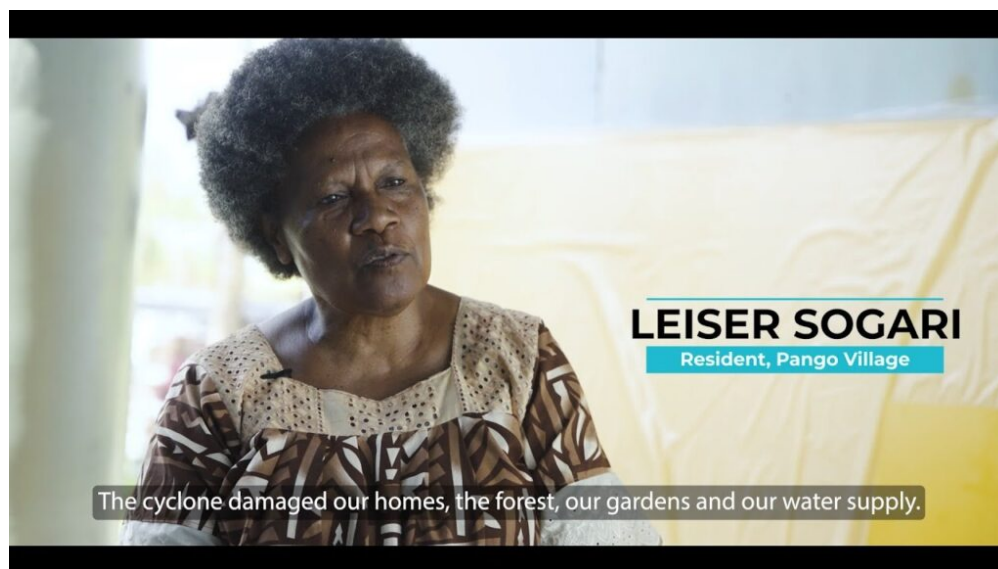


Vanuatu Launches Data-Driven Platform to Forecast Disaster Impacts and Strengthen Crisis Preparedness

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One of the world's most disaster-prone nations, Vanuatu has launched an innovative climate change and natural disaster management information system that combines satellite imagery, administrative data, and open-source analytics to forecast disaster impacts, loss, and damage. The platform demonstrates how modern data tools can significantly strengthen preparedness and response across the Pacific.

The first-of-its-kind system was launched by Vanuatu's Prime Minister with support from the Pacific Community (SPC), drawing on its expertise in statistics, data, and digital innovation, alongside backing from the World Bank. The integrated platform is designed to accelerate post-disaster assessments, enable faster deployment of resources to affected communities, and generate reliable financial estimates of damage to assets and infrastructure, supporting quicker and more effective recovery.

"Vanuatu is one of the most disaster-prone nations in the world," said Prime Minister, the Hon. Mr Jotham Napat, at the launch.

"Every year, our communities face cyclones, volcanic activity, earthquakes, flooding, and the slow-onset impacts of sea-level rise and coastal erosion. These challenges place increasing pressure on our government systems, our budgets, and our ability to respond quickly and effectively."

Three integrated components

The initiative is built around three core components designed to transform how Vanuatu prepares for and responds to natural hazards.

First, reproducible analytical pipelines (RAPs) use automated workflows built in the statistical programming language R. Drawing on historical data and models, these pipelines estimate potential damage from disasters and forecast the resources required for response and recovery.

Second, satellite imagery and cloud-based geospatial analysis tools from Digital Earth Pacific, an Earth observation system developed by SPC, are used to monitor land-use change, coastal erosion, and abnormal rainfall patterns.

Third, a central management information system integrates administrative data from across government with outputs from the analytical pipelines and satellite tools. Presented through dashboards and maps, this allows officials to plan ahead and respond more effectively during emergencies.

“This represents a significant shift toward data-driven decision-making,” Prime Minister Napat said.

“It gives provinces and line ministries better information. It improves fiscal planning by providing clear, evidence-based estimates of recovery needs. And it reduces the burden on our clusters by streamlining the collection, analysis, and reporting of critical information during emergencies.”

Regional collaboration and country ownership

The system originated as one of several “innovative experiments” under the PacStat project, implemented by SPC and funded by the World Bank to promote statistical innovation and capacity-building across the Pacific Islands. It was designed and delivered by the Vanuatu Bureau of Statistics in collaboration with the Ministry of Climate Change, with technical input from SPC, the United Nations Economic and Social Commission for Asia and the Pacific, and data science firm Development Seed.

For SPC, the project highlights the organisation’s role as a regional scientific and technical partner.

“Vanuatu has really been at the vanguard of applying modern data methods to the way it produces statistics,” said Peter Ellis, Director of SPC’s Statistics for Development Division. “We’re excited to see those same data-engineering and data-science approaches applied to climate change preparedness and disaster response.”

Built entirely on open-source software, the platform prioritises country ownership and long-term sustainability. Training and capacity development have been embedded to ensure the system can be maintained and adapted locally.

“Some systems in the past were developed by external experts, and when they left, we couldn’t retain the knowledge,” said Andy Calo, Vanuatu’s Chief Statistician. “This project is about designing a system we can use ourselves, one that fits our needs and context.”

Prime Minister Napat concluded: “As a nation, we have always been resilient. But resilience today requires not only courage and unity, it requires the intelligent use of data, technology, and evidence. This system is a major investment in the future of our country.”