

## ***Increasing access to safe drinking water in Madagascar***

### ***The challenge...***

Prior to 2005, only 13% of Madagascar's rural population had access to potable water, with the figure rising to 85% in urban areas. The Government of Madagascar aims to achieve 100% access to potable water in urban areas, and 20% in rural areas, and has made a considerable effort in this regard with the initiation of several borehole drilling programmes. However, few hydrogeological surveys, which are essential for the sustainable management of groundwater reserves, have been made. The lack of groundwater information is particularly acute in the province of Fianarantsoa and some regions of the province of Tulear, where most wells dug are traditional. The Government has requested the African Development Bank to finance a drilling campaign for 700 boreholes in these regions.



*The 'Scientific Day on Water' workshop, organized by the project team.*

### ***The project...***

In order to determine the replenishment rate of groundwater, the groundwater quality, the origin of salinity and the vulnerability of the aquifers of these regions to contamination, an IAEA technical cooperation project was established to integrate environmental tracers in the framework of the hydrogeological investigation in Fianarantsoa (Ihosa, Iakora and Ivohibe) and Tulear (Betroka) Provinces.

The IAEA fielded two expert missions for the installation and commissioning of a tritium enrichment and analysis system and for the completion of the installation of a tritium line. Two fellowships were awarded for training in the field of groundwater geology. The training comprised the overview of groundwater hydrology with the application of isotope techniques, fieldwork and sampling techniques, laboratory work and data analysis and interpretation.

In addition, a scientific visit was also implemented on the operation and management of an isotope laboratory and isotope analysis, including the analysis of stable water isotopes, tritium and  $^{13}\text{C}/^{14}\text{C}$ . The project also supplied necessary laboratory equipment, consumables and relevant publications.

### ***The impact...***

As a result of the project, national capacity in the use of isotopic techniques was developed, which supports the development of a sustainable potable water supply in the region. Laboratory staff were trained to perform tritium analysis and they have initiated measurement of water samples for analysis. The counterpart was well equipped for the conduct of tritium and chemical analysis and is now able to carry out related isotopic work that will contribute to the successful implementation of the National Programme for Borehole Drilling in the Provinces of Fianarantsoa and Tulear.