

**GOVERNMENT OF KHYBER  
PAKHTUNKHWA  
IRRIGATION DEPARTMENT**



**TERMS OF REFERENCES (TORS)  
For  
CONSULTANCY SERVICE  
For scheme  
Construction of Jabba Dam, District Khyber.**

**Design Review, Design of Distribution Network, Solar Power  
System & Construction Supervision of Jabba Dam District  
Khyber**

**DIRECTORATE GENERAL JABBA DAM**

**August 2020**

## TORs For Jabba Dam Consultancy Services

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## TORs For Jabba Dam Consultancy Services

### **A. BACKGROUND:**

The proposed Jabba Dam site is located in District Khyber of Pakistan at a distance of 13 km from Hayatabad Peshawar. The Project area, encompasses of 512 km<sup>2</sup> catchment area, emanating in the valley of Khyber and Chura khwar. The Dam is proposed at the confluence point of Khyber and Chura Khwar. The Project area is within the Administration of Deputy Commissioner District Khyber and is connected to the rest of the country through metaled roads. Transportation between Peshawar and Dam area is by buses, trucks, pick-ups & cars and remains open throughout the year for traffic. A portion of 4 km un-metaled road from Jamrud is leading to Katya Khel/Ibrahim Khel and then to the dam site. The prominent villages on the way to dam site are Takhta-baig, Jabba Fort, Katya Khel, Haji Haya Gul Killi, Tagano Killi, Ganj Garhi, Jamal Khel, Jabba, Tangi and Darazanda.

Jabba dam site was identified in the identification study “The Perspective Planning of Small Dams in Ex-FATA (Merged area)” which was carried out by a Joint Venture of NESPAK & BAK in the year 2004. Under this study it was proposed to irrigate approximately 3000 acres of barren lands which are lying downstream of the Jabba dam in Shah kas Plain. Few decades earlier a scheme was developed to irrigate these lands from Bara River Canal System through Besai Tunnel which day lights to the command area of Shah kas Plain. Bara River Canal System failed to achieve the design objectives. NESPAK in the year 2008 carried out feasibility study of another scheme called Bara Dam. NESPAK in its feasibility report proposed to irrigate these lands from Bara dam which includes remodeling of the existing irrigation system.

BAK Consulting Engineers with a joint venture of AGES Consultants were engaged on 21st May, 2008 to study the proposed dam site of Jabba and prepare its feasibility study. Keeping in mind the above-mentioned situation Feasibility Consultants of Jabba dam submitted a proposal in the inception stage in June, 2008 to Ex-FATA (Merged area) Development Authority with a new concept and proposed utilizing the water resource from Jabba Dam as drinking water supply which is an acute problem in the region instead of irrigation water supply because drinking water shortages are acutely felt and needs to be overcome immediately.

Extensive water withdrawals from the Peshawar and adjoining areas for drinking and irrigation supplies has lowered the water table in the last few decades by as much as 30 to 40 ft. The existing availability of water is not considered adequate to meet the expected future water supply needs. After the Construction of the Jabba dam most of the population in parts of



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Peshawar, Jamrud Tehsil could be served by surface runoff. This will lead to preservation of ground aquifers till the life of the Jabba dam project. These aquifers will be an asset for next generations. Other schemes are also under study for providing drinking water supply to Peshawar via Warsak lift scheme which involves pumping operation and maintenance cost much larger when compared to gravity supplies from Jabba Dam.

The above-mentioned concepts developed at inception stage were presented to the Governor Khyber Pakhtunkhwa in the Oct, 2008 for approval of the project as drinking water supply. The proposal was accepted and Consultants were advised to continue with feasibility study on the basis of the new proposal. Feasibility study of Jabba Dam was completed in the year 2011. In the year 2016, Detailed Engineering Design of Jabba Dam was awarded to the Joint Venture of BAK, ACE and AGES Consultants which completed in March 2018.

Climate of the project area can be described as arid to sub arid and tropical. November to March is autumn characterized by comparatively low temperatures varying from 30 °C to 5 °C. Aridity wise the rainfall is uncertain and low. Some springs do occur. The temperatures start rising in May and reaches extreme of 40 °C/42 °C in June, July, August and September. Monsoon arrives in end of June and last till mid-September. Bulk of flood occurs during monsoon.

Daily rainfall data for meteorological station at Peshawar for the period of 1970-2015 collected from Pakistan Metrological Department. Mean monthly rainfall varies from 12.7 mm (0.50 inches) in November and 77.04 mm (3.03 inches) in March. Annual rainfall data shows that Mean annual rainfall is 463.51 mm (18.25 inches).

The catchment area of the dam comprises of the drainage basins of Khyber and Chora Khwar. The catchment area of Khyber and Chora Khwar just downstream of their confluence at dam site is 512 sq.km.

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### **B. OBJECTIVES :**

Objectives of Jabba Dam are as under:

1. To provide drinking water to adjoining areas of Peshawar and Jamrud region (District Khyber).
 

Total discharge from Jabba Dam	= 50 cusecs
Metropolitan areas of Peshawar	=37 cusec
Jamrud (District Khyber)	= 13 cusec
Area for irrigation of local land.	=250 acres
2. Currently drinking water demand for the adjoining areas (Hayatabad) of Peshawar is met with the help of 62 tube wells, which involves electricity for its operation. Due to shortage of electricity the local populations are unable to get required water as per their demand.
3. Filtered drinking water will be available.
4. Fish farming can be done.
5. Environment & scenery will be improved and picnic opportunities will arise.
6. Employment opportunities will arise during construction of the project.

### **C. PROJECT SALIENT FEATURES;**

S.NO	Item	Description
<b>1.</b>	<b>General</b>	
	Location	25 km from Peshawar through Hayatabad Industrial Estate / Karkhano Market and 08 km from Tehsil Headquarters Jamrud, District Khyber
	Purpose	Drinking Water
<b>2.</b>	<b>Hydrology</b>	
	Catchment Area	512 sq. km
	Mean annual inflow	59,711 A – Ft
	Reservoir Area	684 Acres at level 631.2 m
	Gross Reservoir Capacity	37,984 A – Ft (46,852,504 m <sup>3</sup> )
	Live Storage Capacity	28,689.3 A – Ft (35,387,307 m <sup>3</sup> )
	Dead Storage Capacity	9,294.7A – Ft (11,465,196 m <sup>3</sup> )




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	Normal Pool Level	617 m
	Maximum Pool Level at PMF	628 m
	Maximum Pool Level at $Q_{10,000}$	628.8 m
	Minimum Pool Level	591 m
<b>3.</b>	<b>DAM</b>	
	Type	ECRD (Earth Core Rock Fill Dam)
	Crest Elevation	631.2 m
	Crest Length	241.4 m
	Crest Width	10 m
	Height of Dam	72.2 m
	Embankment Slope	Up Stream 1:2.75, Down Stream 1:2.0
<b>4.</b>	<b>Spill Way</b>	
	Type	Ungated Ogee Spillway
	Slope of the Chute	1 : 1.35
	width of Spillway	53 m
	Length of Spillway	116.8 m
	Design Flood (PMF)	2976 m <sup>3</sup> /s (1,05,112 cfs)
	Discharging Capacity (1:10,000)	3454.15 (1, 22,000 cfs)
	Terminal Structure	Chute, Flip Bucket & Plunge pool
<b>5.</b>	<b>Coffer Dam.</b>	
	<b>Upstream</b>	
	Type	Rock Fill
	Height	29 m
	<b>Downstream</b>	
	Type	Rock Fill
	Height	06 m
<b>6.</b>	<b>Diversion Tunnel</b>	
	Type	Inverted U Type- Unlined
	Diameter	7 m Clear
	Length	602.00 m




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<b>7.</b>	<b>Intake Tower</b>	
	Type	Well Type
	Openings width	2 m
	Height of Tower	43.2 m
<b>8.</b>	<b>Delivery Pipe</b>	
	Pipe Diameter	1.0 m
	Pipe Length	3,154 m
	Maximum Discharging Capacity	1.982 cumecs (70 cusecs)
	Design Discharge	1.416 cumecs (50 cusecs)
<b>9</b>	<b>Filtration Plant</b>	
	For Jamrud and Adjoining Area	0.37 cumecs (13 cusecs) = 8,401,562 gal/day
	For Hayatabad, Peshawar and Metropolitan	1.05 cumec (37 cusecs) = 23,912,138 gal/day
	Total water supply	13+37 = 50 cusecs = 32.31MUS gal/day
<b>10</b>	<b>Water Supply Network</b>	
	Water Supply Network from Water Treatment Plant to Hayatabad & Jamrud	
<b>11</b>	<b>Access Road</b>	
	- From filtration plant to tunnel outlet	- 2.544 km
	- From tunnel outlet to Dam Crest and Intake Tower	- 1.12 km
	- To spillway and intake structure	- 3.65 m is paved width and total is 6.55 m wide
<b>12</b>	<b>Colony and Buildings</b>	
	- Officer's Residences	1
	- Staff Residences	9
	- Hostel	1
	- Office building	1
	- Masjid	1
	- Primary school	1
	- Shops and dispensary	1




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### **D. INSTRUCTION REGARDING SUBMISSION OF PROPOSALS:**

1. Three copies of the technical and one copy of financial proposals in stapled/fixed binded form are required to be submitted. Proposal should be in a sealed envelop indicating original or copy on each enclosure, as appropriate.
2. The proposals shall be valid for a period of 180-days after the last date of submission, which is extendable on the expiry of above period through mutual agreement.
3. The technical and financial proposals of the consultants will be evaluated according to criteria for procurement of consultancy services of the Government of Khyber Pakhtunkhwa, applying weight-age formula of 80:20 for technical and financial proposals respectively.
4. Financial proposals of "Technically Qualified" consulting firm will be considered and opened by competent forum in presence of the competitive firms representatives. The contract agreement with successor firm will be governed by laws and regulations of the Govt. of Khyber Pakhtunkhwa. Financial proposal are also required to be submitted along with the Technical proposal in separate envelops.
5. Your technical proposal should include the following information as well.
  - i. Year of formation, year of registration of the firm, postal address, e-mail, telephone/fax numbers with name of partners/proprietor and head and branch offices.
  - ii. Registration Number and latest renewal certificate of Pakistan Engineering Council.
  - iii. National Tax No. (NTN) with copy of the certificate.
  - iv. List of Similar nature works completed by the firm during last 10 years with detail of year of start/completion, cost of consultancy services, scope of the work and actual services performed by the firm individually and / or in a joint venture with specific details to be given in annexure.
  - v. List of Similar nature works in hand with cost of consultancy services, scope of the work and actual services performed by the firm, date of start and expected date of completion individually and / or in a joint venture with specific details to be given in annexure.
  - vi. Only those similar projects will be consider for evaluation for which the scope of services is mentioned in the data sheet of the firm furnishes evidence to this effect.



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- vii. The experience of the firm includes project handled by the firm and not by the individual employees of the firm in their personal capacity.
  - viii. List of professional staff and CV's of the key experts (duly signed by them or by the authorized representative of the firm) who will be handling the assignment with names, qualifications, year of passing various degrees and post qualification practical experience.
  - ix. A comprehensive write-up about approach and methodology, proposed work plan and manning schedule of various experts on a bar chart showing man-months of each expert, their responsibility and total time schedule for completion of the assignment.
6. Any clarification on the TORs and EOI may be sought before last date of submission of the proposals.
  7. The Employer/Procuring Entity reserves the right for any addition alteration or amendment in the TOR of the Project and continue or discontinue consultancy services.
  8. Consultants shall be responsible for payment of all kind of taxes (direct & indirect both), levies etc in vogue time to time by Govt. in respect of personnel and other activities with no liability to the client.
  9. Originally signed CVs of the proposed personnel having contact number and postal address along with availability certificate of the personnel for the Project shall be annexed in the Technical proposal.
  10. The consultants cost shall be inclusive of all kind of Taxes (direct & indirect both), levies etc.
  11. The consultants' financial bid/ proposal shall be deemed to cover expenses for each and every item of the scope of work/TORs. No payment shall be made for any item(s) mentioned in scope of work/TORs that the consultant have intentionally or unintentionally presented as conditional, missed or not included in their technical and financial proposal. The consultants shall have to perform the same at their own expenses.
  12. Payment for the personnel will be made as per actual time consumed on the Project but not in excess of the provision of man months made in the T.O.R. of consultancy.
  13. Payment to the consultants for the survey and Geo-technical investigation and other investigation (if required) will be made as per actual work done at the site on approved MRS.

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14. On the satisfactory performance of the services, the payment to the consultants shall be made as per actual inputs, while in case of incomplete assignment; the payment will be made for the work done in accordance with the breakup of the services submitted by the consultants and as determined by the Employer/Procuring Entity/Client.
15. Security deposit and income tax/sale tax etc will be deducted as per the prevailing Government rules notified during currency of the project.
16. The consultant shall establish complete Project Office at Peshawar/nearest to site.
17. Consultants shall appear in Project meetings and site visits and shall also make presentation if so directed by the department for which no TA/DA, boarding, lodging and claim for incidental charges etc, shall be entertained.
18. The consultant except with prior approval of the competent authority shall not sublet the study or any part thereof.
19. The consultants will provide undertaking for the effect that the key staff would not be employed on the other projects during the currency of this project. Any violation will liable the contract for termination.
20. If the consultant fails to complete any activity or part of activity the client reserve the right to execute the same at the consultant risk & cost.
21. If a project or part of project is dropped due to any reason, man months of the consultant key staff and logistics will be curtailed proportionally.
22. The cost of design review/design of distribution network, Solar Power System and construction supervision of Dam and other components has been included jointly in the estimated man-months for Key, Non Key staff and other indirect cost. However for the review of design, payment will be made for Key Personnels only as required for three months period of the review stage.
23. The period of review of design and its validation on ground will be Three (3) months from award of consultancy.
24. Consultant will be responsible for security of their staff.
25. Consultant shall provide indemnity bond.
26. Employer/Procuring Entity/Engineer reserves the right to replace/withdraw/share vehicle, person and equipment from the consultant if required.
27. The Consultant will have to adjust given/estimated Man-months for entire period till completion.
28. TORs will be part of contract agreement.

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### **E. EVALUATION CRITERIA OF PROPOSALS**

Proposals of the consultancy firms will be evaluated as under

#### **1. Technical Evaluation**

<b>S.No</b>	<b>Description</b>	<b>Maximum Marks</b>
a	Qualification & Experience of Personnels	60
b	Experience of firm.	10
c	Work Plan/Manning Schedule & Methodology	30
	<b>Total</b>	<b>100</b>

- Each page of the proposal must be numbered, sealed & signed by the authorizes representative of firm
- Passing marks in each category will be 70%
- Proposals must be stapled binded. Ring binding will not be considered.
- Client reserves the right to make any change in TORs & marking criteria which is commonly applicable to all proposals
- Any clarification required should be brought in notice of the Client / Employer/Procuring Entity before submission of the proposal.
- Proposals shall be submitted in three copies (Marked as Original & Copy)
- Any mis-statement or false information provided in the technical or financial proposal will render the proposal as non-responsive and shall make the firm liable for punitive action under the relevant rules.

#### **a. Qualification & Experience of Technical Key Personnel**

<b>S.No</b>	<b>Description</b>	<b>Marks</b>	<b>Criteria</b>
1	Qualification	20	B.Sc. Eng. or M.Sc. (16 Years Education)=80%, MS or M.Phil.=90%, Ph.D=100%
2	Languages	05	Pashto =1.5 (R W S) Urdu =1.5 (R W S) English =2 (R W S)

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3	Experience in construction of Dams, Hydraulic structure, Tunnels and pressure pipe for water (i) General Experience (ii) Relevant Experience (iii) Similar (DAM) Projects  <b>Sub Total</b>	7.5 15 7.5  <b>30</b>	Experience after completion of 16 Years education (as explained in para-M)  Experience of particular discipline (as explained in para-M)  Full marks for 5 Projects
4	Experience of Local Environment	05	Khyber Pakhtunkhwa=03 Merged area=02
	<b>Total</b>	<b>60</b>	

- The proposals must contain salary details, last degree, PEC registration certificates of the key staff
- Each CV must be signed in Original by the Personnel & authorized representative of the firm.
- Personnel above the age of 70 will be ineligible

**b. Experience of firm.**

S.No	Description	Maximum Marks
1	Relevant/Specific Experience of Firm Completed/In progress Dam Projects, tunnels and delivery / pressure pipe having dia $\geq$ 1m in last 10 Years*	10 Feasibility Study = 10% marks, Detailed Design = 20% Marks, Procurement = 10% Marks, Construction supervision = 60% Marks, Total = 100% Marks,

- \* Five (05) Projects completed/in hand dams' category, one (01) Project of tunnel & two(02) projects of water delivery/ pressure pipe having dia  $\geq$  1m.

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- Consultancy Services of the Dam/General Projects with execution cost less than Rs. 500 million will not be considered.
- Award & completion documents must be available in support of projects claimed as experience

### c. Work Plan/Manning Schedule & Methodology

S.No	Description	Maximum Marks		
	Work Plan / Manning Schedule & Methodology	30		
		Technical approach and methodology (15)	Work Plan (5)	Organization and staffing (10)

**2. Financial Evaluation.** Lowest bidder will carry full marks, whereas the rest of bidder will be evaluated proportionate to lowest bidder.

## F. UNDERTAKING

The Consultant will have to submit following undertaking on Judicial Stamp Paper.

It is hereby certified that the above are true statements based on facts and we take full responsibility for the correctness and accuracy of the information supplied herein to the best of our knowledge and belief. This is also to certify that the owner/partners/directors working solely for the consulting engineering profession. This is further to certify that we are independent consulting engineer and have no interest in any construction and conflicting commercial industrial and business activities which are likely to influence our professional independence and neutrality. We also undertake to fully abide by KPPRA act/rules & the Pakistan Engineering Council (Conduct and Practice of Consulting Engineers) Byelaws 1986 & registered with Khyber Pakhtunkhwa Revenue Authority and other Govt. Department.

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### **G. SCOPE OF CONSULTANCY SERVICES**

1. The Consultants will carry out a critical review of the detailed engineering design prior to commencement of works to identify anomalies or omissions that constitutes inconsistency in the design and completeness of works.
2. The consultant will review and validate on ground, the detailed engineering design including the design reports, design calculations and design drawings. The design review shall include but not limited to the following tasks:
  - i. Carry out additional geo-technical investigation (if required with approval of the client) at Dam site and appurtenant structures, reservoir area, Residential colonies/Buildings, Solar Power system for residential colony, water treatment plant and Distribution network.
  - ii. Review design and ensure Seismic criteria for resistance against earthquake on Dam and all appurtenant structures shall be applied in the design.
  - iii. Review and ensure that the design parameters, calculation, location and layout of hydraulic and other engineering structures on the basis of hydrology report, geotechnical investigations, soil analysis, drainage pattern and site conditions , ensuring that safe and cost effective designs are adopted.
  - iv. Review existing soil reports provided by the Employer/Procuring Entity and suggest any additional testing, if required.
  - v. Review of Environmental study & will be responsible for obtaining required Certificate from Environment Protection Agency (EPA).
  - vi. Review of water rights downstream of Dam.
- Vii. In case of any change in design of any component as a result of review, the consultant will re-design the same as per requirement along with full justification within review period of Three Months along with its cost effect on the Project cost.
3. Review of Design documents/Drawings for any omission / correction etc before start of construction activities.
4. Supervise construction of the project in the capacity of Engineers Representative, to ensure that the project including all components are being constructed satisfactorily in accordance with approved drawing design specifications and required quality. In case of any variation a detail report duly supported with document, laboratory tests be submitted to the

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Client/Employer/Procuring Entity, through the Engineer prior to its execution without affecting the other construction in progress.

5. Assist the Employer/Procuring Entity in Tendering Process/Bid Evaluation.
6. Scrutinize and assist the Employer/Procuring Entity in approval of the Contractor's work schedule.
7. Review and up-date Contractor's critical path analysis, if necessary.
8. Submission of Revised Construction Drawings in accordance with actual site conditions including detail survey for project component/additional project component.
9. Recommend to the client the source of appropriate construction material, for approval.
10. To provide sufficient and appropriate technical key and non-key staff at site as per requirement or as directed by Client / Employer/Procuring Entity in the interest of work.
11. Supervise and check the setting out of all component structures and general layout of the project.
12. Provide instruction to the contractors necessary for proper execution of the work in accordance with Engineering of Technical specification.
13. Coordinate between Contractor, Engineer and Employer/Procuring Entity (Client) to implement the project in accordance with the contract and to provide assistance to Employer/Procuring Entity (Client) /Engineer on all contractual design specification and construction matter.
14. Initiation and Issuance of variation order for approval of the Engineer in consultation with Employer/Procuring Entity (Client) subsequently if required.
15. Verification/checking of contractors measurement both quantitatively and qualitatively, statements of executed quantities for facilitating progressive payments to the contractor. The consultant's will perform the role of the "Representatives of the Engineers" of the project. Launch a comprehensive quality control program including detailed methodology for inspection, sampling and testing and confirm its adequacy in the field and ensure its satisfactory implementation).
16. Consultants will be responsible for verification and certification of all payment certificates including interim Payment Certificates and Final Payment certificates of the contractor. The Consultants will be responsible for the work verified by them both qualitatively &



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- quantitatively in the capacity of “ENGINEER REPRESENTATIVE” for approval of the Employer/Procuring Entity (Client)/Engineer.
17. Furnish "Detail Cost Estimate" and make periodic updating of the cost of project along with reasons for increase/decrease of cost of individual items.
  18. Supervise the material testing & other relevant tests in contractor's field laboratory and keep the record of respective test reports.
  19. Provide adequate technical assistance, consultation and advice to the Client / Employer/Procuring Entity in matters that crop up during execution, may include redesigning and connected issues.
  20. Carry out dispute resolution, as per provisions in the conditions of contract.
  21. Assist the Employer/Procuring Entity (Client) in taking over the contract works and prepare punch list of items of work to be rectified by the Contractor during defect liability period.
  22. Participation and Coordination in progress meeting convened as and where directed by the Client.
  23. Preparation of revised PC-I as and when required by the client.
  24. To submit duly verified as built drawings and prepare a Manual for Operation and Maintenance of the Project after completion.
  25. The consultants shall provide design assistance/supervision during the defect liability period and visit the project from time to time for pointing out any defect etc. the same shall be reported to the Employer/Procuring Entity in the form of punch list and monitor its rectification.
  26. Respond to any query, complaints and observations relating to quality, quantity and specifications to monitoring and investigating agencies. In the event of contractual dispute which may result in legal action, adjudication or arbitration between the contractor and the Employer/Procuring Entity, on the instruction from the Employer/Procuring Entity, the Consultants will collect and prepare factual documentation which describes the circumstances of the dispute. If required the Consultants will attend hearings and provide all legal and other support to the Employer/Procuring Entity.
  27. Prepare and submit Monthly & quarterly annual Progress Report to the Client / Employer/Procuring Entity.

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- 28.** Participation and Coordination in progress review meeting convened as and where directed by the Employer/Procuring Entity (Client)/Engineer.
- 29.** Provide adequate consultation and advice to Engineer and Employer/Procuring Entity (Client) on contractual issues/corrigendum (s).
- 30.** To prepare and pursue the land acquisition and other relevant revenue documents beside to assist the client/Employer/Procuring Entity in the Land acquisition matters.
- 31.** To prepare PC-IV of the project.
- 32.** Testing and commissioning of all the components of the project in accordance with the design and specifications.
- 33.** Deal with the claims of the contractor(s) for additional payment, as per procedures described in the conditions of contract.
- 34.** Design of Distribution Network, Solar Power System: -
  - i. To establish network of concrete (1:2:4) control points (15" x 15" top, 24" x 24" base and 3ft deep).
  - ii. Topographic Survey from Filter plant to Jamrud and Hayatabad Peshawar for the main delivery pipe. Approximately 20Km in length. Topographic survey should include establishment of concrete monuments along the alignment to be used as a permanent bench marks. The density and survey extent must be such to map all the existing features along the alignment with a strip of approximately 20m in width. The topo survey should be enough so that detailed engineering design of the delivery pipe can be carried out.
  - iii. Detailed Engineering design of the water supply network from Filter plant to Jamrud and adjoining areas and upto Hayatabad Peshawar including hydraulic and structural design.
  - iv. Design of solar power system for residential colony and filter plant.
  - v. Preparation of cost estimates and construction drawings,
  - vi. To prepare tender documents of the project including instruction to bidders, technical specifications, BOQ as well as detailed cost estimate for obtaining Technical Sanction.
  - vii. To prepare tender drawings with sufficient details to enable proper bidding by the contractors.
  - viii. To prepare contract documents and construction drawings of the Project for execution of the work on site.

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### H. RESOURCES.

The client shall not provide any manpower / logistic support in terms of technical or non-technical support staff, surveys, geotechnical investigations, transportation and travelling, accommodation, office space, equipment, printing, courier and utilities etc. the consultants consider necessary for the project execution. The consultants will have to return all the equipments, vehicles purchased under the project after its completion. The key positions along with the estimated man-months, qualification and experience of the personnel are given in para J&M. Man-months for technical support (non- key) staff have also been proposed but the same shall not be considered in evaluation of technical proposal.

### J. PROFESSIONALS/ KEY PERSONNELS REQUIRMENTS

Following are the key positions along with estimated man-months. Qualification and experience of the personnel are also given below. Man months for technical support (non-Key) staff have also been proposed but the same shall not be considered in evaluation of technical proposal.

#### i. Key Personals:

S.No	Position	Man Months	Billing Rate (Rs)	Total Amount
1	Project Manager/Team Leader	48		
2	Principal Hydrologist/Hydraulics Engineer	12		
3	Principal Dam/Geotech Engineer	15		
4	Principal Geologist	12		
5	Principal Structure Engineer	12		
6	Principal Contract Engineer/Specialist	48		
7	Principal Survey Engineer	24		
8	Principal Mechanical Engineer	6		
9	Principal Environment Engineer/Environmentalist	6		
10	Resident Engineer (Civil) 2 Nos	96		
11	Resident Engineer (Mechanical)	12		

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### ii. Technical Support (Non Key) staff for Construction Supervision phase:

S.No	Position	Man Months	Billing Rate (Rs)	Total Amount
1	Assistant Resident Engineer (Civil) 2 Nos	96		
2	Assistant Resident Engineer (Mechanical)	12		
3	Assistant Resident Engineer (Electrical)	06		
4	Junior Engineer (Civil) /Field Inspector/ Quantity Surveyor (5 Nos)	240		
5	Lab Technician (3)	144		
6	Junior Geologist	36		
7	Land Revenue Specialist	48		
8	Surveyors (3 Nos)	144		
9	Survey Helpers (6 Nos)	288		
10	CAD Operators (2 Nos)	96		
11	Office Manager	48		
12	Accountant	48		
13	Computer Operator	48		
14	Office boy/Cook/ Chowkidar (6 Nos)	192		
15	Driver (6 Nos)	288		

(The deployment of Key/Non Key staff will be in consultation with the Employer/Procuring Entity /Engineer as per actual site requirement.)

### iii. Non Salary / Indirect Cost

S.No	Description	Unit	Quantity	Rate/Amount
1	Furnished Office & Camp Accommodation	Months	48	
2	Electricity, Water & Gas Charges	Months	48	
3	Stationary, Furniture & other office Supplies	LS		
4	Fax, Postage, Courier & Telephone Charges	Months	48	
5	Purchase & Registration/insurance (on the name of Irrigation Department) 04 No	LS	6	

*A*      *rbf*

## TORs For Jabba Dam Consultancy Services

	Jimny Jeeps & 02 No single Cab (4*4) Pick up with half canopy.(Vehicles will be returned to client on completion of services or as & when required by client)			
6	POL/Running & Maintenance of vehicles	Months	48	
7	Geo Technical investigations	An amount of Rs. 1000000/- has been provided on lump sum basis, however payment will be made as per actual work done on approved MRS rates.		
8	Topographic/Contour Survey	An amount of Rs. 500000/- has been provided on lump sum basis, however payment will be made as actual on MRS rates.		

### **K. DELIVERABLE AND TIMINGS**

S.No	Documents	No. of Copies	Submission Time
1	Submission of Draft Agreement	5	Within seven days after award of consultancy
2	Submission & Execution of Final Agreement	5	Within 20 days after approval of draft agreement
3	Inception report for review of design/ design for Distribution Network, Solar Power System	5	After one Month
4	Final Report for review of Design.	As per requirement	End of 3 <sup>rd</sup> Month
5	Monthly Progress Report	5	Monthly




## TORs For Jabba Dam Consultancy Services

6	Draft Tender Documents including Tender Form, Specification, BOQ's and Tender Drawings.	As per requirement	4 <sup>th</sup> Month
7	Detail design for Distribution Network, Solar Power System	As per requirement	4 <sup>th</sup> Month
8	Final Tender Documents including Tender Form, Specification, BOQ's and Tender Drawings.	As per requirement	5 <sup>th</sup> Month
9	Construction Drawings	5	As and when required
10	Completion Report as per built drawings	5	At the end the project
11	Original PC-I / Revised PC-I & PC-IV,	As per requirement of the client	As and when required
12	Operation Manual		
13	Land Revenue Papers	As per requirement	As and when required

### **L. MODE OF PAYMENT**

The mode of payment for construction supervision will be as under.

The consultant shall be paid the cost of activities as per provision in the Contract Agreement for such project as per rules. 10% will be deducted by the Client/Employer/Procuring Entity each payment as Security Deposit.

### **M. QUALIFICATIONS AND EXPERIENCE OF CONSULTANT'S KEY PERSONNEL.**

Consultants will assign adequately qualified key personnel to carry out the implementation of the Project as described in TOR, man-month inputs. The key personnel should possess the qualifications and experience as indicated against each position.

Project Manager/Team

- ❖ Should have at least a Bachelor Degree in Civil Engineering from a recognized university. Additional qualification will carry extra marks
- ❖ Should be able to lead the team of consultations and assist the Project Directorate in timely completion of the services with quality output.




## TORs For Jabba Dam Consultancy Services

- ❖ Overall experience should be 25 years with 10-years' experience of resident supervision & 05 years' experience of management/Team Leader for the Projects.

### Principal Hydrologist/Hydraulic Engineer

- ❖ Should have Master degree in Hydrology/WRE/Hydraulic Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ He should have at least overall experience of 15-20 years with 05 years experience in exposure to the related activities.

### Principal Dam /Geotechnical Engineer

- ❖ Should have Master degree in Geotech/Dam Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ He should have at least overall experience of 15-20 years with 05-years' experience in exposure to the design of mega Dams projects related activities.

### Principal Geologist

- ❖ Should have Master in Geology from recognized university.
- ❖ Should have at least overall experience of 15-20 years with 05-years' experience in exposure to the geo tech related activities.

### Principal Environmental Engineer/Environmentalist.

- ❖ Should have Master degree in Environmental Engineering/Master in Environmental Science from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall experience of 15-20years with 05-years' experience in exposure to the related activities.



## TORs For Jabba Dam Consultancy Services

### Principal Mechanical Engineer

- ❖ Should have Bachelor degree in Mechanical Engineering from recognized university.
- ❖ Should have at least overall experience of 15-20 years with 05-years' experience in exposure to the hydraulic design & water supply related activities.

### Principal Structure Engineer

- ❖ Should have MS degree in Structure Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall experience of 15-20 years with 05-years' experience in exposure to the hydraulic design & water supply related activities.

### Principal Survey Engineer

- ❖ Should have Bachelor degree in Civil Engineering from recognized university.
- ❖ Should have at least overall experience of 15-20 years with 05-years' experience in Survey of Hydraulic structures/Dams.

### Principal Contract Engineer

- ❖ Should have Bachelor degree in Civil Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall 15-20 years experience in works contracts, Contractors Claims/Legal matters, bidding documents, contract agreement, evaluation of bids and schedule's items etc.

### Resident Engineer (Civil)

- ❖ Should have Bachelor degree in Civil Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall experience of 10-15 years with 10-years' experience in exposure to the hydraulic design & water supply related activities.

### Assistant Resident Engineer (Civil)

- ❖ Should have Bachelor degree in Civil Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.



## TORs For Jabba Dam Consultancy Services

- ❖ Should have at least overall experience of 5-10 years with 10-years' experience in exposure to the hydraulic design & water supply related activities.

Electrical Engineer/ ARE Electrical

- ❖ Should have Bachelor degree in Electrical Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall experience of 5-10 years with experience in exposure solar/filtration plant related activities.

Mechanical Engineer/ARE Mechanical

- ❖ Should have Bachelor degree in Mechanical Engineering from recognized university.
- ❖ Post Master qualification in related discipline will be given additional weight age.
- ❖ Should have at least overall experience of 5 years with experience in exposure solar/filtration plant and Hydraulic structures related activities.

Land Revenue Specialist


- ❖ Retired Tehsildar / Zallidar / Girdawar.

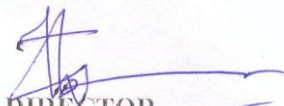
## N. TENDER DRAWINGS / DOCUMENTS


The preparation of tender drawings/documents would involve:

- Preparation of tender drawings with sufficient details for the purpose of national competitive bidding (NCB).
- Preparation of bill of quantities for all project works.
- Preparation of tender documents in line with PEC/KPPRA format, Government of KP. The bidding documents shall cover the civil works of the Project and its components.

  
ASSISTANT DIRECTOR  
JABBA DAM PROJECT  
District Khyber Peshawar

  
DEPUTY DIRECTOR  
JABBA DAM PROJECT  
District Khyber Peshawar

  
DIRECTOR  
JABBA DAM PROJECT  
District Khyber Peshawar

  
DIRECTOR GENERAL  
JABBA DAM PROJECT  
District Khyber Peshawar