

TERMS OF REFERENCE

CONSTRUCTION SUPERVISION CONSULTANTS FOR REHABILITATION AND MODERNIZATION OF ISLAM BARRAGE PROJECT

1. BACKGROUND

1. Constructed during 1922-27 across the Sutlej River, Islam Barrage is located about 15 km north-east of Hasilpur town of District Bahawalpur in the Punjab Province, with a designed discharge of 300,000 cusecs. The barrage was built to divert river flows to 03 off-taking canals viz Bahawal Canal, Qaim Canal and Mailsi Canal. However, operation of the barrage and sediment characteristics of these canals were disrupted after implementation of Indus Waters Treaty (1960), as water availability upstream of the barrage was drastically reduced. This necessitated major changes in diversion arrangements of the three off-taking canals including source points, design capacity and command areas etc. Resultantly, original design capacity of Qaim Canal was reduced from 558 cusec to 483 cusec and that of Bahawal Canal from 5,400 cusec to 1000 cusec. Also, water supply to Mailsi Canal from Islam Barrage was terminated and Sidhnai-Mailsi-Bahawal (SMB) Link Canal, constructed under Indus Basin Project Works, became its new source of water supply. This too, has resulted in a long dry reach of Sutlej River upstream of the barrage.

2. The main structure of Islam Barrage is about 90 years old. The aging process along with deferred maintenance has caused general deterioration of barrage, subsidiary weir and gates operating mechanism. Condition survey of barrage has revealed damages especially in the subsidiary weir and its flank walls. The gates operating system is in deteriorated condition. The barrage discharge capacity has also reduced due to adverse approach conditions (upstream bela formation). Any major flood may rip off the glacis of the subsidiary weir, thereby, seriously threatening the barrage safety itself. Any damage to this barrage can render it non-operative, disrupting irrigation supply for long time and causing huge loss of agricultural production and livelihood in the dependent area.

3. The Executive Committee of National Economic Council (ECNEC) while approving Umbrella PC-I for Punjab Barrages Rehabilitation and Modernization Project in December 2003, also cleared, amongst others, detailed investigations and preparation of an implementation project for Rehabilitation and Modernization of Islam Barrage. Accordingly, Feasibility Study for Islam Barrage Project was carried out through Public Sector Development Program in 2004-05 followed up by its detailed design completed during 2007-09 under the World Bank loan for Taunsa Barrage Emergency Rehabilitation Project (TBERP). Further studies including Environmental and Social Impact Assessment (ESIA) were carried out and Environmental Management Plan (EMP) and Social Action Plan (SAP) were also prepared.

2. OBJECTIVES OF THE ASSIGNMENT

4. The objective of the consultancy services is to undertake design review of Islam Barrage and ensure that construction supervision of rehabilitation and modernization of Islam Barrage and its ancillary works are implemented through ICB Contract in an orderly manner with a high standard of workmanship and specified quality of materials within the scheduled construction period and in conformity with the approved drawings, specifications and contract management as per FIDIC Conditions of Contract for Construction, acceptable environmental standards and in accordance with the Client's requirements.

5. Rehabilitation and Modernization of Islam Barrage

6. The project works are expected to include, but not limited to the following:

- (i) strengthening of barrage structure and subsidiary weir floors;
- (ii) concrete grouting underneath the floors of barrage, subsidiary weir and canal head regulators after carrying out condition survey and geo-physical investigations;
- (iii) lowering of subsidiary weir by 1ft and remodeling of appurtenant structures;
- (iv) remedial measures on the existing divide walls of barrage and construction of new divide walls on depressed bays;
- (v) rehabilitation of structural works on head regulators of off-taking canals;
- (vi) rehabilitation and renovation of gates and hoisting system of barrage and canal head regulators with motorized gate operation;
- (vii) strengthening of guide banks upstream and downstream of the barrage;
- (viii) provision of barrage instrumentation, piezometers and monitoring devices; and
- (ix) surveillance arrangements.

7. The consultants selected for construction supervision of Rehabilitation and Modernization of Islam Barrage will be responsible for:

- a) carrying out all required surveys and investigations if needed, reviewing the detailed design of all required civil, mechanical and electrical works and updating the design as required based on newly generated information;
- b) construction supervision and contract management of civil, mechanical and electrical works of the barrage including all allied structures (head

regulators, subsidiary weir etc); and river training works assuming the role of “the Engineer” as defined in FIDIC document; and

- c) provision of all necessary working drawings ensuring quality construction and strict compliance with the resettlement plan in compliance with the site specific environmental management plan (SSEMP) and specifications, and measurement / certification of completed works facilitating contractor’s progress payments.

3. SCOPE OF SERVICES, TASKS AND EXPECTED DELIVERABLES

- 8. The Scope of services for consulting services will include, but not limited to the following:

General Scope

- (i) review and up-date the Contractor’s program for implementation of various phases of the project and revise critical path analysis, if necessary.
- (ii) review and update EMP & EIA Reports in line with ADB’s Safeguard Policy Statement (2009) and as provided in the bidding documents;
- (iii) review and approve the Site Specific Environmental Mitigation Plan (SSEMP) prepared by the contractor based on the EMP in the bidding documents, review and supervise implementation of the environmental mitigation measures and monitoring plan in line with ADB’s Safeguard Policy Statement (2009);
- (iv) support PMO in monitoring and carrying out activities related to implementation of Environmental Management Plan (EMP) and Resettlement Plans (RP) in line with ADB relevant guidelines;
- (v) support PMO in reviewing, updating and implementing the Gender Action Plan (GAP) and preparing quarterly progress reports thereof;
- (vi) ensure that all project components reviewed and supervised by the Consultants are implemented in an environmentally friendly manner and taking adequate mitigation measures wherever necessary;
- (vii) keep the Client informed of technical and environmental/ social issues and progress of all contractual works both by direct contacts and through discussions or correspondence;
- (viii) review and approve the Health Safety and Environment (HSE) Plan and prepare Change Management Statement, if necessary and oversee their implementation;
- (ix) implementation of Resettlement Plan is the responsibility of Environment and Social Unit (ESU) of PMO. However, the Consultants will assist PMO/ EA in reviewing, updating and implementation of RP and preparing internal resettlement monitoring reports.
- (x) assume the responsibility to check surveys and benchmarks established by the Contractor at each site of work and ensure accuracy of surveys and benchmarks connecting all components under the works contract;

- (xi) check and approve all proposals and designs submitted by the contractor for temporary works (river diversions, boat-bridge, road diversions etc.), bar bending schedules and electrical and mechanical works in consultation with the operators of the barrage;
- (xii) monitor the instrumentation installation;
- (xiii) scrutinize and approve the Contractor's staff and labor proposals including replacements and work program;
- (xiv) conduct periodic check on record of Contractor's personnel and equipment;
- (xv) advise the Client on the future training needs of the Barrage operating staff;
- (xvi) attend, project level meetings, all Steering Committee meetings and meetings with ADB missions as required;
- (xvii) assist the Client in taking over the contract works and prepare list of items of works to be completed by the Contractor during defects notification period (DNP); also prepare inventory of works/ structures completed and tools/ plant/ equipment etc;
- (xviii) prepare taking-over certificates and documents as required for acceptance of works/ goods by the Client;
- (xix) prepare response to audit observations and paras in respect of payments certified by them and assist the Client in getting them resolved;
- (xx) update the rules for both flood management and normal barrage operations incorporating all into the revised detailed operation manual for Islam barrage;
- (xxi) using the output from the quality control program and the quantity surveying and measurement program, prepare monthly and quarterly progress reports using the latest software acceptable to the Client; for sending to donors and government offices; and
- (xxii) prepare a comprehensive Project Completion Report on completion of the contract, inclusive of as-built drawings based on the "as constructed" drawings, prepared by the Contractor as appropriate; and
- (xxiii) assist PMO/ EA in commissioning of the project.

Specific Scope

Contract and Construction Management

- (i) undertake full administration of construction contract(s) and supervise the Works (including civil, mechanical and electrical works) covering also Defects Notification Period (DNP) assuming the role of "the Engineer" as defined in the FIDIC document and undertake all tasks as per Multilateral Development Bank Harmonized Edition of FIDIC Conditions of Contract for Construction. This shall include on-site supervision of contractors' works for compliance with specifications, review of Contractor's submittals, verification of progress, checking of interim payment requests /

certification, checking and approving the quality assurance procedures produced by the contractors;

- (ii) oversee and supervise construction of works ensuring compliance to details provided in the construction (working) drawings and strict adherence to the Specifications;
- (iii) review and confirm or recommend appropriate changes to the construction schedule of the contract keeping in view river flows and seasonal changes;
- (iv) prepare Quality Assurance Plan (QA/ QC Plan) including a detailed description of the Contractor's required organization, procedures facilities proposed to ensure that the construction is carried out in accordance with the Contract, Specifications and Drawings in accordance with modern concepts of project management.

The Plan shall include a system to ensure that the documentation necessary to attest completion of any phase(s) of the works, use of correct materials, completion of required completions and tests, and acceptability of results generated are reviewed, maintained and submitted by the Contractor to the Engineer. The Contractor's test programs shall be suitably documented duly addressing pertinent test pre-requisites parameters;

- (v) review and process claim for additional payment by the Contractor, as per the procedures described in the conditions of contracts and advise the Client accordingly;
- (vi) in the event of contractual dispute which may result in legal action, adjudication or arbitration between the Contractor and the Client, the consultants will, on the instructions from the Client, collate and prepare factual documentation describing the circumstances of the dispute. If required, the consultants will attend hearings and provide all legal and other support to the client;
- (vii) carry out dispute resolution, as per provisions of the Conditions of Contract;
- (viii) inspect and witness the tests when necessary during manufacture of electrical and mechanical materials and machinery for compliance with specifications. The cost of such tests shall be recoverable through the work contract(s);
- (ix) witness any acceptance test and advise the Client whether the works or any part thereof have been completed as per specifications and certify outcome of the acceptance test in support of provisional acceptance certificate of completion;
- (x) testing of materials on-site or off-site when needed and testing and inspection of goods and materials in factory, if needed;

- (xi) review design calculations and shop drawings submitted by the Contractors on all M&E works and approve or amend the same in consultation with the client;
- (xii) supervise repairs, replacement and installation of the mechanical and electrical equipment in a satisfactory and safe manner in accordance with the specifications and contract requirements;
- (xiii) testing and commissioning of M&E equipment in association with the client;
- (xiv) carry out measurement of works and agreement of quantities with the contractor(s) and certification of Contractor's statements for progress payments in terms of the conditions specified in the contract. Prepare instructions for permissible variations in the works for approval by the Client; and
- (xv) Consultants shall prepare the O&M Manual, which shall give the nature of periodic physical interventions to be made by way of preventive and curative maintenance to be carried out every year, data to be collected and records maintained and periodic inspections to be made to ensure safety of the barrage. The O&M procedures should be detailed and those should be do-able to maintain integrity of structures for their design life. Resultantly, yard sticks (both physical and financial) for the maintenance intervention works need to be prepared to facilitate planning of the O&M activities every year.

Review of Design, Estimates and Drawings

- (i) examine and ensure adequacy of the hydraulic, structural and geotechnical design criteria and make modifications where necessary;
- (ii) review and update, in consultation with PMO, recommendations of the Design Consultants as appropriate; detailed designs were prepared by the Design Consultants during 2007-09 which have formed the basis for tendering. The Consultants will review the design and where necessary, revise or elaborate to incorporate any newly introduced operational procedure or changes etc;
- (iii) analyze design options for all facets of the barrage and appurtenant structures as well as proposed construction programs with a view to ensure cost effective construction, including but not limited to structural design of all barrage components and hydraulic optimization of the structure taking into consideration the river regime and frequency of discharges of varying magnitude;
- (iv) prepare agreed amendments to the detailed design and all required construction (working) drawings for all aspects of construction works. The Consultants shall amplify where necessary the contract drawings and specifications by preparing working drawings, which shall be in sufficient

detail to enable the appointed contractors to construct the civil, mechanical and electrical works. Working drawings shall be prepared to normal international standards and completed and issued to the contractors in accordance with the agreed program. The Consultant shall also check and approve all designs and drawings prepared by the Contractor.

- (v) prepare detailed design report by way of updating the tender level design report for the Project giving in sufficient detail, the additional investigations carried out, additional design analyses, applied results of significant additional computation with basic points; and
- (vi) prepare revised PC-I/ revised Engineer's Estimate as and when required.

Survey and Investigations

- (i) plan and execute additional surveys, geotechnical investigations and other such activities where necessary to provide a basis for both design modifications and subsequent preparation of construction drawings. The consultants shall hire, with prior approval of the client, any additional services of such other agencies responsible for carrying out the aforesaid surveys, investigations and model studies etc.

4. TEAM COMPOSITION & QUALIFICATION REQUIREMENTS FOR THE KEY EPERTS

9. The Consultant will maintain two (02) offices and two (02) teams i.e one (01) Head Office at Lahore and one (01) Field office at Islam Barrage. The Design Team and the Team leader/ Deputy Team leader will be based at Lahore and will spend certain time at Islam Barrage as required. It is expected that the Team Leader will spend preferably fifty (50%) percent of his input time in the Field Office. The construction supervision team will be based at Islam Barrage. The design office at Lahore will serve as the principal Project Office during the construction supervision phase.

Head Office:

10. The Consultants will establish the Head office at Lahore. The cost of renting, furnishing, equipping and maintaining the office will be included in the Consultants' financial proposal.

Field Office:

11. The supervisory team shall be adequately strengthened with the site supervision team, surveyors, inspectors, and administrative staff. The Consultants would be responsible for establishing, equipping and maintaining the field at Islam Barrage. PID will, however, provide free, furnished accommodation at Islam Barrage for establishing the Field Office (Para 24 - Services and Obligations of the Client refers). The cost of establishing, equipping and maintaining the field offices shall be included in the Consultants' financial proposal.

Security Arrangements:

12. Security situation at Lahore and Islam Barrage is satisfactorily under control and security risks at these places are low to medium. The Consultants should, however, review the security situation there and identify any specific security measures as deemed necessary.

Indicative Staffing Requirements for Construction Supervision

13. Following matrix represents the Client's reflection on the Consultant's team composition and minimum estimation of person-months for project management, design review, construction management and other field staffing for performance of the assignment. However, the prospective consultants should propose their own breakdown of staffing and level of effort / staff work based on their own experience and evaluation of the proposed services. The consultants should propose a realistic deployment schedule for all positions depending on the work requirements as all positions listed below would have inputs for different durations.

14. The Client estimates about 193 person-months of key staff (national) and 197 person-months of non-key staff to be provided by the Consultants for design review and construction supervision of the Project. The planned completion period for Islam Barrage Project is thirty-six (36) months including twelve (12) months of maintenance period during which the consultants shall maintain a minimum staff to perform the required tasks of finalizing the contract. The estimated duration of consulting services is forty (40) months. In order to complete the start-up project review activities well in time, the consultants will be installed about three (03) months ahead of mobilization of the work contractor and will continue for about one (01) months after the DNP for smooth project close-up and issuance of the Performance Certificate and Final Payment Certificate.

INDICATIVE STAFFING REQUIREMENTS FOR DESIGN REVIEW AND CONSTRUCTION SUPERVISION

Sr. #	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Tentative Input of Experts (Months)
KEY STAFF					
KEY EXPERTS (National)					
PROJECT TEAM AT HQ LAHORE					
1	Construction Management Specialist / Team Leader	B.Sc. Civil Engineering and M.Sc. Construction Management or M.Sc. Civil Engineering.	20	15 years' professional experience in planning, designing and construction supervision management of major water sector projects on large river systems including 10 years' specific experience in construction supervision of major dams/ barrages/ major canal projects at similar position in renowned Consultancy firm using ICB procedures under FIDIC Conditions of Contract for Construction.	36
2	Contract & Claims Specialist / Deputy Team Leader	B.Sc. Civil Engineering. An additional Master's degree in Construction Management is preferable and would be rated higher.	20	15 years' professional experience in the procurement of civil works, contract management and processing of contractors' claims including 05 years specific experience related to contract administration and claim handling on large water sector projects under ADB/ World Bank financing, using ICB procedures under FIDIC Conditions of Contract for Construction.	30
3	Senior Hydraulic Design Engineer	B.Sc. Civil Engineering and M.Sc. Hydraulics Engineering.	15	10 Years' professional experience in design of civil works on major water sector projects including 05 years' specific experience in hydraulic design of dams/ barrages/ head works and other major hydraulic structures on large canals at similar position in renowned Consultancy firm.	04
4	Senior Structural Design Engineer	B.Sc. Civil Engineering and M.Sc. Structure Engineering.	15	10 Years' professional experience in design of bridges and other major structures including 05 years' specific experience in structural design of river control structures, and other major hydraulic structures on large canals at similar position in renowned Consultancy firm.	04

Sr. #	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Tentative Input of Experts (Months)
5	Senior Mechanical Design Engineer/ Gates Specialist	B.Sc. Mechanical Engineering. An additional Master's degree in Hydro-Mechanical Engineering is preferable and would be rated higher.	15	10 years' experience in design/ fabrication and installation of gates/ gearings and hoisting arrangements on large water/ hydel sector projects including 05 years' specific experience in similar position on dams/ barrages/ head works and other major hydraulic structures on large canals.	04
6	Senior Electrical Design Engineer	B.Sc. Electrical Engineering. An additional Master's degree in Electrical Engineering is preferable and would be rated higher.	15	10 years' professional experience in design of motorized control on hydraulic structures of large construction projects including 05 years' specific experience in similar position on dams/ barrages/ Head works and other major hydraulic structures on large canals.	03
7	Resettlement Specialist	Master's degree in Sociology / Rural Sociology / Social work / Social Sciences or equivalent.	15	10 Years' professional experience in activities relating to land acquisition and planning & implementation of resettlement plans on large construction projects including 05 years' specific experience in similar position on large water sector projects in accordance with GoP and ADBs' / World Bank's Social Safeguards Policy Guidelines.	03
8	Environmental Specialist	Master's degree in Environmental Sciences / Environmental Engineering or equivalent.	15	10 years' professional experience in conducting environmental screening/ assessment of large construction projects including 05 years' specific experience in similar position on water sector projects in accordance with GoP and ADBs' / World Bank's Environmental Guidelines.	03
Sub-Total at HQ Lahore					87
FIELD STAFF AT ISLAM BARRAGE					
1	Resident Engineer	B. Sc. Civil Engineering and M.Sc. Construction Management or M.Sc. Civil Engineering.	15	10 years' experience in construction planning and supervision of large water/ hydel sector projects on major rivers including 05 years' specific experience in similar position on dams/ barrages/ head works and other major hydraulic structures on large canals in renowned Consultancy firm.	24

Sr. #	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Tentative Input of Experts (Months)
2	Geo-technical / Grouting Specialist	Geologist with Master's degree in Geology or B.Sc. Civil Engineering. An additional Master's degree in Geo-tech Engineering is preferable and would be rated higher.	15	10 years' professional experience related to design of geotechnical works on major structures including 05 years' specific experience in design and supervision of grouting operations on dams / barrages / head works and other major hydraulic structures on large canals.	03
3	Electrical Design Engineer / Instrumentation Specialist	B.Sc. Electrical Engineering. An additional Master's degree in Electronics Engineering is preferable and would be rated higher.	12	07 years' professional experience in design of motorized control and monitoring of instrumentation on hydraulic structures of large construction projects including 04 years' specific experience in similar position on dams/ barrages/ head works and other major hydraulic structures on large canals.	04
4	Assistant Resident Engineer (Civil) (02 No.)	B. Sc. Civil Engineering. An additional Master's degree in Construction Management is preferable and would be rated higher.	12	07 years' professional experience in construction supervision of large water / hydel sector projects on major rivers and canals.	60
5	Assistant Resident Engineer (Mechanical)	B.Sc. Mechanical Engineering. An additional Master's degree in Hydro-mechanical Engineering is preferable and would be rated higher.	12	07 years' professional experience in design/ fabrication and installation of gates/ gearings and hoisting arrangements on large hydraulic structures on major rivers and canals.	09
6	Assistant Resident Engineer (Electrical)	B.Sc. Electrical Engineering. An additional Master's degree in Electrical Engineering is preferable and would be rated higher.	12	07 years' professional experience in design of motorized control and monitoring of instrumentation on hydraulic structures on major rivers and canals.	06
Sub-Total at Islam Barrage					106
TOTAL KEY STAFF					193
NON - KEY STAFF					
AT HQ LAHORE					
1	Office Engineer	B.Sc. Civil Engineering.	12	07 years' professional experience in implementation of large construction projects including 04 years' specific experience as Office Engineer on major water sector projects on rivers and large canals.	36

Sr. #	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Tentative Input of Experts (Months)
2	Planning and Scheduling Engineer	B.Sc. Civil Engineering. An additional Master's degree in Construction Management is preferable and would be rated higher..	12	07 years' experience in planning and scheduling of large construction projects including 04 years' specific experience in reporting, planning, scheduling and document cataloging on major water sector projects on rivers and large canals.	12
3	Social Development and Gender Specialist (preferably female)	Master's degree in Sociology /Anthropology / Gender Studies / Economics or equivalent	07	04 years' professional experience in understanding of Government system/ procedures, and implementation of social development programs and gender action plan (GAP) on various projects including 02 years' specific experience in similar position on various projects with multiple donors.	02
4	Junior Engineers (2-3 No.)	B.Sc. Civil / Mechanical / Electrical Engineering	03	03 years' professional experience in engineering construction projects.	40
Sub-Total at HQ Lahore					90
FIELD STAFF AT ISLAM BARRAGE					
1	Measurement / Contract Engineer	B. Sc. Civil Engineering. An additional Master's degree in preferably M.Sc. Construction Management is preferable and would be rated higher..	12	07 years' professional experience in measurements of civil, electrical and mechanical works on large construction projects including 04 years' experience in similar position on major water / hydel sector projects on rivers and large canals under FIDIC Conditions of Contract for Construction.	24
2	Materials Specialist	Masters degree in Geology / Physics or other relevant disciplines	12	07 years' experience in performing materials sampling, laboratory tests, quantity progress reporting and quality control measures on large construction projects including 04 years' specific experience in similar position on major water / hydel sector projects on rivers and large canals.	12
3	Junior Environmentalist	Master's degree in Environmental Sciences/ Environmental Engineering or equivalent.	07	04 years' professional experience in conducting environmental screening/ assessment on large construction projects including 02 years' specific experience in similar position on water sector projects in accordance with Govt. of Punjab and ADB/ World Bank's Procedures.	18

Sr. #	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Tentative Input of Experts (Months)
4	Social Mobilizer (preferably female)	Master's degree in Sociology / Anthropology / Gender Studies or equivalent.	03	02 years' professional experience in social mobilization activities preferably in rural areas. The candidate shall demonstrate strong general and social development knowledge and shall be well versed with the local culture, language and norms.	03
5	Junior Engineers (3-4 No.)	B.Sc. Civil / Mechanical / Electrical Engineering	03	02 years' professional experience on engineering construction projects.	50
	Sub-Total at Islam Barrage				107
	TOTAL NON-KEY STAFF				197
	GRAND TOTAL (PROFESSIONAL STAFF)				390

Notes:

- (i) *The above-mentioned person-months include Consultant's professional input only. The total person-month requirement for professional staff is 390 i.e (Key Staff: 193 + Non-Key Staff: 197 person-months).*
- (ii) *The above positions do not include miscellaneous contract / support staff (non-technical, semi-technical and technical input) like office manager, accounts manager, accountant, surveyors, quantity surveyors, inspectors, social emulators, auto-CAD operators, draftsmen, laboratory technicians, guards, drivers and office boys etc who are used for costing purposes, but not included in summaries of man-months of Consultants input which refers only to professional man-months of input.*
- (iii) *All support staff in the Design / Field Office will be provided by the Consultants who are required to include cost of such support staff in the Reimbursable Expenses items.*

15. In the evaluation of technical proposals, the Key staff will be evaluated individually. The Consultants should submit CVs for all positions of Key staff (only one CV for each Expert position and comprising not more than five pages printed on one side of A4 size paper in font size of 11). Any TBN position in the key staff will be marked zero. As the CVs of Key Staff will form the basis of technical evaluation, the Consultants should note that under normal circumstances, barring resignation or serious health problems/ death of any of the nominated staff, no substitution of key staff will be allowed during the first year of the assignment.

16. The Non-key personnel will be evaluated collectively as a team for adequacy of the nominated staff and consultants' ability to provide all required staffing. Therefore, Consultants are required to provide Short CVs of all nominated staff against non-key positions. The Short CVs should contain information about name, date of birth, PEC registration, qualification and experience in the relevant field in sufficient detail (One Short CV shall not comprise more than two pages printed on one side of A4 size paper in font size of 11). The Consultants shall bear full responsibility for correctness of the submitted CVs.

Job Description and Qualifications of Consultants' Staff

17. The detailed job description of Consultant's staff (Professionals) is as shown below:

A. KEY STAFF

1. Construction Management Specialist/ Team Leader (National: 36 person-months): Responsibilities of the Construction Management Specialist/ Team Leader will include but not limited to the following:

- i. assist the PMO in Project implementation;
- ii. assume full responsibility for the consultants' team and performance of services under the consultancy contract;
- iii. ensure that the consultants' team undertakes comprehensive review of detailed designs and specifications which were prepared by the design consultants during 2009;
- iv. ensure that the consultants' team undertakes comprehensive construction supervision and contract administration of civil, mechanical and electrical works for Islam Barrage Project where the Consultants will act as "the Engineer" and undertake all tasks as per Multilateral Development Bank Harmonized Edition of FIDIC Conditions of Contract for Construction;
- v. oversee the consultants' team activities and supervise construction of works ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications;
- vi. ensure preparation of detailed and quantitative progress reports to support the contractor's requests for progress payments;
- vii. keep the Client informed of technical issues and progress of all works both by informal and formal meetings and correspondence and assist in any project issue which the Client may require;
- viii. take overall responsibility for preparation of Operational Manual for the Project. Also, jointly review the draft in detail with PMO barrages and PID prior to finalization and printing;
- ix. participate in the Dispute Board meetings to explain and discuss issues raised by the Contractor/ Client or DB;
- x. assist the Client in preparing responses to audit objections and queries of the donors or other Government Authorities;
- xi. coordinate with all Client's concerned organizations on project issues; and
- xii. at the end of the construction activities, guide and ensure that the team prepares a comprehensive Construction Completion Report inclusive of 'as-built drawings' as appropriate.

2. Contract & Claims Specialist/ Deputy Team Leader (National; 30 person-months): Responsibilities of the Contract & Claims Specialist/ Deputy Team Leader will include but not limited to the following:

- i. act as the Team Leader during the absence of Team Leader;
- ii. assist the Team leader in ensuring that the consultants' team undertakes comprehensive review of designs and specifications and carries out construction supervision and contract administration of the civil works for the Project assuming the role of "the Engineer" and undertakes all tasks as

- per Multilateral Development Bank Harmonized Edition of FIDIC Conditions of Contract for Construction;
- iii. assist the team leader in overseeing the consultants' team activities ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications;
 - iv. assist the Team Leader in overseeing quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;
 - v. render necessary advice and assist the Team Leader in contract administration and procurement issues / assignments/ contractual claims;
 - vi. assist the Team Leader in resolving any contractual issue which the Team Leader may refer;
 - vii. determine extension of time for completion and other claims in accordance with the conditions of contract in consultation with the Team Leader and Resident Engineer;
 - viii. provide assistance to the Client in dispute resolution as per provisions in the conditions of contract;
 - ix. assist the Team Leader in keeping the Client informed of contractual and claims issues by direct contacts and through discussions or correspondence;
 - x. assist the Team Leader/ Resident Engineer in holding meetings with the Contractor on contract and claims issues; and
 - xi. assist the team leader in preparing a comprehensive Project Completion Report (PCR), Operational Manual and any other duty/ assignment the Team Leader may entrust.

3. Senior Hydraulic Design Engineer (National: 04 person-months):
Responsibilities of the Senior Hydraulic Design Engineer will include but not limited to the following:

- i. review all relevant documents;
- ii. examine design parameters and design criteria viz-a-viz Client's requirements;
- iii. organize and supervise topographic surveys and any other investigations required to provide necessary input for design;
- iv. supervise and ensure follow-up action of physical model tests, if any, and take the lead in recommending modifications to and refinement of the model to ensure reliable output;
- v. review hydraulic design options for the barrage, divide walls, head regulators and downstream works;
- vi. coordinate and supervise detailed design of all hydraulic aspects of works including preparation of relevant additional construction drawings and specifications which may be required;
- vii. draft relevant portions of O&M Manual for the Project with emphasis on operating rules based upon water level observations coupled with available flood prediction information; and
- viii. coordinate and generate comprehensive detailed design review report, by compiling input from all specialities.

4. Senior Structural Design Engineer (National: 04 person-months): Responsibilities of the Senior Structural Design Engineer will include but not limited to the following:

- i. review all relevant technical documents;
- ii. review design parameters and design criteria viz-a-viz Client's requirements;
- iii. review design calculations, check for accuracy and see that appropriate standards were adopted. In case of disagreement, refresh and update the design;
- iv. organize, supervise and carry-out any additional investigations deemed necessary for structural aspects of any feature to be included in the Project;
- v. analyse structural design options where changes are required;
- vi. coordinate with the team for detailed design of all structural aspects of works including preparation of relevant additional construction drawings and specifications which may be required; and
- vii. assist in drafting relevant portions of O&M Manual for the Project with emphasis on procedures/ practices to ensure long term structural stability of structures.

5. Senior Mechanical Design Engineer / Gates Specialist (National: 04 person-months): Responsibilities of the Senior Mechanical Design Engineer / Gates Specialist will include but not limited to the following:

- i. review gate system design carried out by the detailed design consultants and suggest any improvements/ changes required for proper functioning of gates;
- ii. review design calculations and shop drawings prepared and submitted by the contractor;
- iii. pay periodical visits to the site for overseeing installation and testing process and brief the Resident Engineer;
- iv. review testing standards, testing process and results thereof and brief the Resident Engineer accordingly;
- v. advise and render any relevant assistance required by the Team Leader; and
- vi. contribute in preparation of the O&M Manual for gates and hoisting arrangements.

6. Senior Electrical Design Engineer (National: 03 person-months): Responsibilities of the Senior Electrical Design Engineer will include but not limited to the following:

- i. review and update complete electrical design and automation plans prepared by detailed design consultants and the Contractor and advise the Team Leader/ Deputy Team Leader for necessary amendments where needed;
- ii. review shop drawings for motorization of gates and other electronic works prepared by the Contractor and submit recommendations there-on to the Team Leader/ Deputy Team Leader for necessary amendments where needed;

- iii. review the proposed instrumentation program and suggest if additional instrumentation is required. Also prepare specifications of additional instrumentation, where needed;
- iv. review specifications and selection of Piezometers and related communication equipment up to central control;
- v. provide technical assistance to construction supervision team for installation and commissioning of the instruments;
- vi. conduct a detailed check of As-built Drawings of motorization / electrical / instrumentation works carried out by the Contractor; and
- vii. participate in the preparation of O&M Manual for motorization / electrical / instrumentation works.

7. Resettlement Specialist (National: 03 person-months): Responsibilities of the Resettlement Specialist will include but not limited to the following:

- i. review all documents relevant to the Project;
- ii. assist the Team Leader in planning and carrying out necessary social development action plan (SDAP) activities in the project area;
- iii. support PMO in developing, monitoring and carrying out activities related to implementation of environmental management and resettlement plans in line with relevant ADB Guidelines;
- iv. assist PMO in complying with ADBs Guidelines on Involuntary Resettlement in accordance with ADB's Safeguards Policy Statement (SPS; 2009);
- v. training of selected PMO staff with a view to strengthening the PID's capacity to adequately oversee resettlement activities; and
- vi. prepare internal monitoring reports on implementation of safeguards as per SPS (2009).

8. Environmental Specialist (National: 03 person-months): Responsibilities of the Environmental Specialist will include but not limited to the following:

- i. review all relevant documents, particularly the Environmental Impact Assessment study;
- ii. prepare/ update a cost effective environmental management and monitoring plan for rehabilitation of the barrage which is in line with EISA / EMP recommendations so as to ensure minimal environmental effects both during and following the construction period;
- iii. review the Site Specific Environmental Management Plan (SSEMP) for Islam Barrage Project and ensure its effective implementation;
- iv. prepare and execute required appropriate actions to mitigate any negative environmental impacts associated with construction activities in collaboration with PMO Barrages and all concerned stakeholders;
- v. prepare a detailed Reforestation Plan for the Project and supervise its implementation during construction process as required in the EISA / EMP;
- vi. develop training materials for PID and PMO barrages staff to support environmental protection measures and monitor and mitigate potential environmental impacts.
- vii. ensure that any Environmental Impact Assessments, if required, fully comply with ADB Guidelines Safeguards Policy Statement (SPS, 2009)

and ensure that all required mitigation measures are identified and acceptable. Ensure that the environmental management and monitoring plans reflecting full details regarding the estimated mitigation costs are in place through the SSEMP; and

- viii. assist in finalizing the bi-annual environmental monitoring report, also assist the PMO in finalization of quarterly progress reports, annual progress reports and any specific report asked by the PMO.

9. Resident Engineer (National; 24 person-months): Responsibilities of the Resident Engineer will include but not limited to the following:

- i. assist the Team Leader in carrying out all aspects of his TOR;
- ii. assume the responsibility for effective supervision and contract administration of all civil, mechanical and electrical works during the period of construction supervision;
- iii. ensure that the consulting team under his/ her control undertakes comprehensive construction supervision and contract administration of all Works required to be carried out by the Consultant in the role of “the Engineer” as per Multilateral Development Bank Harmonized Edition of FIDIC Conditions of Contract for Construction;
- iv. oversee activities of the teams under his/ her control related to supervision of construction works ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications;
- v. ensure that the Quality Assurance Plan/ methodology is strictly followed;
- vi. ensure preparation of detailed and quantitative progress reports to support the contractor’s requests for progress payments;
- vii. prepare a comprehensive Construction Completion Report including as-built drawings as appropriate;
- viii. ensure that the contractor follows the implementation schedule;
- ix. review the plan for execution of critical activities and arrange timely completion there-of; and
- x. ensure effective implementation of EMP.

10. Geo-technical / Grouting Specialist (National; 03 person-months): Responsibilities of the Geo-technical / Grouting Specialist will include but not limited to the following:

- i. review all relevant technical documents;
- ii. carry out (organize and oversee) comprehensive review of foundation conditions at each structure ensuring long-term integrity of the Project components;
- iii. identify any remedial foundation stabilization work to be included in the Islam barrage contract package;
- iv. assist in design of pile load testing, review the field feedback and make necessary changes in the design if necessary;
- v. assist in review of stability of slopes and make necessary changes where required for improvement of design;
- vi. extend technical assistance during the construction phase, investigate and evaluate any unexpected foundation conditions encountered and recommend alternative treatment as appropriate;

- vii. assist the Resident Engineer in proposing / finalizing locations for grouting at Islam Barrage;
- viii. design and supervise grouting operations.
- ix. assistance to prepare respective portion of the design review report;
- x. participation in the process of proposing immediate solution to encounter any construction issue at site; and
- xi. train the construction supervision staff for constructions supervision of piling. Devise necessary documentation like Checklist for execution and quality control.

11. Electrical Design Engineer/ Instrumentation Specialist (National: 04 person-months): Responsibilities of the Electrical Design Engineer / Instrumentation Specialist will include but not limited to the following:

- i. review and updating complete electrical design and automation plans prepared by detailed design consultants and the Contractor and advise the Team Leader/ Senior Electrical Design Engineer for necessary amendments where needed;
- i. review shop drawings for motorization of gates and other electronic works prepared by the Contractor and submit recommendations there-on to the Team Leader/ Senior Electrical Design Engineer;
- ii. review the proposed instrumentation program and suggest if additional instrumentation is required. Also prepare specifications of additional instrumentation, if required;
- iii. review specifications and selection of Piezometers and related communication equipment up to the central control;
- iv. provide technical assistance to construction supervision team for installation and commissioning of the instruments;
- v. conduct a detailed check of As-built Drawings of Motorization/ Instrumentation / Electrical works prepared by the Contractor;
- vi. participate in the preparation of O&M Manual for Motorization/ Instrumentation / Electrical works; and
- vii. prepare sections of the O&M Manual relating to Instrumentation.

12. Assistant Resident Engineer (Civil/ Mechanical/ Electrical): (2+1+1=4) National: 75 person-months): Responsibilities of the Assistant Resident Engineer within his/ her own discipline will include but not limited to the following:

- i. Report to the Resident Engineer;
- ii. assist the Resident Engineer in carrying out all aspects of his/ her TOR;
- iii. assume the responsibility for effective supervision and contract administration of civil/ mechanical/ electrical works, as the case may be, during the period of construction supervision;
- iv. undertake comprehensive construction supervision and contract administration of the Works required to be carried out by the Consultant in the role of “the Engineer” as defined under FIDIC agreements;
- v. supervise the construction works ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications;

- vi. ensure that the quality control methodology is strictly followed;
- vii. ensure preparation of detailed and quantitative progress reports to support the contractor's requests for progress payments; and
- viii. assist in the preparation of Construction Completion Report including "as-built" drawings as appropriate.

B. NON - KEY STAFF

1. Office Engineer (National; 36 person-months): Responsibilities of the Office Engineer will include but not limited to the following:

- i. report to the Team Leader;
- ii. maintain record of design/ drawings along with other documents in the office;
- iii. keep complete record of hard and soft copies of all versions of designs and drawings and ensure that latest versions are being issued for implementation;
- iv. allocate specific identification number to different versions of drawings;
- v. maintain record of all project related documentation;
- vi. assist the Team Leader in compilation of O&M Manual for Islam Barrage;
- vii. maintain full record of construction drawings, shop drawings and as-built drawings;
- viii. supervise and manage office documentation on behalf of the Team Leader;
- ix. assist in the preparation of weekly and monthly progress reports and ensure timely submission of deliverables; and
- x. assist in the preparation of revised PC-1 and Engineer's Estimate of the Project.

2. Planning & Scheduling Engineer (National: 12 person-months):

Responsibilities of the Planning and Scheduling Engineer will include but not limited to the following:

- i. report to the Team Leader;
- ii. take the overall responsibility for project planning, scheduling, reporting and project costing including preparation of engineer estimate/ revised PC-1;
- iii. analysis and approval of Tender Schedule, Baseline Schedule, Revised Baseline Schedule and Recovery Schedule submitted by the contractor on a computerized system Primavera Enterprise for Engineering & Construction (P6) software;
- iv. assist the Team Leader in determining extension of time for completion from the Contractor's Work Schedule;
- v. furnish progress schedules and Earned Value Reports to the Team Leader;
- vi. monitor that the Contractor adheres to the contractual requirements of Construction Schedule mentioned in the Special Provisions; and
- vii. monitoring of various activities shown on the Baseline schedule.

3. Social Development and Gender Specialist (National: 02 Person-months):

Responsibilities of the Social Development and Gender Specialist (preferably female) will include but not limited to the following:

- i. Report to the Team Leader;
- ii. lead the social mobilizer and be responsible for consolidation of gender related project information and timely dissemination to PMO and ADB;
- iii. work closely with the project team and provide assistance in the implementation of GAP activities;
- iv. develop community mobilization and training plan aligned with the GAP targets and lead community consultations for the identification of trainees for livelihood and other awareness raising programs as detailed in GAP;
- v. prepare data collection tools for collecting baseline information required for upgradation of school and vocational training etc in selected project areas;
- vi. ensure information on payments of compensation is available to both men and women. Affected women are encouraged to open their own or jointly titled bank accounts and ensure women's participation in affected persons' committee (APC);
- vii. conduct qualitative studies at Islam Barrage site of how women see the impact on their lives of provision of improved health care, skills training, education, and recreational provision;
- viii. conduct field visits and monitor the implementation of GAP activities in the field;
- ix. conduct any other function and responsibility, as assigned by the PMO Punjab Barrages.

4. Measurement / Contract Engineer (National: 24 person-months):

Responsibilities of the Measurement / Contract Engineer will include but not limited to the following:

- i. Report to the Resident Engineer;
- ii. Carry out joint measurement of quantities for verification of contractor's interim and final statements;
- iii. Based on these measurements, make recommendations about eligible Payments to the contractor;
- iv. Assist PMO in preparation of with drawl applications to ADB; and
- v. Assist Team Leader and Contract & Claims Specialist in contract administration.

5. Materials Specialist (National: 12 person-months): Responsibilities of the Materials Specialist will include but not limited to the following:

- vi. prepare an appropriate Quality Assurance Plan (QA/QC Manual) for construction supervision of the Project. The Manual will describe the testing requirements during construction;
- vii. advise on suitability of various construction materials proposed to be used in construction;
- viii. ensure that the Quality Assurance Plan (QA/QC Manual) is strictly followed by the Project team and bring out all deficiencies to the notice of Team Leader/ Deputy Team Leader/ Resident Engineer promptly;
- ix. evaluate contractor's proposal for establishing the field laboratory and approve other laboratories for testing;

- x. ensure that the routine detailed quantitative progress reporting is adequate to support the contractor's requests for progress;
- xi. establish and oversee appropriate standards and quality control procedures; and
- xii. ascertain that construction inspectors are fully cognizant of all required density testing during construction and the methodology to be employed there-on.

6. Junior Environmentalist (National: 18 person-months): Responsibilities of the Junior Environmentalist will include but not limited to the following:

- i. report to the Resident Engineer;
- ii. review all relevant documents particularly the Environmental Impact Assessment Study;
- iii. ensure implementation of Environmental Management Plan at Site under the guidance of Environmental Specialist;
- iv. assist the Environmental Specialist in preparation/ updating a cost effective environmental management and monitoring plan for the rehabilitation of barrage, also in line with IEE recommendations so as to ensure minimal environmental effects both during and after the construction period; and
- v. ensure implementation of Site Specific Environmental Management Plan (SSEMP) for the project under the guidance of the Environmental Specialist.

7. Social Mobilizer (National: 03 person-months): Responsibilities of the Social Mobilizer (preferably female) will include but not limited to the following:

- i. Report to the Social Development & Gender Specialist;
- ii. work at Islam Barrage to implement the GAP activities in the field. This will require close coordination and communication with project team and social development and gender specialist at Islam Barrage site;
- iii. work closely with the project team and provide assistance in the implementation of GAP activities;
- iv. assist the social development and gender specialist in implementing the community mobilization and training plan aligned with the GAP targets and organize community consultations for the identification of trainees for livelihood and other awareness programs as detailed in GAP;
- v. collect baseline data required for up-gradation of school and vocational trainings in selected project areas;
- vi. collect information on payments of compensation and ensure that affected women and men have received compensation;
- vii. conduct meetings with the affected persons' committee (APC) and other community consultations to ensure that their concerns are addressed during the construction and project implementation;
- viii. collect data for qualitative studies (at least two at Islam Barrages site of how women see the impact on their lives of provision of Sui gas, education, skills training and recreational provision; and

- ix. conduct field visits and monitor the implementation of GAP activities in the field.

8. Junior Engineer (Civil / Mechanical / Electrical) (National: 90 person-months): Responsibilities of the Junior Engineer will include but not limited to the following:

- i. Assist the Deputy Team Leader/ Resident Engineer / Assistant Resident Engineers in carrying out his TOR; and
- ii. Assist the Resident Engineer / Assistant Resident Engineer in supervision of works, prepare relevant records, work measurements, collecting and keeping the records for use by the Contract Specialist in resolving claims and disputes, preparation of progress reports, financial statements, etc.;

Inspector:

18. Inspectors will have a diploma in the relevant branch of engineering from a recognized institute with at least seven (07) years supervision experience in engineering construction projects. These are support staff positions and are chargeable to the head “reimbursable expenses”.

5. REPORTING REQUIREMENTS AND TIME SCHEDULE FOR DELIVERABLES

Reporting Requirements:

19. The consultants will have a dual reporting function to the Executing Agency (EA) and ADB. The consultants will prepare the following reports in English with Arial font (12 for headings and 11 for body text). The tables should use 10 Arial. The consultant will submit Table of Contents (TOC) for each report for prior approval of the client. A brief description of some important reports is given below.

- i) **Monthly Progress Report:** Monthly Progress Reports shall be prepared on regular basis. The report shall indicate progress of execution of works required under the consulting assignment. The progress reports shall detail progress under the civil works contract. The issues that may hinder the planned implementation shall be flagged in these reports along with suggested remedial measures.
- ii) **Quality Assurance Plan (QA/QC Manual):** QA/QC Manual shall be presented by the consultants before start of construction works. The Manual shall include comprehensive quality control program including detailed methodology for inspection, sampling and testing besides confirming its adequacy in the field
- iii) **Detailed Design Review Report:** Both draft and final versions of the Detailed Design Review Report shall be prepared separately. The Report shall consist of detailed design after incorporating the agreed amendments in the already prepared design by the design consultants.
- iv) **PPMS Baseline (Baseline / Benchmark) Report:** The Baseline Information Report should be based on DMF requirements of inputs, outputs, outcome and impacts and provide clear baseline indicators/ software modules for future comparison.

- v) **Operation and Maintenance Manual:** Both draft and final versions of the O&M Manual shall be prepared for Islam barrage separately. The O&M Manual shall give the nature of periodic inspections to be made, physical interventions to be enforced by way of preventive and curative maintenance to be carried out every year and data to be collected and records maintained. The O&M procedures should be described in detail and should be “do-able” to maintain integrity of structures for their designed life. Resultantly, yard stick for the Maintenance Intervention Works need to be prepared, both in physical and financial terms, to facilitate planning of annual O&M activities.
- vi) **Quarterly Financial Reviews:** Quarterly Financial Review shall be prepared and submitted on regular basis. The Reviews shall indicate revised cost estimates for each component of the project compared with the original budgetary provisions and recommendations for actions needed to control expenditure or seek additional funding, if so required.
- vii) **Quality Control and Assurance Report:** The Quality Control and Assurance Report shall consist of periodic inspections, results of testing and sampling etc. which were done in order to ensure quality assurance of works
- viii) **Mid-Term Evaluation Report:** The Mid-term Evaluation Report shall consist of:
 - (i) impact assessment of project activities; and
 - (ii) organized monitoring database.
- ix) **Project Completion Report:** Both draft and final versions of the Project Completion Report (PCR) shall be prepared for Islam barrage separately. The report shall describe civil works and operational procedures highlighting any specific requirements, listing up major problems encountered and actions taken besides including review of training needs for operational staff and making appropriate recommendations. It shall also summarize the final quantities and financial statement and give a resume of (i) project implementation experience; (ii) suggestions for improvement, sustainability and exit strategy; and (iii) impact assessment. The PCR shall include “as-built drawings” based on the “as constructed” drawings prepared by the Contractor.
- x) **Resettlement Plan: The project is category “B” under ADB’s Resettlement Guidelines** meaning thereby that there may be some impacts due to the project. The ADB and Government of Punjab have agreed to the following principles with regard to resettlement under the project (i) the approach to resettlement under the project should be not to remove all persons who have encroached on the right of way(s), but to remove only those ones who will be directly affected; (ii) design have been drafted with the objective of minimizing the resettlement activities; and (iii) the contract package and execution of civil works has been designed to minimize resettlement activities. The Consultants would assist PMO in updating the Land Acquisition and Resettlement Plan (LARP).
- xi) **Minimizing Environmental impact and implementation of Environmental Management Plan: An Environmental and Social Impact Assessment Examination (ESIA) has been conducted as the project is category “B” for the environment.** The EISA indicates that no significant adverse environmental

impacts will be caused by the Project, and the Project should actually result in improved environmental conditions. The Consultants would assist PMO in updating the EISA Report in light of comments by the ADB. The Consultants recruited under these TORs shall ensure that construction of all project components for which they are responsible for supervision shall fully comply with the EMP and SEMP provisions, also following the EISA recommendations. The consultants shall update the Client on the progress of EMP related activities regularly in the progress reports and shall also prepare the quarterly and bi-annual environmental monitoring reports for accuracy based on the contractor's monthly reports.

Deliverable:

20. The schedule for various reports and documents that are likely to be generated has been prepared. Additional reports shall be developed as required. The consultants will supply the deliverables as per schedule given below along with the respective soft copy thereof:

Report	No. of Copies	Submission deadline
Draft Inception Report	5	Thirty (30) days after the commencement of services
Final Inception Report	10	One (01) week after the review of Draft Inception Report by the Client
Monthly Progress Report	10	10 th . of the following month
Quarterly Progress Report	10	10 th . of the following quarter
Quality Assurance Plan (QA/QC Manual)	10	One (01) month after the consultants' mobilization and before start of construction
Draft Design Review Report	25	Three (03) months after the consultants' mobilization
Final Design Review Report	25	Two (02) weeks after the review of Draft Design Review Report by the Client
PPMS Baseline (Baseline/ Benchmark) Report	10	Six (06) months after the commencement of services
Updated ESIA Report	10	Two months after the commencement of services
Updated Resettlement Plan	10	Two months after the commencement of services
Monthly Internal Monitoring Report of EMP and Resettlement Plan	5	10 th of the following month
Quarterly Progress Report of EMP, RP and GAP	2	10 th . of the following quarter
Bi-Annually Environmental Report	2	10 th . Of the following bi-annual period
Draft O&M Manual	15	One (01) year after the construction starts

Final Modified O&M Manual	15	One (01) month after the review of Draft O&M Manual by the Client, but before substantial completion of works
Quarterly Financial Reviews	25	10 th . of the following quarter
Measurement Register/ Record in support of IPC's as per agreed methodology	2	With each Contractor's verified monthly statement
Quality Control and Assurance Report	10	One (01) month after start of the following construction year
Mid-Term Evaluation Report	25	Mid-way of the project
Revised Planning Commission Proforma-I (PC-I)	50	As and when required
Revised Engineer's Estimate	05	As and when required
Draft Project Completion Report	25	Two (02) months before the anticipated completion date of the project
Final Project Completion Report	25	One (01) month after the review of Draft Project Completion Report by the Client
Planning Commission Proforma-IV (PC-IV)	50	At completion of works
Complete Inventory of works/ structures completed and tools / plants / equipment	10	At completion of the project

Program

21. The supervision consultants will assume the role of "the Engineer" during implementation of Rehabilitation and Modernization of Islam Barrage.

22. The Islam Barrage ICB contract will be implemented over a period of thirty-six (36) months including twelve (12) months of Defects Notification Period (DNP). The Construction Supervision Consultants shall begin the assignment not later than two (02) weeks after signing the Consulting Services Agreement. The Consultants should note that work contract for the Project is likely to be awarded shortly after mobilization of the Construction Supervision Consultants. Therefore, the Consultants are required to complete the review of detailed design, drawings and specifications in such a manner that the scheduled start of construction is not jeopardized. Any changes required as a result of this review will be brought to the notice of the Client and will be incorporated in the designs as necessary.

23. The proposed project implementation schedule is shown in the following chart:

6. CLIENT'S INPUT AND COUNTERPART PERSONNEL

24. The Client shall make available to the Consultants at no charge the following facilities:

- i. Access to all reports, studies, data, photographs, maps, and institutions relating to the works, access to all sites for surveys and investigations.
- ii. Assistance to procure all necessary administrative documents including but not limited to visas, exchange control documentation, import licences, exemption certificates, work permits, driving licences, resident visas.
- iii. Free furnished field office accommodation¹ for the supervisory team at Islam Barrages. The Consultants will provide all necessary computer equipment, printers, photocopiers, stationary supplies, telephone/ fax machines and office utilities etc. The cost of all agreed expenditure will be reimbursed under the consulting services contract.
- iv. Free furnished, finished (electric, plumbing and HVAC services installed) and serviced portable field office cabins for the Consultants supervisory teams at Islam Barrages.
- v. Free use of vehicles² procured by the Consultants for official purposes and approved persona I use, during the entire period of consultancy services.
- vi. Permission to use facilities such as Guest Houses, payable at the official rates, will be granted where possible, to members of the Consultants' staff in connection with their official duties.

7. INFORMATION TO FACILITATE PROPOSAL PREPARATION

25. The information on engineering design of the project is open/ available to all shortlisted firms for fair competition and can be obtained from the Project Management Office at the address indicated in Clause 2.1 of Data Sheet, RFP.

¹ *The free furnished office accommodation will be provided on its availability with the client under the civil works contracts. The consultants will, however, arrange these facilities at their own during first twelve (12) months of the assignment.*

² *As per Client indicative estimate, consultant may provide four (04) vehicles (two double cabin pickups and two cargo vans, 5 doors, 800 CC) for the field office whereas two vehicles will be arranged by the Client for Design Office (HQ) Lahore . However, actual requirements and pricing of the same shall be done by the consultants themselves in their proposals as per their own experience and assessment of the work quantum.*