# PAKISTAN
## WATER & POWER DEVELOPMENT AUTHORITY

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General Manager (Hydro) Planning
WAPDA, Sunny View Estate,
Kashmir Road, Lahore

No. CE-II(H) SBP-1070/1072 Date 15-02-2022

Director General,
Public Procurement Regulatory Authority,
1st Floor FBC Building near State Bank of Pakistan,
Sector G-5/2, Islamabad.

Subject: **SINDH BARRAGE PROJECT - PROCUREMENT OF CONSULTANCY SERVICES FOR FEASIBILITY STUDY**

**ANNOUNCEMENT OF EVALUATION REPORT (PPRA RULE-35)**

Reference: (i) This office letter no. CEII(H)P/Works/SBP-1070/1029 dated:08.02.2022
(ii) Your office letter F. No.1-6/Elv/IT/2022 dated: 10.02.2022

Apropos to letter at reference, kindly find the enclosed updated "Final Evaluation Report as per rule 35 of PP Rules, 2004" proforma containing PPRA Ref. No. TS456861E. The evaluation performa be uploaded on PPRA website, please.

**DA/As above**

**(Muhammad Abid Sheikh)**
General Manager (Hydro) Planning

Copy to:

1. General Manager (C&M), Water, WAPDA, Wapda House, Lahore
2. General Manager (CCC) WAPDA, Wapda House, Lahore
3. Additional Director General (PRD), G-32 Wapda House, Lahore.
4. Chief Engineer (Hydro) Planning WAPDA, Sunny View Estate, Lahore.
5. SO to Member (Water) WAPDA, Wapda House, Lahore

**Annexure-I**

# Evaluation Report
## (As Per PPRA Rules, 2004)

| | | |
|---|---|---|
| 1. | Name of Procuring Agency: | Pakistan Water And Power Development Authority (WAPDA) |
| 2. | Method of Procurement: | Single Stage Two Envelope |
| 3. | Title of Procurement: | Consultancy Services for Feasibility Study of Sindh Barrage Project |
| 4. | Tender Inquiry No.: | PRD(L)/WAPDA/031(2021-22) |
| 5. | PPRA Ref. No. (TSE): | TS456861E |
| 6. | Date & Time of Bid Closing: | September 21, 2021 at 11:00 hrs |
| 7. | Date & Time of Bid Opening: | September 21, 2021 at 11:30 hrs |
| 8. | No of Bids Received: | Three (03) |
| 9. | Criteria for Bid Evaluation: | Criteria of Bid Proposal attached as Annexure-II |
| 10. | Details of Bid(s) Evaluation: | As Below |

| Name of Bidder | Marks | | Evaluated Cost (EC)** (Rs.) | Rule/Regulation/SBD*/ Policy/ Basis for Rejection / Acceptance as per Rule 35 of PP Rules, 2004. |
|---|---|---|---|---|
| | Technical (if applicable) | Financial (if applicable) | | |
| **Joint Venture:** M/s Deltares & M/s Pakistan Engineering Services (Pvt.) Ltd | 84.15 % | - | 83,741,964 | Highest/ Top Ranked Proposal (PP Rule 3(B) (ii) (c-iii) &9(4)of 2010) |
| **Joint Venture:** M/s Dar Al-Handasah & M/s Mirza Associates (Pvt.) Ltd | 76.13 % | - | - | 2nd ranked |
| M/s NSViolet | 13.05 % | - | - | PP Rule 9(3) of 2010 & PP Rule 36 (b) (v) of 2004 |

* *SBD: Standard Bidding Documents*

***EC is the Evaluated Cost used for evaluation purpose and includes only the cost of competitive component (i.e. Remuneration and Direct Non-Salary Cost) and is exclusive of Provisional Sum, Indirect taxes and cost of WAPDA counterpart staff. Financial proposal of only top ranked Consultants were opened and evaluated by the committee, other proposals will be returned unopened.*

**Most Advantageous Bidder:** **M/s Deltares – Pakistan Engineering Services (JV)**

11. **Any other additional / supporting information, the procuring agency may like to share:** The Procurement was carried out in line with Public Procurement Rules & Regulations. The bidding was done on Quantity Based Selection (QBS) Method. The Contract is being awarded to Top Ranked JV.

**Signature:** .....

**Official Stamp:** General Manager
Hydro Planning
Wapda Sunny View, Lahore.

**PAKISTAN**
**WATER AND POWER DEVELOPMENT AUTHORITY**

# SINDH BARRAGE PROJECT

REQUEST FOR PROPOSALS

FOR

PROCUREMENT OF CONSULTANCY SERVICES FOR FEASIBILITY STUDY

**GENERAL MANAGER (HYDRO) PLANNING**
**WAPDA, SUNNY VIEW ESTATE, LAHORE.**

**AUGUST 2021**

## TABLE OF CLAUSES Page No.

# PART I

## Section 1. Letter of Invitation

**Letter Ref No. _____**Dated: _____

Name and Address of Consultant/ Joint Venture (JV)
_____
_____
_____
_____
_____

Subject: **Request for Proposal for** Feasibility Study of Sindh Barrage Project

Dear Mr./Ms.: _____:

1. Pakistan Water and Power Development Authority (WAPDA) has received financing from the Government of Pakistan toward the cost of Feasibility Study of Sindh Barrage Project. WAPDA intends to apply a portion of the proceeds of this fund to eligible payments under the contract for which this Request for Proposals is issued.

2. The Client now invites proposals to provide the following consulting services (hereinafter called "Services"):

   **"FEASIBILITY STUDY OF SINDH BARRAGE PROJECT."**

   More details on the Services are provided in the Terms of Reference (Section 7).

3. A firm will be selected under Quality Based Selection **(QBS)** procedures and in a Full Technical Proposal (FTP) format as described in this RFP.

4. The RFP includes the following documents:

   Section 1 - Letter of Invitation
   Section 2 - Instructions to Consultants and Data Sheet
   Section 3 - Technical Proposal (FTP) - Standard Forms
   Section 4 - Financial Proposal - Standard Forms
   Section 5 - Eligible Countries
   Section 6 - Corrupt and Fraudulent Practices / Integrity Pact
   Section 7 - Terms of Reference
   Section 8 - Standard Forms of Contract (Time-Based)

5. Details on the proposal's submission date, time and address are provided in Clauses17.7 and 17.9 of the ITC.

Yours sincerely,

**Muhammad Abid Sheikh**
General Manager (Hydro Planning)
WAPDA, Lahore.

# Section 2. Instructions to Consultants and Data Sheet

## Instructions to Consultants

### E. Data Sheet

| ITC Clause Reference | |
|---|---|
| | **A. General** |
| **1(b)** | Replaced as follows:<br><br>"Applicable Guidelines" means the policies / Guidelines of Pakistan Engineering Council (PEC) and Public Procurement Regulatory Authority (PPRA) governing the selection of Consultants and Contract award process as set forth in this RFP. |
| **1 (c)** | Islamic Republic of Pakistan |
| **2.1** | **Name of the Client:** WATER AND POWER DEVELOPMENT AUTHORITY (WAPDA), PAKISTAN<br><br>**Method of Selection**: Quality Based Selection (QBS) through single stage two envelope procedure.<br><br>**Applicable Guidelines**: Selection and Employment of Consultants under PEC guidelines, PPRA Rules and WAPDA rules and procedures. |
| **2.2** | **Financial Proposal to be submitted together with Technical Proposal**: Yes (In separate envelopes, marked accordingly).<br><br>**The name of the assignment is**:<br>Consultancy Services for Feasibility Study of Sindh Barrage Project |
| **2.3** | **A pre-proposal conference will be held**: YES<br>Date of pre-proposal conference: **August 17, 2021**<br>Time: **1100 hours**<br>Address: Office of General Manager (Hydro Planning), WAPDA, Sunny View Estate, Kashmir Road Lahore, Pakistan<br>Telephone: (+92-42) 99202717 |

| ITC Clause Reference | |
|---|---|
| | Facsimile: (+92-42) 99202722<br>Email: gmhydroplanning@gmail.com |
| **2.4** | **The Client will provide the following, project data, reports, etc. to facilitate the preparation of the proposal:**<br>I. Inception Report<br>II. Study on Water Escapages Downstream Kotri (2005).<br>Note: Above reports are available in the office of Hydro Planning, Sunny View Estate, Lahore, for reference & can be downloaded from the following link:<br>https://drive.google.com/drive/folders/1iR5ZbKtyab0v40m4VOdsMaCeY3BijWK2?usp=sharing |
| **4.1** | N/A |
| **6.3.1** | **As per PPRA Rules.** |
| **B. Preparation of Proposals** | |
| **9.1** | **This RFP has been issued in English language.**<br>**Proposals shall be submitted in English language.**<br>**All correspondence exchange shall be in English language.** |
| **10.1** | **The Proposal shall comprise the following**:<br>**FULL TECHNICAL PROPOSAL (FTP):**<br>**1st Inner Envelope with the Technical Proposal:**<br>(1) Power of Attorney to sign the Proposal<br>(2) TECH-1<br>(3) TECH-2<br>(4) TECH-3<br>(5) TECH-4<br>(6) TECH-5<br>(7) TECH-6<br>AND |

| ITC Clause Reference | |
|---|---|
| | **2nd Inner Envelope with the Financial Proposal:**<br>(1) FIN-1<br>(2) FIN-2<br>(3) FIN-3<br>(4) FIN-4<br>(5) Statement of Undertaking |
| **10.2** | **Statement of Undertaking is required**<br>Yes |
| **11.1** | **Participation of Sub-consultants, Key Experts and Non-Key Experts in more than one Proposal is permissible**<br>No |
| **12.1** | **Proposals must remain valid for** 120 calendar days after the proposal submission deadline. |
| **13.1** | **Clarifications may be requested no later than 15 days prior to the submission deadline.**<br><br>The contact information for requesting clarifications is:<br>Chief Engineer-II (Hydro) Planning, WAPDA<br>Address: Sunny View Estate, Kashmir Road, Lahore<br>Telephone: (+92-42) 99202691<br>Facsimile: (+92-42) 99202722<br>Email: cehydroplanning@gmail.com |
| **14.1.1** | **N / A** |
| **14.1.2** | Estimated Key Experts' time-input: **360 Man-days** |
| **14.1.4 and 27.2** | **Not Applicable** |
| **15.2** | The format of the Technical Proposal to be submitted is:<br>Full Technical Proposal (FTP)<br><br>Submission of the Technical Proposal in a wrong format may lead to the Proposal being deemed non-responsive to the RFP requirements. |
| **16.1** | 1) A Per diem allowance, including hotel, for experts for everyday of |

| ITC Clause Reference | |
|---|---|
| | absence from home office for the purposes of the services.<br>2) Cost of travel by the most appropriate means of transport and the most direct practicable route;<br>3) Cost of office accommodation;<br>4) Communications costs;<br>5) Cost of purchase or rent or freight of any equipment required to be purchased by the Consultants for the project;<br>6) Cost of reports production (including printing) and delivering to the Client;<br>7) Other allowances where applicable and provisional or fixed sums (if any) |
| **16.2** | **A price adjustment provision applies to remuneration rates:**<br>No |
| **16.3** | Add the followings text at the end of paragraph:<br>All the taxes payable by the Consultants, Sub-consultants and Experts under the contract as per applicable law of land shall be dealt with as per followings:<br>**a- Local direct taxes:** It is implied that the applicant (Consultant) has taken all the risks and returns into account while submitting the proposed price. The employer shall not be responsible for any present or future direct taxes (Income Tax / Corporate Tax, WHT, Turnover Tax, Super Tax etc.) payable by the applicant (Consultant), sub-consultants, experts and his/her other employees.<br>**B -Local indirect taxes, duties, levies etc.:** All local indirect taxes, i.e. Provincial Sales Tax (PST), duties, levies, other charges or similar taxes levied on the Consultant's invoice, prevailing at the date twenty eight (28) days prior to the date of bid submission in the country where the site is located will be shown each as a separate line item at the end of Summary of cost and will be reimbursed/withheld by the Employer as per the Law of Land.<br>Information on the Consultant's tax obligations in the Client's country can be found from websites of Provincial Revenue Authorities and Federal Board of Revenue, Pakistan/AJK as the case may be. |

| ITC Clause Reference | |
|---|---|
| **16.4** | **The Financial Proposal shall be stated in the following currency:**<br>Consultant may express the price for their services in any fully convertible currency, singly or in combination of upto three foreign currencies.<br>The financial proposal should state local costs in the Client's country currency (local currency i.e. PKR): Yes |
| **16.5** | Replaced as follows:<br>All the payments related to these services shall be made in Pak Rupees only. Foreign currency cost shall be paid in equivalent Pak rupees at prevailing selling exchange rates on the date of submission of statement / invoice issued by State Bank of Pakistan. |
| **C. Submission, Opening and Evaluation** | |
| **17.1** | **The Consultants shall not have the option of submitting their Proposals electronically.** |
| **17.4** | **The Consultant must submit:**<br>(a) **Technical Proposal:** one (1) original and Five (5) copies;<br>**Financial Proposal:** one (1) original; |
| **17.7 and 17.9** | **The Proposals must be submitted no later than: Date: <u>September 07, 2021</u>**<br>**Time:1100 hours**<br>---<br>**The Proposal submission address is:**<br>Office of General Manager (HRM), WAPDA<br>228-Wapda House, Lahore.<br>Telephone: (+92-42) 99202631<br>Facsimile: (+92-42) 99202795<br>Email: gmpndwater@gmail.com |

<table>
<tr><th>ITC Clause Reference</th><th></th></tr>
<tr><td>19.1</td><td>An online option of the opening of the Technical Proposals is offered:<br>No<br><br>The opening of Technical Proposals shall take place at:<br>Office of General Manager (HRM), WAPDA<br>228-Wapda House, Lahore.<br>Telephone: (+92-42) 99202631<br>Facsimile: (+92-42) 99202795<br>Email: Email: gmpndwater@gmail.com<br><br>Date: same as the submission deadline indicated in 17.7.<br>Time:1130 hours</td></tr>
<tr><td>19.2</td><td>In addition, the following information will be read aloud at the opening of the Technical Proposals.<br><br>N/A</td></tr>
<tr><td>21.1<br>(for FTP)</td><td>Criteria, sub-criteria, and point system for the evaluation of the Full Technical Proposals:<br><br>Points<br>(i) Specific experience of the Consultant (as a firm) relevant to the Assignment: [25]<br><br>a) Feasibility Study of barrage structure 13<br><br>b) Feasibility Study of dykes/ embankments for any water retaining structure on alluviums 12<br><br>Specific / similar assignments completed in the last 10 years.<br><br><table><tr><th>No. of Project(s)</th><th>%age Marks</th></tr><tr><td>1</td><td>60</td></tr><tr><td>2</td><td>100</td></tr></table><br>(ii) Adequacy and quality of the proposed methodology, and work plan in responding to the Terms of Reference (TORs): [10]<br><br>a) Technical approach and methodology 05<br><br>b) Work Plan 05</td></tr>
</table>

| ITC Clause Reference | |
|---|---|

*{Notes to Consultant: the Client will assess whether the proposed methodology is clear, responds to the TORs, work plan is realistic and implementable; overall team composition is balanced and has an appropriate skills mix; and the work plan has right input of Experts}*

(iii) **Key Experts' qualifications and competence for the Assignment:**
*{Notes to Consultant: each position number corresponds to the same for the Key Experts in Form TECH-6 to be prepared by the Consultant}*

| Sr. # | Key Experts | Weightage |
|---|---|---|
| **Sr. #** | **Key Experts** | **Weightage** |
| 1 | Expert (Coastal Hydraulics) (Expatriate) | 25 |
| 3 | Expert (Delta Reclamation) (Expatriate) | 25 |
| 4 | Expert (Hydraulics Structure) | 7.5 |
| 5 | Expert (Geotechnical Design) | 7.5 |
| | **Total:** | **65** |

**Total points for criterion (iii):** ***[65]***

*Required qualification and experience of Key Experts are provided in Term of Reference (TOR).*

The number of points to be assigned to each of the above positions shall be determined considering the following three sub-criteria and relevant percentage weights:

1) General qualifications (Masters and PhD): ***[20%]***
   *Basic requirements of education:* *15%*
   *Higher than required education:* *5%*
2) Adequacy for the Assignment (General Experience, Experience in sector / similar assignments / position)*:* ***[70%]***
   *Overall General experience:* *20%*
   *Specific experience:* *30%*
   *Specific experience of working in specific position:* *20%*
3) Special trainings / courses / knowledge of related computer software and Research Papers (Related to Specific Job): ***[10%]***

Total weight: ***[100%]***

**Total points for the three criteria*:*** **100**

| ITC Clause Reference | |
|---|---|
| | **The minimum technical score (St) required to pass is: 75**<br>**Notes:**<br>1. All the experts of the level of Principal / Chief and above should be nominated by name in the proposal.<br>2. Age limit of Consultant Staff required to work in the field should be restricted to 70 (seventy) years of age. However, for those staff who are nominated purely for office / desk job, the age limit should be restricted to 75 (seventy five) years.<br>3. Appointment letters or verifiable supporting documents of Key Experts need to be provided with technical proposals to confirm the status with respective firm.<br>4. The key experts of Consultants must be proficient in written and spoken English.<br>5. The experience of key expert will be evaluated on pro-rata basis in case period of experience is found shorter than required.<br>6. The Key Expert shall be rejected by giving zero marks if not having basic education though he has the required experience. |
| **23.1** | **An online option of the opening of the Financial Proposals is offered:**<br>No |
| **25.1** | The word "taxes" in the 2nd line is deleted and replaced with "direct taxes". |
| **26.1** | The single currency for conversion of all prices expressed in various currencies into a single one is Rupees.<br>The official source of selling (exchange) rate is National Bank of Pakistan.<br>The date of exchange rate is 28 days prior to the proposal submission. |
| | **D. Negotiations and Award** |
| **28.1** | **Expected date and address for contract negotiations:**<br>**Date**: **September 30, 2021**<br>**Address:** Office of General Manager (Hydro Planning), WAPDA, Sunny View Estate, Kashmir Road, Lahore. |
| **30.1** | **As per PPRA rules** |

| ITC Clause Reference | |
|---|---|
| **30.2** | **Expected date for the commencement of the Services:**<br>**Date**: **October 01, 2021 at:** Lahore**.** |

## 10 Scope of Services and Qualification & Experience of the Expert

### 10.1 Coastal Hydraulics Expert (Expatriate)

The expert shall identify the complications / problems in the design of hydraulic structures proposed in the proximity of coastal environment, evaluate the possible impacts and propose remedial measures after review / analysis of the available data, site inspection and further investigations. The expert shall prepare a comprehensive design report on coastal hydraulics based upon site conditions and practices in-vogue internationally in such circumstances. The assignment shall include, but not limited to following tasks;

- Review of proposed Sindh Barrage concept, hydraulic studies for structural components i.e. main & auxiliary barrage, reservoir & downstream protection dykes, drainage channel etc. considering the coastal hydraulics and geomorphological conditions of Indus River.
- Evaluation of hydraulic conditions at and downstream of proposed Main and Auxiliary Barrage.
- Hydraulic design of barrage structures and embankments along coastal area.
- Optimize the capacity of Main barrage, Auxiliary barrage and Indus River channel as per coastal hydraulic condition & climate change.

**The expert should possess the qualifications and experience as mentioned below:**

He should have at least Master's Degree in related discipline of civil engineering / Hydraulics / Coastal Hydraulics from a well reputed and recognized university. Ph.D. qualification in related disciplines will be given additional weightage. He should have at least 25 years' overall experience with minimum of 08 years in Coastal Hydraulics discipline in large scale/ similar projects. He should have at least provided his services on at least 1 or more projects as Expert Coastal Hydraulics. He should have knowledge of related computer software. The expert with published research articles on Coastal Hydraulics will be given preference.

### 10.2 Delta Reclamation Expert (Expatriate)

The expert shall identify the problems, evaluate the possible impacts and propose remedial measures after review / analysis of the available data, site inspection and further investigations. The expert will prepare a comprehensive report by considering both structural & non-structural measures on delta protection & reclamation based upon site conditions and practices in vogue internationally on such situations. The assignment shall include, but not limited to following tasks;

i. Review of previous reports, available data on historic formulation of Indus delta. Evaluate climatic / hydrological / groundwater / environmental conditions in project area such as rainfall, evaporation, drainage, surface runoff in the area; probable

maximum - minimum - average flow of Indus River below Kotri.

ii. Determine causes for vulnerability of coastal landscape.

iii. Propose plan to enhance active delta, mangroves swamps, conservation / restoration of coastal and estuarine habitats within the available resources of water & sediment load downstream Kotri and proposed Sindh barrage.

iv. Propose alternate plans / techniques for existing delta protection and restoration / reclamation of Indus Delta and comparative analysis of the proposed plans / techniques being used internationally with due consideration to social and environmental issues at the project site.

v. Formulate an investigation plan and advise / supervise / conduct on-site sampling, testing, evaluations and analysis of environmental conditions including sedimentation pattern, soil, sub-soil, surface and groundwater characteristics both quantitative and qualitative.

vi. Propose integrated plan for delta area preservation / reclamation by provision of seashore & marshy area stabilization / reclamation plans through both structural and non-structural interventions.

vii. Formulation of implementation, monitoring, management and controlling plans for delta reclamation / restoration.

**The expert should possess the qualifications and experience as mentioned below:**

He should have at least Master's Degree in related discipline / Delta Reclamation from a well reputed and recognized university. Ph.D. qualification in related disciplines will be given additional weightage. He should have at least 25 years' overall experience with minimum of 08 years in Delta Reclamation discipline in large scale/ similar projects. He should have at least provided his services on at least 01 or more projects as Expert Delta Reclamation. He should have knowledge of related computer software. The expert with published research articles on Delta Reclamation will be given preference.

### 10.3 Hydraulics Structure Expert

The expert shall identify the complications / problems in the design of hydraulic structures proposed in the proximity of coastal environment, evaluate the possible impacts and propose remedial measures after review / analysis of the available data, site inspection and further investigations.

The assignment shall include, but not limited to following tasks;

i. Review of proposed Sindh Barrage concept, hydraulic studies for structural

components i.e. main & auxiliary barrages, reservoir dykes & downstream protection dykes, drainage channel etc. considering the coastal environment i.e. structures foundation on saline alluvium and water logged conditions.

ii. Review/ update (if required) field investigations required for hydraulic studies i.e. Topographic Survey, Bathymetric / Hydrographic Survey of the concerned river reach.

iii. Review/ analyze the project components i.e. main & auxiliary barrages, upstream & downstream barrage dykes, canals & head regulators with due consideration of design discharge and hydraulic stability of structures against surface & sub-surface flow conditions i.e. seepage, uplift pressure, piping etc.

iv. Numerical / latest software modelling to be used for determination of location of sea water – fresh / river water interface and flow characteristics at different locations under different flow conditions.

v. Any other specific assignment/ study/ survey/ investigation/ tests related to hydraulics of the project area; as deemed necessary.

vi. Review the hydraulics report on standard format or required by the Client on concerned project components considering site conditions and practices in-vogue.

The expert should possess the qualifications and experience as mentioned below:
He should have at least Master's Degree in Hydraulics structures engineering from a well reputed and recognized university. Ph.D. qualification in related disciplines will be given additional weightage. He should have at least 20 years' overall experience with minimum of 10 years in design of Hydraulic structures of dams / barrages projects of similar size. He should have provided his services on minimum 2 similar projects as Hydraulics Expert. He should have knowledge of related computer software.

### 10.4 Geotechnical Design Expert

The expert shall identify potential geotechnical complications at main & auxiliary barrages, canal head regulator, cross drainage works and in / under reservoir area, reservoir dykes, d/s protection dykes, drainage channels & canal alignment. Evaluate the possible impacts and propose / adopt remedial measures after review / analysis of the available data, site inspection & further investigations.
The assignment shall include, but not limited to following tasks;

i. Review of proposed Sindh Barrage concept & major structural components of the project, available data / reports on geology / geotechnical formation in the project area / vicinity.

ii. Review/ update (if required) geotechnical field investigations of project components i.e. Main & Auxiliary Barrages, reservoir dykes, protection dykes downstream barrage area, canals & allied structures and selection of design parameters.

iii. Review geotechnical design of project components with due consideration to barrage foundation on saline alluvium and embankments / dykes on saline & waterlogged area.

iv. Review/ update (if required) geotechnical instrumentation plan on various project components for effective monitoring.

v. Any other specific assignment/ study/ survey/ investigation/ tests related to Geo-tech of the project area; as deemed necessary.

vi. Review the geotechnical report on standard format as required by the Client on concerned project components considering site conditions and practices in-vogue.

The expert should possess the qualifications and experience as mentioned below:

He should have at least Master's Degree in Geotechnical engineering from a well reputed and recognized university. Ph.D. qualification in related disciplines will be given additional weightage. He should have at least 20 years' overall experience with minimum of 10 years in Geotechnical design discipline in dam / barrage projects of similar size. He should have provided his services on minimum 2 similar projects as Geotechnical Expert. He should have knowledge of related computer software.