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Securing Timor Leste's water supplies

A survey of Timor Leste's water supplies kicks off a project aimed at helping to protect this life-giving resource against the threat of climate change.

Credit: Tania Paul

The joint Charles Darwin University (CDU) and Geoscience Australia project is collaborating with researchers from the National University of Timor Lorosa'e. It will provide input to the Timor Leste government's UN-brokered National Adaptation Programme of Action (NAPA) on Climate Change UN-brokered National Adaptation Programme of Action (NAPA) on Climate Change.

With the assistance of CSIRO scientists, Geoscience Australia geologists are mapping the type and location of the country's underground aquifers.

A team of researchers from CDU has visited more than 30 local villages to find out how people use the water and how access can be improved.

In Dili there is a sedimentary aquifer that provides a large supply of good quality water, and the city's residents benefit from water delivery infrastructure.

But in the highlands of Aileu and Manatuto, outside of Dili, collecting water is a daily struggle.

Some villagers are forced to move their families from their highland homes closer to the water source during Timor Leste's long dry season that sees vital springs dry up for months at a time.

The CDU researchers spent two months meeting people who draw water from three different aquifer types – sedimentary, fractured rock and limestone – to gauge how water was treated differently and its impact on the survival and economy of the village.

‘We heard some amazing stories like people who had to walk 10 km through the mountains twice a day to fill a small bucket up with water,’ says CDU horticulture lecturer Ms Tania Paul, who led the team.

With Timor Leste's population of 1.7 million people growing rapidly, the government of Timor Leste is under pressure to make sure there is enough water to go around.

The researchers estimated that 44 per cent of the country's population live in areas where the water source is low in quality and quantity, making these people particularly vulnerable to changes to the water source arising from climate change.

Temperatures in Timor Leste are expected to rise by between 0.4°C and 1°C by 2030, cyclones and rainfall will become less frequent but more extreme and the sea level is expected to rise by 6 cm to 15 cm, according to climate change predictions from the Pacific Climate Change Science Program

This means Timor Leste will experience intense rainfall events similar to the 2010–11 wet season when heavy rainfall ran through the country’s streams, creeks and rivers out to the ocean, but without replenishing the underground aquifers.

These rains destroyed most of the country's food crops of rice, maize and cassava. There are also fears of the potential impact on the country's growing coffee industry, which relies on cooler temperatures and plentiful water to survive.

Priority actions include monitoring groundwater resources to better understand water availability, irrigation maintenance, diversifying agriculture and reducing waste and overuse of existing water supplies.

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Source: Charles Darwin University

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