Technical Cooperation Programme

September 2015

Improving the sustainable management of groundwater resources in Georgia

The challenge…

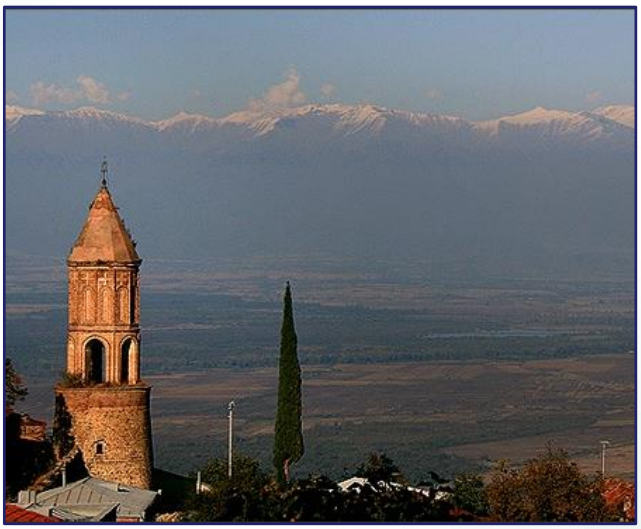
Eastern Georgia is affected by climate change. In 2014, approximately a billion cubic meters of water, expected to be available for irrigation and domestic use, was unavailable due to shifting rainfall. The bulk of the effect was apparent in the Shiraki Plain, an 8-million-hectare territory between the Alazani and Iori Rivers, which is chiefly important for the country's agricultural output.

By understanding the recharge rates of the Shiraki Plain aquifer, the hydrogeological regime can be understood better, groundwater policies can be developed, and this may help to manage the deficit in precipitation. Moreover, as the quality of nearby surface water sources decline, due to pollution and salinity, the local population has asked authorities to address this challenge.

The project…

By studying groundwater velocities, transmit times, and flow paths between recharge and discharge zones, the mechanics governing the Shiraki Plain aquifer will be better understood. However, although the nature of this water scarcity challenge invites the use of isotopic and hydro-chemical analyses, Shiraki groundwater has never been assessed using nuclear techniques.

As part of this project, capacities were built in isotope and hydrochemical applications through training, fellowships and scientific visits. Moreover, equipment for water stable isotope analysis and hydrogeological investigations were procured, in order to facilitate the study of the Shiraki Plain. Water samples were shipped to regional laboratories and the interpretation of isotope data was supported by experts and the IAEA.



A view of the Alazabi river.

The impact…

This project represented an important step in promoting and strengthening the understanding of the Shiraki Plain, and the water stored underground. Using the data gathered by researchers, following the IAEA's capacity-building efforts, a number of conceptual and numerical models of the aquifer were developed. These models and scenarios provide a strong basis on which to develop public-use policies for groundwater extraction, both for drinking and irrigation purposes.

Across all meetings organized through this project, recommendations were drafted and delivered to regional water authorities and decision-makers, in order to use the available water in a safe and sustainable manner.

Technical cooperation project GEO/7/001: Supporting Environmental Isotope Assessment to Improve the Sustainable Management of Groundwater Resources