



# SINDH BARRAGES IMPROVEMENT PROJECT

## TERMS OF REFERENCE (TORs) FOR ELECTRO-MECHANICAL EXPERT

1. **Position:** Electro-Mechanical Expert
2. **Qualification and Experience:** Must have the Bachelor's Degree in Mechanical Engineering and at least 15 years' professional experience in detailed design and construction supervision of the hydraulic, and Electro-mechanical aspects of major hydraulic structures including suitable experience in the Rehabilitation of Irrigation barrages.
3. **Responsibility:** Responsibilities of the Electro-Mechanical Expert – Mechanical and Electrical will include but not limited to the following
  - i. Assist the Project Director and WB mission in carrying out all aspects of his TOR relating to electrical and mechanical works component;
  - ii. Monitor the Engineer's effective supervision and contract administration of the works;
  - iii. Ensure that the Engineer's team under his/ her control undertakes comprehensive construction supervision and contract administration of the works required to be carried out by the Consultant, as defined under WB Harmonized Condition of Contract;
  - iv. Oversees the Engineer's responsibilities of setting out, levelling, inspection, witnessing, testing, verification and interim verification of electrical and mechanical works for all contracts, in the project;
  - v. Participate with the Engineer in Quality Inspection Process;
  - vi. Witness and supervise tests with the Engineer's for the welders to work in fabrication shop or at site;
  - vii. Monitor the Engineer's supervision of works at fabrication shop and installation at site, performance of x-ray or other test, approval of weld quality and to oversee that works are being carried out according to relevant standards.
  - viii. Check the Identified and formulate all control points in fabrication, manufacturing, welding, erection, commissioning and testing processes. Categorize control points into witness, report and certification points, as described in Quality Inspection Manual.
  - ix. Ensure effective control over production coordinate with material engineer in this regard. Devise a protocol and design a Check Lists to ensure the compliance of the witness and certification points.
  - x. Recommend/Consent to approve the Engineer's submittals;
  - xi. Resolve the Technical issues or review the Engineer's recommendations.
  - xii. Oversee the activities of the teams under his/ her control related to supervising construction works ensuring compliance to detail provided in the construction and shop drawings and strict adherence to construction specifications;
  - xiii. Review the IPC's approved by the Engineer in accordance with the current progress.
  - xiv. Review the Engineer's comprehensive Construction Completion Report including as-built drawings as appropriate;
  - xv. Ensure that the Engineer strictly follows the implementation schedule;
  - xvi. Review the plan submitted by the Engineer's for execution of critical activities and arrange timely completion of these activities.

- xvii. The Consultant will work closely with Irrigation Department Sindh and ensure their involvement in all mechanical works activity for coordination and training purposes.
- xviii. Review all Engineer approvals related with Electro-Mechanical Construction Design and Drawings.
- xix. Participate all project Electro-Mechanical works related meetings
- xx. Review the Engineer approved Variation or Additional Works
- xxi. Review the Engineer inspection schedule of Electro-Mechanical Works
- xxii. Review the Engineer and Contractor Progress Reports
- xxiii. Participate with the Engineer in review and approval of the projects Construction schedule of E&M Works
- xxiv. Review the Engineer approved Cost Breakup/Rate Analysis
- xxv. Review the NCR issue by the Engineer
- xxvi. Review the Engineer's Punch List
- xxvii. Review the Engineer's O&M Manual
- xxviii. Review the Handing Over and Taken Over Documents
- xxix. Help organize and facilitate training sessions for Irrigation Department staff related to mechanical components of the project
- xxx. Provide inputs related to progress of mechanical works and issues faced in implementation for the project's six-monthly report.

**4. Client Representative:** Project Director, Project Management Office, SBIP will be representative of the client to coordinate all interfaces with the independent consultants.

**5. Selection Procedure and Form of Contract:** Consultants will be selected on merit, based on qualification and experience of the consultants in relevancy to the assignments through limited competition and following the World Bank's Procurement Regulations with time-based Contract.

**6. Duration of the Assignment:** Duration of the contract will be 3 years on part time basis. Total 200 working days during contract period of Three years

**7. Supporting Services:** PMO will assist in the arrangement for accommodation and travel for the expert during the visit/mission including project area and site. It will also provide all other reasonable support during site visits.

**8. Beneficiaries:** Irrigation Department, Government of Sindh.