

## Tuvalu acts to climate proof its people

Written by Administrator

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The small Polynesian island nation of Tuvalu has been the focus of climate change impacts for years. The four reef islands and five true atolls that make up Tuvalu only just break the surface of the surrounding Pacific Ocean and have an average height of 1 metre above sea level. Tuvalu's geography and location poses many challenges to the people that live there.

The atolls are regularly inundated by high tides and storms and freshwater is scarce. The contamination of groundwater from septic pollution, salt water intrusion and piggeries means rainwater is the only reliable source of drinking water. Population growth and development has resulted in food security issues and problems with waste management.

Climate change will only make these problems worse but the Tuvaluan people are determined to stay on their land and retain their cultural identity. The government and organisations like the Pacific Islands Applied Geoscience Commission (SOPAC) are working together to implement local solutions to these problems.

40% of Tuvalu's inhabitants live on the capital island of Funafuti. For 3000 years Funafuti's lagoon, planting pits and coconut trees have sustained the decedents of the first Polynesians to arrive here with enough fish, root crops like taro and coconuts to survive. There were some ground water sources and traditionally rain water was caught off thatched roofs and trees. While water has never been plentiful before increased population and contamination of groundwater from waste and development makes the island much more susceptible to droughts and increased climate variability.

During droughts the country relies on desalination plants but the increasing costs of fuel mean that this is now an option of last resort.

In order to increase water storage capacity and water conservation, development aid

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organizations like the South Pacific Regional Environment Programme (SPREP) and the Pacific Islands Applied Geoscience Commission (SOPAC) are in the process of installing water tanks and compost toilets in households on the island.

The recently elected Prime Minister, Maatia Toafa, acknowledges that while Tuvalu is highly vulnerable to natural disasters and climate change, water shortages and food security are more immediate problems. "Tuvalu is a small island state very vulnerable to natural disasters," Toafa says but adds, "The increasing population means increasing demand for water as well.

With our small tiny islands just three and a half metres above sea level, the gripping problem at present is to do with the salinity content of our underground water."

Contaminated runoff from leaking septic tanks, piggeries and other household waste are also causing algal blooms that kill the reefs surrounding Funafuti. This has reduced the fish reserves that the population relies on for food.

Semesi Alefio is an avid spear fisherman and local marine biologist and has been studying reef conservation in the area for years. He is concerned at how quickly the reef is being affected by human activity. Rising sea levels and coastal erosion also increase contamination from sediments washing into the lagoon.

"I think one of the main cause of the coral dying along this area is mainly due to heavy human activities affecting the reef particularly from sediments from the mainland. More nutrients are being deposited onto the reef. More algae are growing and less live coral are found in places where people used to go and collect their fish," Mr Alefio said.

Many people in Tuvalu rely heavily on fishing for income and food but no longer see it as the secure livelihood they've had for generations.

"Before we lived on fish, today there is a big change, we depend on what is being brought in from overseas. Because of the reduction in fish we cannot manage to feed all the mouths in Tuvalu." says Lopati Iakopo who has been supporting his family through fishing since he was young.

In recent years Tuvalu has become increasingly outspoken at international climate change conferences in an attempt to get help from the international and first world community but they are now turning to their own ingenuity within their community to fight the problem. Former President of the Tuvaluan Climate Action Network, Reverend Tafue Lusama explains that people are attempting to use more water tanks, build sea walls and stronger houses to save their community without waiting for international aid.

"Our people are not that financially capable to adapt themselves but whatever little they have they try and adapt. For example some people have tried to build up their own sea walls, to protect their shorelines. Some people have tried their best to buy water tanks, to have more water reserves," Reverend Lusama said.

Besides trying to get every household a water tank, Uatea Maimoaga, a civil engineer with the

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Funafati Public Works Department has come up with an ingenious design of a composting toilet which will solve the water shortage and salinity problems which in turn threatens food security. Traditional toilets take up to 30% of household water but if Tuvalu succeeds in putting composting toilets into the majority of households they will conserve the precious water resources needed to survive on this atoll.

This solution is directly related to the geography of the island Maimoaga explains, "Tuvalu's geographical and geological formation is very poor in a way as they are formed from corals and are coral atolls. The soil made up of sand and aggregate so there is an absorption problem when waste is cleaned out.

The other problem is the water table. In low lying islands the water table is very high and in some places you can get water about less than a metre below the surface. Septic systems leach into the soil and don't work well when there is a high tide and the whole place is flooded with sea water."

Conserving water and increasing soil quality with compost from composting toilets will help improve agriculture on the island, improve food security and reduce the costs to the local economy from having to import food. The Director of Agriculture, Itaia Lausaveve sees improvements in home gardening as vital to the country.

"Imagine if say 70 to 80 percent of all households in Tuvalu get engaged in home gardening throughout the area," Mr Lausaveve said, "I think then we will be better off in accessing vegetables but in the meantime we import a lot,".

The people of Tuvalu are all well aware that they need to conserve their water and 78 year old home gardener, Taliu Taliu does notice the difference between now and when he was a youth. He started his garden to help his family when he realised that other food sources were threatened. He too thinks that there are available solutions for his people so they do not have to relocate.

"Apart from composting toilets, we need more water tanks and to create more awareness in the community on how they can manage their water in order for them to survive," Taliu says.

Everyone in Tuvalu realizes they must take action now, in order to survive and to avoid becoming climate change refugees. The Reverend Tafue Lusama is already sending messages to the international community that abandoning Tuvalu would be the last resort, "We all know that under the international conventions on refugees there is no provision for anyone that is called climate change refugees," he says.

The Prime Minister of Tuvalu though will be taking a hard line on negotiations at the United Nations climate change conference in Cancun to try and save his people, their culture, their land and their identity.

"I believe that we can work together to sort out the issues and the impacts emanating from climate change and I think the idea is to save Tuvalu and all other low lying countries in the

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world," he said.

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