

US-Pakistan Center for Advanced Studies in Water (CAS-W) Mehran University of Engineering and Technology (MUET), Jamshoro

Terms of Reference for the Study on “Assessing Relevance of CAS-W Program Outputs to Sector/Industry Needs”

1. Background

The Centers for Advanced Studies in Water (CAS-W) project has been established at the Mehran University of Engineering and Technology (MUET), Jamshoro, with funding from USAID, and technical assistance and collaboration from the University of Utah (UU).

The objective of the Center is to undertake educational programs, training and capacity building activities, applied research, and network development, with a view to resolving water-related challenges faced by Pakistan. The high quality water education being offered by the Center entails improved curriculum, better teaching, access to global education networks, and continuous faculty and staff development. The applied research component, on the other hand, responds to meeting national commitments to global sustainable development agenda, namely sustainable goal on water as well as other water-related issues and challenges confronting Pakistan¹.

At the end of five years (2019), the CAS-W is anticipated to have achieved the following key results: (i) developed a cadre of highly qualified graduates for public and private sector employment in their specialty areas; (ii) formed partnerships and interest-specific networks by bringing together the best minds in academia, government and the business community to identify solutions to localized and systemic challenges facing the public and private sectors in the area of water; (iii) improved quality and relevance of higher education in water curricula in response to public and private sector needs.

The Center is presently in its second year of operation and soon its first cohort of graduates will be in the job market to seek employment with public and private sector institutions. This study is being conducted to assess the relevance and suitability of Center's products (graduates, research, short-term training programs) to market needs.

2. Rationale and Purpose

The Center offers MS and PhD degree programs in four disciplines: (i) Environmental Engineering, (ii) Hydraulics, Irrigation and Drainage, (iii) Integrated Water Resources Management and (iv) Water, Sanitation and Health Sciences. Prior to Center's establishment, MUET was already offering degree programs in the first two disciplines. Under the aegis of Center, however, a series of new courses have been introduced in these two disciplines including improving the syllabi of existing courses. The remaining two programs which offer multidisciplinary perspective were started to provide education and training in addressing key issues within the context of water-development nexus.

Each degree program emphasize the understanding of fundamental scientific and engineering principles to manage and solve water problems both from engineering and policy perspectives. In addition, the curricula caters for enhancing graduates' competitiveness in the market with training in improved management and communication skills, critical thinking and creativity, and entrepreneurship etc. The students are prepared for careers in policy practice, consulting and design, management of water systems, or teaching and

¹ Major challenges include: increasing water scarcity, deteriorating water quality, declining water productivity, aging water infrastructure, groundwater depletion, poor land and water management, lack of access to safe drinking water, water sharing/allocation conflicts and poor water governance, among others.

research. An overview of each degree program together with a list of courses being taught at the Center is available at:

<http://water.muett.edu.pk/degree-programs/>

Main objective of Center's research component is to stimulate competitive and innovative applied research that is multi-disciplinary in nature and developed within the broader context of water-development nexus to support the achievement of sustainable development goal on water. To this end, the Center has developed an agenda through a series of stakeholder consultations. A list of these issues/topics is available at: <http://water.muett.edu.pk/applied-research/>. The Center is advancing the implementation of this agenda through its research grants program, students' research, and contract research.

3. Study Objectives

Major purpose of this study is to assess the relevance and suitability of higher education (curriculum), training programs and research work being delivered by the CAS-W to market (water sector) needs. To this end, specific study objectives include:

- a) To identify what type of jobs are available in the market that can be filled by CAS-W graduates, with a special focus on highly demanded skills.
- b) To find out the relevance of current curriculum and research portfolio as well as short term training courses offered by the Center to market needs.
- c) To identify potential growth areas and program-specific markets.
- d) To assess the capacity of CAS-W in delivering the education and training needs in response to market demand.
- e) To assess competitiveness of CAS-W program with other similar programs being offered at other universities.

4. Framework for Needs Assessment

The following questions provide a broader framework for the assessment of market needs and to define strategic priorities for making CAS-W program (and its deliverables) more attractive and competitive. The following list by no means is exhaustive, and the selected consultant is expected to further expand and enrich it as warranted by the study objectives.

- Which are the leading public and private sector employers in the field of water? What is the nature of their work/business (policy, engineering, management, research or teaching etc.)?
- What are the major factors that currently influence the job market in the water sector? Among other things, this will include analysis of the mandates of organizations engaged in the water sector.
- What are the recruitment trends among employers in terms of skills set requirements for young water and environmental professionals entering in the job market? Has the skills set requirements been changing overtime or remained steady?
- Is the current curriculum well aligned with the technical and soft skills needed by the potential employers? This will require evaluation of each course in terms of how it is contributing to the expertise/specialization needed in the market. If not, what are the major gaps and how these could be bridged?

- Which other schools/institutions in Pakistan are offering similar degree programs, and how these programs are qualitatively different than those offered by the Center in terms of course work and research requirements? What steps Center should take to enrich the quality of its programs and to increase its competitiveness in the market?
- Is research being done by the faculty and students well aligned with the national research agenda? Will it contribute to achieving the water SDG and lead to finding solutions to challenges confronting the water sector? If yes, how could it be further improved/enriched? If not, what steps Center should take to align it with current and projected water sector priorities?
- How well curriculum and research components are aligned with each other? Are these mutually supporting?
- What are short-term training needs (for practitioners at different levels) in the area of water? Who are the potential clients? To what extent Center can meet this demand with its existing capacities?
- Why the private sector so far has not been very forthcoming in building research partnerships in water sector?
- What are the challenges that will hinder CAS-W response to meeting market needs in the form of producing good quality graduates and research?

5. Resources

The study requires collection of data from appropriate target groups by means of established procedures and methods that are thoughtfully selected to fit the purposes and context of the assessment. While providing good overview of CAS-W program, the following sources will be useful in designing the questions/questionnaire and interviews.

- RFP by the USAID (March 2014)
- Cooperative Agreement between MUET and USAID (December 2014)
- Memorandum of Understanding between MUET and UU (August 2015)
- Centers' websites: <http://water.MUET.edu.pk> and <http://water.utah.edu>
- List of courses and their contents <http://water.mueta.edu.pk/degree-programs/>
- Research projects awarded under small research grants program
- List of students' research topics (including summary of their research findings)
- CAS-W baseline study conducted by MSI/USAID
- Work plans and progress reports

6. Key Deliverables

- *Inception Report* (due within first two weeks from the starting date of the contract): detailing the methodology including the main research methods, the sampling framework, proposed sources of data, procedures for data collection and analysis, and a draft but detailed table of contents. The proposed research tools will be discussed and approved by CAS-W Team before data collection commences.
- *Draft Final Report* (due two weeks prior to the conclusion of the contract): detailing findings in response to issues/questions raised in section 4 above.
- *Final Report* (due at concluding date of the contract): incorporating comments and suggestions provided by CAS-W team on the draft report.

7. Management Arrangements

The Consultant will report to Project Director/Deputy Project Director of CAS-W, and work in close collaboration with Center's management team and faculty, including visiting and resident teams of the University of Utah, USA. The focal person for the assignment would be M&E Specialist of CAS-W.

8. Duration

It is anticipated that the consultancy will be carried out over a period of three (3) months, to be completed by December 2017.

9. Qualifications and Experience

CAS-W is seeking to engage the services of an independent contractor/consulting firm to conduct a comprehensive assessment of its education and research programs vis-à-vis market needs. Required qualifications include: (i) advanced university degree in social science, business, economics, and/or other related field; (ii) proven experience in undertaking market needs assessment or relevant studies; (iii) good understanding of water sector issues, capacity gaps, and training needs in the water industry; (iv) ability to articulate strategies for professional development and growth of institutions such as CAS-W; (v) working experience with senior officials within government and nongovernment organizations; and (vi) proven capacity to supervise and coordinate all administrative and technical aspects of the consultancy.

10. Selection Criteria/Scoring

Relevant Experience	20
Operational Capacity	20
Methodology	30
Team Expertise & Appropriateness	20
Budget & Cost	10
Total	100

11. Selection Method

The Selection of Consultants shall be made on Consultants Qualification Selection Method as per Rule-72(3) of Sindh Public Procurement Rules, 2010 (amended 2013).

For Information and Proposal Submission

Procurement Manager

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