

**Sindh Resilience Project (SRP)**

**Terms of Reference  
for  
Hydro Meteorological Assessment of the Sindh Province  
for  
Sindh Irrigation Department**

## **Introduction:**

Hydro-meteorological natural hazards are considered one of the natural progressions or extreme phenomena of the hydrological or atmospheric nature, which may cause death or injury, property damage, socio-economic disruption and or geo-environmental degradation system (UNISDR 2002). We are dealing with two types of natural hazards, floods and droughts. Hazard assessment implies the determination of the magnitude and frequency of the hazards and includes its spatial delineation.

The Sindh Irrigation Department (SID), Government of Sindh intends to undertake several activities for institutional strengthening of the department under the ‘Sindh Resilience Project’ soft component funded by The World Bank. The envisioned studies under soft component are to handle flood situations efficiently, meaningful preparedness before each flood season, reliable flood hazard and vulnerability assessments, and manage uninterrupted extreme drought conditions through the development of tools to improve understanding of risks and eventually support rapid response through the flood disaster.

Currently, hydro-meteorological hazards management in Sindh province is being carried out with limited information along with localized knowledge and experience of previous hazards.

The adequacy of real-time data can be accessible due to the advent of technology which can be efficiently used in overall hazard management. The assessment of the hydro-meteorological hazards needs detail data and information about the climatic and hydrogeological conditions. The integration process of the effects of these factors by using the remote sensing and GIS tools help to predict and estimate the hydro-meteorological hazards in an arid region. Thus, efficient hazard management can be achieved by conducting detailed development of hazard assessment methods, with real-time hydro-meteorological data of Sindh province.

## **Objective:**

1. To collect the historical hydro-meteorological data for the province of Sindh
2. To analyze the trends in historical hydro-meteorological data of the Sindh province
3. Monitoring and forecasting of the occurrence, intensity, and evolution of hydrometeorological extreme events (Floods and droughts).
4. Review and analysis of hazard assessment for Sindh province regarding hydro-meteorological conditions
5. To characterize the hydro-meteorological hazards such as floods and droughts
6. To prepare the hydro-meteorological hazard maps of the Sindh province
7. To prepare the hydro-meteorological hazards assessment report for Sindh province
8. To assess the Socio-economic impacts of hydro-meteorological extreme events (Floods and droughts) in Sindh province.
9. To propose the action plan to deal with the hydro-meteorological hazards

**Deliverables:**

- a) Inception report containing the detail work plan and assessment tools
- b) Interim report accepted to the client comparing of existing hydro-meteorological network with the available data
- c) Interim hazard assessment report for Sindh province regarding hydro-meteorological conditions which characterize the hydro-meteorological hazards such as floods and droughts
- d) Detailed final report which contains the hydro-meteorological hazard maps, hydro-meteorological hazards assessment and action plan to deal with the hydro-meteorological hazards
- e) One four days' workshop to the client for the final approval.

**Expected Time Frame:**

The assignment will be completed within six (6) months after signing the contract between Client and the Consulting Firm.

**Coordination:**

The consulting firm will report to the Project Director, Sindh Resilience Project or any other staff designated. All work must be approved by the Project Director or the designated staff.

**Qualifications:**

The interested firm must:

- Be a tax registered consultancy firm incorporated for at least five (5) years.
- The firm having experience of working with Sindh Government would be desirable.
- The firm and its staff must have experience of offering similar services and have completed similar projects of this scale and complexity.
- Consulting firm should propose a comprehensive approach, methodology, and work plan for the timely and effective completion of assignment.

**Selection Process:**

Procurement will be completed following the Selection Based on Consultants Qualification (CQS) method in accordance with paragraph 3.7 of World Bank's Guidelines: Selection and Employment of Consultants [under IBRD Loans and IDA Credits & Grants] by World Bank Borrowers, January 2011 (revised July 2014).