

Sustainable Water Treatment Solutions
Building climate resilience in the Pacific: designing solar power
and water treatment systems for shifting weather patterns,
Uripiv Island Vanuatu Case Study

MOERK WATER SOLUTIONS
Asia-Pacific Pty Ltd
www.moerkwater.com.au

About Moerk Water

- We believe that communities need access to sustainable energy and clean drinking water to thrive
- We have noticed that the greatest need is in rural and remote communities, which are difficult to reach
- We build and install high-quality, solar-powered water treatment systems that are designed to reach the unreachable
- We are also vocational trainers and train people from each community to operate their own systems



Reliable Technology

- Robust and sustainable solutions using modern technology
- High-quality and reliable
- Easy to Operate
- Low-maintenance
- Widely-available spare parts
- Easy to transport
- Easy installation and assembly
- Training of local operators
- Community empowerment and self-reliance
- Can be used in urban, peri-urban or remote, rural areas
- Satellite tracking and remote monitoring on request



Where we have Worked

Pacific Countries:

- Papua New Guinea
- Solomon Islands
- Vanuatu
- Kiribati
- Indonesia
- Tanzania
- Ethiopia
- Somalia
- Kenya
- Myanmar
- Australia

Sustainable Agriculture



**Coastal and
Island
Resilience:**

Uripiv Island, Vanuatu

- **Population:** 800
- Reliant on rainwater and brackish wells
- Contaminated groundwater
- Dry Season 5 – 7 months/year
- Microbiological contamination in shallow brackish wells
- Shifting weather patterns
- Residents had to cross the sea to fetch water during the drought



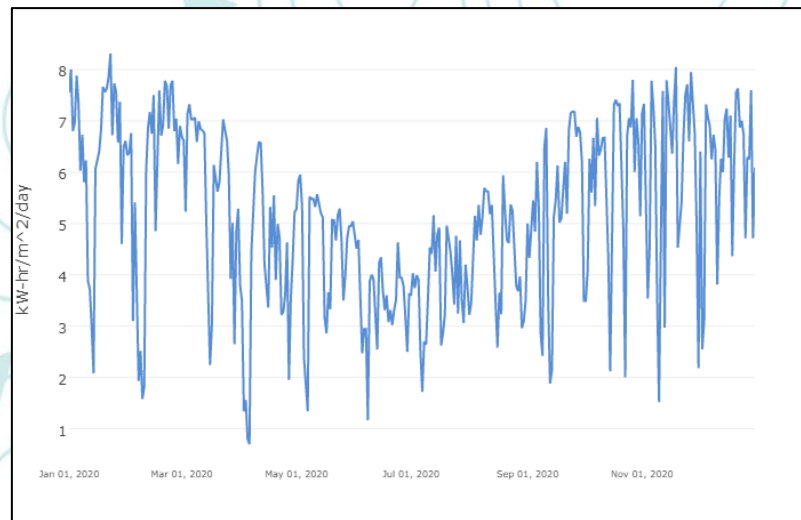
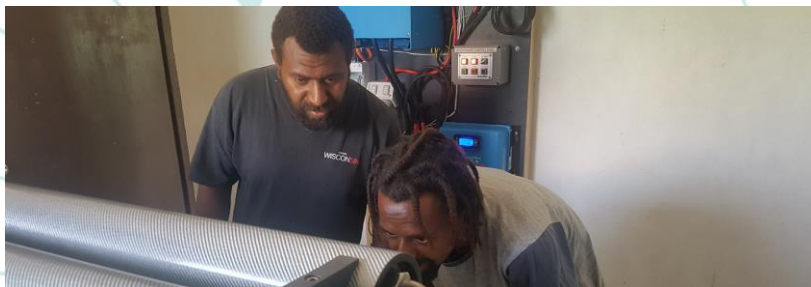
Uripiv Island: Solar Powered, Chemical Free, Sustainable Water

Community Needs:

- Treatment of seawater from a beach well
- Capacity 250 L/h drinking water (2,000 – 3,000 L/day)
- Solar-power electrification
- Chemical-free operation
- Robust and reliable technology
- Installed in Health Care Centre



Solar System Design and Operator Training Capacity Building and Self-reliance



- **Solar system designed to deal with fluctuating weather conditions**
- **Uripiv can run its own solar power and water treatment system, with minimal outside support**
- **Ongoing Moerk Water Service Hotline for all customers**

Solar panels	12 Trina 325W poly 72 cell Tall Max silver frame
Battery	4x 12VDC Sealed lead acid batteries
Solar board	Victron Phoenix Inverter 48/5000W with Victron SmartSolar MPPT Victron Precision battery monitor
Operating hours	usually 8am – 4pm depending on demand and irradiation
Operating mode	Automatic start and shutdown or Manually

IMPACT:

- Uripiv now has access to electricity and safe drinking water, every day of the year
- Health Care Centre has clean water for patients and cleaning instruments
- People no longer have to travel by boat to get drinking water

Head Nurse:

Firstly I'd like to say that it's really the best that we can get in our community. We do not want to drink from other sources. I am in charge of the dispensary. This water system has contributed in minimizing diseases such as diarrhoea, pneumonia, ulcers and other diseases"

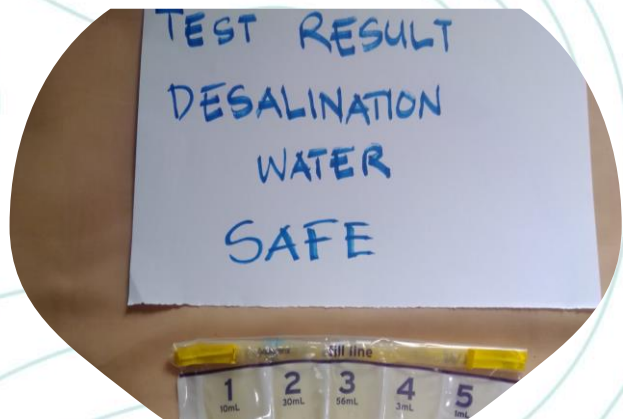
Department of Water Resources, Desalination Unit Officer:

Desalination plant from Moerk Water at Uripiv is a simplified technology that is simple, secure and sustainable plant easy to transport and operate compared to two other units at Aniwa and Ambae. The training they offered to local people for installation, service and maintenance is well organised and the operator shows that the water committee plays an important role to facilitate and work collaboratively with small desalination unit for community benefits. We tested all water sources. The only secure water source was from the desalination plant, we encouraged the community to use only this water for drinking and cooking."

Community Resilience

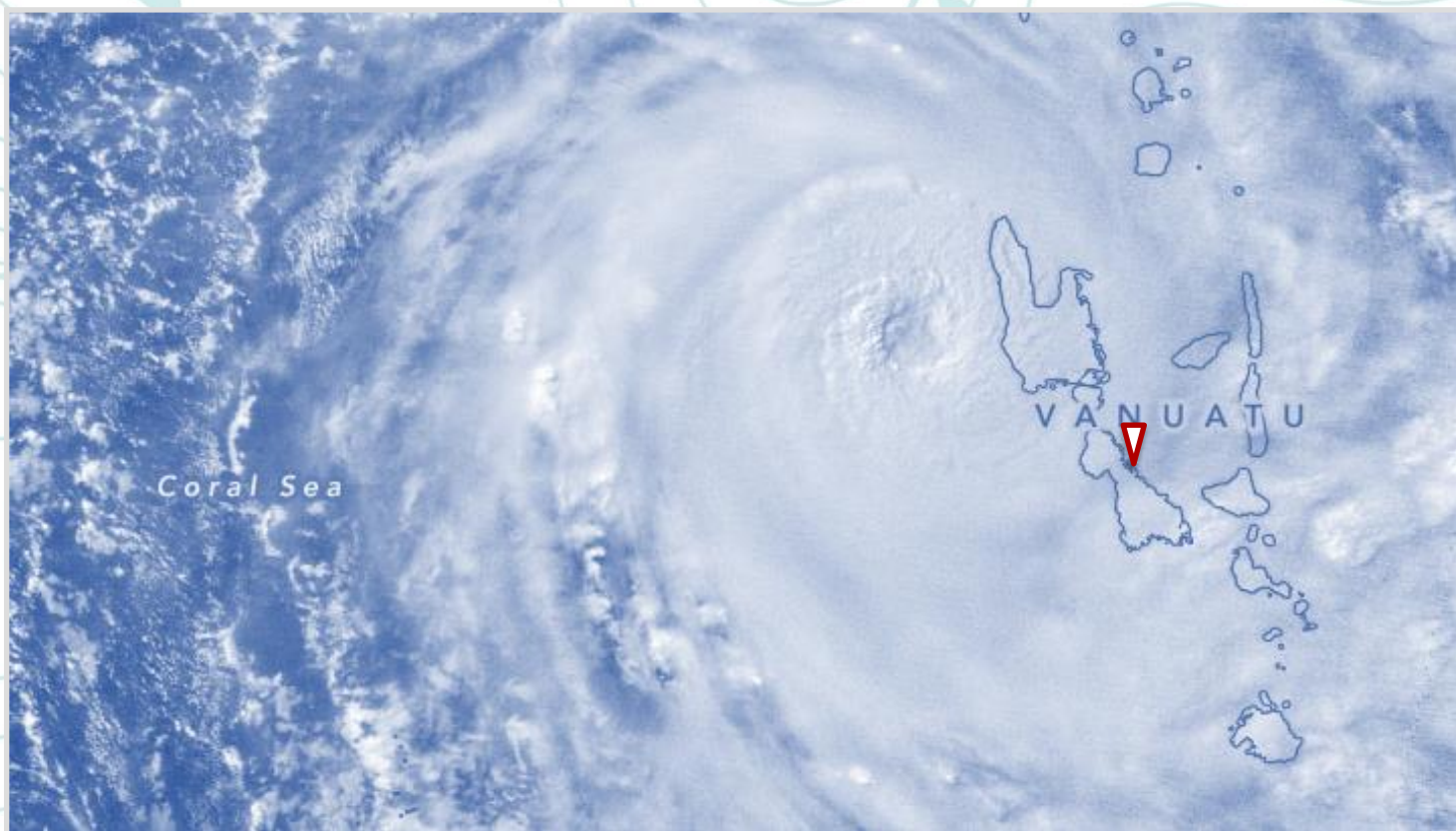
“First time in history of our island we have a source of water which is reliable. When the rainwater tanks are empty, groundwater is not the best to drink. Whatever happens, we have a source of freshwater to drink.”— Hon. Ralph Regenvanu
Former Minister of Foreign Affairs, Vanuatu

People now come to Uripiv for water



Resilience & Adaptation

Uripiv still had clean water and solar power after Cyclone Harold!



Questions and Comments?



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