**REQUEST FOR EXPRESSION OF INTEREST (REOI)**
**FOR PROCUREMENT OF CONSULTANCY SERVICES**
**FOR PHYSICAL HYDRAULIC MODEL STUDY OF SUKKUR BARRAGE**

**Assignment Country: Pakistan**

**Name of Project:** **Sindh Barrages Improvement Project, Additional Financing**

**IDA Credit No.** **62420 PAK,**

**Reference No:** **PK AFOF SBIP-145949-CS-CQS**

**Assignment Title:** **Procurement of Consultancy Services for Physical Hydraulic Model Study of Sukkur Barrage.**

## 1. INTRODUCTION

The Government of Sindh has received a credit from International Development Association (IDA) under Sindh Barrages Improvement Project Additional Financing (SBIP AF), approved on May 25, 2018, to ensure safety of Sukkur Barrage, to enhance monitoring capability of three barrages in Sindh for improved barrage operation, and conduct additional technical studies including River Basin and Riverine Area Management. The broad goal is to uplift the agro-based economy at provincial level thereby ensuring growth in national GDP by increased share of agricultural produce from Sindh.

The government of Sindh intends to apply part of proceeds of the credit for carrying out the Physical Hydraulic Modeling Study of Sukkur Barrage at a Reputed laboratory, which is covered under SBIP AF. This study is aimed at obtaining an independent confirmation of right bank river training works proposed by M/s Atkin-ACE-NDC Joint Venture Consultants in their Feasibility Report (2015) for increasing the flood handling capacity of barrage to 1.5 million cusecs, and enabling better silt management in right bank canals.

Sukkur Barrage is located about 225 air miles north east of Karachi (68° 50’ 44’’ E, 27° 40’ 48’’ N) in the Sindh Province of Pakistan. The Barrage comprises of a 66 spans main barrage, 4,725ft (approx. 1.4 km) long constructed across River Indus at Sukkur in 1932. The canal head regulator structures on both the banks, assisted by respective divide walls, control flow in the three right bank canals and four left bank canals. The river training works, constructed in 1939-40 to control silt entry into right bank canals, upstream of the main barrage comprise of a submerged weir and approach/tail channel with outer and middle banks within the river and an inner bank adjacent with the right guide bank. An island was also created between the middle bank and approach channel which permanently closed ten river spans as a result of modification done in 1939-40. This sediment exclusion mechanism relies on generation of secondary currents to exclude coarser sediments and to allow relatively finer sediments into right bank canals.

Although the construction of right bank training works was able to control the excessive sediment entry into right bank canals, it severely curtailed the flood handling capacity of the barrage, from 1.5 million cusecs to 0.9 million cusecs. With increasing incidence of high floods, it is now recognized that without taking appropriate measures for increasing the discharging capacity of Sukkur Barrage, the sustainability of agriculture in Sindh Province shall be at stake. To overcome this limitation of the barrage, a number of studies were carried out locally on distorted sand models. All of these studies relied upon on modifying the right bank training works, and thereby opening up the some or all of the closed spans of the barrage to increase its discharging capacity. However, the impact of proposed modifications of training works on the effectiveness of sediment exclusion mechanism implemented in 1939-40 is not so clear.

Before implementation of a particular solution, the Government of Sindh intends to ensure that the chosen solution meets the requirement of flood capacity, does not impair but improves existing sediment exclusion mechanism, improves the flow distribution in various barrage compartments, minimizes oblique flow, vortices and turbulence, and does not give rise to unacceptable scour or shoal formation. For this purpose, the Government of Sindh now wishes to engage an Consultant laboratory to carry out independent physical model testing of various solutions and give its recommendation for the best solution which should be implemented on Sukkur Barrage Rehabilitation and Improvement Project. Appropriate numerical models shall also be used to support the implementation of physical model and interpret the results. The Reputed laboratory is expected to use best international standards for the assignment which also meet the quality assurance requirement for this large undertaking.

## 2. SCOPE OF ASSIGNMENT

The detailed information regarding the project, problems to be addressed and the detailed Terms of Reference (TOR) for the assignment are attached as Annex-A to this request for expression of interest.

The scope of assignment may be further developed at the Request for Proposal (RFP) stage.

## 3. EXPRESSION OF INTEREST & INFORMATION

Project Director, Project Monitoring Office (PMO), Sindh Barrages Improvement Project (SBIP), Irrigation Department, Government of Sindh Karachi, Pakistan now invites the eligible hydraulic laboratories (organizations/firms) to indicate their interest in providing the services. Interested laboratories should provide information demonstrating that they have the required model testing facilities, qualification and experience to perform the Services. Shortlisting Criteria are:

I. State of art laboratory facilities (space, discharge, and instrumentation etc.) for carrying out physical model studies of large hydraulic structures, rivers and river training works, and river intakes using fixed bed and moveable bed models as may be applicable.
II. Extensive experience of carrying out physical model studies similar to present assignment of Sukkur Barrage.
III. Experience of using numerical models to support physical model studies of rivers and hydraulic structures, and interpret results.
IV. Knowledge and experience in the design of hydraulic structures on rivers and related works for irrigation including sediment control.

V. Ability to carry out field visits and engage with key counterparts.

The eligible laboratories shall have to meet all above the criteria.

The intention at this REOI stage is to assess the suitability of each participating Laboratory to be invited to the RFP stage, and so they should focus on responding to the criteria given above, and should keep their REOI submissions concise and to the point.

Following the completion of the REOI stage, a shortlist of eligible laboratories will be invited to the RFP stage, which shall include full technical and financial evaluation.

Participating laboratories in this assignment may associate with other firms to enhance their qualification, but should indicate clearly whether the association is in the form of joint venture and/or a sub-consultancy. In case of a joint venture, all partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

The selection of the Reputed Laboratory shall be based on Quality Based Selection (QBS) method set out in the World Bank Procurement Regulations.

The attention of interested laboratories is drawn to Section III, paragraph 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulation for IPF Borrowers" July 2016, Revised November 2017 and August 2018, ("Procurement Regulation"), setting forth the world Bank's policy on conflict of interest.

Further information could be obtained at the address below during office hours 10:00 16:00 hours (Pakistan time).

## 4. SUBMISSION OF EXPRESSION OF INTEREST

Expression of interest must be delivered in a written form to the address below (in person, or by mail, or by fax, or by e-mail by 1st September 2020.

**Project Management Office (PMO)**

**Attention: Mr. Jawed Ahmed Memon**

**Project Director**

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