



PNRI Director Dr. Carlo Arcilla and NWRB Executive Director Dr. Seville David Jr. (front row, 2nd and 3rd from left) with PNRI and NWRB officials signing the MOU for further cooperation on hydrological studies

PNRI is currently conducting assessment studies in nine water critical areas in the country identified by the NWRB, including Metro Manila, Pampanga, Baguio, Cebu, Iloilo, Panay Island, Bacolod, Cagayan De Oro, Davao and Zamboanga.

The Institute has recently signed a Memorandum of Understanding (MOU) with the NWRB to strengthen the integration of isotope hydrology techniques in their water resources programs.

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ISOTOPE STUDIES FOR WATER RESOURCE MANAGEMENT

At a time when the effects of climate change ravage the country, securing clean sources of water is essential for survival and progress, researchers from the Department of Science and Technology – Philippine Nuclear Research Institute (DOST-PNRI) use isotope hydrology techniques to assist government agencies in water resource management across the country.

Isotopes can reveal much about the characteristics of various water systems such as the age and movement of water as well as the source of pollutants in a watershed. By measuring the different proportions of lighter and heavier isotopes in water molecules, researchers can determine the origin and sustainability of water in various rivers, lakes and underground aquifers. This technology is very useful for securing much-needed groundwater resources in the Philippines.



IWAVE

The IAEA Water Availability Enhancement Project



Analysis of water samples at the Isotope Mass Spectrometry Laboratory (left) and the Tritium laboratory (right) at PNRI

From 2010 to 2016, the Philippines served as a pilot country along with Oman and Costa Rica for the International Atomic Energy Agency (IAEA) Water Availability Enhancement Project (IWAVE).

IWAVE improved the capacity of the Member States in gathering and using scientific information aimed at eventually reducing the number of people worldwide without access to clean drinking water, contributing to the United Nations Sustainable Development Goals.



Participants from PNRI, NWRB and MGB during an IWAVE National Workshop on Isotope Data Interpretation

PNRI has been collaborating with the National Water Resources Board (NWRB) and the Mines and Geoscience Bureau (MGB) in the field of water resource management. The isotope studies initially covered the river basins in Cagayan Valley (Region 2) and Northern Mindanao (Region 10).

The agencies would later develop the Philippine Hydrological Gap Plan to fill the technology, expertise, infrastructure and investments needed for the effective management of water resources.



PNRI undertakes sampling missions in Regions 2 (Luzon) and 10 (Mindanao) for groundwater age determination using isotope techniques with IAEA expert Takuya Matsumoto.