As elsewhere in the world, population growth, global warming, decreasing water and land resources in the Central Asian region urge these agrarian arid countries to face with socio-economic and environmental dilemmas for meeting their food security, creation of employment opportunities and preserving the environment. The dramatic change in the quality of groundwater resources observed in some place of Uzbekistan is linked to irrigation and melioration of lands, reallocation and extraction of river flow especially since 1965. In addition, discharge of collector-drainage water into the river systems, its re-use in agriculture has led to regional pollution of unconfined groundwater resources by salts, nitrates and pesticides.

In Uzbekistan the water drought experienced in 1998-2001 have encouraged local farmers to consider groundwater as an alternative to declining surface water resources. After the dissolution of the former Soviet Union, institutional changes have been undertaken in the decentralization of the agricultural production systems and the water management organizations without proper know-how transfer programs. In fact underdeveloped systems have been practiced in respect to groundwater diversions and water-salt regime management is especially neglected.

This work has three specific objectives: first to discuss the extent and characterization of groundwater resources; the second objective is to overview the main environmental issues related to groundwater such as land degradation and groundwater mineralization; and lastly to review the management framework with respect to technical, institutional and transboundary dimensions under the political and economic transformations appeared from the collapse of the former Soviet Union.