**CONCEPT NOTE**

**Sub-regional Experts Meeting on Groundwater Management**

**3-4 August, 2017**

**Islamabad, Pakistan**

**Background**

The Asia region hosts 4.4 billion people, approximately 60% of the world population. In this region, the livelihood of rural poor is closely tied to the land and water resources upon which their food, water and economic security is dependent. While urban and industrial growth drives the region’s rapidly growing economy, the rural poor remain dependent on the resources of the ecosystems.

Land and water resources, including groundwater resources in turn constitute the foundation for the agricultural production, fisheries and aquaculture that provide nutrition and income. These resources also support the production of livestock and forest products that provide food, fuel, fodder and building materials crucial for the livelihoods of rural families. These ecosystems also provide critical services to a wider rural and urban population, including surface and groundwater restoration, regulation of flooding and maintenance of biological diversity. However, these resources are under increasing stress due to over-exploitation, conflicts over rights, and broader anthropogenic environmental change throughout the region.

Groundwater depletion is a major concern in the Asian region particularly due to shortfall in the surface water supplies and poor groundwater management. At regional level, Turkmenistan is reported to be the driest country in Central Asia with an average annual precipitation of about 161 mm[[1]](#footnote-1). Turkmenistan has the least water resource with only

1Km3/year, as it represents only 1 percent of the water resource in Central Asia, but it accounts for 10 percent of the total area in the region. In Turkmenistan, over 97[[2]](#footnote-2) percent of water withdrawal is the surface water and about 1 percent from the groundwater. According to the Food and Agricultural Organization (FAO), when the annual Internal Renewable Water Resources (IRWR) are less than 1700 m3/inhabitant, it is considered to be threshold below which a country is indicated as a water stressed. FAO defines Internal renewable water resources (IRWR) as water resources (surface water and groundwater) generated from endogenous precipitation. Below this 1700 m3 per inhabitant level, water availability is considered as a serious state of water scarcity, which can be a serious threat to socio-economic development and environment.

In Afghanistan, over 98[[3]](#footnote-3) percent of the total water withdrawal is used for agriculture purpose, while 1 percent for municipal and 1 percent for industrial purposes. Of total water withdrawal, around 85 percent is surface water sources and the remainder 15 percent is the groundwater. With an IRWR of about 1457 m3/ inhabitant, Afghanistan is a water stressed country. In addition, Afghanistan has the highest share (18 percent) of groundwater irrigation for cultivated area in the region. According to FAO, there is an overexploitation of ground water resource where the rate of withdrawal is higher than recharge, which primarily leads to lowering of the groundwater table in Afghanistan.

FAO reports that Iran’s total water withdrawal is estimated at 93.3 km3, of which about 43% is the surface water and 57%[[4]](#footnote-4) is the groundwater. While agriculture is the major water withdrawal sector with share of over 92% in total water consumption.

The Internal Renewable Water Resource for Pakistan is estimated at 323 m3 per inhabitant[[5]](#footnote-5). An IRWR less than 1700 m3/inhabitant is considered to be threshold; below which there are indications for water stress. In many areas of Pakistan, water use is

unsustainable and exhaustive, which means that withdrawal exceeds recharge rates and the water bodies are often overexploited. Total groundwater reserves in Pakistan are estimated as 50 Million Acre Foot (MAF). It is estimated that over 90% of drinking water and 100% industrial water comes from groundwater while 60% of irrigation water also comes from groundwater. Due to indiscriminate pumping, the groundwater is being depleted at an alarming rate.

There are commonalities among countries in the Asian region and at the same time there are commonalities in the issues related to groundwater management though degree and extent of problems vary from country to country. At the same time, the region is very vulnerable to climate change impacts experiencing more frequent floods and droughts. The transboundary nature of various river basins in the region is also the major reason for conflicts amongst several countries. The fast changing dynamics of water-food-energy nexus would further pose the threat of insecurity due to population growth, industrialization and growth intensification. There is need to analyze the common areas of research and development for the sustainable groundwater management in the region for better climate change mitigation and adaptation.

Therefore this meeting will primarily focus on UNESCO Tehran Cluster, which covers four countries in the region, i.e. the Islamic Republic of Afghanistan, the Islamic Republic of Iran, the Islamic Republic of Pakistan and Turkmenistan.

**Objectives**

The main objective of the expert meeting is to

1. Identify the common issues related to groundwater management in the regional countries and
2. Develop strategies to manage this vital resource especially in the context of Sustainable Development Goals (SDGs) related to water.
3. Share expert knowledge and experiences in order to explore ways and means of meeting underlying challenges in ground water management in the regional countries.

This meeting will be an important step to enhance the regional cooperation and collaboration among the four countries.

**Participants**

The meeting intends to bring together expert scientists, engineers, water resources managers, and practitioners from the four countries and ECO region countries. About 20 professionals (10 national and 10 international) are expected to participate in the meeting.

**Organizers**

The workshop will be jointly organized by UNESCO, Pakistan Council of Research in Water Resources (PCRWR), Ministry of Science and Technology and ECO Science Foundation.

**Time frame**

The meeting will be held in Islamabad Pakistan, on 3-4 August, 2017.

**Thematic Areas**

1. Enhancing sustainable groundwater resources management
2. Addressing strategies for management of aquifers recharge
3. Adapting to the impacts of climate change on aquifer systems
4. Promoting groundwater quality protection
5. Groundwater regulatory framework

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1. FAO Aquastate Survey, Irrigation in Central Asia in Figures, 2012 [↑](#footnote-ref-1)
2. FAO Aquastate Survey, Country Profile, Turkmenistan, 2012 [↑](#footnote-ref-2)
3. FAO Aquastate Survey, Country Profile, Afghanistan, 2012 [↑](#footnote-ref-3)
4. FAO Aquastate Survey, Country Profile, Iran, 2012 [↑](#footnote-ref-4)
5. FAO Aquastate Survey, Country Profile, Pakistan, 2011 [↑](#footnote-ref-5)