
Degradation of the Ararat valley ecosystem as a result of change of ground waters level

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Abstract

The Ararat Valley is situated in the South Caucasus in Armenia republic at an altitude of 800–950 meters above sea level. It stretches from northwest to southeast for 120 kilometers, it is 10–30 kilometers wide. The Araks river and its valley is a significant groundwater reservoir in this region. Since the old days, the Ararat Valley has been regarded as a breadbasket of Armenia, and today it remains a major agricultural region in the country.

The flatland part of the Ararat Valley has a typically semi-desert landscape with its specific semi-desert soils. Its soils range from hummocky sands and alkaline and saline soils to water-logged soils. A significant part of the valley is managed; this part has irrigated meadow brown soils. The non-managed part is covered with xerophilous and halophilous vegetation and *Artemisia* (sage), whereas irrigated meadow brown soils bear fruit orchards, vineyards, and various agricultural plantations.

Currently, in the Ararat Valley, land uses are linked with the enhanced development of fish farming, which requires artesian water in great amounts. As a result of unsustainable management of the natural resources, the water level of the artesian basin has declined by 8–15 meters, and the groundwater level has gone down by more than 3 meters. This has brought about a number of adverse processes: the drainage of agricultural soils, increased irrigation depth, losses of soil organic matter, and so on.

The change in the soil moisture regime has led to soil aridization in some areas of the Ararat Valley. Today it has become evident that the entire ecosystem's environmental capacity has been significantly overused. The main mistake was transforming the area to make it perform functions that were alien to its nature as a desert/semi-desert geographic landscape.

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