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Soil salinization and water quality degradation in Bukhara region, Uzbekistan**Mirkhon Asadov**

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The Central Asian lowlands are characterized by an arid and continental climate. At the same time, the large streams and rivers have been providing water for the development of flourishing oases and extensive irrigated farming areas. Bukhara is one of those oases. The population of 1.7 mln and especially the agricultural sector (with an irrigated area of 275,000 ha) use a considerable amount of water. But as the flat topography does not provide sufficient natural drainage, water logging and raising groundwater tables have become serious problems for the agricultural productivity. The combination of the high salinity of the irrigation water and the generous application of fertilizers leads to a widespread soil salinization. Excessive leaching is supposed to reduce the top soil salinity, but as the drainage system is only covering a small portion of the irrigated areas and is in need of maintenance, this process only contributes to the ongoing salinization and the reduction of soil fertility and crop yields. Obtained data indicate that the groundwater table is rising throughout the region while the groundwater salinity is decreasing. The soil salinity on the other hand is, after an improvement during the first half of the study period, slightly increasing since 2009, which also is reflected in the slight worsening of the condition of the reclaimed land during the same period. Most of the plains in the Aral Sea basin are characterized by a high natural soil salinity. In the floodplains the salinity is increased by the accumulation of salty minerals eroded in the upstream mountainous regions. Due to the arid climate and the intensive irrigation farming the floodplains are also prone to the hazardous development of secondary soil salinization. Furthermore, the Aral Sea Basin countries, especially Uzbekistan and Turkmenistan, are heavily impacted by the climate change because of the high sensitivity of the arable lands in the arid lowlands as well as a strong population and economic growth and increasing demands for the food safety. The climate change (increase of the air temperature and the evapotranspiration), long-term reduced runoff from the Central Asian glaciers and more frequent droughts also increase the water consumption for irrigation. As a consequence of this, the soil salinity will further increase and the productivity of the agricultural lands will continue to deteriorate.

Biography

Mirkhon Asadov has experience in assessing the state of the environment, health and welfare of the population. As the General Director of the NGO "Toza Tabiat"- "Pure Nature", he developed a number of international joint projects. In co-operation with the Central Asia Aid Fund (CAAF) (the Netherlands) and the NGO Toza Tabiat (Uzbekistan), "Drinking water for two villages in the Bukhara region (2005-2008)" was implemented. Within the framework of this project, the NGO "Toza Tabiat" drilled one well (110 m), and two villages were supplied with drinking spring water. Currently, he is working as a construction manager for the company and implements projects for environmentally friendly private homes and oversees a research group on monitoring and assessing the quality of drinking water in the region.

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