**Harnessing Diverse Data on Water Resources and Hazards for Decision-Making**
**Convenor:** International WaterCentre, Griffith University
**Co-Conveners:** The Pacific Community, Digital Earth Pacific, Kahuto Pacific

This session showcased the value of evidence-based decision-making using new and emerging datasets—including spatial, hazard, water resources, and LiDAR data—and their practical application in water and WASH planning.

The session opened with Kamsin Raju, Earth Observation Technical Officer at the Pacific Community, who introduced water observations from space and their role in building resilience across the Pacific. She highlighted Digital Earth Pacific, a public digital infrastructure using decades of satellite data to track environmental changes over time. One key application was radar-based satellite imagery used to map flood extents, helping assess impacts on roads, infrastructure, crops, and food systems. Kamsin identified limited cloud computing capacity and user training as challenges in the Pacific, but remained optimistic about future opportunities.

Next, Raymond Schuster and Mary Alolo from the Pacific Community presented the atoll model developed for Majuro, Marshall Islands. Using data from groundwater galleries and wells, they assessed the thickness of the freshwater lens and modelled potential impacts of sea level rise. Their visualisations included groundwater contours and inundation scenarios under different sea level and repeat period conditions. They explained that saltwater intrusion from inundation threatens long-term water security, but this data now informs decisions about protective infrastructure. Ray also described how this data is typically presented on a 3D-printed model of Majuro, enhancing communication of the findings.

Christopher Saili from Kahuto Pacific introduced the Moana data service, developed with GWP Consultants and ADB, to address a key gap: despite years of external data collection, Pacific nations often lack access to or control over their own data. Moana follows three core principles: “collect once, use many times”; ensuring local control through secure, interoperable cloud storage (e.g., Vanua View, owned by Pacific governments); and aligning with Pacific values—FAIR (usable), CARE (community rights), and TRUST (sustainable infrastructure). Chris demonstrated a cyclone risk assessment for Vanuatu, showing how Moana can map vulnerable water infrastructure like tanks and pipes to support planning and protection.

Finally, Rosie Sanderson from the International WaterCentre shared research conducted with USP, UACS, UPNG, and WaterAid, funded by Water for Women, on applying diverse spatial and participatory data for WASH planning in informal Melanesian settlements. Rosie detailed four key data uses: identifying settlements in Port Moresby, Port Vila, and Suva via spatial analysis; overlaying hazard data with household WASH surveys to assess system resilience; participatory mapping to understand local hazards; and using machine learning to predict damage risks to WASH infrastructure from climate hazards.

The audience was well engaged with all four speakers, and while unfortunately time ran short and the room was not highly conducive to world-café style engagement, following the presentations we gave participants the opportunity to engage more deeply with each speaker by moving about the room. In particular, Kamsin Raju from SPC was able to garner specific feedback on desired engagement and use-cases for Digital Earth Pacific, which was a positive outcome for the development of this regionally vital resource.

**Sanitation in Challenging Urban Environments in the Pacific**
**Convenor:** WaterAid Australia
**Presenters:** Meredith Hickman (WaterAid), Camari Koto (USP), Isoa Vakarewa (RISE Fiji), Rémi Kaupp (CBSA, remote), Tom Rankin (Plan International)

This session brought together diverse expertise to explore the pressing challenges and opportunities in urban sanitation across Pacific informal settlements, with a strong focus on climate resilience, innovation, and community-led solutions.

Meredith Hickman, presenting for Tara Bartnik from WaterAid Australia, opened with findings from the *Healthy Environments, Resilient Communities* report. She emphasised that while sanitation is essential for public health and climate resilience, the Pacific remains off-track. Seventy percent of people lack access to basic sanitation, with open defecation rates rising in some countries. Meredith underscored the value of climate-resilient sanitation in protecting ecosystems and livelihoods, noting the strong economic return on investment. She urged greater leadership, targeted investment, and the inclusion of sanitation in climate finance efforts.

Camari Koto from the University of the South Pacific presented research from informal settlements in Suva and Port Vila. Through surveys, participatory GIS mapping, and political economy analysis, the study revealed that many sanitation systems—mainly pit latrines or septic tanks—are inadequate, especially under climate stress. In Vanuatu, up to 50% of systems had flood or cyclone damage. Camari stressed the need for participatory, climate-informed planning tools that can be adapted for other Pacific contexts.

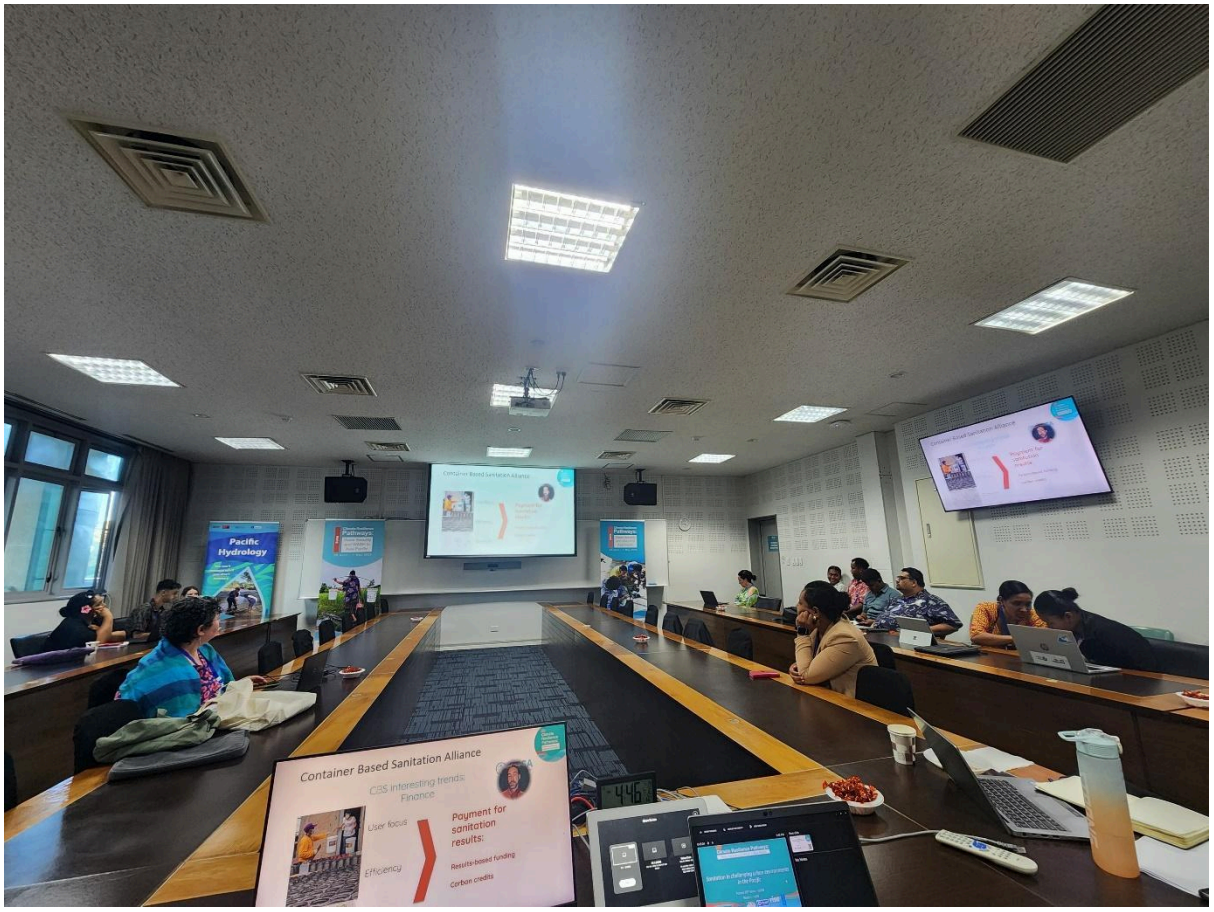
Isoa Vakarewa from RISE Fiji shared insights from a transdisciplinary program piloting water-sensitive design in 24 informal settlements in Suva and Makassar. Using a randomised controlled trial, the initiative co-designed green infrastructure like wetlands and decentralised wastewater systems with communities. This integrated approach aims to improve both environmental and health outcomes, especially for children under five. Isoa highlighted the scalability and suitability of nature-based solutions in dense, low-lying settlements where conventional systems fall short.

Speaking remotely, Rémi Kaupp, Director of the Container-Based Sanitation Alliance (CBSA), introduced container-based sanitation (CBS) as a safe, adaptable model for informal urban areas. CBS involves toilets with sealable containers, regularly collected for treatment or reuse. Now serving over 275,000 users globally, CBS offers efficient, data-driven, user-focused services. Rémi highlighted the model's relevance to results-based funding, carbon credits, and increasing integration with municipal utilities and standards.

Tom Rankin from Plan International closed with lessons from Honiara, Solomon Islands. Plan's program includes training local plumbers, testing sludge from different sanitation systems, and running sanitation competitions. While cesspits are low-cost, they pose long-term risks. Plan's approach—using prizes and community events—successfully motivated households to upgrade their sanitation, though finance remains a key barrier.

The session highlighted that improving sanitation in Pacific urban areas demands inclusive governance, appropriate technologies, and strong community engagement. From decentralised infrastructure to participatory planning, each speaker provided practical strategies to strengthen resilience and public health in vulnerable settings. One audience member commented that he appreciated the speakers presenting on solutions – he often attended meetings where the problems were well established but responses were not. He highlighted the importance of a mix of sanitation systems across urban settings in response to different conditions and encouraged the participants to work in partnership with utilities

and agencies like WAF to develop the evidence for what those systems could or should look like.



Container Based Sanitation Alliance
CBS interesting trends:
Finance
User focus
Efficiency
Payment for sanitation results:
Results-based funding
Carbon credits
Pacific Hydrology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