NEW APPROACHES TO UNDERSTANDING THE NUBIAN AQUIFER

The Nubian is one of the largest freshwater aquifers in the world, spanning the eastern Sahara Desert underneath Chad, Egypt, the Libyan Arab Jamahiriya and Sudan. These countries have relied upon Nubian aquifer water since the 1960s for agriculture and water supply needs. The aquifer contains non-renewable ‘fossil’ water that is hundreds of thousands of years old. Its potential for social and economic transformation of each country is enormous. The IAEA is using isotopes and modelling to help Member States make the best possible use of this resource.

Jointly funded by the Global Environment Facility and the IAEA, the project has developed a three-dimensional model of Nubian aquifer groundwater. Using particle tracking, the simulated ages of water in the aquifer are similar to those derived from krypton-81 dating, which is a new and powerful tool being applied to date old groundwater and to verify modelling results. The collaborative effort of scientists and officials from all four Nubian countries has been key to the project’s success. For more information, please visit www.iaea.org/water.

Progressive increase in the drawdown of the aquifer (in metres) in a 150 year model simulation.