairs of the entire system (comprising of those components and group of remote stations forming part of the acceptance certificate) consisting of equipment and civil works including supply of spares for the next 36 months will be done by the **Bidder**.
2. The annual maintenance charges shall be quoted on a year-by-year basis after the warranty period, for a total of three years.
3. FMISC reserves the right to terminate the contract in full or in part at any time.
4. All equipment maintenance, repairs, replacement will be borne by the Bidder during the three year maintenance period.
5. It is expected that the average downtime of an item will be less than half of the maximum downtime (ie defined as number of days for which an item of equipment is not usable because of inability of the Bidder to repair it). The maximum downtime for any item is taken as 90 days. In case an item is not usable beyond the stipulated maximum downtime the Bidder will be required to replace equipment and infrastructure such as cableways and instrument shelters.

## Spares



1. Spares should be provided to cut down the length of time required for maintenance, and periods of long outages. The supplier should maintain a 10% spare stock, ie 10% of the total installed base for that piece of equipment, including data logger, sensors, cables, etc. The supplier will identify the critical equipments for uninterrupted operations of the GRS data receive system and data center and keep one set as spare to ensure reliability/sustainability of the system. However, these spares will not be a part of the 10% spares indicated above. Computers and associated computer equipment and software will require spare stock.
2. The stock of spares will be tracked in the routine maintenance reports submitted by the supplier.
3. The supplier shall carry sufficient inventories to assure ex-stock supply of consumables and spares at the facilities provided by FMISC. The supplier shall ensure availability of after sales service for a period of at least ten years including the warranty period.

## 5.9 Training

Training shall be provided by the bidder in several phases. The training shall be provided for the installation of stations/sensors as well as operation and maintenance of the stations/sensors. The training shall include both classroom and field trainings. The WRDs officials shall also be trained on the operation of the GRS data collection station and data center operations. Each on-site training session shall be for 20 people unless otherwise indicated.

There shall be two weeks of training on the data collection platforms, radios, sensors etc. This will include field training which will include on-site training at three river stage monitoring sites, two rainfall measurement sites.

There shall be two weeks of training on the operation and maintenance of the GRS data collection station with a combination of classroom and hands-on training. Training will include the configuration and operation of the Windows Server software.

There shall be one week of training for the data control computer function which will include training on the time series software solution and data handling.

There shall be one week of training on the Web Server consisting of configuring the visualization product, operation and maintenance, and thorough use of the software including the Web Server software.

The supplier will also provide multimedia training (Available on DVD, External hard disk, or medium acceptable by the purchaser). WRD shall have permission to copy the multimedia training on an unlimited basis. This multimedia training will be video instruction of at least four hours each on the following subjects:

- 1) Data collection platform programming, configuration, installation and maintenance. This will be a complete instructional video on the operation and maintenance of the Data Collection Platform, including examples using WRD sensors and telemetry.
- 2) Sensor description, operation and maintenance. Examples showing step by step care and handling of the sensor, necessary maintenance, calibration, and operational facets.
- 3) Receive station operation. Step by step procedures on how to program the ground station to collect data, program data collection platforms remotely.

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- 4) Data validation and dissemination module. Step by step explanation on how to configure and use the data validation module.
  - 5) Step by step procedure in using the profiling ADCP for stream gauge measurements, including a field demonstration. Proper techniques in performing measurements, collecting data, and using data to provide discharge measurements and the development of a rating table.

The video training programs shall be complete. The bidder shall prepare a training course plan and include the same in the bid document.

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## **APPENDIX A – Details of proposed Hydromet Stations**

## Category I – Automated Rainfall Stations

### FMIS – Bagmati – Adhwara

Name of Station	District	Telemetry	Civil Work Requirements
			Foundation block & mounting for rain gauge, building for housing DCP, pole for mounting antenna, solar panel, etc. with accessories
Kalyanpur	Samastipur	GPRS	✓
Gaighat	MuzaffarPur	GPRS	✓
Hayaghat	Darbhangha	GPRS	✓
Katra	MuzaffarPur	GPRS	✓
Keotiranway	Darbhangha	GPRS	✓
Jale	Darbhangha	GPRS	✓
Bisfi	Madhubani	GPRS	✓
Aurai	MuzaffarPur	GPRS	✓
Runisaidpur	Sitamarhi	GPRS	✓
Belsund	Sitamarhi	GPRS	✓
Sonbarsa	Sitamarhi	GPRS	✓
Tariyanchak	Sheohar	GPRS	✓
Sheohar	Sheohar	GPRS	✓
Dumra	Sitamarhi	GPRS	✓
Riga	Sitamarhi	GPRS	✓
Majorganj	Sitamarhi	GPRS	✓
Bairganiya	Sitamarhi	GPRS	✓
Patahi	East Champaran	GPRS	✓
Rahika	Madhubani	GPRS	✓
Chirain	East Champaran	GPRS	✓
<b>Total = 20</b>			

## Category II – Automated River Water Level (Stage) and River Discharge Stations

Sr. No.	Station Name	District	Bridge Availability	Equipment	Civil Work Requirements
1	Sonakhan	Sitamarhi	No	Bubbler	10 x 10 ft building w/tower
2	Dubadhar	Sheohar	Yes	Bubbler	10 x 10 ft building w/tower
3	Kansar/Chandauli	Sitamarhi	Yes	Bubbler	10 x 10 ft building w/tower
4	Goabari	East Champaran	Yes	Bubbler	10 x 10 ft building w/tower
5	Dheng Bridge	Sitamarhi	Yes	Bubbler	10 x 10 ft building w/tower
6	Badlaghat	Khagaria	Yes	ADCP	10 x 10 ft building w/tower
7	Karachin	Samastipur	No	Bubbler	10 x 10 ft building w/tower
<b>Total</b>		<b>7</b>			

**Note :** Mounting arrangements for radar, pole for mounting solar panel, transmitter, antenna with lightening arrestor & grounding, building for housing DCP.

Pole for mounting solar panel, transmitter, antenna with lightening arrestor & grounding, gauge house building for housing DCP / equipment, trench for bubbler line embedment in soil, concrete, block for bubbler at river bed.

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## **4. Drawings**

**This Bidding Document includes the following drawings:-**

<b>List of Drawings</b>		
<b>Drawing No.</b>	<b>Drawing Name</b>	<b>Purpose</b>
Figure 1	Index map showing automated rainfall stations locations in the Bagmati-Adhwara basin and adjoining area.	
Figure 2	Index map showing automated river gauging stations locations in the Bagmati-Adhwara basin	
Figure 3	Map showing automated river gauging station location in the Bagmati-Adhwara basin (1 of 3)	
Figure 4	Map showing automated river gauging station location in the Bagmati-Adhwara basin (2 of 3)	
Figure 5	Map showing automated river gauging station location in the Bagmati-Adhwara basin (3 of 3)	

Note: Figure 1 to 5 (Drawings) are attached at the end of this section.

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## **5. Inspections and Tests**

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## Inspections and Tests

The following inspections and tests shall be performed:

### 1. Testing and Inspection

It is the bidder's responsibility to ensure that the equipment is sufficiently tested prior to shipment and installation. During final acceptance testing, the bidder 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 bidder's expenses.

The costs for all tests and for all inspections to be made under the contract shall be borne by the bidder and shall be deemed to be included in the contract price with the exception of the Purchaser's costs for witnessing tests.

### 2. Factory Acceptance Test

Prior to system shipment, the bidder shall conduct a Factory Acceptance Test (FAT). The FAT shall be conducted at the bidder's facilities and shall demonstrate "end-to-end" performance of the system components. In order to avoid delays, the factory acceptance testing shall not be witnessed. However, the bidder is required to write a FAT report that will describe the test layout, the individual testing results for each station / component, as well as any problems found. All deficiencies revealed by testing shall be rectified by the bidder at his own expenses and to the approval of the Purchaser. Rectified components shall be subject to re-testing.

### 3. Receiving Inspection

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 is to arrange for this receiving inspection as well as for customs clearance and delivery to appropriate storage facilities near Patna to be provided and maintained by the bidder.

### 4. Site Installation and Acceptance Tests

The bidder will install all the equipments and will undertake site tests of each gauge and tests for each lot of equipments included in the Schedule of Requirements. The exact locations for installation by bidder shall be decided by the Purchaser in consultation with the bidder. A list of proposed stations is provided in Appendix A.

After final configuration and programming, the bidder will conduct an "end-to-end" operational test for each of these stations. A formal check list shall be followed and the results of the tests shall be recorded. The Purchaser's personnel will be trained in conducting the same site acceptance tests. A Site Acceptance Test will be passed if all sensors and data collection platforms obtain and store correct values for a period of 24 hours.

### 5. Operational Test (OT)

Operational Tests shall be conducted at two stages of project implementation. In each case, any operational problems related to the remote stations are to be fixed before approval can be received for the system OT. The first OT must be conducted immediately after the first lot of remote stations has been installed by the bidder. All hardware and

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software components of this real time network have to be tested. The OT will be considered to be successful if all components as a whole have been operating without problems during at least 72 hours period.

The second, third, fourth and final OT will be witnessed by the Purchaser's designated representatives as each lot of stations are completed. It will take place when all the remote stations have been installed; however, the final OT will not be delayed due to delays or problems related to the installation of individual remote stations. The Purchaser shall decide the start date of the test in consultation with the bidder. The bidder shall notify the Purchaser accordingly and shall perform the OT.

The final OT shall be test for "end-to-end" performance of the entire system for a period of one week. The bidder shall demonstrate and document that the system correctly generated 95% of all expected data (normally scheduled data collections and transmissions) for the one week period. The bidder will produce a report documenting the quantities of data expected / received and indicating the success / failure of the OT. The OT will be repeated until the 98% success level is achieved or a specific waiver of the requirement (minimum 95%) is obtained.

All equipment failures will be counted except those that can be specifically determined to be "acts of God". Failure of stations due to acts of God (natural disasters or other incidents) will not count against the 95%. Equipment needed for testing shall be provided by the bidder.

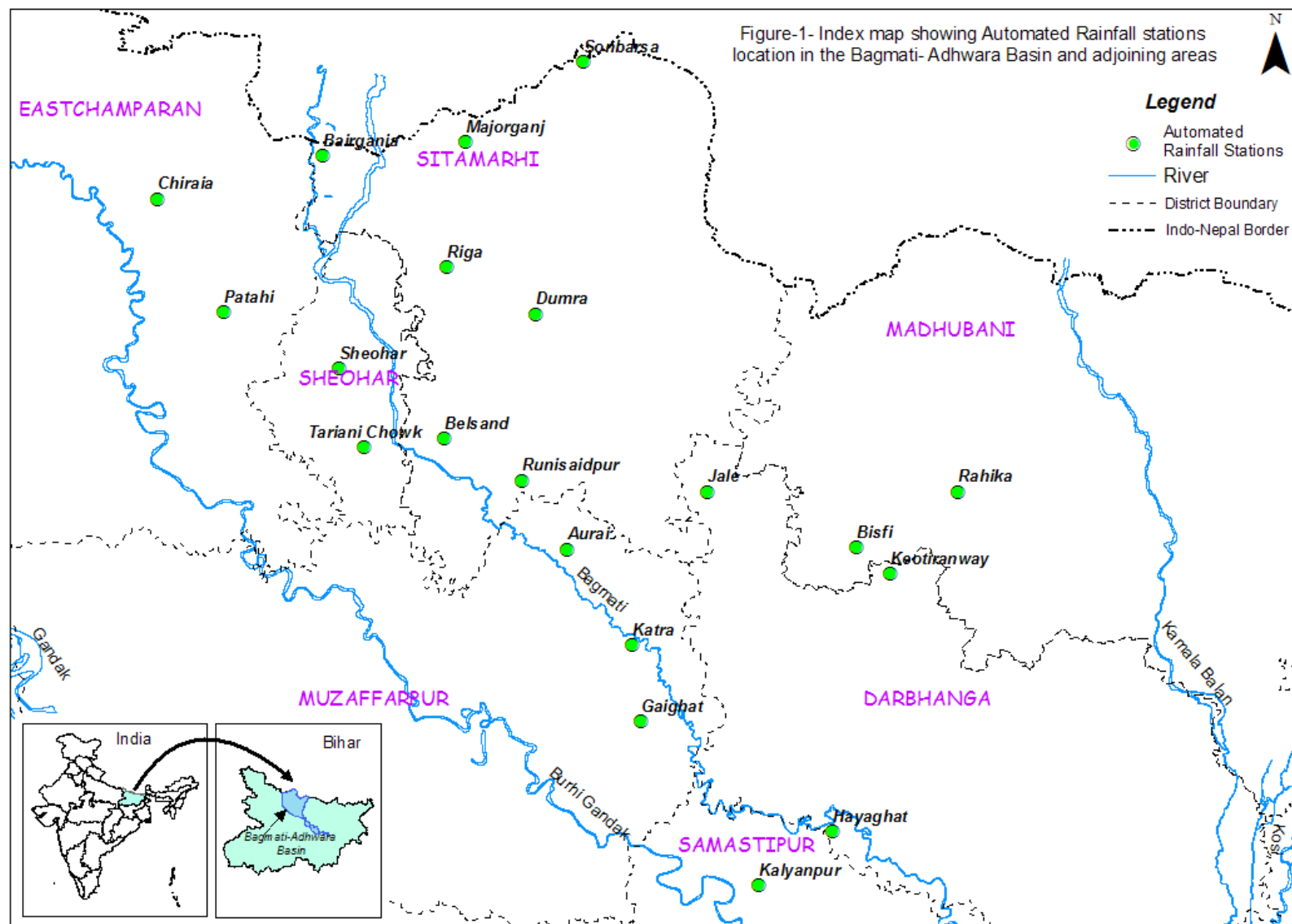
#### **6. Final Acceptance**

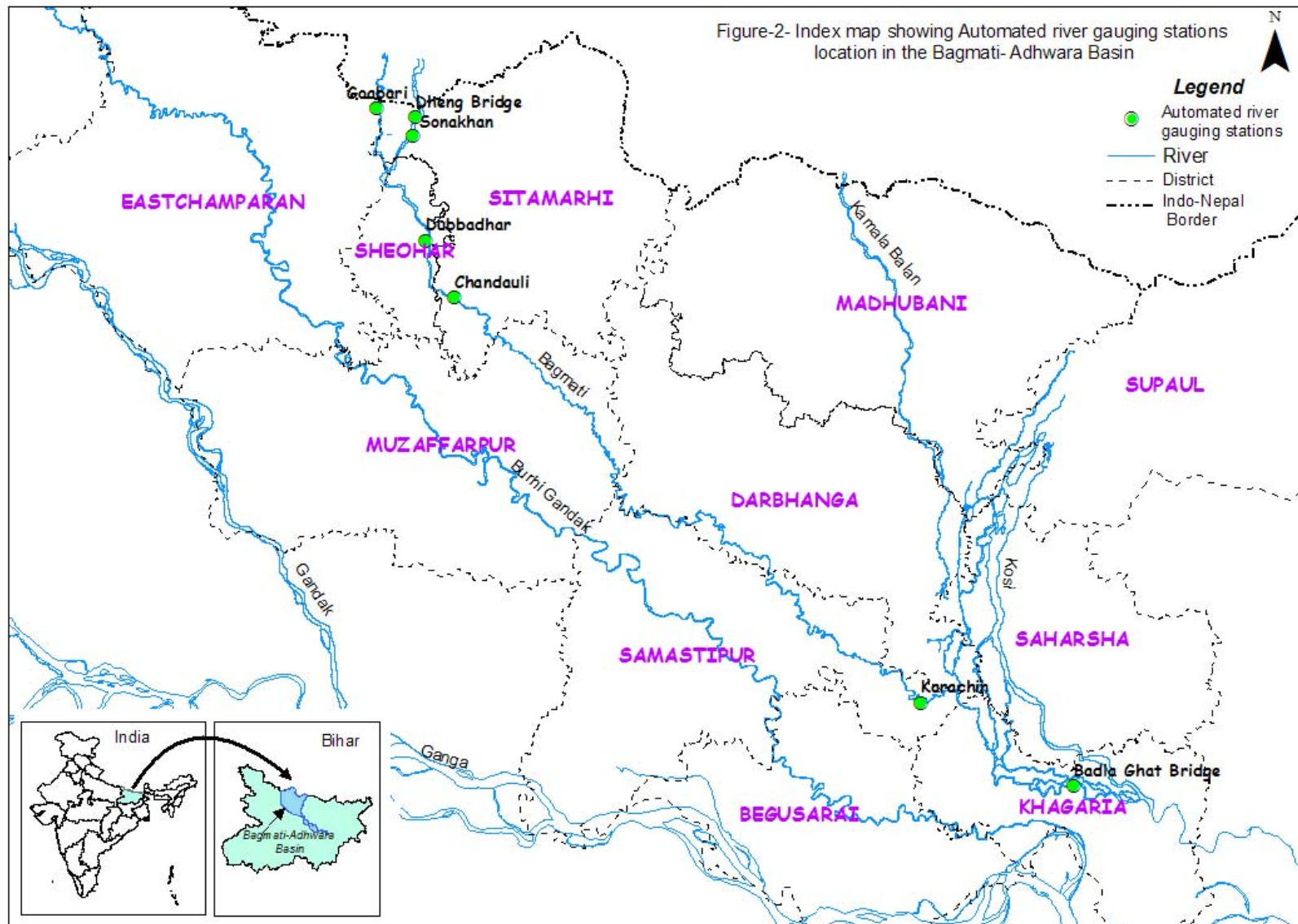
When the system has passed the Final OT, the bidder can apply for Final Acceptance. When Final Acceptance is given, the system will be officially considered to be under Warranty.

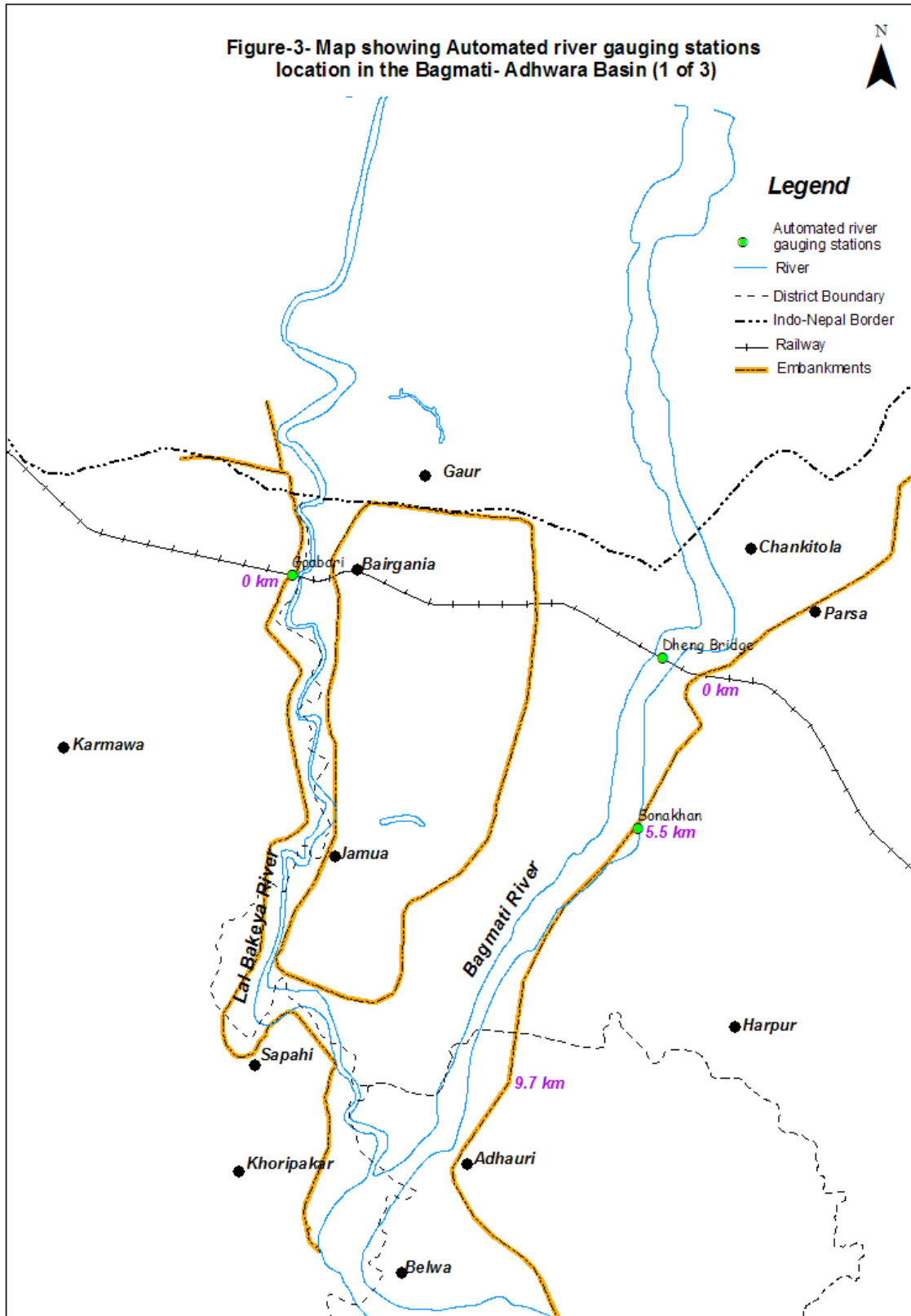


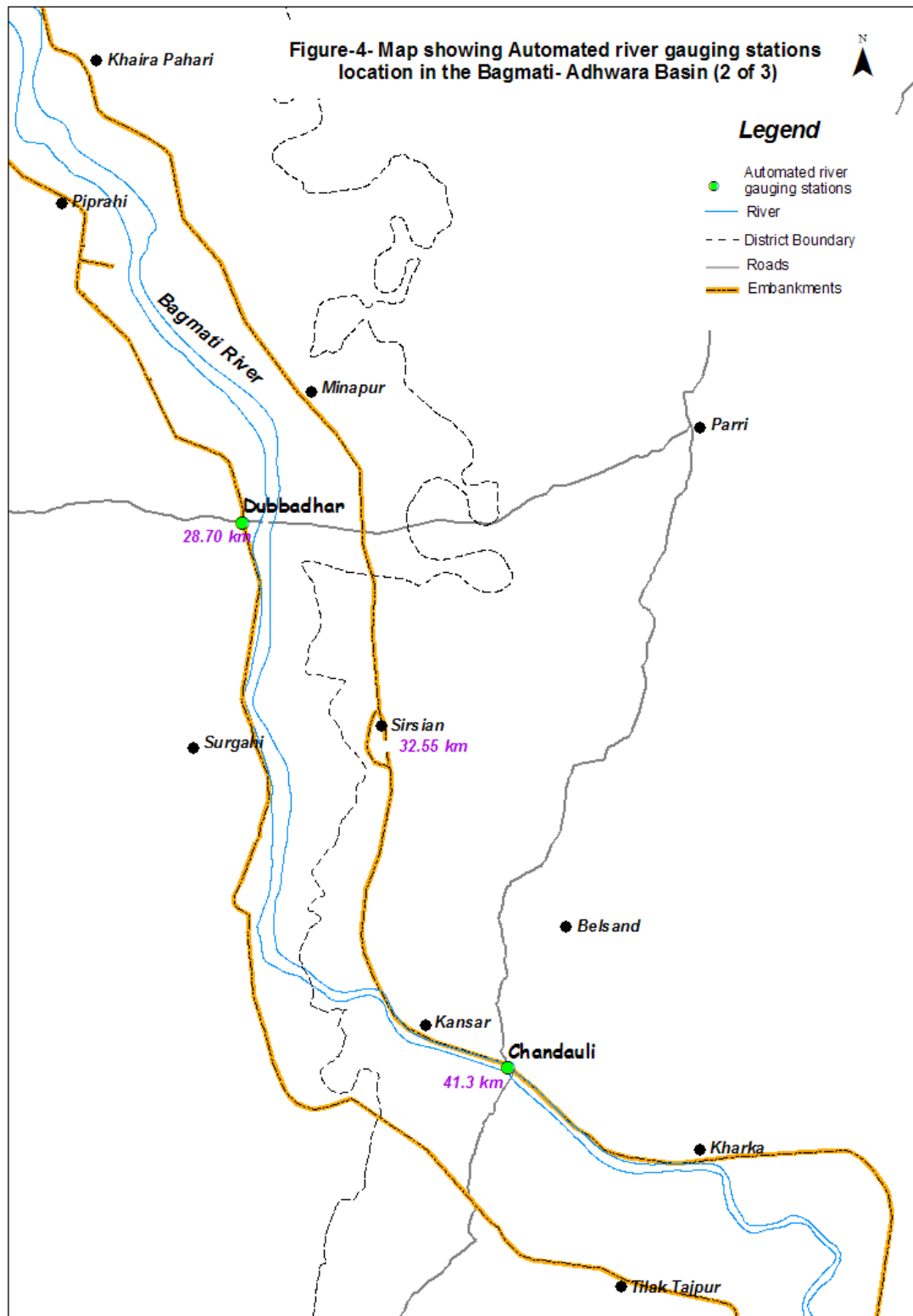
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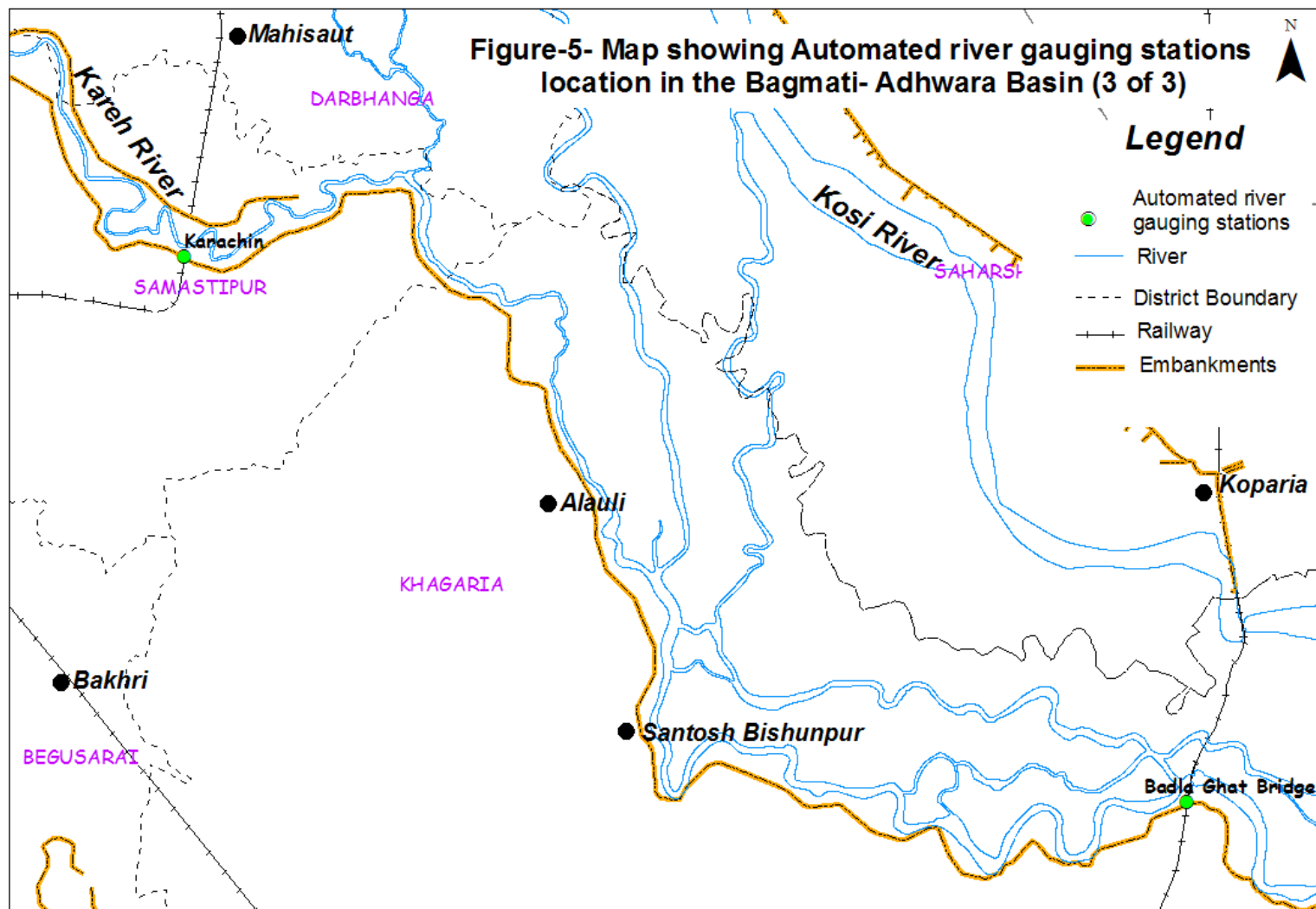
**Figure 1 to 5 (Drawings)**











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## **PART 3 - Contract**

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## Section VII. General Conditions of Contract

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## Section VII. General Conditions of Contract

### 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 natural person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.
- (n) “Supplier” means the natural 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.

**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.

**Fraud and Corruption**

- 3.1 If the Purchaser determines that the Supplier and/or any of its personnel, or its agents, or its Subcontractors, consultants, service providers, suppliers and/or their employees has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Purchaser may, after giving 14 days notice to the Supplier, terminate the Supplier's employment under the Contract and cancel the contract, and the provisions of Clause 35 shall apply as if such expulsion had been made under Sub-Clause 35.1.

- (a) For the purposes of this Sub-Clause:

- (i) “corrupt practice”<sup>7</sup> is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- (ii) “fraudulent practice”<sup>8</sup> is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party

<sup>7</sup> “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>8</sup> a “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.

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to obtain a financial or other benefit or to avoid an obligation;

- (iii) “collusive practice”<sup>9</sup> is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) “coercive practice”<sup>10</sup> is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- (v) “obstructive practice” is
  - (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 Clause 11 [Inspections and Audits by the Bank].

3.2 Should any employee of the Supplier be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the purchase of the Goods, then that employee shall be removed.

#### **Interpretation**

- 4.1 If the context so requires it, singular means plural and vice versa.
- 4.2 Incoterms
  - (a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by

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<sup>9</sup> “parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

<sup>10</sup> a “party” refers to a participant in the procurement process or contract execution.

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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 Nonwaiver

- (a) Subject to GCC Sub-Clause 4.5(b) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.
- (b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

#### 4.6 Severability

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

### **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

	<p><b>SCC.</b> 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.</p>
	<p>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.</p>
<b>Joint Venture, Consortium or Association</b>	<p>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.</p>
<b>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>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>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>
<b>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</p>

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connection with the Contract.

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

10.3 Notwithstanding any reference to arbitration herein,

- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
- (b) the Purchaser shall pay the Supplier any monies due the Supplier.

**Inspections and  
Audit by the  
Bank**

11.1 The Supplier shall permit and shall cause its Subcontractors and consultants to permit, the Bank and/or persons appointed by the Bank to inspect the Supplier's offices and/or the accounts and records of the Supplier and its sub-contractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank. The Supplier's and its subcontractors and consultants attention is drawn to Clause 3, 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).

**Scope of Supply**

12.1 The Goods and Related Services to be supplied shall be as specified in the Schedule of Requirements.

**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.**

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**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.

**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**.

**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.

**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



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Purchaser shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.

**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.

**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

**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

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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.

**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.

**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

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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.

**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.

**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.

**Transportation**

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

**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

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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.
- 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.

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- 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.
- 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.
- 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

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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.

**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 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.

**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

**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



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has already been accounted for in the price adjustment provisions where applicable, in accordance with GCC Clause 15.

**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.

**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



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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.

**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.

**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

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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.

#### Assignment

- 36.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior

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written consent of the other party.

- 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.

## Section VIII. 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(i)</b>	The Purchaser's country is: <b>India</b>
<b>GCC 1.1(j)</b>	The Purchaser is: <i>Joint Director, Flood Management Improvement Support Centre, Water Resources Department, 2nd Floor JalSansadhamBhawan, Anisabad, Patna-800002, Tel/fax: 0612-2256999, Email: fmisc_bihar@yahoo.co.in, (India)</i>
<b>GCC 1.1 (o)</b>	The Project Site(s)/Final Destination(s) is/are: <i>As per details given in Appendix A and drawings showing the locations of the proposed RTDAS stations (Figure 1 to 5).</i>
<b>GCC 4.2 (a)</b>	The meaning of the trade terms shall be as prescribed by Incoterms. If the meaning of any trade term and the rights and obligations of the parties thereunder shall not be as prescribed by Incoterms, they shall be as prescribed by: <i>other internationally accepted trade terms.</i>
<b>GCC 4.2 (b)</b>	The version edition of Incoterms shall be : <i>Incoterms 2000</i>
<b>GCC 5.1</b>	The language shall be: <i>English</i>
<b>GCC 8.1</b>	For <b>notices</b> , the Purchaser's address shall be:  <i>Attention: Joint Director, Flood Management Improvement Support Centre Address: 2nd floor, JalSansadhamBhawan, Anisabad City: Patna Pin Code: 800002 Country: India Telephone: 0612 2256999 Facsimile No. : 0612 2256999 Electronic mail address: fmisc_bihar@yahoo.co.in</i>
<b>GCC 9.1</b>	The governing law shall be the law of: <b>India</b>
<b>GCC 10.2</b>	The rules of procedure for arbitration proceedings pursuant to GCC Clause 10.2 shall be as follows:  "Clause 10.2 (a) shall be retained in the case of a Contract with a foreign Supplier/bidder and clause 10.2 (b) shall be retained in the case of a Contract with a national of the Purchaser's country."

	<p><b>(a) Contract with foreign Supplier/ bidder:</b></p> <p>GCC 10.2 (a)—Any dispute, controversy or claim arising out of or relating to this Contract, or breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.</p> <p><b>(b) Contracts with Supplier/bidder national of the Purchaser's country:</b></p> <p>The dispute settlement mechanism to be applied pursuant to GCC Clause 10.2 shall be as follows:</p> <p>i) In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the *Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).</p> <p>ii) In the case of a dispute with a Foreign Supplier, the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties, and shall act as presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the *Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre of Alternative Dispute Resolution (India).</p> <p>iii) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) and (b) above, within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the *Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative dispute Resolution (India), both in cases of the Foreign supplier as well as Indian supplier, shall appoint the arbitrator. A certified copy of the order of the *Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India), making such an appointment shall be furnished to each of the parties.</p>
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	<p>iv) Arbitration proceedings shall be held at FMISC, PATNA India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.</p> <p>v) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings, as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.</p> <p>vi) Where the value of the contract is Rs. 10 million and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the *Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).</p>
<b>GCC 13.1</b>	<p>Details of Shipping and other Documents to be furnished by the Supplier are a negotiable bill of lading, a non-negotiable sea way bill, an airway bill, a railway consignment note, a road consignment note, insurance certificate, Manufacturer's or Supplier's warranty certificate, inspection certificate issued by nominated inspection agency, Supplier's factory shipping details etc.</p> <p>The above documents shall be received by the Purchaser before arrival of the Goods and, if not received, the Supplier/ bidder will be responsible for any consequent expenses.</p>
<b>GCC 15.1</b>	<p>The prices charged for the Goods supplied and the related services performed shall <i>not</i> be adjustable.</p>
<b>GCC 16.1</b>	<p>The method and conditions of payment to be made to the bidder under this Contract shall be as follows:</p> <p><b>Payment for Goods supplied from abroad:</b></p> <p>Payment of foreign currency portion shall be made in which the bid price is expressed.</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered, installed, tested, commissioned and accepted by the purchaser and in the form provided in the bidding documents or another form acceptable to the Purchaser.</p>

	<p>(ii) <b>On Shipment:</b> Sixty (60) percent of the Contract Price of the Goods shipped shall be paid through irrevocable confirmed letter of credit opened in favour of the Supplier in a bank in its country, upon submission of documents specified in GCC Clause 13.</p>
	<p>(iii) <b>On Acceptance: Ten</b> (10) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods, installed, tested, commissioned and upon submission of claim supported by the final acceptance certificate issued by the Purchaser.</p> <p>(iv) <b>On Training-</b> Ten (10) percent after successful to the designated staff along with all manuals related to running operation &amp; maintenance of equipment.</p> <p>(v) <b>On final Acceptance: Remaining Ten</b> (10) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods, installed, tested, commissioned and upon submission of claim supported by the final acceptance certificate issued by the Purchaser.</p> <p>Payment of local currency portion shall be made in <b>INR</b> 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 and Services supplied from within the Purchaser's country:</b></p> <p>Payment for Goods and Services supplied from within the Purchaser's country shall be made in <b>INR</b> as follows:</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract and against a simple receipt and a bank guarantee for the equivalent amount valid until the Goods are delivered, installed, tested, commissioned and accepted by the Purchaser and in the form provided in the bidding documents or another form acceptable to the Purchaser.</p> <p>(ii) <b>On Delivery:</b> Sixty (60) percent of the Contract Price shall be paid on receipt of the Goods and upon submission of the documents specified in GCC Clause 13.</p>

	<p>iii <b>On Acceptance:</b> ten (10) percent of the Contract Price shall be paid to the bidder within thirty (30) days upon submission of claim after the date of the final acceptance certificate for the respective delivery issued by the Purchaser.</p> <p>(iv) <b>On Training-</b>Ten (10) percent after successful to the designated staff along with all manuals related to running operation &amp; maintenance of equipment.</p> <p>(v) <b>On final Acceptance: Remaining</b> Ten (10) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods, installed, tested, commissioned and upon submission of claim supported by the final acceptance certificate issued by the Purchaser.</p>
<b>GCC 16.5</b>	The payment-delay period after which the Purchaser shall pay interest to the bidder shall be <b>thirty (30)</b> days. The interest rate that shall be applied is <i>London Inter-Bank On-Lending Rate (LIBOR) plus 2% for foreign currency; and 5% for local currency.</i>
<b>GCC 18.1</b>	A Performance Security shall be required. The amount of the Performance Security shall be: <i>10% (percent) of Contract Price.</i>
<b>GCC 18.3</b>	<p>The Performance Security shall be in the form of : <i>Bank Guarantee</i></p> <p><i>The Performance security shall be denominated in the currencies of payment of the Contract, in accordance with their portions of the Contract Price.</i></p>
<b>GCC 18.4</b>	Discharge of the Performance Security shall take place: <i>90 days after the completion of performance obligations under the contract including warranty obligations.</i>
<b>GCC 23.2</b>	The packing, marking and documentation within and outside the packages shall be: <i>No additional requirements specified.</i>
<b>GCC 24.1</b>	The insurance coverage shall be as specified in the Incoterms.



<b>GCC 25.1</b>	<i>Responsibility for transportation of the Goods shall be as follows: The Bidder shall be responsible, at his costs, for loading, transporting, shipping and unloading of the equipments to be supplied under the contract from the point of manufacture to the delivery at his storage facility near Bagmati Superintending Engineer Circle office. The transportation of equipments to field locations as specified places of final destination within the Purchaser's country for installation after the Receiving inspection shall also be the responsibility of the bidder. The bidder shall also be responsible for any storage of the equipments including insurance, and security during any interim period between supply and transportation to field locations for installation. The related all costs shall be included in the contract price. The Bidder shall provide such packing of the equipments as is required to prevent its damage or deterioration during transit to its final destination.</i>
<b>GCC 26.1</b>	The inspections and tests shall be as specified in the "Schedule of Requirements: Inspections and Tests" of the bid document.
<b>GCC 26.2</b>	The inspections and tests shall be conducted at locations as specified in the "Schedule of Requirements: Inspections and Tests" of the bid document.
<b>GCC 27.1</b>	The liquidated damage shall be: <i>Half percent ( 0.5%) per week</i>
<b>GCC 27.1</b>	The maximum amount of liquidated damages shall be: <i>Ten percent (10%) of contract price.</i>
<b>GCC 28.3</b>	The period of validity of the Warranty shall be: <i>Twelve (12) months after the Final Acceptance of RTDAS.</i> For purposes of the Warranty, the place(s) of final destination(s) shall be as specified in sub-clause GCC 1.1 (o) and in SCC referring to GCC 1.1 (o)
<b>GCC 28.5</b>	The period for repair or replacement shall be as follows:  (i) For repair: Immediately upon notification  (ii) For replacement: Maximum three (3) days.

## Section IX. Contract Forms

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# 1. Contract Agreement

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

THIS CONTRACT AGREEMENT is made

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

BETWEEN

- (1) **Joint Director, Flood Management Improvement Support Centre**, an office under, *Water Resources Department, Govt. of Bihar (India)*, and having its principal place of business at *Jal Sansadhan Bhawan, Anisabad, Patna-2*

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”).

WHEREAS the Purchaser invited bids for certain Goods and ancillary services, viz., ‘Implementation (Supply, Installation including civil work, Testing, Commissioning, Operation and maintenance etc) of a Real Time Data Acquisition System (RTDAS) for Bagmati -Adhwara basin in Bihar, India’ and has accepted a Bid by the Supplier for the supply of those Goods and Services in the sum of *[insert Contract Price in words and figures, expressed in the Contract currency(ies)]* (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:
  - (a) This Contract Agreement
  - (b) Special Conditions of Contract
  - (c) General Conditions of Contract
  - (d) Technical Requirements (including Schedule of Requirements and Technical Specifications)
  - (e) The Supplier’s Bid and original Price Schedules
  - (f) The Purchaser’s Notification of Award

(g) *[Add here any other document(s)]*

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.
4. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, 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.
5. 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]*

## 2. Performance Security

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]*

Date: *[insert date (as day, month, and year) of Bid Submission]*  
ICB No. and title: *[insert no. and title of bidding process]*

Bank's Branch or Office: *[insert complete name of Guarantor]*

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

**PERFORMANCE GUARANTEE No.:** *[insert Performance Guarantee number]*

We have been informed that *[insert complete name of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert day and month]*, *[insert year]* with you, for the supply of *[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 Supplier, we hereby irrevocably undertake to pay you any sum(s) not exceeding *[insert amount(s)<sup>11</sup> in figures and words]* upon receipt by us of your first demand in writing declaring the Supplier to be in default under the Contract, without cavil or argument, or your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This Guarantee shall expire no later than the *[insert number]* day of *[insert month]* *[insert year]*,<sup>12</sup> and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

*[signatures of authorized representatives of the bank and the Supplier]*

<sup>11</sup> The Bank shall insert the amount(s) specified in the SCC and denominated, as specified in the SCC, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Purchaser.

<sup>12</sup> Dates established in accordance with Clause 18.4 of the General Conditions of Contract ("GCC"), taking into account any warranty obligations of the Supplier under Clause 16.2 of the GCC intended to be secured by a partial Performance Guarantee. The Purchaser should note that in the event of an extension of the time to perform the Contract, the Purchaser would need to request an extension of this Guarantee from the Bank. 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: "We agree to a one-time extension of this Guarantee for a period not to exceed [six months] [one year], in response to the Purchaser's written request for such extension, such request to be presented to us before the expiry of the Guarantee."

### 3. Bank Guarantee for Advance Payment

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated.]*

Date: *[insert date (as day, month, and year) of Bid Submission]*  
ICB No. and title: *[insert number and title of bidding process]*

*[bank's letterhead]*

**Beneficiary:** *[insert legal name and address of Purchaser]*

**ADVANCE PAYMENT GUARANTEE No.:***[insert Advance Payment Guarantee no.]*

We, *[insert legal name and address of bank]*, have been informed that *[insert complete name and address of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert date of Agreement]* with you, for the supply of *[insert types of Goods to be delivered]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance is to be made against an advance payment guarantee.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount(s) in figures and words]* upon receipt by us of your first demand in writing declaring that the Supplier is in breach of its obligation under the Contract because the Supplier used the advance payment for purposes other than toward delivery of the Goods.

It is a condition for any claim and payment under this Guarantee to be made that the advance payment referred to above must have been received by the Supplier on its account *[insert number and domicile of the account]*

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *insert date*<sup>14</sup>].

This Guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

*[signature(s) of authorized representative(s) of the bank]*

<sup>13</sup> *The bank shall insert the amount(s) specified in the SCC and denominated, as specified in the SCC, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Purchaser.*

<sup>4</sup> Insert the Delivery date stipulated in the Contract Delivery Schedule. The Purchaser should note that in the event of an extension of the time to perform the Contract, the Purchaser would need to request an extension of this Guarantee from the bank. 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: "We agree to a one-time extension of this Guarantee for a period not to exceed [six months][one year], in response to the Purchaser's written request for such extension, such request to be presented to us before the expiry of the Guarantee."

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## Invitation for Bids (IFB)

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**Government of Bihar, Water Resources Department,**

**India: Bihar Flood Management Implementation Support Project II**

**Invitation for Bids (IFB)**

**IFB Number: FMIS C/IFB/01/2011-2012**

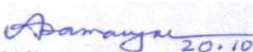
**Dated: 20<sup>th</sup> October, 2011**

**Country :** India  
**Project :** Bihar FMIS Phase-II  
**Grant Number :** TF 096841  
**IFB Title :** **International Competitive Bidding (ICB) for “Implementation (Supply, Installation including civil work, Testing, Commissioning, Operation and maintenance etc) of a Real Time Data Acquisition System (RTDAS) for Bagmati -Adhwara basin in Bihar, India”.**

1. The Flood Management Improvement Support Centre (FMISC), Water Resources Department (WRD), Govt. of Bihar, has received a ‘Grant’ [DFID Grant No. **TF096841**] from the International Development Association and intends to apply part of the proceeds of this ‘Grant’ to payments under the contracts for which this Invitation for Bids is issued.
2. The FMISC, Patna now invites sealed bids from eligible bidders for **“Implementation (Supply, Installation including civil work, testing, commissioning, operation and maintenance etc) of Real Time Data Acquisition System (RTDAS) for Bagmati-Adhwara river basin in Bihar, India”.**
3. Interested eligible Bidders may obtain further information from and inspect the bidding documents at the office of the Joint Director, Flood Management Improvement Support Centre, Water Resources Department, 2nd Floor, Jal Sansadhan Bhawan, Anisabad, Patna-800002, Bihar, India during office hours **{11:00 Hrs (IST) to 17:00 Hrs (IST)}** from **Thursday, 3<sup>rd</sup> November 2011, to Tuesday 20<sup>th</sup> December 2011,**
4. Bidding will be conducted through the International Competitive Bidding (ICB) procedures specified in the World Bank’s “Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, January 2011” and is open to all bidders from Eligible Source Countries as defined in the Guidelines. The World Bank Guidelines are available at **www.worldbank.org/procure** .
5. A complete set of bidding documents may be purchased by any interested eligible bidder on the submission of a written application to the above office and upon payment of a non-refundable fee as indicated below in the form of a Demand Draft in favour of “Director, WALMI, Patna” payable at **Patna.**
6. The provisions in the Instructions to Bidders and in the General Conditions of Contract are based on the provisions of the World Bank Standard Bidding Document - Procurement of Goods.
7. The bidding document may be obtained from the office of Joint Director, Flood Management Improvement Support Centre, Water Resources Department, 2<sup>nd</sup> Floor, Jal Sansadhan Bhawan, Anisabad, Patna-800002, Bihar, India during office hours **{11:00 Hrs (IST) to 17:00 Hrs (IST)}** from **Thursday 3<sup>rd</sup> November 2011 to Tuesday 20<sup>th</sup> December 2011,** on all working days either in person or by post. This Invitation for Bids is also available on the websites **http://fmis.bih.nic.in** , **http://wrd.bih.nic.in** , **http://prdbihar.gov.in** and **http://tenders.bih.nic.in** .



- 
- (a) Price of bidding document (Non-refundable) : INR 10,000/-(INR Ten Thousand) only *or equivalent*.
- (b) Postal charges, inland : INR 100/-(INR One Hundred) only *or equivalent*.
- (c) Postal charges, overseas : INR 1000/- (INR One Thousand) only *or equivalent*.
- (d) Date of commencement of Sale of bidding documents : **Thursday, 3<sup>rd</sup> November 2011, 11:00 Hrs (IST).**
- (e) Last date for sale of Bidding document : **Tuesday, 20<sup>th</sup> December 2011, 17:00 Hrs (IST).**
- (f) Last date and time for Receipt of bids : **Wednesday, 21<sup>st</sup> December 2011, 15:00 Hrs (IST).**
- (g) Time and date of Opening of bids : **Wednesday, 21<sup>st</sup> December 2011, 15:30 Hrs (IST).**
- (h) Place of opening of bids : Flood Management Improvement Support Centre, 2nd floor, Jal Sansadhan Bhawan, Anisabad, Patna-800002.
- (i) Address for Communication : Joint Director,  
Flood Management Improvement Support Centre,  
Water Resources Department,  
2nd Floor, Jal Sansadhan Bhawan,  
Anisabad, Patna-800002, Bihar, India  
*Tel/ fax: 0612-2256999*  
*Email: fmisc\_bihar@yahoo.co.in*
8. The Purchaser will not be held responsible for the postal delay, if any, in the delivery of the documents or non-receipt of the same. All bids must be accompanied by a bid security as specified in the bid document and must be delivered to the above office at the date and time indicated above.
9. Bids will be opened in the presence of Bidders' representatives who choose to attend on the specified date and time.
10. In the event of the date specified for bid receipt and opening being declared as a closed holiday for purchaser's office, the due date for submission of bids and opening of bids will be the following working day at the appointed times.
11. A pre-bid meeting with potential bidders will be held on **Friday, 2<sup>nd</sup> December 2011 at 11.00 Hrs. (IST)** at the office of the Joint Director, Flood Management Improvement Support Centre, Water Resources Department, 2nd Floor, Jal Sansadhan Bhawan Anisabad, Patna-800002, Bihar, India to clarify the issues and to answer questions on any matter that may be raised at that stage as stated in Clause ITB.7.2 of 'Instructions to Bidders' of the bidding document.

 20.10.2011

(Ajit Kumar Samaiyar)  
Joint Director  
FMISC, Patna