

DM2009 Project Summary

Project Number: 3583 Booth Number: 76

Solar-Powered Desalinator Would Serve as Model for Small Coastal Communities

COUNTRY: Vanuatu

ORGANIZATION: Vanuatu Renewable Energy and Power Association (VANREPA)

FUNDING REQUEST: \$166,057

OBJECTIVE: To provide a sustainable solution to the shortage of drinking water, helping the population of Rah island (48 households) and, indirectly, all the inhabitants of coastal areas in developing countries, better adapt to climate variability. On Rah, the project is expected to deliver 750 liters (200 gallons) per day of safe water while providing power for the desalinator (4.2 watt-hours per liter, or 16 watt-hours per gallon) and for two LED lights per household per day, assuming a usage of 3.5–4 hours daily. If successful, the project may be replicated in 100 project sites, affecting nearly 5,000 households within five years.

RATIONALE: Despite the abundance of seawater, 15 percent of Vanuatu's population depends on rainwater for drinking. In droughts and when volcanoes make rainwater very acidic, drinking water becomes a scarce resource. Smaller, remote islands like Rah—the project beneficiary—are those most affected by water shortages. To tackle this problem, a seawater desalination technology, based on reverse osmosis and found in the “watermakers” of yachts could be applied on a village scale in coastal areas, utilizing solar power.

INNOVATION: The innovation consists of scaling down to rural populations' level of competence the application of reverse osmosis for the desalination of seawater. Water from rain harvesting and desalination will be integrated into one water-supply system. Furthermore, the solar system installed will provide power for village lighting through a community-managed battery-recharging facility. A carefully designed tariff system for water and battery recharging, relying on Rah's strong community organization and income-generation strategies, will guarantee project sustainability.

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