

Planning for climate-resilient water, sanitation, and hygiene in urban settlements in Melanesia



Full research title: Participatory and integrated planning processes in urban informal settlements and areas of new housing growth to improve the resilience of water, sanitation and hygiene service delivery to climate change and future population changes in Pacific Island cities.

Duration: January 2022 – September 2022

Location: Port Vila (Vanuatu), Suva (Fiji), Honiara (Solomon Islands), Port Moresby (PNG)

Research partners: University of the South Pacific, Solomon Islands National University, UACS Consulting

Purpose

Melanesia is rapidly urbanising, at between 3-4% per year¹. For example, the urban population of Vanuatu is expected to double between 2017 and 2027². In the absence of, or where limited supply of affordable housing exists, much of this urban growth will occur in informal settlements, though there are some examples of identified areas of housing growth, such as in Luganville, Vanuatu. Informal settlements are defined by the United Nations as lacking secure land or housing tenure, generally non-compliant with planning and land use regulations, often on marginal or hazardous land, and lacking access to infrastructure and services³.

Past research, including by IWC, has indicated that access to WASH services in urban and peri-urban informal settlements across Melanesia is broadly inadequate⁴. In addition, there is little evidence to suggest that WASH services that do exist for urban and peri-urban informal settlements are future-proof – they are not planned with resilience to shocks and change in mind, such as climate change or the needs of changing populations within water catchments.

This project, based in urban areas of Vanuatu, Fiji, Solomon Islands and Papua New Guinea, all of which have large informal urban and peri-urban settlements, as well as some designated areas of new housing growth, is exploring contextually relevant processes that enable urban WASH planning that improves the resilience of WASH service delivery models to climate change and future population changes. It combines bottom-up and top-down perspectives and information and importantly, link to broader catchment-scale land use. The research is building on recent work integrating spatial analyses of climate and other environmental factors to identifying appropriate and resilient WASH services in informal settlements across Melanesia.

Working with the University of the South Pacific and Solomon Islands National University, this research is combining different types of information to spatially characterise existing and potential WASH service delivery models and their resilience, in settlements and associated markets, and exploring how such geographical visualisation and mapping can be used in collaborative WASH planning processes by governments with their stakeholders. The goal to explore participatory processes that combine mixed data using spatial systems to inform climate resilient planning, is common to all four countries, however research activities and outcomes will be country-specific, in recognition of the exploratory and scoping nature of the research and the contextual diversity across countries and in urban informal settlements.

Research question

Our research aims to answer the question:

How can urban planning processes in Melanesia be strengthened through participation and integration to improve the resilience of WASH service delivery in informal settlements and areas identified for housing growth within the urban footprint?

To achieve this, we aim to:

- (i) Understand what existing planning processes (knowledge, information systems/platforms, plans and policies) are in place for future and existing areas of growth and informal settlements.
- (ii) Learn how shocks affect WASH services in informal settlements through the experiences of residents, and their preferences for different WASH services, using processes and data that can be incorporated into planning processes.
- (iii) Explore the relative resiliency of different WASH service delivery models to climate-related hazards in the Pacific region, to identify appropriate models suited to future scenarios expected in this region
- (iv) Investigate spatial and non-spatial datasets relating to WASH service models and environmental data can be integrated to create city-wide WASH service delivery maps to assess the resilience of different WASH service delivery models in urban informal settlements and new urban growth areas under future scenarios.
- (v) Identify opportunities to incorporate city-wide WASH service delivery maps into planning processes so they (better) support resilient and inclusive WASH service delivery to build resilience in urban informal settlements and new urban growth areas across Melanesia.

Desired outcomes

This research is intended to be closely partnered with stakeholders from national and town planning departments, WASH departments and water utilities, as well as learning from the experiences of settlement residents. We will codevelop recommendations for integrated and collaborative planning processes for climate-resilient WASH in marginalised urban environments.

The desired longer-term outcomes of this research are to:

- Increase the inclusiveness of WASH planning in urban Melanesia so residents in informal settlements have access to more resilience WASH services.
- Highlight the perspectives and voices of the residents of informal settlements in urban Melanesia.
- Broaden the perspectives of urban planning managers in urban Melanesia to recognise different types of data and analyses that can contribute to resilient planning.
- Contribute to an improved disaster and shock resiliency for urban environments in the Pacific.

Research approach

The project includes four key components:

Collating existing information and processes to better understand how urban planning for WASH in future and existing formal and informal settlements occurs in each country (all countries).

Characterising existing, planned, and alternative WASH service models and their resilience, including assessments of climate resilience including through participatory methods (Vanuatu, Fiji).

Exploring the integration of existing information including through spatial analyses and GIS to support planning for informal and designated urban settlements (Vanuatu, Fiji).

Identifying integrated and collaborative planning processes, including opportunities within existing systems to pursue WASH planning that is collaborative and considers climate resilience, future populations, and catchment links (all countries).

Our mixed methods approach to working with informal settlement residents will be participatory and will include household surveys and photovoice techniques alongside structured observations of WASH facilities and services. These will all be used to understand existing WASH services and alternatives, residents' perceived resilience of those services, and their preferences. All field work and data collection will be led by our partners at the University of the South Pacific in Fiji and Vanuatu. The photovoice process will include sharing the photography of participants (with their consent) with the broader community and key stakeholders. In addition, we will be conducting key informant interviews with government and water utility representatives across planning departments, WASH departments, and regional bodies.

Our spatial analyses will include using innovative automated remote sensing techniques and collation of both quantitative and qualitative information in the spatial domain. These types of characterisations and visualisations across cities and catchments will be intended to help planners and residents conceptualise the linkages between WASH services and whole-of-catchment activities.

Research results will be analysed and synthesised across the four countries. We recognise the research will have different relevance to different users, and as such will be producing specific outputs relevant to in-country stakeholders, community members, and broader practitioner groups.

Contacts

For more information, please contact Regina Souter (Chief Investigator) or Rosie Sanderson (Project Manager and Co-researcher) at r.souter@griffith.edu.au or r.sanderson@griffith.edu.au

References

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2. Kiddle, G.L., et al., *Unpacking the Pacific urban agenda: Resilience challenges and opportunities*. Sustainability, 2017. 9(10): p. 1878.
3. UN Habitat, *Habitat III issue paper 22—informal settlements*, in *Paper presented at the Habitat III, United Nations Conference on Housing and Sustainable Urban Development*, New York. 2015.
4. Souter, R. and P. Orams, *Water and Sanitation Services for Informal Settlements in Honiara, Solomon Islands*. 2019, The World Bank.