

Groundwater security of Indus basin (Ladakh) in present and future climate and land use scenarios

Abstract:

The project proposal aims to find out how resilient groundwater resources in the Indus basin in Ladakh area and to provide a robust scientific base to help guide policy makers for groundwater development in these areas. The project would study the groundwater hydrodynamics and will try to delineate the existence of any geogenic and anthropogenic pollutant in groundwater. The study would be done by coupled physical and chemical hydrogeological techniques, which includes field sampling point installation and sampling of groundwater along various transects, oriented perpendicular and parallel to the Indus basin for local paths; delineation of discharge zones, aquifer frameworks. The project will involve collection of aggregation of available subsurface data to understand the aquifers architecture, very high-resolution groundwater and river level measurements to determine the groundwater-Indus water interactions, and several rounds of groundwater sampling from each location and subsequent computer simulation modeling. It is expected that the knowledge gained from the successful completion of the project would lead to enhance the understanding of the groundwater hydrodynamics. The study will provide an authoritative account of groundwater resources in the basin and its quality for various purposes and the sources of geogenic and anthropogenic chemical pollutants.