Consultancy Services for Development of Groundwater Recharge Index of Pakistan under Community water stewardship project

Terms of References (ToRs) for consultant

GENERAL

This document contains Terms of Reference (TORs) for the Consultant, to be engaged by WWF-Pakistan (hereinafter called the Employer), for project Groundwater Recharge Index of Pakistan under Community Water Stewardship project.

OBJECTIVES AND SCOPE OF SERVICES

WWF-Pakistan is implementing a Pepsi-Cola funded project on Community Water Stewardship titled “Community Water Stewardship: Replenishing the Water Resources in Lahore and Multan (Phase – II)”

Water Stewardship is a concept developed and advocated by WWF International globally to promote efforts of collective action for conserving and restoring water resources which serve community purposes. As part of the global network, WWF-Pakistan has also been an advocate of the concept and has been working actively on implementing water stewardship since past ten years. Under the proposed concept, WWF-Pakistan intends to partner with PepsiCo. and relevant government organizations, such as Water and Sanitation Agency (WASA) and Irrigation Department to replenish groundwater through multiple interventions in the region of Lahore and Multan. The concept proposes different possible interventions to replenish groundwater i. By constructing groundwater recharge wells, ii. By installing rainwater harvesting systems in approximately 150 households in a selected community in Lahore within PepsiCo. watershed, iii. Reuse ablution water system, iv. By restoring existing areas into wetlands or by constructing
new wetlands, within the watershed, where water ponding occurs, v. Land cover management and vi. On form water management practices.

In this regard, to map out the recharge potential and water resource availability identification and their spread across the Pakistan, employer’s freshwater team intends to hire a Water Resources Specialist to compile database and map out the datasets of all input parameter and extract Recharge Index of Pakistan as a tangible output.

This consultancy is vital for the identification of potential sites for Recharge of the Aquifers and potential sites for water replenishment interventions and to meet the following objectives:

- Spatial Data for hydrological analysis.
- Development of soil and land use map
- Development of Drainage Density map
- Temporal and Spatial analysis of precipitation and temperature data
- Estimation of crop water requirement as spatial scale
- Access runoff estimation at spatial scale
- Run off Estimation using SWAT model at different sub watershed
- Quantification of recharge potential at different months in different locations
- Identification of recharge potential sites for ground water replenishment
- Criteria methodology for identification of recharge potential sites
- Cross verification methodology/ Criteria
- Site/Area suitability for interventions (types)

**DELIVERABLES**

- Rainfall and Temperature Index map
- Slope gradient index map
- Drainage density index map
- Land Use/Land cover Index map
- Soil cover index map
- Overall groundwater Recharge Index of Pakistan map
- Recommendations for Potential Replenishment sites in Pakistan
- Incorporation of Replenishment sites and existing interventions taken by WWF-Pakistan and other organizations
- Training on SWAT model to project team
- Final Report meeting the above objectives map

Requirements:

The consultant must have experience relevant to project scope. Qualifications in the areas of Remote Sensing and GIS in water resource, Hydrogeologist, Hydrologist and Environmentalist with minimum 10 year of experience.

TIME FRAME

From: May 2022
To: December 2022