

**GOVERNMENT OF SINDH  
SINDH IRRIGATION DEPARTMENT  
SINDH RESILIENCE PROJECT – WORLD BANK ASSISTED**

**WATER MANAGEMENT SPECIALIST (Individual Consultant)**

**TERMS OF REFERENCE**

**INTRODUCTION & BACKGROUND**

Pakistan is exposed to a number of adverse natural events and has experienced a wide range of disasters over the past 40 years, including floods, earthquakes, droughts, cyclones and tsunamis. Over the past decade, damages and losses resulting from natural disasters in Pakistan have exceeded USD 18 billion; as the population and asset base of Pakistan increases, so does its economic exposure to natural disasters. Also, Pakistan has been ranked 6<sup>th</sup> among the most climate change affected countries in the world, with the fifth highest total losses of all countries attributed to climate change. Pakistan faces a major financing challenge arising from natural catastrophes, with flooding causing an estimated annual economic impact of between 3 and 4 percent of the Federal Budget. The fallout from large disasters such as the 2005 earthquake and the 2010 floods as well as impacts of the recent militancy crisis have taken a significant toll on national growth and macroeconomic indicators.

The geographic location and climatic conditions of Sindh render it vulnerable to various natural disaster events. These include floods, cyclones, earthquakes, droughts, wind storms, tsunamis and sea intrusion. In addition, the geography, topography, nature of economy, rapid urbanization and high population levels exacerbate Sindh's vulnerability to natural disasters. The scale and frequency of damages caused by floods represents the most recurrent and acute threat to communities in Sindh. Floods in 2010 and 2011 were amongst the most devastating in the history of the region impacting both urban and rural areas. Besides floods, Sindh province faces drought in the northern and eastern region on a recurring basis.

**Project Description- Sindh Resilience Project (SRP)**

The Sindh Resilience Project (SRP) focuses on improving institutional capacities, performance, and preparedness at key agencies responsible for managing disaster risk in Sindh. In addition, the Project further contribute towards enhancing resilience to hydro meteorological disasters including floods and drought through physical infrastructure investments. The dialogue with Government of Sindh has established floods and droughts as the highest priority areas, owing to high frequency and impact. The dialogue has further identified critical needs in these areas, along with an estimate of resources needed to address these priorities.

The project interventions related to the Sindh Irrigation Department include the following activities:

**Improving Infrastructure and Systems for Resilience (USD 96 million):** This Component supports restoration and improvement of embankments at high risk sites along the Indus for protection against riverine floods as well as construction of small rainwater-fed recharge dams

in drought prone regions in Sindh. This Component also assists the Sindh Irrigation Department towards implementing project interventions and increasing operational efficiency. In terms of infrastructure investments, the Sindh Irrigation Department (SID) is implementing a list of sub-projects including flood protection works and small dams, in consultation with relevant stakeholders, including provincial departments such as Irrigation; Finance; Rehabilitation; Revenue; and, Planning and Development) and the benefiting communities.

**Flood Protection Works:** The Component will support structural investments including restoration, improvement, and up-gradation of flood embankments to increase resilience of communities and economically productive areas along the left and right banks of Indus River.

**Construction of Small Recharge Dams to Address Drought and Flash Flooding Risks:** This subcomponent will support the construction of small rainwater-fed recharge dams, less than 10 meters in height, in the Kohistan and Nagarparkar regions for the recharging of underground aquifers and provision of water to communities during dry periods. Additionally, these would protect communities against seasonal hill torrents and flash floods originating in the Kirthar Range.

**Technical Assistance to Sindh Irrigation Department:** The sub-component supports the Sindh Irrigation Department for implementation of nonstructural measures to enhance flood management and drought mitigation. The sub-component would also support related equipment upgrades and studies. Salient interventions include the establishment of a Decision Support System for the Department, improving capacity for safety evaluation of flood embankments, river morphology studies, and floodplain mapping.

## **SCOPE OF WORK**

The specialist would perform tasks;

- Visit dam sites and provide detail report to Senior WRM on the ground water level and usage.
- Assist Senior WRM Specialist in preparing mechanism for monitoring of underground water level.
- Assist in preparation of water usage policy and O&M Manual.
- Tasks assigned by Senior WRM Specialist.
- Any other task assigned by Project Director.

## **QUALIFICATION AND EXPERIENCE**

The Water Management Specialist should have;

- Bachelor's Degree in Civil Engineer with minimum twenty (20) years of experiences.
- At least fifteen (15) years of experiences in Irrigation & Hydraulics, Water Management, Flood and Drought Management and River Training Works.
- Excellent report writing, communication and IT skills will be required for this assignment.