

**PROCUREMENT OF  
NON-CONSULTANCY SERVICES UNDER  
SHOPPING PROCEDURES**



**GOVT. OF WEST BENGAL**  
**Irrigation & Waterways Directorate**

**NATIONAL HYDROLOGY PROJECT**  
NH-2, Purta Bhawan, 3<sup>rd</sup> Floor, Purba Burdwan-713103  
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**REQUEST FOR QUOTATION**  
**Procurement of Non-Consulting Services under Shopping Procedures**  
**E-Procurement Notice**  
**(One-Envelope with e-Procurement Bidding Process)**

**Memo No: 490/NHP-02/02**

**Date: 04-12-2020**

Loan No. : 8725-IN

RFQ No. : WBIW/NHP/RFQ-03/2020-21

REFERENCE : NHP-2018-2019-WBSW-968183-NC-SH-QU

NAME OF WORK : Hydrographic & Topographic Survey of reservoir area and dams/weirs of 10(ten) nos. of Irrigation Schemes in Purulia District under NHP of I&W Deptt., GoWB.

**Employer/Engineer-in-Charge** : Executive Engineer, Burdwan Investigation & Planning Division  
Irrigation & Waterways Directorate Govt. of West Bengal  
Purta Bhawan, 3rd Floor Purba Burdwan-713103, West Bengal

**Applicable Procurement Guidelines:** World Bank's "Guidelines - Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank's Borrowers" Revised July 2014

1. The Government of India has received financing from the World Bank in various currencies towards the cost of the **National Hydrology Project** and intends to apply part of the proceeds towards eligible payments under the contract for which this request for quotations is issued. **The Executive Engineer, Burdwan Investigation & Planning Division, Irrigation & Waterways Directorate, Govt. of West Bengal, Purta Bhawan, 3rd Floor, Purba Burdwan- 713103, West Bengal (for and on behalf of Irrigation & Waterways Department, Govt. of West Bengal** invites quotations electronically from eligible service providers (bidders) for the following non-consulting services.

Name of the Services	Unit	Quantity	Completion Period
Hydrographic & Topographic Survey of reservoir area and dams/weirs of 10(ten) nos. of irrigation schemes in Purulia District under NHP of I&W Deptt.,GoWB.	Ha	118.00	3 (Three) months

2. This e-Procurement notice includes the terms and conditions applicable to submission of quotations; criteria for qualification, evaluation, and for award of contract; and relevant forms to be filled by the bidders. Implementing Agency has not issued a separate RFQ document for this purchase. The e-Procurement notice including the terms and conditions etc. can be downloaded free of cost by logging on to the website <https://wbtenders.gov.in> . The bidders would be required to register in the website which is free of cost.
4. For submission of Quotation, the Bidder is required to have Digital Signature Certificate (DSC) from one of the Certifying Authorities authorized by Government of India for issuing DSC. Bidders can see the list of licensed CA's from the link ([www.cca.gov.in](http://www.cca.gov.in)). Bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: <https://wbtenders.gov.in> .
5. Quotations shall be submitted on <https://wbtenders.gov.in> on or before **15:00** hours on **28/12/2020**. Any quotation or modifications to quotation received outside e-procurement system will not be considered. The electronic bidding system would not allow late submission of quotations. The Quotations will be opened online on **28/12/2020** at **15:00** hours, this can also be viewed by the bidders online. The electronic summary of quotation opening will be generated and uploaded online.
6. If the Employer's office happens to be closed on the date of opening of the Quotations as specified, the Quotations will be opened on the next working day at the same time.
7. Other details can be seen in the RFQ document. The Employer shall not be held liable for any delays due to system failure beyond its control. A Bidder requiring any clarification of the RFQ Document may notify the Employer online or may visit the office of the Employer at the address given below.

*The Executive Engine*

*Burdwan Investigation & Planning Division,  
I&WD, Govt. of West Bengal. Purta Bhawan, 3rd Floor,  
Purba Burdwan-713103 West Bengal  
Telefax: +91342-2646799  
e-mail: eebpd2012@gmail.com*

## Terms and Conditions

1. **Eligibility:** A Bidder(a) shall not participate in more than one Quotation; (b) shall not have conflict of interest as defined in the Bank's Procurement Guidelines; and (c) should not have been (i) temporarily suspended or debarred by the World Bank Group in compliance with the Bank's Anti-Corruption Guidelines and its Sanctions Framework; or (ii) blacklisted or suspended by government department/semi-government/public sector organization in India.
2. **Clarifications & Amendments:** If the Employer receives any request for clarification of this RFQ Document, it will upload its response together with any amendment to this document, on the e-procurement portal for information of all bidders. Bidders should check on the e-procurement system, for any amendments to the terms and conditions.
3. **The Quotation shall comprise the following:**
  - (a) Letter of Quotation;
  - (b) Authorization: The written confirmation of authorization to sign on behalf of the Bidder shall consist of an organizational document, board resolution or its equivalent, or power of attorney specifying the representative's authority to sign the Quotation on behalf of the Bidder.
  - (c) Description of services;
  - (d) Evidence in accordance with Clause 5 establishing Bidder's qualifications to perform the contract, if its quotation is accepted;
  - (e) Performance Statement of services of similar nature made during the last 3 years, in the prescribed Format along with supporting enclosures [copies of work order, schedule of work, completion certificate etc.]
  - (f) Complete address and contact details of the Bidder having the following information:

Name of Bidder  
Address for communication  
Telephone No(s): Office  
Mobile No.  
Facsimile (FAX) No.  
Electronic Mail Identification (E-mail ID)
  - (g) Price Schedule (using the Schedule uploaded with the RFQ document) wherein the rate shall be entered online.
  - (h) **Self attested scanned copy of documents to be attached: Valid Tread License, GST certificate , PAN, P. Tax certificate , Partnership deed/ Affidavit of proprietorship duly attested by a Notary Public , IT returns, Auditors report for last three financial years showing Annual Average Turn Over etc. [ Required Annual Average Turn Over during last three Financial year ending 31<sup>st</sup> March of previous financial year should not be less than 10 lakh.[ Rupees ten lakh ]**
  - (i) The Bidder shall furnish, as part of his Bid, a **Bid Security** in the amount **Rs. 20,000/-**(Rupees twenty thousand only) for this particular work through Demand Draft or in the form of a Bank Guarantee (Format attached). Demand Draft to be drawn in favour of **"The Executive Engineer, Burdwan Investigation & Planning Division"** and payable at Burdwan

- Bank guarantees issued as security for the bid shall be valid for 45 days beyond the validity of the bid.
- Any bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive.
- The Bid Security of unsuccessful bidders will be return within 28 days of the end of the bid validity period.
- The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security. The Bid Security of the successful Bidder shall be required to be kept valid and / or validity extended till such time the Performance Security is accepted by the Employer.

• **The Bid Security may be forfeited :**

- i) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
- ii) in the case of a successful Bidder, if the Bidder fails within the specified time limit to : Sign the Agreement / furnish the required Performance Security.

(j) **Bidder should upload:-**

- Scanned copy of Bid security.
- Scanned copy of Power of attorney for signing the document in the case of firm in partnership/limited company, corporation.
- Scanned copy of an Affidavit affirming that information furnished in the bid is correct to the best of knowledge and belief of the bidder as per attached Format.

**Offline submission of Bid documents:-**

The bidders are required to submit (i) **original Power of Attorney**; (ii) **original DD / BG towards Bid Security** and (iii) **original Affidavit regarding correctness of information** furnished with bid document before the last date and time of bid submission at the address mentioned below either by registered post, courier or by hand, failing which their bids will not be opened online and will be declared nonresponsive.

**The original documents as indicated above shall be submitted in sealed envelope to the following address by 15:00 hours on 28/12/2020**

**The Executive Engineer,  
Burdwan Investigation & Planning Division,  
I&WD, Govt. of West Bengal.  
PurtaBhawan, 3rd Floor,  
Purba Burdwan-713103, West Bengal**

The envelope should be marked (Name of work and Bid No.)

**4. Quotation Prices:**

- (a) The contract shall be for the whole of the services, as specified in the Price Quotation Form. Corrections, if any, can be carried out by editing the information before electronic submission.
- (b) The Bidder shall be responsible for meeting all tax liabilities other than Goods and Services Tax (GST) arising out of the Contract.
- (c) GST, which will be payable on the services at the time of invoicing, shall be shown separately.
- (d) The rates quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- (e) The Prices shall be quoted in Indian Rupees only.

5. **Qualification of the Bidder:** Bidder should have performed **services of similar nature and complexity** of value of at least INR 8.00 lakh (Rupees eight lakh) only in any one of last 3 years .Details of services performed during the last 3 years shall be submitted in the specified Proforma.[ **Copy of Work orders , Schedule of works ,Completion Certificate from the competent authority for all are to be attached ]**
6. **Validity of Quotation:** Quotation shall remain valid for a period not less than 45 days after the deadline date specified for submission.
7. **Signing of Quotations:** The name and position held by each person signing the quotation and related documents must be typed or printed below the signature.
8. **Quotation Submission:** The Letter of Quotation shall be filled, signed and scanned copies shall be uploaded along with the Price Schedules that shall be furnished using the Forms available online without any alterations. All blank spaces shall be filled in with the information requested. Scanned copies of all other documents shall also be uploaded on this website.
9. **Deadline for Submission of Quotations:** Quotations must be uploaded online no later than the deadline for submission of quotations viz. **15:00** (hours) and date **28/12/2020**. A Bidder may modify its Quotation any number of times by using the appropriate option on the e-Procurement Portal, before the deadline for submission of Quotations. Quotations once withdrawn cannot be resubmitted.
10. **Online Opening and Evaluation of Quotations:** The Quotations will be opened online on the specified date and time. This can also be viewed by the Bidder online, and electronic summary of quotation opening will be generated and uploaded online.
  - (a) The Employer shall examine the quotation to determine whether the quotation (a) has been properly signed (Clause 7); (b) meets the eligibility criteria (Clause 1); and (e) Price Schedules are in accordance with the requirements specified in the RFQ document.

#### **Clarification of Bids:**

- (i) To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the *Employer* may, at its discretion, ask any Bidder for a clarification of its bid including breakdown of unit rates, giving a reasonable time for response. Any clarification submitted by a Bidder that is not in response to a request by the *Employer* shall not be considered. The *Employer's* request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the *Employer* in the evaluation of the bids.
- (ii) If a Bidder does not provide clarifications of its bid by the date and time set in the *Employer's* request for clarification, its bid may be rejected.
- (b) Only Quotations that are both substantially responsive to the RFQ document and meet all Qualification Criteria shall qualify for financial evaluation.

- (c) The evaluation shall be based excluding GST and including any other taxes.
- (d) Employer shall notify in writing those Bidders who have failed to meet the Qualification Criteria or whose Quotations were considered non-responsive to the requirements in the RFQ document, advising them that their Quotation failed to meet the requirements of the RFQ document.

**11. Award of Contract:** The Employer will award the Contract to the Bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

- (a) Notwithstanding the above, the Employer reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
- (b) The Bidder whose quotation is accepted will be notified of the award of Contract by the Employer prior to expiration of the quotation validity period.
- (c) 100% Payment shall be made within 30 days of receipt of all deliverables as per the terms and conditions, acceptance of the same, and receipt of invoice, whichever is later. Payment of GST for the services at the time of invoicing, although already included in the total cost, will be at actual.

**12. Performance Security:** Within 15 days of receiving Letter of Acceptance, the successful Bidder shall deliver to the **The Executive Engineer, Burdwan Investigation & Planning Division, Irrigation & Waterways Directorate, Govt. of West Bengal** (Employer) the performance security (either a Bank Guarantee or a Fixed Deposit/Term Deposit Receipt in favour of the Employer) for an amount equivalent of **5 %** of the contract price. The Performance Security shall be valid beyond 45 days the contract completion period. Failure of the successful Bidder to furnish performance security and to sign the agreement within the period stipulated shall constitute sufficient grounds for annulment of award and debarring the bidder from participation in bidding for services/works by the Employer for a period of one year, in which case the Employer may make the award to the next lowest evaluated Bidder or seek quotations afresh.

**13.** Supply of all materials and equipment shall be the responsibility of the Bidder. Employer will not issue any material/equipment.

**14. Adjudicator:**

The Adjudicator proposed by the Employer is :- **Sri Kaushik Chattopadhyay**

The daily fee for this proposed Adjudicator shall be:- **Rs. 5000.00 only.**

The biographical data of the proposed Adjudicator is:- **Ex-Secretary to the Irrigation & Waterways Department, Govt. of West Bengal**

If the Bidder disagrees with this proposal, the Bidder should so state in the Quotation. If, in the Letter of Acceptance, the Employer has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by the President of the Institution of Engineers, [State] State Centre at the request of either party.

# **Description of Services**

## **1. BACKGROUND :**

West Bengal specially Purulia district have a number of weirs/ dams. Many of these sources are used for irrigation purpose and others daily uses also. These weirs/dams are often carry sediment discharge during monsoon period resulting gradual decline of reservoir capacity. Hence an integrated study of those weirs/dams are of huge importance.

## **2. OBJECTIVES OF THE PROPOSED WORK :**

The main objectives of the proposed work are:

i) To estimate and study the sedimentation behavior of reservoirs in different zones including horizontal zones throughout the reservoirs as well as vertical zones namely (a) dead storage (b) live storage (c) flood storage, if any.

ii) To develop contour map of reservoir beds.

iii) To upgrade Elevation-Area-Capacity tables /curves of reservoirs at regular intervals.

iv)To assess and review life expectancy of reservoirs, particularly in view of some apprehensions from certain quarters about the higher rate of sedimentation in reservoirs.

v) To recommend suitable measures for increased benefits and enhanced life of a reservoir, specific measures for Soil conservation, Catchment area treatment, Watershed details etc. should include in the report.

vi)To create database for developing regional sediment indices and facilitate Rational Sedimentation Planning of future reservoirs. To emphasize on the State Govt./Project Authorities on the importance of conducting systematic hydrographic surveys at regular intervals for better operation and management of existing reservoirs

## **3. SCOPE OF WORK :**

### **A. CAPACITY SURVEY:**

Under this request for proposal, the Contractor is expected to perform the following assignments and studies:-

- a. Mobilization of personnel, equipment, instruments, establishment of site camp etc.
- b. Lay out of Ground Control Stations including reconnaissance/preliminary surveys, if any.
- c. **Hydrographic survey**

Computer based Hydrographic survey shall be carried out within the water spread area so that reservoir area under water is covered at 50 m.x50m grid. For large reservoirs grid of 100 m x 100 m shall be adopted.

### **d. Topographic Survey**

The area not covered under Hydrographic survey up to MWL shall be surveyed by taking levels at 100 m. interval along range lines laid at 100 m interval. (50 m x 50 m grid). For large reservoirs grid of 100 m x 100 m shall be adopted.



**e. Collection of bed material samples**

Not less than 10 samples of the bed material shall be collected as per standard methods prescribed in APHA 1989 (American Public Health Association) covering the entire area of the reservoir to obtain sediment sizes, density, specific gravity, moisture content etc. Depth and location of sample collection are to be mentioned.

- f.** Collection of information from project authorities/any other agency including data on sediment yield from the upstream free catchment of the reservoir as well as accounting for the effect of upstream reservoirs, if any and incorporating of the same while writing the report.
- g. Analysis of data** to obtain elevation-area-capacity table/curves, contour plots, balance life of reservoir, cross sections, L-sections, vertical sediment distribution curve/table, estimation of sedimentation in different zones of reservoirs.
- h. Preparation of report** containing general information about the reservoir, catchment characteristics, details of capacity survey performed including methodology of data collected, analysis of data with standard guidelines/ procedures, finding of results, conclusion and recommendations keeping in view the objective of the study to the satisfaction of the Department.
- i.** Any difficulties/special problem encountered during the course of the study and how they were overcome may be included in the report.

**B. DATA ANALYSIS /PREPARATION OF TABLES/ CHARTS/ DRAWINGS/REPORT:-**

After completion of the capacity survey, the survey data shall be analyzed by the contractor to obtain the following:

- i) Elevation-Area-Capacity curves as well as table

Elevation-Area-Capacity curve along with table will be prepared from the lowest elevation up to MWL at 1.0m or less interval.

- ii) Assessment of effects of sedimentation on performance of reservoir and balance life of reservoir.

Assessment of sediment and its distribution in the reservoir shall be made and likely effects of such sedimentation on the performance of the reservoir shall be assessed. While analyzing the reservoir data, the validity of Empirical Area Reduction method using data of silt deposition collected during survey may also be checked out. The Consultant may refer to various standards/references including I.S. 12182-1987“Guidelines for Determination of Effects of Sedimentation in Planning and Performance of Reservoirs”, C.B.I. & P Publication on the subject and I.S. 5477 Part-II “Fixing Capacities of Reservoirs – Dead Storage”. Separate chapters are to be included in the report for “Sedimentation Analysis”,

- iii) Estimation of Sedimentation in different zones of reservoir

Loss of storage capacity and rate of sedimentation shall be worked out in each vertical zone separately viz. dead storage, live storage and flood storage, if any. An assessment of the sedimentation behaviors in different horizontal zones throughout the reservoirs may also be made.

- iv) Analysis of bed material samples

Laboratory analysis of the bed material samples collected from the reservoir bed be carried out to obtain sediment sizes, density, specific gravity, moisture content etc.

Analysis of samples should also be aimed to evaluate geometric standard deviation to know whether the sediment is uniform or non-uniform (Melville et al.). Kramer's coefficient shall also be evaluated. Method of calculation of bulk density (Lane's method or Miller's method or some other method) is to be mentioned.

v) Cross-Sections

Cross Sections showing the original bed profile, if available, and subsequent repeat surveys at every 1 km shall be provided. Raw data of cross sections at every survey line (as directed by the Project Manager) shall be provided as soft copy in CD to Department.

Officers of Department may be trained on the relevant software by the Contractor for conversion of raw data into analog form during analysis part of the survey, if required.

vi) L-Section

L-Section of the reservoirs may be prepared with the lowest bed levels at every survey line.

vii) Vertical Sediment Distribution

Vertical sediment distribution curve/table shall be provided. Plot between Percent Reservoir Depth and Percent Sediment Deposited is to be plotted as per IS 5477 PARTII 1994. "Fixing Capacities of Reservoirs – Dead Storage".

viii) Contour map of the reservoir

The contour map shall be prepared in appropriate size preferably in A0 size with contour at suitable interval from the lowest bed level to MWL.

ix) Trap Efficiency of Reservoir

The trap efficiency of reservoir is to be calculated according to Brune's trap efficiency curve as per I.S. 12182-1987 "Guidelines for Determination of Effects of Sedimentation in Planning and Performance of Reservoirs".

x) Charts/drawings for the report

All charts/drawings shall be appropriately reduced for inclusion in the report.

xi) The entire data observed during hydrographic survey by the Contractor and the subsequent report prepared by him shall be the exclusive property of concerned Department and the contractor has no right whatsoever to divulge the information/data to others without the specific written permission of Department .

**xi) Submission of Report :**

Submission of report comprising detail drawings , charts, graphs/curves, technical notes , photographs etc [both soft copy & hard copy] along with index map, topographic site plan showing all important features, sections in suitable scale etc. as per direction of PM/E.I.C.

- (i) A survey report in triplicate describing the conduct of the survey along with a soft copy and all observed data, along with original records , calculations shall be submitted to Department. The data furnished shall be adequate to re-plot the survey chart independently on the basis of these documents.
- (ii) The charts shall be plotted at 1:5000 scale or any other scale as directed by Project Manager showing soundings at 5.0 m intervals. U.T.M. grid and geographical grid shall be marked on the chart as per normal cartographic practice. Soundings shall be shown in meter (m). All charts/maps should display reference to the ground station and datum based on which the controls are fixed and shall indicate date/time of surveys and name of person in-charge carrying out the surveys.
- (iii) Master copy of the each chart/map shall be provided along with three hard copies and one soft copy on Compact Disc in a format compatible with AUTOCAD.

(iv) a) Apart from the hard copy of report & drawings , soft copies of all survey data are to be submitted in Excel, Arc-GIS and AutoCAD format for records and further analysis.

b) A .KMZ/.KML file of the detailed topographic survey shall be made from the survey data such that the layer can be visualized in Google Earth/Arc GIS Earth.

**NOTE : Reporting should comprise followings points :**

- (a) Contour map (Scale - 1:5000) [ contour interval should be 0.50 mtr ] covering at least 1.0 km outward horizontal distance beyond Maximum Water Level of the reservoir after stitching hydrographic and topographic survey maps.
- (b) Topographic map should show the location of hydraulic structures, public utility facilities like road/ rail etc.
- (c) Google map must show the location in Lat-Long collected by actual survey using DGPS/RTK along with photograph of that place/ structure.
- (d) Water level must be shown at the barrage gauge point site narrating Lat-Long and date and time.
- (e) Dam-Reservoir legacy data (Full Reservoir Level , Maximum Water Level , Sill Level , Top of Dam Level etc.) must be verified with the respective office of the I.&W. Deptt. GoWB.
- (f) Data in Table and Curves in Graph [ Elevation ( 100 mm interval) vs Water Surface Area and Capacity] of the Reservoir indicating of Sill Level, present Bed Level & Dead Storage Level , FRL, MWL etc.
- (g) 3D DEM picture of reservoirs as considered .
- (h) Bed soil sample and water sample must be taken at the inlet , mid-reservoir and u/s mouth of dam. These are required for the health monitoring of the reservoir.

**C. PROJECT TERMS:-**

**I. Period of Completion: 90 days** including rainy and festive season.

**II. Mode of Payment:** Payment will be made after successful completion of the work as a whole (as specified in the scope of work) on certification of the invoice (raised by the agency) by the Project Manager.

**4. TECHNICAL SPECIFICATIONS:-**

**1. Hydrographic Surveys:**

The Scope of work shall cover all technical aspects of hydrographic and topographic survey at par with standards including the following:-

1.1 The detailed hydrographic survey is to be carried out by using Automated Hydrographic Survey System. The survey is to be conducted in WGS 84 Horizontal datum& Vertical Datum EGM 96 or as per direction of Project Manager/Engineer-in-Charge.

The dam details are enumerated below:-

Sl. No.	Name of Dam	Area (Ha)	Name of Block	Location
1	Kestobazar Dam	8	Baghmundi	Purulia, W.B
2	Kulbera Dam	8	Baghmundi	Purulia, W.B
3	Tara Dam	41	Purulia	Purulia, W.B

4	Sankha Dam	14	Balarampur	Purulia, W.B
5	Kansai Dam	2	Jhalda – II	Purulia, W.B
6	Buridumur Dam	5	Arsha	Purulia, W.B
7	Majra Dam	21	Kashipur	Purulia, W.B
8	Bandajore Dam	8	Raghunathpur – II	Purulia, W.B
9	Fuljore Dam	5	Arsha	Purulia, W.B
10	Bandhu Dam	6	Arsha	Purulia, W.B

**TOTAL =118 Ha**

- Establishing vertical control (accuracy +0.1m) and establishing bench mark (accuracy + 10mm/ per Km. ) at suitable interval. [Transfer of Bench Mark/datum w.r.t. MSL]
- Establishing horizontal control and marking selected points on the shore at suitable intervals. (accuracy +20mm/per Km.)
- Special features like ghats, embankments, spurs, rock outcrops, shoals, hard clay banks, etc. should also be marked when encountered.
- Preparation and supply of charts and survey reports in hard copies as well in electro-magnetic form.
- To provide any clarifications/justification required by client during the acceptance of report for the work carried out by the bidders.

1.1.1 Details to be collected [other than soundings Depth]

Water Level observations during the period of survey

1.2.1 Technical Specifications

1.3.1 Establishment of Bench Mark

The levels shall be on the basis of GTS benchmarks in the vicinity. The contractor shall transfer the benchmark to the site. All levels shall be related to MSL. New Benchmark shall be established either on existing abutments, suitable structures or other monoliths which shall meet the stability requirement for benchmarks specified by Survey of India. Alternatively new benchmark of suitable type shall be built to Survey of India standards. Value of benchmarks shall be established to accuracy better than + 5 millimetres.

1.3.2 Establishment of Horizontal Control and marking the selected points on shore

Horizontal control established shall be properly connected to nearby G.T.S. or other points approved by Project Manager.

1.3.3 Establishment of Vertical Control

The vertical control shall be established with suitable water level gauges and/or GTS Bench Marks within or near the survey area. Sites of water level gauges should be carefully selected to ensure the free flow of water levels to and from the gauge locations. Approval of the site engineer should be obtained for the location(s) of the water level gauge(s). The leveling accuracy shall be + 0.05 m. For recording of water levels, water level gauges shall be erected at approved locations. The water levels shall be recorded at interval not more than 15 minutes. However, time and height of low water shall be accurately determined.

1.3.4 Carrying out Soundings

The sounding data shall be recorded and reported at an interval of 50m grid. Soundings shall be carried out using suitable equipment which yield accuracy of +0.10 m or better and maximum range should be 50m. Relevant environmental parameters which effect accuracy of echo sounding shall be measured regularly and appropriate correction shall be applied. 'Bar Checks' shall be carried out daily before commencement and after completion of days work. Bar Check equipment / tackle and its calibration shall be got approved from Project Manager/Engineer-in-Charge.

#### 1.3.5 Position Fixing

The contractor may however propose alternative position fixing system that meets above mentioned positional accuracy, provided at least 3 lines of position can be used to determine position. The position fixing system shall be calibrated against a most accurate system or a fixed base line before deployment to the satisfaction of Project Manager/Engineer-in-Charge. While taking soundings vessel shall be moved at a slow speed (not greater than 3 knots).

### **2. Topographic Survey:**

#### 2.1 Brief Scope of Work - Topographic Survey

- i. Establishing Bench Mark [TBM]
- ii. Establishing horizontal and vertical controls
- iii. Carrying out leveling/ traversing and mapping
- iv. Reporting and charting
- v. Furnishing any clarifications required by client during the process of acceptance of the reports
- vi. Topographic surveys of the area

#### 2.2 Topographic Survey map preferably to a scale of 1:5000, of the land adjacent to harbors area should be prepared. The plan should clearly show dry weather channels, with shoals and channels, embankments etc. Plan should also show all important structures like bridges, culverts, weirs, etc. Important towns/ villages located in the area covered in the plan may also be marked in the same plan. The contractor shall deploy a suitable traversing equipment to undertake survey with vertical accuracy of + 10mm./per km and horizontal accuracy of + 20mm / per km. However, at least 3 lines of position should be used to determine location.

#### 2.3 The contractor shall accurately delineate the various existing physical features such as high water and low water line, existing structures and road, hillock, houses, important town, villages en-route, roads, embankments, bridges, landmarks, location of gauge discharge stations, rain gauge stations, critical locations to be protected, location of bed/suspended sampling points etc. within the survey area and also mark important physical features which are adjacent to the survey area; important for orientation at the site as per directions of Project Manager/Engineer-in-Charge. An index map covering all these features shall be included in the report.

### **3. Reporting : Ref : “Scope of Work”**

- i. The contractor shall submit survey reports as per specification laid down. However, the contour shall be marked at an interval 0.50 mtr on the survey charts.
- ii. Survey maps shall be plotted at 1:5000 scale showing GTS bench marks and other important land marks. An Index Map showing entire area of survey and important relevant physical features shall also be incorporated and submitted in triplicate along with soft copy as specified.
- iii. The contractor shall also integrate the topographic survey map with hydrographic survey.

### **5. Service Provider’s qualification requirement (and any other requirements which will be used for evaluation )**

The bidder shall furnish the Technical Compliance Sheet as a part of his bid with supporting documents which establishing the bidder’s eligibility to bid and his qualification to participate in the bid, without fulfilling the following parameter the bidder is liable for rejection without arising any reason.

The bidder is qualified only when he is the actual service provider and meets the required norms as specified below and all original evidences to be produced in due course of time as & when asked by the Tender/Quotation Inviting Authority :

TECHNICAL COMPLIANCE SHEET		
No	Item	Yes/No
1	The bidder having experience in similar nature of work & complexity	
2	The bidder having experienced manpower in hydrographic & topographical survey as required for the job	
3	The bidder having requisite equipment as required for the job	

#### **6. TASKS AND DELIVERABLES**

As specified in Scope of Work.

#### **7. REPORTING AND REVIEW**

The contractor should execute the work as per the direction of Project Manager/Engineer-in-Charge.

#### **8. DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT**

- Index Map showing weirs/dams network within working jurisdiction from concerned Division /Sub-Division offices under Irrigation & Waterways Department, GoWB.
- Reference Bench Mark point locations and corresponding values as per availability from concern Division /Sub-Division offices under Irrigation & Waterways Department, GoWB
- Information on available hydrologic & other data of project sites from concern Division /Sub-Division offices under Irrigation & Waterways Department, GoWB

## **Quotation Forms**

# LETTER OF QUOTATION

*The Bidder must prepare the Letter of Quotation on stationery with its letterhead clearly showing the Bidder complete name and address. The italicized text is for Bidder's guidance in preparing these forms and shall be deleted from the final products.*

RFQ No.: [insert identification]

Our Reference: No..... Dated.....

To  
The Executive Engineer  
Burdwan Investigation & Planning Division,  
I&WD, Govt. of West Bengal,  
Purta Bhawan, 3rd Floor,  
Purba Burdwan-713103  
West Bengal

Subject: **Hydrographic & Topographic Survey of reservoir area and dams/weirs of  
10(ten) nos. of Irrigation schemes in Purulia District under NHP of I.&W.  
Department, GoWB**

Sir,

1. We, the undersigned, hereby submit our Quotation.
2. In submitting our Quotation, we make the following declarations:
  - (a) No reservations: We have examined and have no reservations to the RFQ Document;
  - (b) Quotation Validity Period: Our Quotation shall be valid for the period of 45 days, from the deadline fixed for the Quotation submission;
  - (c) Eligibility: We meet the eligibility requirements and have no conflict of interest, we are not participating in more than one quotation in this bidding process, and we have not been temporarily suspended or debarred by the World Bank or blacklisted or suspended the government department/semi-government/public sector organization in India;
  - (d) Fraud and Corruption: We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of corrupt, fraudulent, collusive, coercive, or obstructive practices; and we will strictly observe the laws against fraud and corruption in force in India namely, "Prevention of Corruption Act 1988."
  - (e) Commissions, gratuities and fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: [insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity. If none has been paid or is to be paid, indicate "none."]
  - (f) We are not participating as a Joint Venture in this bidding process.
  - (g) We accept the appointment of [name proposed in the RFQ] as the Adjudicator.  
[or]  
We do not accept the appointment of [name proposed in the RFQ] as the Adjudicator, and propose instead that [name] be appointed as Adjudicator, whose daily fees and biographical data are attached.
  - (h) The total price of our Quotation, including any unconditional discounts offered is:  
Total price of the Quotation[insert the total price of the quotation excluding GST and including any other taxes, in words and figures];



Yours faithfully,

Authorized Signature\*

Name & Title of Signatory \_\_\_\_\_

In the capacity of [insert legal capacity of person signing the Letter of Quotation]

Name of Bidder \_\_\_\_\_

Address \_\_\_\_\_

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

\*Authorization of a person to sign on behalf of the Bidder:

The written confirmation of authorization to sign on behalf of the Bidder shall consist of an organizational document, board resolution or its equivalent, or power of attorney specifying the representative's authority to sign the Quotation on behalf of the Bidder.

## PRICE SCHEDULE FORM

<b>Tender Inviting Authority: The Executive Engineer, Burdwan Investigation &amp; Planning Division</b>								
<b>Name of Work: "Hydrographic &amp; Topographic Survey of reservoir area and dams/weirs of 10(ten) nos. of Irrigation Schemes in Purulia District under NHP of I&amp;W Deptt.,GoWB."</b>								
<b>Contract No: WBIW/NHP/RFQ-03/2020-21</b>								
<b>Name of the Bidder/ Bidding Firm / Company :</b>								
<b><u>PRICE SCHEDULE</u></b> <b>(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)</b>								
<b>NUMBER #</b>	<b>TEXT #</b>	<b>NUMBER #</b>	<b>TEXT #</b>	<b>NUMBER #</b>	<b>NUMBER #</b>	<b>NUMBER #</b>	<b>NUMBER #</b>	<b>TEXT #</b>
<b>Sl. No.</b>	<b>Item Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Quoted Unit Rate With All Taxes And All Incidentals Excluding GST in INR</b>	<b>Total GST applicable per item in INR</b>	<b>TOTAL AMOUNT Without Taxes [Col. (4*13)]</b>	<b>TOTAL AMOUNT With Taxes [Col. (51 + 53)]</b>	<b>TOTAL AMOUNT In Words</b>
<b>1</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>13</b>	<b>51</b>	<b>53</b>	<b>54</b>	<b>55</b>
1	<b>Survey work -</b>							
1.01	Hydrographic & Topographic Survey of reservoir area and dams/weirs of irrigation scheme in Purulia District by using instruments like Total Station, RTK-DGPS, Eco-Sounder etc, collection of sediment / bed material samples, analysis of data & collected samples, preparation and submission of reports comprising of various tables/ charts/ graphs /drawings /technical notes / photographs etc. in accordance with scope of work and as per direction of Project Manager/Engineer-in-Charge -----complete.  Note: The rate is inclusive of all incidental charges like all types of carriage, engagement of manpower & instruments/equipment etc. as applicable to complete to work in all respect.	118.00	ha			0.000	0.000	INR Zero Only
<b>Total in Figures</b>						0.00	0.00	INR Zero Only
<b>Quoted Rate in Words</b>		<b>INR Zero Only</b>						

*\*Payment of GST payable for the services at the time of invoicing, although already included in the total cost, will be at actual.*

We agree to perform the above services in accordance with the Description of Services for a total contract price (including all taxes and duties) of INR. ....(Amount in figures) (Indian Rupees ..... amount in words) [insert total price exclusive GST and inclusive any other taxes] within the period specified in the Request for Quotations.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices (as defined in the prevailing World Bank's sanctions procedures) in competing for or in performing the Contract.

**Signature of Bidder with seal**

## Proforma for performance statement

RFQ No. -----

Name of Bidder -----

*[for a period of last 03 financial years ]*

NAME OF WORK	WORK ORDER REFERENCE	ORDER PLACED BY	DESCRIPTION OF SERVICES	VALUE OF ORDER	DATE OF COMPLETION	VALUE OF SERVICES AT COMPLETION	REMARKS IF ANY

**SIGNATURE OF BIIDDER**

## PERFORMANCE BANK GUARANTEE

*(To be given from a nationalized or scheduled bank in India)*

To:

*The Executive Engineer*

*Burdwan Investigation & Planning Division,  
I&WD, Govt. of West Bengal. PurbaBhawan, 3rd Floor,  
PurbaBurdwan-713103  
West Bengal*

Whereas *[name and address of Service Provider]* (hereinafter called “the Service Provider”) has undertaken, in pursuance of Contract No. *[number]* dated *[date]* to execute :  
(hereinafter called “the Contract”);

And whereas it has been stipulated by you in the said Contract that the Service Provider shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

And whereas we have agreed to give the Service Provider such a Bank Guarantee;

Now therefore we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Service Provider, up to a total of *[amount of Guarantee]* *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of Guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Service Provider before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Services to be performed there under or of any of the Contract documents which may be made between you and the Service Provider shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall be valid until a date 45 days from the date of completion of the Services.

Signature and seal of the Guarantor

Name of Bank

Address

Date

# **FORM OF AFFIDAVIT FOR CORRECTNESS OF INFORMATION AND DOCUMENTS TO BE SUBMITTED WITH BID**

[This affidavit should be on a non-judicial stamp paper of Rs.10/- and shall be attested by Magistrate/ Sub-Judge/ Notary Public]

I, .....(name of the authorized representative of the Bidder) solemnly affirm and state as under:

1. I hereby certify that all the information and documents furnished with the Bid submitted online in response to IFB number ..... date ..... issued by ..... (authority inviting bids) for ..... (name and identification of work) are true and correct.

2. \*I hereby certify that I have been authorized by ..... (the bidder) to sign on their behalf, the Bid mentioned in paragraph 1 above.

Deponent

Place: .....

Date: .....

\* This sub-paragraph is not applicable if the Bidder is an individual and is signing the Bid on his own behalf.

## LETTER OF ACCEPTANCE

*[letterhead paper of the Employer]*

*[date]*

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

This is to notify you that your Quotation dated *[date]* for execution of the *[name of the Contract and identification number as given in RFQ]* for the Contract Price of the equivalent of INR *[amount in numbers and words]*, as corrected and modified in accordance with Request for Quotations (RFQ) is hereby accepted by our Agency.

You are hereby requested to furnish performance security for an amount of INR \_\_\_\_\_ *[equivalent to 5% of the contract price]* within 15 days of the receipt of the letter. The Performance Security in the form of Bank guarantee or a Fixed Deposit/ Term Deposit Receipt in favour of..... (Employer) shall be valid beyond 45 days the contract completion period. Failure to furnish the Performance Security will entail cancellation of the award of contract.

You are also requested to return the Contract Agreement duly signed.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

# DRAFT CONTRACT AGREEMENT

1. This deed of agreement is made in the form of agreement on \_\_\_\_\_ day \_\_\_\_\_ month \_\_\_\_\_ 20 \_\_\_\_, between the \_\_\_\_\_ (Employer) or his authorized representative (hereinafter referred to as the first party) and \_\_\_\_\_ (Name of the Service Provider), S/O \_\_\_\_\_ resident of \_\_\_\_\_ (hereinafter referred to as the second party), to execute the non-consulting services of **Hydrographic & Topographic Survey of reservoir area and dams/weirs of 10(ten) nos. of Irrigation schemes in Purulia District under NHP of I&W Deptt.,GoWB.** (hereinafter referred to as services) on the following terms and conditions.

2. **Contract Price**

The total Contract Price for the services (hereinafter referred to as the “total price”) is \_\_\_\_\_ INR (excluding/including(*Choose one option*)Goods and Services Tax).

- 2.1. **Payments under the Contract**

Payments to the second party for the services will be released by the first party in the following manner:

100% Payment to the second party for the works/services will be released by the first party after completion of all works/services as per schedule-specification by maintaining all terms & condition and receipt & acceptance of all deliverables as a whole as per direction & satisfaction of Project Manager.

- 2.2 Payments will be made on certification of the invoice by the Project Manager nominated by the first party with respect to quality/quantity of services executed in the format in **Annexure I.**

- 2.3 **Project Manager:** The Dy. Director (Hydrology), River Research Institute will act as Project Manager on behalf of the I&W Department and Executive Engineer, Purulia Investigation & Planning Division will provide all sorts of logistic support and data during the execution of the work.

3. **Notice by Service Provider to Employer**

The second party, on the services reaching each stage of execution, issue a notice to the first party or the Project Manager nominated by the first party (who is responsible for supervising the Service Provider, administering the contract, certifying the payments due to the Service Provider, issuing and valuing variations to the contract, awarding extensions of time etc.), to visit the site for certification of stage completion. Within 15 days of the receipt of such notice, the first party or the Project Manager nominated by it, will ensure issue of stage completion certificate after due verification.

4. **Completion Time**

The services should be completed in 3(three) months from the date of this Agreement. In exceptional circumstances, the time period stated in this clause may be extended in writing by mutual consent of both the parties.

5. If any of the compensation events mentioned below would prevent the services being completed by the intended completion date, the first party will decide on the intended completion date being extended by a suitable period:

- (a) The first party orders a delay for execution of the services on time.
- (b) Ground conditions are substantially more adverse than could reasonably have been assumed before issue of letter of acceptance and from information provided to second party or from visual inspection of the site.
- (c) Payments due to the second party are delayed without reason.
- (d) Certification for stage completion of the services is delayed unreasonably.

6. Any willful delay on the part of the second party in completing the services within the stipulated period will render him liable to pay liquidated damages. @ INR \*0.05% of the contract value per day which will be deducted from payments due to him. The first party may cancel the contract and take recourse to such other action as deemed appropriate once the total amount of liquidated damages exceeds 5 % of the contract amount.

## **7. Duties and Responsibilities of the First Party**

- 7.1. The first party shall be responsible for providing regular and frequent supervision and guidance to the second party for carrying out the services as per description of services. This will include written guidelines and regular site visit of the authorized personnel of the first party, for checking quality of services to ensure that it is as per the norms.
- 7.2. The Project Manager or such other person as may be authorized by the first party shall hold meeting once in a fortnight where the second party or his representative will submit the latest information including progress report and difficulties if any, in the execution of the services. The whole team may jointly inspect the site on a particular day to take stock of activities.
- 7.3. The Project Manager shall record his observations/instructions at the time of his site visit. The second party will carry out the instructions and promptly rectify any deviations pointed out by the Project Manager. If the deviations are not rectified, within the time specified in the Project Manager's notice, the first party as well as the Project Manager nominated by it, may instruct stoppage or suspension of the services. It shall there upon be open to the first party or the Project Manager to have the deviations rectified at the cost of the second party.

## **8. Duties and Responsibilities of the Second Party**

- 8.1. The second party shall:
  - (a) take up the services and arrange for its completion within the time period stipulated in Clause0;
  - (b) employ suitable manpower and equipment to carry out the services;
  - (c) regularly supervise and monitor the progress of services;
  - (d) abide by the technical suggestions/direction of supervisory personnel designated by the Employer;



- (e) be responsible for bringing any discrepancy to the notice of the representative of the first party and seek necessary clarification;
- (f) ensure that the service is carried out in accordance with specifications, drawings and within the total of the contract amount without any cost escalation;
- (g) keep the first party informed about the progress of services;
- (h) maintain necessary insurance against loss of equipment and property etc. or workman disability compensation claims of the personnel deployed on the services as well as third party claims.
- (i) pay all duties, taxes and other levies payable by service providers' agencies as per law under the contract (First party will effect deduction (TDS) from running bills in respect of such taxes as may be imposed under the law).

## **9. Variations / Extra Items**

The services shall be carried out by the second party in accordance with the approved description of services. However, if, on account of any other factors, variations are considered necessary, the following procedure shall be followed:

- (a) The second party shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven days of the request before the Variation is ordered.
- (b) If the quotation given by the second party is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price which shall be based on Project Manager's own forecast of the effects of the Variation on the Service Provider's costs.
- (c) The second party shall not be entitled to additional payment for costs which could have been avoided by giving early warning.

## **10. Securities**

The Performance Security (either a Bank Guarantee in the format attached or Fixed Deposit/ Term Deposit Receipt from a Nationalized or Scheduled Bank in India) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer. The Performance Security shall be valid beyond 45 days the completion period.

## **11. Termination**

### **11.1. By the Employer**

The Employer may terminate this Contract, by not less than 15 days' written notice of termination to the Service Provider, to be given after the occurrence of any of the events specified below:

- (a) if the Service Provider does not remedy a failure in the performance of its obligations under the Contract, within 15 days after being notified or within

any further period as the Employer may have subsequently approved in writing;

- (b) if the Service Provider become insolvent or bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (c) if, as the result of Force Majeure (means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.), the Service Provider is unable to perform a material portion of the services for a period of not less than 30 days; or
- (d) if the Service Provider, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for, then the Employer may after giving fourteen days written notice to the Service provider, terminate the contract and expel him from the site.

### **11.2. By the Service Provider**

The Service Provider may terminate this Contract, by not less than 15 days' written notice to the Employer, such notice to be given after the occurrence of any of the events specified below:

- (a) if the Employer fails to pay any monies due to the Service Provider pursuant to this Contract and not subject to dispute pursuant to Clause 0 within 45 days after receiving written notice from the Service Provider that such payment is overdue; or
- (b) if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the services for a period of not less than 30 days.

### **11.3. Suspension of Loan or Credit**

In the event that the World Bank suspends the loan or Credit to the Employer, from which part of the payments to the Service Provider are being made, the Employer is obligated to notify the Service Provider of such suspension within 7 days of having received the World Bank's suspension notice.

## **12. Payment upon Termination**

Upon termination of this Contract, the Employer shall make the following payments to the Service Provider:

- (a) payment for services satisfactorily performed less advances or other recoveries or any taxes to be deducted at source (TDS) as per applicable law, prior to the effective date of termination;
- (b) except in the case of termination pursuant to paragraphs (a), (b), (d) of Sub-Clause 11.1, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract, including the cost of the return travel of the Personnel.

### **13. Settlement of Disputes**

**13.1. Amicable Settlement:** The Employer and Bidder shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

#### **13.2. Dispute Settlement**

- (a) If any dispute arises between the Employer and the Service Provider in connection with, or arising out of, the Contract or the provision of the services, whether during carrying out the services or after their completion, the matter shall be referred to the Adjudicator within 14 days of the notification of disagreement of one party to the other.
- (b) The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.
- (c) The Adjudicator shall be paid by the hour at the rate specified above together with reimbursable expenses for vehicle hire, food and lodging, if required, as agreed in connection with the adjudication procedure, and the cost shall be divided equally between the Employer and the Bidder, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.
- (d) The arbitration shall be conducted in accordance with the Arbitration and Conciliation Act, 1996 and latest amendment.
- (e) Should the Adjudicator resign or die, or should the Employer and the Bidder agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Employer and the Bidder. In case of disagreement between the Employer and the Bidder, within 30 days, the Adjudicator shall be designated by the President of the Institution of Engineers, [State] State Centre at the request of either party, within 14 days of receipt of such request.

### **14. Corrupt and Fraudulent Practices**

The World Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section 4. In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the Bank to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

The Format of Certificate (**Annexure-I**) & Description of Services (**Annexure-II**) are attached.

Signed and delivered by Sri. \_\_\_\_\_ for and on behalf of the Service Provider

In the presence of the Witness:

i)

ii)

**SIGNATURE**

Signed and delivered by Sri \_\_\_\_\_ for and on behalf of the Employer.

In the presence of the Witness:

i)

ii)

**SIGNATURE**

**Annexure I**  
**FORMAT OF CERTIFICATE**

Certified that the services upto ----- stage in respect  
of non-consulting services of ----- RFQ No. -----  
---have been executed satisfactorily in accordance with the terms and conditions of the  
agreement and as per approved specifications.

Signature  
Name & Designation

(Official address)  
Place:  
Date:

Office seal

## **Annexure II**

### **DESCRIPTION OF SERVICES**

#### **1. BACKGROUND :**

West Bengal specially Purulia district have a number of weirs/ dams. Many of these sources are used for irrigation purpose and others daily uses also. These weirs/dams are often carry sediment discharge during monsoon period resulting gradual decline of reservoir capacity. Hence an integrated study of those weirs/dams are of huge importance.

#### **2. OBJECTIVES OF THE PROPOSED WORK :**

The main objectives of the proposed work are:

- i) To estimate and study the sedimentation behavior of reservoirs in different zones including horizontal zones throughout the reservoirs as well as vertical zones namely (a) dead storage (b) live storage (c) flood storage, if any.
- ii) To develop contour map of reservoir beds.
- iii) To upgrade Elevation-Area-Capacity tables /curves of reservoirs at regular intervals.
- iv) To assess and review life expectancy of reservoirs, particularly in view of some apprehensions from certain quarters about the higher rate of sedimentation in reservoirs.
- v) To recommend suitable measures for increased benefits and enhanced life of a reservoir, specific measures for Soil conservation, Catchment area treatment, Watershed details etc. should include in the report.
- vi) To create database for developing regional sediment indices and facilitate Rational Sedimentation Planning of future reservoirs. To emphasize on the State Govt./Project Authorities on the importance of conducting systematic hydrographic surveys at regular intervals for better operation and management of existing reservoirs

#### **3. SCOPE OF WORK :**

##### **B. CAPACITY SURVEY:**

Under this request for proposal, the Contractor is expected to perform the following assignments and studies:-

- j. Mobilization of personnel, equipment, instruments, establishment of site camp etc.
- k. Lay out of Ground Control Stations including reconnaissance/preliminary surveys, if any.
- l. **Hydrographic survey**

Computer based Hydrographic survey shall be carried out within the water spread area so that reservoir area under water is covered at 50 m.x50m grid. For large reservoirs grid of 100 m x 100 m shall be adopted.

##### **m. Topographic Survey**

The area not covered under Hydrographic survey up to MWL shall be surveyed by taking levels at 100 m. interval along range lines laid at 100 m interval. (50 m x 50 m grid). For large reservoirs grid of 100 m x 100 m shall be adopted.

**n. Collection of bed material samples**

Not less than 10 samples of the bed material shall be collected as per standard methods prescribed in APHA 1989 (American Public Health Association) covering the entire area of the reservoir to obtain sediment sizes, density, specific gravity, moisture content etc. Depth and location of sample collection are to be mentioned.

- o.** Collection of information from project authorities/any other agency including data on sediment yield from the upstream free catchment of the reservoir as well as accounting for the effect of upstream reservoirs, if any and incorporating of the same while writing the report.
- p. Analysis of data** to obtain elevation-area-capacity table/curves, contour plots, balance life of reservoir, cross sections, L-sections, vertical sediment distribution curve/table, estimation of sedimentation in different zones of reservoirs.
- q. Preparation of report** containing general information about the reservoir, catchment characteristics, details of capacity survey performed including methodology of data collected, analysis of data with standard guidelines/ procedures, finding of results, conclusion and recommendations keeping in view the objective of the study to the satisfaction of the Department.
- r.** Any difficulties/special problem encountered during the course of the study and how they were overcome may be included in the report.

**B. DATA ANALYSIS /PREPARATION OF TABLES/ CHARTS/ DRAWINGS/REPORT:-**

After completion of the capacity survey, the survey data shall be analyzed by the contractor to obtain the following:

- i) Elevation-Area-Capacity curves as well as table

Elevation-Area-Capacity curve along with table will be prepared from the lowest elevation up to MWL at 1.0m or less interval.

- ii) Assessment of effects of sedimentation on performance of reservoir and balance life of reservoir.

Assessment of sediment and its distribution in the reservoir shall be made and likely effects of such sedimentation on the performance of the reservoir shall be assessed. While analyzing the reservoir data, the validity of Empirical Area Reduction method using data of silt deposition collected during survey may also be checked out. The Consultant may refer to various standards/references including I.S. 12182-1987“Guidelines for Determination of Effects of Sedimentation in Planning and Performance of Reservoirs”, C.B.I. & P Publication on the subject and I.S. 5477 Part-II “Fixing Capacities of Reservoirs – Dead Storage”. Separate chapters are to be included in the report for “Sedimentation Analysis”,

- iii) Estimation of Sedimentation in different zones of reservoir

Loss of storage capacity and rate of sedimentation shall be worked out in each vertical zone separately viz. dead storage, live storage and flood storage, if any. An assessment of the sedimentation behaviors in different horizontal zones throughout the reservoirs may also be made.

- iv) Analysis of bed material samples

Laboratory analysis of the bed material samples collected from the reservoir bed be carried out to obtain sediment sizes, density, specific gravity, moisture content etc.

Analysis of samples should also be aimed to evaluate geometric standard deviation to know whether the sediment is uniform or non-uniform (Melville et al.). Kramer's coefficient shall also be evaluated. Method of calculation of bulk density (Lane's method or Miller's method or some other method) is to be mentioned.

v) Cross-Sections

Cross Sections showing the original bed profile, if available, and subsequent repeat surveys at every 1 km shall be provided. Raw data of cross sections at every survey line (as directed by the Project Manager) shall be provided as soft copy in CD to Department.

Officers of Department may be trained on the relevant software by the Contractor for conversion of raw data into analog form during analysis part of the survey, if required.

vi) L-Section

L-Section of the reservoirs may be prepared with the lowest bed levels at every survey line.

vii) Vertical Sediment Distribution

Vertical sediment distribution curve/table shall be provided. Plot between Percent Reservoir Depth and Percent Sediment Deposited is to be plotted as per IS 5477 PARTII 1994. "Fixing Capacities of Reservoirs – Dead Storage".

viii) Contour map of the reservoir

The contour map shall be prepared in appropriate size preferably in A0 size with contour at suitable interval from the lowest bed level to MWL.

ix) Trap Efficiency of Reservoir

The trap efficiency of reservoir is to be calculated according to Brune's trap efficiency curve as per I.S. 12182-1987 "Guidelines for Determination of Effects of Sedimentation in Planning and Performance of Reservoirs".

x) Charts/drawings for the report

All charts/drawings shall be appropriately reduced for inclusion in the report.

xi) The entire data observed during hydrographic survey by the Contractor and the subsequent report prepared by him shall be the exclusive property of concerned Department and the contractor has no right whatsoever to divulge the information/data to others without the specific written permission of Department .

**xi) Submission of Report :**

Submission of report comprising detail drawings , charts, graphs/curves, technical notes , photographs etc [both soft copy & hard copy] along with index map, topographic site plan showing all important features, sections in suitable scale etc. as per direction of PM/E.I.C.

(v) A survey report in triplicate describing the conduct of the survey along with a soft copy and all observed data, along with original records , calculations shall be submitted to Department. The data furnished shall be adequate to re-plot the survey chart independently on the basis of these documents.

(vi) The charts shall be plotted at 1:5000 scale or any other scale as directed by Project Manager showing soundings at 5.0 m intervals. U.T.M. grid and geographical grid shall be marked on the chart as per normal cartographic practice. Soundings shall be shown in meter (m). All charts/maps should display reference to the ground station and datum based on which the controls are fixed and shall indicate date/time of surveys and name of person in-charge carrying out the surveys.



(vii) Master copy of the each chart/map shall be provided along with three hard copies and one soft copy on Compact Disc in a format compatible with AUTOCAD.

(viii) a) Apart from the hard copy of report & drawings , soft copies of all survey data are to be submitted in Excel, Arc-GIS and AutoCAD format for records and further analysis.

b) A .KMZ/.KML file of the detailed topographic survey shall be made from the survey data such that the layer can be visualized in Google Earth/Arc GIS Earth.

**NOTE : Reporting should comprise followings points :**

- (i) Contour map (Scale - 1:5000) [ contour interval should be 0.50 mtr ] covering at least 1.0 km outward horizontal distance beyond Maximum Water Level of the reservoir after stitching hydrographic and topographic survey maps.
- (j) Topographic map should show the location of hydraulic structures, public utility facilities like road/ rail etc.
- (k) Google map must show the location in Lat-Long collected by actual survey using DGPS/RTK along with photograph of that place/ structure.
- (l) Water level must be shown at the barrage gauge point site narrating Lat-Long and date and time.
- (m) Dam-Reservoir legacy data (Full Reservoir Level , Maximum Water Level , Sill Level , Top of Dam Level etc.) must be verified with the respective office of the I.&W. Deptt. GoWB.
- (n) Data in Table and Curves in Graph [ Elevation ( 100 mm interval) vs Water Surface Area and Capacity] of the Reservoir indicating of Sill Level, present Bed Level & Dead Storage Level , FRL, MWL etc.
- (o) 3D DEM picture of reservoirs as considered .
- (p) Bed soil sample and water sample must be taken at the inlet , mid-reservoir and u/s mouth of dam. These are required for the health monitoring of the reservoir.

**C. PROJECT TERMS:-**

**III. Period of Completion: 90 days** including rainy and festive season.

**IV. Mode of Payment:** Payment will be made after successful completion of the work as a whole (as specified in the scope of work) on certification of the invoice (raised by the agency) by the Project Manager.

**4. TECHNICAL SPECIFICATIONS:-**

**2. Hydrographic Surveys:**

The Scope of work shall cover all technical aspects of hydrographic and topographic survey at par with standards including the following:-

1.1 The detailed hydrographic survey is to be carried out by using Automated Hydrographic Survey System. The survey is to be conducted in WGS 84 Horizontal datum& Vertical Datum EGM 96 or as per direction of Project Manager/Engineer-in-Charge.

The dam details are enumerated below:-

Sl. No.	Name of Dam	Area (Ha)	Name of Block	Location
1	Kestobazar Dam	8	Baghmundi	Purulia, W.B
2	Kulbera Dam	8	Baghmundi	Purulia, W.B
3	Tara Dam	41	Purulia	Purulia, W.B
4	Sankha Dam	14	Balarampur	Purulia, W.B
5	Kansai Dam	2	Jhalda – II	Purulia, W.B
6	Buridumur Dam	5	Arsha	Purulia, W.B
7	Majra Dam	21	Kashipur	Purulia, W.B
8	Bandajore Dam	8	Raghunathpur – II	Purulia, W.B
9	Fuljore Dam	5	Arsha	Purulia, W.B
10	Bandhu Dam	6	Arsha	Purulia, W.B

**TOTAL =118 Ha**

- Establishing vertical control (accuracy +0.1m) and establishing bench mark (accuracy + 10mm/ per Km. ) at suitable interval. [Transfer of Bench Mark/datum w.r.t. MSL]
- Establishing horizontal control and marking selected points on the shore at suitable intervals. (accuracy +20mm/per Km.)
- Special features like ghats, embankments, spurs, rock outcrops, shoals, hard clay banks, etc. should also be marked when encountered.
- Preparation and supply of charts and survey reports in hard copies as well in electro-magnetic form.
- To provide any clarifications/justification required by client during the acceptance of report for the work carried out by the bidders.

1.1.1 Details to be collected [other than soundings Depth]

Water Level observations during the period of survey

1.2.1 Technical Specifications

1.3.1 Establishment of Bench Mark

The levels shall be on the basis of GTS benchmarks in the vicinity. The contractor shall transfer the benchmark to the site. All levels shall be related to MSL. New Benchmark shall be established either on existing abutments, suitable structures or other monoliths which shall meet the stability requirement for benchmarks specified by Survey of India. Alternatively new benchmark of suitable type shall be built to Survey of India standards. Value of benchmarks shall be established to accuracy better than + 5 millimetres.

1.3.2 Establishment of Horizontal Control and marking the selected points on shore

Horizontal control established shall be properly connected to nearby G.T.S. or other points approved by Project Manager.

1.3.3 Establishment of Vertical Control

The vertical control shall be established with suitable water level gauges and/or GTS Bench Marks within or near the survey area. Sites of water level gauges should be carefully selected to ensure the free flow of water levels to and from the gauge locations. Approval of the site engineer should be obtained for the location(s) of the water level gauge(s). The leveling accuracy shall be + 0.05 m. For recording of water levels, water level gauges shall be erected at approved locations. The water levels shall be recorded at interval not more than 15 minutes. However, time and height of low water shall be accurately determined.

1.3.4 Carrying out Soundings

The sounding data shall be recorded and reported at an interval of 50m grid.

Soundings shall be carried out using suitable equipment which yield accuracy of +0.10 m or better and maximum range should be 50m. Relevant environmental parameters which effect accuracy of echo sounding shall be measured regularly and appropriate correction shall be applied. 'Bar Checks' shall be carried out daily before commencement and after completion of days work. Bar Check equipment / tackle and its calibration shall be got approved from Project Manager/Engineer-in-Charge.

#### 1.3.5 Position Fixing

The contractor may however propose alternative position fixing system that meets above mentioned positional accuracy, provided at least 3 lines of position can be used to determine position. The position fixing system shall be calibrated against a most accurate system or a fixed base line before deployment to the satisfaction of Project Manager/Engineer-in-Charge. While taking soundings vessel shall be moved at a slow speed (not greater than 3 knots).

### **2. Topographic Survey:**

#### 2.1 Brief Scope of Work - Topographic Survey

vii. Establishing Bench Mark [TBM]

viii. Establishing horizontal and vertical controls

ix. Carrying out leveling/ traversing and mapping

x. Reporting and charting

xi. Furnishing any clarifications required by client during the process of acceptance of the reports

xii. Topographic surveys of the area

#### 2.2 Topographic Survey map preferably to a scale of 1:5000, of the land adjacent to harbors area should be prepared. The plan should clearly show dry weather channels, with shoals and channels, embankments etc. Plan should also show all important structures like bridges, culverts, weirs, etc. Important towns/ villages located in the area covered in the plan may also be marked in the same plan. The contractor shall deploy a suitable traversing equipment to undertake survey with vertical accuracy of + 10mm./per km and horizontal accuracy of + 20mm / per km. However, at least 3 lines of position should be used to determine location.

#### 2.3 The contractor shall accurately delineate the various existing physical features such as high water and low water line, existing structures and road, hillock, houses, important town, villages en-route, roads, embankments, bridges, landmarks, location of gauge discharge stations, rain gauge stations, critical locations to be protected, location of bed/suspended sampling points etc. within the survey area and also mark important physical features which are adjacent to the survey area; important for orientation at the site as per directions of Project Manager/Engineer-in-Charge. An index map covering all these features shall be included in the report.

### **4. Reporting : Ref : "Scope of Work"**

iii. The contractor shall submit survey reports as per specification laid down. However, the contour shall be marked at an interval 0.50 mtr on the survey charts.

iv. Survey maps shall be plotted at 1:5000 scale showing GTS bench marks and other important land marks. An Index Map showing entire area of survey and important relevant physical features shall also be incorporated and submitted in triplicate along with soft copy as specified.

iii. The contractor shall also integrate the topographic survey map with hydrographic survey.

**5. Service Provider's qualification requirement (and any other requirements which will be used for evaluation )**

The bidder shall furnish the Technical Compliance Sheet as a part of his bid with supporting documents which establishing the bidder's eligibility to bid and his qualification to participate in the bid, without fulfilling the following parameter the bidder is liable for rejection without arising any reason.

The bidder is qualified only when he is the actual service provider and meets the required norms as specified below and all original evidences to be produced in due course of time as & when asked by the Tender/Quotation Inviting Authority :

TECHNICAL COMPLIANCE SHEET		
No	Item	Yes/No
1	The bidder having experience in similar nature of work & complexity	
2	The bidder having experienced manpower in hydrographic & topographical survey as required for the job	
3	The bidder having requisite equipment as required for the job	

**6. TASKS AND DELIVERABLES**

As specified in Scope of Work.

**9. REPORTING AND REVIEW**

The contractor should execute the work as per the direction of Project Manager/Engineer-in-Charge.

**10. DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT**

- Index Map showing weirs/dams network within working jurisdiction from concerned Division /Sub-Division offices under Irrigation & Waterways Department, GoWB.
- Reference Bench Mark point locations and corresponding values as per availability from concern Division /Sub-Division offices under Irrigation & Waterways Department, GoWB
- Information on available hydrologic & other data of project sites from concern Division /Sub-Division offices under Irrigation & Waterways Department, GoWB

# NOTICE TO PROCEED WITH THE NON-CONSULTANCY SERVICES

*[letterhead paper of the Employer]*

\_\_\_\_\_ (date)

To

\_\_\_\_\_ (name and address of the Service Provider)

\_\_\_\_\_

\_\_\_\_\_

Pursuant to your furnishing the requisite security as stipulated in RFQ Clause 12, and as stated in letter of acceptance and signing of the contract agreement for the non-consulting services of \_\_\_\_\_@ a Contract Price of INR\_\_\_\_\_, you are hereby instructed to proceed with the execution of the said services in accordance with the contract documents.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

# **BANK GUARANTEE FOR ADVANCE PAYMENT**

*(To be given from a nationalized or scheduled bank in India)*

To:

*The Executive Engineer*

*Burdwan Investigation & Planning Division,*

*I&WD, Govt. of West Bengal. Purta Bhawan, 3rd Floor,*

*Purba Burdwan-713103*

*West Bengal*

## **Name of work :**

In accordance with the provisions of the Contract Agreement, Sub-Clause 0 (“**The total Contract Price** for the services (hereinafter referred to as the “total price”) is \_\_\_\_\_ INR (excluding/including(*Choose one option*)Goods and Services Tax).

”) of the above-mentioned Contract, [*name and address of Service Provider*] (hereinafter called “the Service Provider”) shall deposit with *The Executive Engineer, Burdwan Investigation & Planning Division, I&WD, Govt. of West Bengal* a Bank Guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of [*amount of Guarantee*] [*amount in words*]

We, the [*Bank or Financial Institution*], as instructed by the Service Provider, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to [*name of Employer*] on his first demand without whatsoever right of objection on our part and without his first claim to the Service Provider, in the amount not exceeding [*amount of Guarantee*] [*amount in words*]

We further agree that no change or addition to or other modification of the terms of the Contract or of Services to be performed there under or of any of the Contract documents which may be made between [*name of Employer*] and the Service Provider, shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until *The Executive Engineer, Burdwan Investigation & Planning Division, I&WD, Govt. of West Bengal* receives full repayment of the same amount from the Service Provider.

Yours truly,

Signature and seal:

Name of Bank/Financial Institution:

Address:

Date: