

RESEARCH & PRACTICE BRIEF

Backstopping Rural Community Water Management - Lessons From Solomon Islands and Fiji

DECEMBER 2021





Creek, Lambi, north-west Guadalcanal, Solomon Islands

 Joe Hagabore

KEY FINDINGS

- Communities in rural Solomon Islands and Fiji need ongoing support following the handover of water projects; this aligns with earlier research findings reported by Love et al (2020), among others, and confirms the relevance of the Community Water Management Plus concept
- Projects are useful for major works and intense engagements, but due to their time-bound engagement with communities this approach alone is not able to provide the ongoing support communities require. The current reliance on project-based engagements with communities must be complemented with some ongoing follow-up engagement
- Technical Backstopping is an approach to providing ongoing technical and management support to people in communities who are most responsible for water supply maintenance and operation. Technicians, or others, visit communities to provide onsite mentoring focused on tangible, current, and foreseeable problems
- A small pilot of Technical Backstopping was undertaken in Solomon Islands. Results found the approach has potential to support communities in addressing critical issues, such as proactive maintenance and risk management, water committee leadership and collective action, and financing for ongoing maintenance of water systems. Generally, communities had sufficient know-how to address minor repairs and maintenance but were often struggling with management issues, such as understanding the roles and responsibilities of the water committee, ensuring adequate funds are available for repairs, being proactive rather than just reactive, and facilitating some collective water management actions
- In Fiji, Technical Backstopping could not be piloted due to COVID-related restrictions. In its place we conducted in-depth consultations with a range of Technicians from the Water Authority of Fiji, which confirmed the potential benefits of backstopping given their ongoing experience of water systems not reaching their full life expectancies due to inadequate management and/or operation
- Based on the results of the pilot in Solomon Islands and our wider research we have developed a modified version of Technical Backstopping which we are calling 'Water Committee Backstopping'. This approach is tailored to meet the unique contexts and challenges found in Solomon Islands and Fiji, and has the potential to address some of the persistent needs currently experienced by many communities and water committees in Solomon Islands and Fiji.
- This **Water Committee Backstopping** approach should:
 1. Maximise capacity building and learning through regular 2-3 monthly community visits, preferably by the same set of Technicians (who develop familiarity with a community setting), and involve engagement with a regular group of water committee members to progressively build new capacities, using hands-on and storytelling teaching approaches
 2. Include operational, technical management and some maintenance issues aspects (e.g., identifying and mitigating risks to water quality and quantity, proactive maintenance)
 3. Include discussions with water committees about ways of working more actively with their community, encouraging collective action and raising funds for the water systems
 4. Recognise communities have different water systems with different social and environmental settings, and therefore have unique problems and capacity needs
 5. Maximise logistical efficiency and reduce the cost of visiting remote communities by clustering community Backstopping visits: for example, spending half a day in 10 villages in one week.



GPG technician talking to WC members, Lambi

Joe Hagabore

*Technical support is required but some of the most prominent challenges identified in this research relate to the **water committee** – to membership (age, diversity), engaging with the community, managing and raising funds, appreciating the committees' roles and responsibilities, promoting collective action etc.*

*Therefore, we are recommending not just technical backstopping but **Water Committee Backstopping***

TECHNICAL BACKSTOPPING: Can it improve rural community water management outcomes?

Global evidence suggests that communities require assistance to fully realise successful water management. Structured follow-up support or 'backstopping' by government or NGOs after water system installation is limited in Pacific Island countries. If community-based water management (CWM) is to remain the dominant water service model in the region, improved water committee training and ongoing follow-up support is required for countries to achieve universal access to safe water - and satisfy SDG6 targets.

What's at stake?

Worldwide, it is estimated that 88% of diarrhoea cases are related to unsafe water and inadequate sanitation and hygiene; this results in around 1.5 million deaths a year, mainly children (Prüss, et al., 2002; UNICEF & WHO, 2009). Water, sanitation and hygiene (WASH) development in Pacific Island Countries (PICs) remains sluggish compared to global trends - 80% of Melanesians, for example, live in rural areas where only 40% of households have access to basic water services (JMP, 2017).

A suite of challenges constrain progress on improving water service delivery outcomes in PICs. This includes: slow economic growth, low employment, under-resourced government departments, high-levels of climatic-induced disaster vulnerability, limited capacity and resources, acute logistical challenges, and a large rural population base (Dahan, 2019). Compounding all this are threats from climate change (e.g. Fleming et al., 2019; Pearce, 2018), limited freshwater sources, and the sheer geographic, social and cultural heterogeneity characteristic of the region (e.g. MacDonald et al., 2017).

Maintaining water supply systems has proven to be more difficult than constructing new systems (e.g. Harvey & Reed, 2007). However, it is increasingly recognised that agencies must focus on postconstruction support and monitoring if the CWM model of service delivery is to be successful and sustainable (e.g. Klug et al., 2017; World Bank, 2017: 4-5).

BACKGROUND

COMMUNITY WATER MANAGEMENT PLUS (CWM +)

Government and private sector water services to rural populations in PICs are limited and likely to remain so. Consequently, community-based water management (CWM) will remain the dominant model for rural water service delivery into the future, as reflected in many Pacific government WASH policies. However, evidence from the Pacific and elsewhere indicates that basic models of CWM, in which communities bear full responsibility to manage water systems after their installation, typically have low sustainability and limited scalability (Clarke et al., 2014; Bond et al., 2014; Hutchings et al., 2015; World Bank, 2017).

This leads to poor WASH outcomes, such as inadequate accessibility, quality, and reliability of water and compromised hygiene practices (Hutchings et al., 2017).

The **community water management plus (CWM+)** model is considered a viable improvement to the basic CWM model (Baumann, 2006; Hutchings et al., 2015, 2017; Souter and Schuch, 2017). The CWM+ model includes long-term support from external organisations or people following the initial hand-over of water infrastructure to a community. Pacific governments appreciate that further support is required to support CWM. Previous CWM+ research has identified a range of generic intrinsic and extrinsic factors that influence 'good' CWM outcomes. However, the unique context of PICs requires rigorous place-based evidence about which approaches are most feasible and effective in the region.

PaCWaM PHASE 1 research sought to identify what the 'plus' factors might look like in two Pacific Island countries – what type of support is needed by communities, and how that support might be achieved. **PHASE 2** activities focus on further exploring and – where possible – trialling, some potential 'plus' approaches

Technical backstopping (TB) is an approach that provides on-site advisory support, rather than infrastructure (such as spare parts) or labour as such - it involves providing advice on managing technical problems, either by discussing or demonstrating operational or maintenance actions, or management strategies including monitoring and risk assessment, that are specific to the system and local environment. In the water sector, TB specifically refers to agencies providing on-going technical support (or 'backstopping') to solve technical problems and maximise water system operations after their implementation and handover to communities. Details on the TB approach that was piloted as part of the PaCWaM+ research project are presented below.

Technical backstopping concept and pilots

Purpose: To build the capacities of people managing community water systems to troubleshoot technical problems by providing advice (not hardware) on operational, maintenance and management techniques.

Mechanism: Provide regular (e.g. 2-3 monthly) mentoring for water committee members (or other nominated water system managers) by a technical expert on water systems and management, to discuss and assess the management of the water system. The **unstructured** and **on-site** technical support visits allow communities to identify and address problems they have found difficult to resolve, and which may not have been addressed through structured training received previously (e.g. unexpected problems).

Pilot implementation in the Pacific:

Solomon Islands - A water system technician from Guadalcanal provincial government (GPG) visited target communities every 2 months for ~6 months.

Fiji - Technicians from the Water Authority of Fiji (WAF) planned to provide technical backstopping, but due to COVID pilot implementation in communities was no longer possible. In its place, we undertook detailed consultations with six WAF field technicians.

Role of the WASH technician

The **WASH technician's role** is to be a “**backstop**” – a support person standing behind the water committee, helping to catch and solve problems. Typically, this involves discussing problems the community has with their system, or problems that might occur.

This may involve **showing** or **teaching** people how to do repairs, maintenance, or better operate their water system. Common technical problems include both reactive and proactive maintenance (e.g. pipe repairs, unblocking, dam/reservoir desludging), managing supply and demand (water quantity), managing low water pressure, managing risks (water quality) and water treatment.

It might also involve discussions about **management** – committee membership, how it works with the community to encourage collective action, funding repairs etc. **Technical backstopping will not involve:**

- Managing the water system
- Providing funding for spare parts
- Providing spare parts
- Writing proposals for water projects.

The objective is to provide advice and support only to the water committee - not to fix problems for the water committee or community.

SOLOMON ISLANDS

The context

As in other low- and middle-income countries, in Solomon Islands the ongoing management of rural water systems is the responsibility of community members (Chan et al., 2020). Communities are encouraged to establish a water or WASH Committee – often these are required before funding support for an upgraded water systems is made available. From hereon we refer to Water Committees; however, the information and guidance in this Brief also applies to WASH Committees.

The Solomon Islands National Development Strategy 2016-2035 articulates a commitment to meet Sustainable Development Goal (SDG) targets, including Goal 6, to achieve "water and sanitation for all" by 2030 (SIG, 2016). However, access to improved WASH services in rural areas remains low. The 2016 Rural WASH Baseline reports that improved water access sat at 54% and access to improved sanitation (basic level service) at 13% - this is a decrease in coverage relative to 2010 figures (MHMS, 2014).

It is estimated that between 65%-70% of rural communities in Solomon Islands have received water supply schemes in the past, but **less than half** of these are still functioning (MHMS, 2013:7). This high failure rate has been attributed to several factors:

- **government and other implementing agencies lack the resources to maintain systems**
 - **communities lack the awareness that they are responsible for minor maintenance**
 - **adequate and appropriate training is not provided to communities**
- (MHMS, 2014: 4)

The 'projectisation' of rural water systems exacerbates these factors. One-off projects are convenient for planning, budgeting, funding and reporting purposes, but they have substantive limitations. Water projects involve only a short-term engagement with communities to assess their water situation, design a water supply system, install the system, and provide basic training. In Solomon Islands, the project team are rarely in a position to return to a community after system installation. This reliance on a 'project approach', without complementary ongoing support by government or other organisations, is a key **structural factor** contributing to the failure of community water management in Solomon Islands.¹

Pilot Methodology

To assess the effectiveness and merit of technical backstopping (TB) activities, a pilot was designed to whereby a water technician from the Environmental Health Department, Guadalcanal Provincial Government (GPG), visited four rural villages. The GPG technician was accompanied by a Solomon Islands National University researcher, and together they undertook three backstopping visits to villages in west and north-west Guadalcanal between early March and late May, 2021 (see Fig. 1).

Monitoring before and after the backstopping visits was undertaken to assess whether the visits assisted in improving water management and service delivery. Combined, data collection for the monitoring comprised 48 interviews with household water users and water committee members, 80 household surveys, 26 infrastructure inspections and risk assessments, and 26 water quality tests.

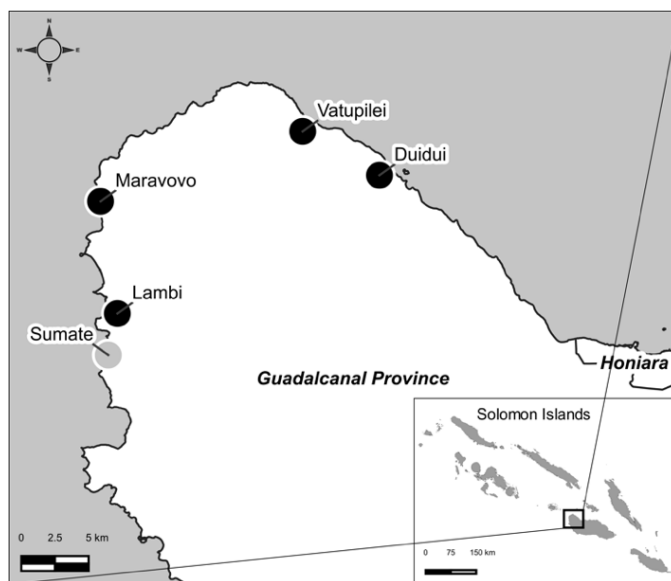


Figure 1: TB field-sites, Guadalcanal[†]

All required ethics documentation was completed and approved prior to the commencement of data collection.² Additionally, informed consent was obtained from all respondents prior to participating in data collection activities.

Survey data was entered and analysed in Excel while the qualitative data was translated (from Pijin to English) and transcribed, entered and coded NVivo™.

Limitations of the pilot

The pilot nature of this study means that there are some unavoidable limitations regarding the findings, in particular:

- the small number of communities in which backstopping was piloted
- the short timeframe limited the number of village visits to three, limiting the possibility to build stronger relationships for productive capacity building
- the small sample size of the household surveys in each community.

These design factors limit the generalisability and validity of the findings.

In addition, the selection criteria for community selection included water systems 3-10 years old, to exclude those that are so new they have not yet encountered many technical problems, or too old they have major infrastructural problems associated with inadequate maintenance in preceding years. However, two of the four villages had older systems that required major infrastructural repairs/replacements, thus limiting the potential benefits of regular maintenance and operations encouraged through the piloted technical backstopping.



Backstopping discussion, Sumate

Joe Hagabore

Village attributes

Table 1 (below) contains key demographic and water system details for each of the pilot village sites. Maravovo was the largest village, but Maravovo had the most tap stands. Vatupilei – the smallest village – was the only community to have no water committee.

Gravity-fed systems were the main type of water system in all villages. Two villages also had boreholes. Most water systems were built by the government, except Vatupilei, where both JICA (c. 2011) and CARITAS (c. 2013) have undertaken water system extensions (JICA) or rehabilitation (CARITAS).

Table 1: Village case-study attributes

Village	Pop.	HHs	Tribes	Zones	Water sources & systems	Water Committee	Access points	WS history	HHS	KIIs
Duidui	540	84	3	none	1 gravity-fed WS 1 dug well 2 boreholes 2 RWT 6 HH tank (gravity-fed WS)	WC (gravity-fed & borehole) [M 5 / F 3]	29 tap stands (gravity-fed) 10 tap stands (borehole)	1990s	n = 20	n = x
Maravovo	700+	88	4	6	1 gravity-fed WS 7 RWT	1 WC [M 9 / F 1]	35 tap stands	2012	n = 20	n = x
Lambi	600	100 +	3	3	1 gravity fed WS 1 dug well 1 borehole (school) 5 RWT	WC [M 8 / F 2]	43 tap stands	1978 rehabilitation 2014	n = 20	n = x
Vatupilei	250	56	?	2 (main & extension village)	1 gravity feed WS 1 RWT 2 springs	n/a	22 tap stands	1990s extension village 2011 rehabilitation 2014	n = 20	n = x

Key Findings

- **Little attributable change in the WASH situation** – most likely due to temporal variability in the WASH situation due to seasonal and other factors, the short duration of the pilot, and/or the small sample size
- **Some attributable change in WC 'activeness'** (Duidui & Maravovo only) evidenced by ...
 - **An increase in raising funds for water system**
 - **An increase in awareness of water committee**
 - **An increase in household-level water management activities**
- **The Technical Backstopping visits were considered highly valuable** by both WC members and household water users.

What happened during the Technical Backstopping visits?

Participation by community members

Over the course of the three technical backstopping (hereafter 'TB' or 'backstopping') visits, a total of 51 community members (34 male, 17 female) participated in the TB sessions. During each visit, there was 8-22 participants present, usually from the water committee (WC), or other people concerned about, and having some role in, the community water supply system. Often, the same people were in attendance at various visits, but this was not always the case.

'Backstopping' topics of interest

As identified during process monitoring and endline interviews, the topics most discussed – as identified by the GPG technician and participants – were as follows:

- Role and responsibility of the Water Committee
- Importance of community participation and self-help (don't rely on Gov or NGOs)
- Water system finances (e.g. fundraising/ contributions for spare parts)
- The use of bylaws or rules to guide water management
- Cleaning the dam regularly, especially in the wet season
- How to deal with low pressure (fix leaking taps, turn taps off).

Some of the topics planned for discussion were not of high interest in these four communities, in particular "how

to fix" things – people generally knew what needed to be done and someone in the village had the skills to do it.

A topic not engaged with, but potentially worthwhile given our data (see below), are strategies to manage supply and demand, including the benefit of not using drinking water supplies for non-drinking purposes.

Impacts of the TB visits

Water sources and systems

A range of water sources were used as the primary source for households in all four villages (Table 1), with additional variability during wet and dry seasons (Fig. 2). As expected, this use of water sources was not influenced by the Technical Backstopping. Using SDG6.1 to represent the quality, accessibility and reliability of the water supplies, no villages had any 'safely managed' water supplies (Fig. 3). Most villages had a mix of service levels, because of the range of primary sources being used across the village. The Technical Backstopping as conducted in this pilot study, did not influence the water service levels (as measured by the SDG6.1 indicator) ; this was a hoped outcome but likely not achievable in the timeframe of the pilot.

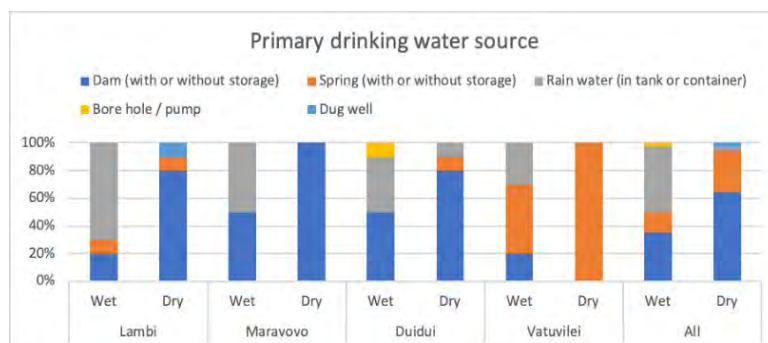


Figure 2: Primary drinking water source (% households; n=48)

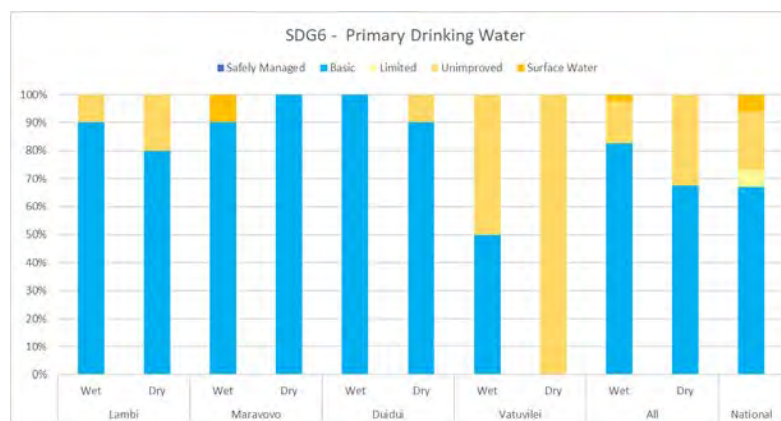


Figure 3: Water service levels (quality, accessibility and reliability, as represented by SDG6.1, for the primary drinking water source (% households; n=48)

Households used 6-8 sources to meet their domestic water needs, with 13% (across all 4 villages) using drinking water supplies for non-drinking purposes, and experiencing water scarcity during some times of the year.

Survey respondents reported an increase in water reliability (in the last 30 days) between the baseline and endline periods; however, cross-tabulation with various other responses suggests that this is most likely due to seasonal factors and not the backstopping visits.

Infrastructure status (inspections)

Twenty-six infrastructure inspections were carried out on community water supplies, access points and water tanks. There was no discernible difference in the condition of the infrastructure following the backstopping visits, probably due to the short duration of the pilot. Typical issues observed with water sources (dams and wells) included a lack of covering/protection, or the use of semi-permanent structures such as wood, earth, palm leaves or plastic. Around 55% of tap stands were observed to be in good condition but of these, over 70% had poor drainage, and/or broken slabs, and/or rubbish nearby, and/or animal access. Water tanks and taps were frequently uncovered and low to the ground (enabling animal access). In summary ...

a majority of water sources, storage and access points were at risk of contamination from exposure to hazards such as animals, rubbish, human waste / contact.

Risks to water insecurity were also present from ageing and leaking pipes, taps and tanks.

In the qualitative data, only respondents from Duidui reported any improvement in the water situation, which they did attribute to the backstopping visits, but this was not supported by our observational data (infrastructure surveys and water quality testing).

Water safety and water treatment

Water quality results from 26 sampling locations across the communities showed that 9 sites (34%) had “low” *E. coli* counts (1-10 mpn/mL) but only 1 site had zero presence of *E. coli* (an indicator of possible faecal contamination) – a requirement for a ‘safely managed’ water supply (WHO & UNICEF, 2017). Household

treatment of drinking water was not uncommon at some times of the year, though not widespread and not used consistently enough to improve the water service level. varied from baseline the endline, probably associated with the change in seasons

Satisfaction with the water supplies

There was a general increase in satisfaction with the water system across all villages (see Fig. 4).

Nevertheless, given the limited number of visits, the small sample size and the seasonal variation evident at the time of the baseline and endline data collection, it is not possible to attribute this change to the backstopping intervention.

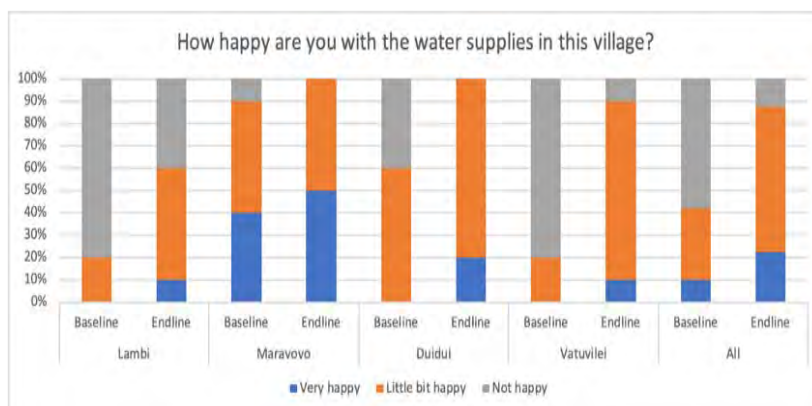


Figure 4: Satisfaction with water supply (n=48)



Water quality testing (AquagenX) bags – Maravovo

Water Management

Water committee membership

There was some discrepancy between the baseline and endline data concerning water committee (WC) membership details. This discrepancy appears to reflect a mix of respondent variation, methodological factors, the 'weak' and 'fluid' status of the WCs, and their low-level of social legitimacy. This is not uncommon.³ Based on the endline data only, the average age of WC members across all villages was 50yo. As with our formative research results, **youth and women are grossly under-represented** in formal water committee roles - just 21% of water committee members were female.

Despite the absence of youth in water committees, in some villages they were the most active in addressing water system problems, e.g. in Duidui it was reported that "young people are doing much [more] work in fixing water problems than the water committee itself" (HH,M-2, Duidui). This is associated with paying male youth to clean-out the dam (see Water supply finances, below).

Who looks after the water system?

There was a small increase in the number of respondents stating that a water committee is primarily responsible for looking after the water system; however, the sample size is too small to confidently attribute this to the backstopping intervention. In Vatupilei, which has no water committee, the nearby Tabalia Brotherhood (Anglican Melanesian Brotherhood who share the same system) hold the tools for maintenance and are the main people who undertake repairs.

Satisfaction with water management

Asked how well the water system is managed, household respondents from both Maravovo and Duidui displayed a marked **increase in dissatisfaction** (Fig. 5).

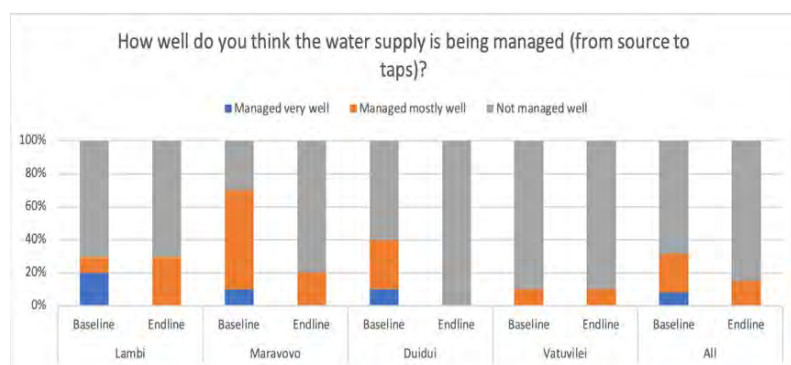


Figure 5: Water supply management satisfaction (n=48)

This increase in dissatisfaction may reflect greater expectations, given that households in both villages had recently provided monetary contributions to the water committee.⁴

Asked directly if they thought there had been any **improvements following the backstopping visits**, a water committee member from Duidui stated:

“Yes, in the sense that the people listened to us and understand what the leaders and educated people in the village have talked about. Their awareness simplifies the information down to the rural level. (WC-2, male, Duidui)

A household water user from Maravovo stated:

“... the leaking pipes were replaced. Now we experience a good flow of water, unlike before. (HH2, female, Maravovo)

Another household water user in Maravovo said:

“... the illegal installed taps were removed. I believe this is an impact from his visits. (HH1, male, Maravovo)

Analyses of the household survey and qualitative data suggests there was an increase in some key water committee tasks following the backstopping visits but a decrease in others.

Reported water problems

The **main challenges** identified in the household survey across the four villages were primarily **technical in nature**: At the baseline, 56% of disruptions were due to 'technical' problems (e.g. infrastructure breakdown, blocked pipes, dam blocked after heavy rain) and 40% at the endline (n=11) (Fig. 7). The decrease in technical disruptions between the baseline and endline is most likely related to seasonal factors.

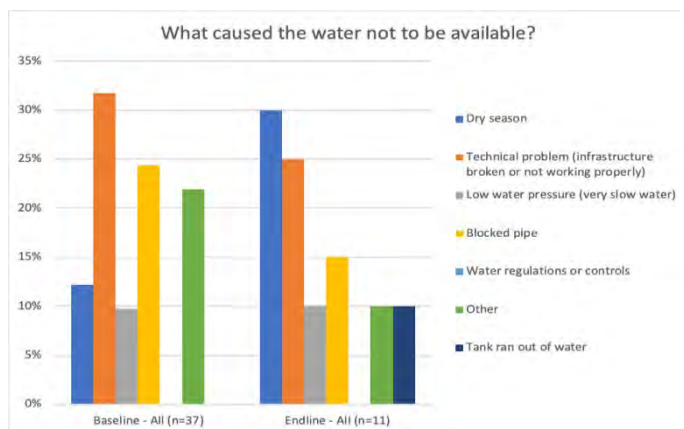


Figure 7: Reported cause of water problems (n=48)

While some of the causes for water interruptions are beyond the control of a water committee – e.g. damaged caused by logging activities – the majority of issues are within the remit of WCs. The solutions to these technical problems are generally very achievable, e.g. cleaning-out the dam more regularly and protecting it from further filling/blocking, replacing leaking taps, fixing blocked pipes etc. The GPG technician noted in to the committee in Lambi that "the only way to improve water pressure is to make sure that all the tap stands are always closed when not in use" (further noting that during the first visit, when he saw taps running, he thought that the keys were worn, but later discovered that they are fine and the taps are just left running) (GPG technician, fieldnotes).

The issues then, in these sites, are primarily **social in nature**; namely, collaboration, organisation, motivation, action, and a lack of funds.

Water system finances

There was an increase in the number of respondents reporting that the **community provided funds** to maintain the water system in two of the four villages: Maravovo and Duidui (Fig. 8).

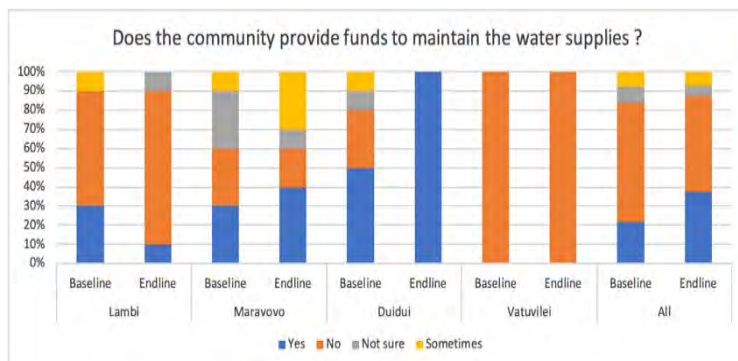


Figure 8: Water financing (n=48)

This can probably be attributed to the backstopping visits as we know from the process monitoring records (observation, fieldnotes and interviews) that the GPG technician spent a considerable amount of time discussing the importance of raising funds for water system maintenance.

The contribution towards the water system seems to have been relatively successful. In Duidui, the money is being used to pay the young men in the village to clean the dam and undertake minor repairs. According to one household water user, "this approach seems successful and the boys are really happy as well" (HHWU3, female, Duidui).

However, this does not address the issue of having enough funds to purchase spare parts; nevertheless, it does socialise the idea of the necessity and value of financially supporting water system operation.

It was also captured in numerous interviews. For example:

“A fee collection was imposed (SBD\$5 per household). This fee is applicable only to those households that did not send any of their member to join the maintenance team (WC1, male, Duidui).

This fee was used to pay the youth to clean the dam and fix broken pipes. The GPG technician was supportive of the incentive approach, stating that it "motivates the boys" and noting that young people were not engaged in the other communities, and perhaps this is why (Fieldnotes, 15/04/2021).

In Maravovo, the water committee also undertook some renewed fundraising activities for the water system, between the last visit and the endline monitoring.

“Prior to the maintenance activity, a household contribution (SBD\$50/HH) was organized by the water committee. However, only some of us managed to give (HH2, female, Maravovo)

This is the same amount suggested by the GPG technician during his visits (e.g. Fieldnotes, 12/04/21).

The increase in dissatisfaction noted above (Fig. 5) – if it is related to the financial contributions – highlights the importance of WCs actively communicating with the wider community; and about not only how much funds were collected and spent but also what they did to improve the system. Backstopping could support such 'reminders'. The GPG technician talked favourably about the Hulavu water committee when at Lambi, noting that they have a bank account for fundraising purposes (Fieldnotes, 12/04/2021). Such practical, local examples, serve as useful exemplar cases that resonate well and can help motivate people.

Other collective action - water management actions by community water users

In Duidui, there is some (limited) qualitative evidence of behavioural change, e.g. parents talking to their children more, whilst in Maravovo a new "rule" was implemented whereby the borehole storage tank is turned off and on at specific times (HH1, male, Maravovo), but otherwise nothing substantive.

Self-identified Water Committee challenges

Through the interviews (n=22), committee and community members identified the following issues (in order of prevalence) as the main factors impacting water committee performance and delimiting improved water outcomes:

- **Lack of cooperation**
- **Lack of motivation**
- **Lack of interest from people**
- **Lack of youth & women on WC**
- **Community mistrust of WC** [mismanagement of funds]
- **Lack of funds (water finances)** [no fundraising, tariffs/fees]
- **Lack of resources** (materials/tools)
- **Lack of skilful people.**

Reflections on the Technical Backstopping approach

Community and Committee perspectives

Community perspectives on the value of the TB approach were **overwhelmingly affirmative**: All of the interviewees (100%) stated that the backstopping visits were important, as they enhanced skills and knowledge about water management, built confidence, clarified roles and responsibilities, and helped motivate the WC (n=21).

The GPG Technicians' perspective

The technician, from the provincial government, was sceptical that technical backstopping alone would bring about improvements to community-managed water systems.

The key community water management issues that he observed across all the villages were: broken standpipes, leaking taps, a lack of drainage and water pooling at access points (resulting in smelly, stagnant pools of water), and taps not turned off.

The technician reiterated the view that the issue is not a lack of 'technical' knowledge but rather a lack of action:

“People have the idea and see the importance of water. They know and understand what is bad and what is good, but they just don't take actions [...]. Mindset is the problem. (GPG Tech., male, Honiara)

He further stated that the backstopping approach is a "nice idea" but the problem is "money."

“People in the community don't have money to pay for spare parts. Water committees also want money before they can do anything. They want to be paid before they do the work.

Money certainly plays a part in system maintenance and water management actions; however, research suggests that money is not necessarily the key determinate (see Discussion). It is also important to note that whilst **social factors** appear to be the main determinate in poor community-water management in these villages, some systems are so degraded that they are beyond community-level 'help'. The GPG technician noted that both Maravovo and Sumate are in dire need of "rehabilitation, not maintenance". It is hard to motivate people to be proactive when the system itself is in acute disrepair.

Interestingly, the GPG technician believes that the influx of NGOs into the WASH sector in Solomon Islands over the last few decades is a big part of the problem:

“ Some NGOs have ruined the system. They go into the communities with money, cargo, and feed the people. Then, when people like us go into the community with nothing, I am not sure that things will work. The NGOs pay for everything ...Now, when we go to communities, they no longer feed us [which is against the RWASH policy]. (GPG Tech.)

Researchers' perspective

The SINU researcher (Joe Hagabore) who accompanied the GPG technician took notes during the three visits, including reflecting on the backstopping activities and informal discussions he had with villagers. Whilst it was noted that there are some skill shortages, generally speaking the underlying issue(s) are not strictly 'technical' in nature:

“ All the communities stated that at least someone in the village has the required technical knowledge on water system repair and maintenance [...]. With the support and help from the community through fundraising, most people say that the problems can be fixed. (Fieldnotes, TB visit 2, Joe Hagabore)



GPG technician, Vatupilei

Joe Hagabore

FIJI

The context

The importance of ensuring access to quality drinking water and wastewater services to all Fijians is reflected in the 20-year Fijian National Development Plan. There are numerous stakeholders involved in the rural WASH sector in Fiji,⁵ all of whom operate under the governments *Rural Water and Sanitation Policy*. The policy identifies the following as **key water management problems and challenges**:

- **Over reliance on a single water source**
- **Lack of initial training in operation and maintenance**
- **Lack of support for maintenance**
- **Inadequate estimates of water demand**
- **Increasing impact of climate change on water resources**
- **Lack of clear management responsibility.**
- **communities lack the awareness that they are responsible for minor maintenance**
- **adequate and appropriate training is not provided to communities**

(Fiji Gov, 2012, DWS, 2021; MoIT, 2016)

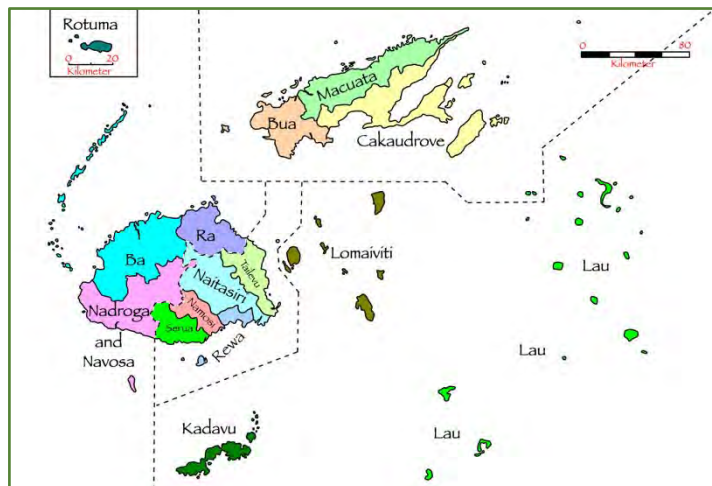


Figure 9: Map of the 14 Provinces and 4 Divisions of Fiji †

Each rural village or settlement in Fiji⁶ must have a Water Committee to be eligible to receive a government supported water supply system under WAF's Rural Water Scheme. Support for installation and training on water supply systems is typically provided by WAF, MHMS, or NGOs (with local or international funding).

Methodology

Due to the COVID-19 pandemic in Fiji, the Water Authority of Fiji (WAF) technical backstopping pilots were cancelled a week before planned commencement (due to COVID-19 related travel restrictions). In place of the field-based pilots, we undertook interviews with 6 WAF community officers and technicians to explore, in more detail, what follow-up activities they currently do and what they see as the key benefits and barriers associated with providing 'technical backstopping' support.

The WAF staff consulted have spent 6-32 years working with rural communities to improve water systems, in a range of regions across Fiji, and included district managers, technicians and an engineer. Consultation took the form of interviews – on-line (zoom) or by phone – and included some email follow-up questions. The qualitative data was transcribed and coded in NVivo™ for analysis.⁷

Consultation with Ministry of Health staff for a related PaCWaM + research component focused on improving *Drinking Water Safety and Security Planning* (DWSSP) (see Souter et al 2021), as well as our PHASE 1 research in six iTaukei villages [koro's] and two settlements (see Love et al. 2021), further assisted with our analyses.



WC chairman, Galoa village, Fiji

Mark Love

Key Findings from Fiji

- **WAF recently commenced post-construction support**, albeit for a limited period (6 months), in recognition of the early failure of many rural water systems
- Based on their extensive experience working with rural communities and their water systems, WAF officers identified that
 - **WCs need ongoing support** to properly manage their water systems
 - This support is both **technical and non-technical in nature**, such as motivating WCs and assisting them with community engagement
- WAF does not regularly allocate budget to undertake the recognised need for greater WC support, and likely neither do government agencies
- The Roko Tui's Office is now also responsible for monitoring water and sanitation programs, including undertaking some village awareness activities (e.g. water conservation). This is, in effect, a form of 'backstopping'.

Water situations in rural communities

The Fiji Bureau of Statistics reports that 55.9% of the population live in urban centres, 44.1% reside in rural areas. Rural Fiji villages and settlements typically rely on a variety of water sources to meet everyday household needs: rain water; surface water; ground water; and, sea water (FBoS, 2017). Using JMP indicator definitions, 89% of Fiji's rural population have access to an improved drinking water source, but only 39% are accessible on premises and the proportion that are safe and reliable is not known. Water scarcity is a problem in some locations and disasters are regular occurrences, interrupting water supplies. Fiji suffers from numerous water-related diseases, primarily outbreaks of leptospirosis, typhoid and dengue (cf. Nelson et al., 2021). More detail about the water supply situation in rural communities in Fiji is described in Love et al. (2021).

WAF technician roles and responsibilities

WAF technicians' main role is to set-up water supply systems in communities. They undertake surveys (elevation, volume, demand etc.), design and construct the water system, coordinate and prepare a Water Supply Management Plan (WSMP) for each community (Fiji Gov, 2012a). According to the recently updated policy, WAF are also tasked with monitoring water quality standards and carrying out water conservation awareness in

communities (Fiji Gov, 2021:20). Nevertheless, several respondents noted that WAF suffers from resource constraints, especially with regards to transport, funding and the availability of technicians (WAF-M1, M4).

Training and awareness-raising is part of the WAF's remit:

“... what we come to is that they don't know where to start and what to do every day. So, we print out some pamphlets for them, to show what role to do at what time and enlighten them on how to manage their water systems. We don't call it training, we call it awareness because it's just enlightening them on the roles, they do every day. (WAF-M2)

Another WAF respondent noted:

“Before the awareness was carried out, they were not doing their job and they were the very ones who were usually calling us. But now, since they know their responsibilities, that has slightly gone down and they now know that it is their responsibility to look after their water systems. (WAF-M4)

However, providing training/awareness is also a challenge:

“There is a difficulty we are seeing now. In our budget there is no allocation for training. Before, when we were in the government, there was a budget allocation specifically for training. Once we transitioned into the Water Authority, they scraped it off. (WAF-M4)

New Rural Water Policy developments

The Fiji **Rural Water and Sanitation Policy** was approved in 2012 and initially earmarked for review in 2016 (Fiji Gov, 2012). However, due to changes in government focus it was reviewed a year earlier. With the provision of sections 35 and 36 of the 2013 Constitution on the right of every person to housing, sanitation and adequate food and water, the 2012 policy requirement that communities provide 10% cash contribution towards the cost of water system installation was waived in 2015.

Among other things, the revised *Rural Water and Sanitation Policy* introduces a post-construction **"6 month Defects Liability Period"** whereby the implementing agency (Government or NGO) is now "responsible for remedy of defects within this [6 month] period until the project is fully taken over by the village or water committee" (Fiji Gov, 2021: 18). Failure to do so can result in a fine. However, this **does not constitute technical backstopping as it remains reactive rather than proactive support**: WAF technicians only visit when requested (e.g. WAF-M6, -M3).

The Roko-Tui's Office

In iTaukei villages, the revised policy prioritises the role and responsibilities of the Roko Tui's Office.⁸ All district rural water and sanitation needs and projects must be recorded and endorsed by the Roko Tui's Office [in non-iTaukei communities this role is performed by the District Advisory Council]. Additionally, **the Roko Tui's Office is now tasked with monitoring water and sanitation programmes**, including undertaking water conservation awareness in villages. One WAF respondent noted:

“ We are trying to strengthen the responsibilities of Roko Tui's. Let's say a village is complaining of a shortage of water ... the Roko Tui has to check out their [WC] work schedules – whether they have been visiting the dam sites, cleaning-up the catchments etc. – or if the Roko Tui sees in their log book that they have identified a leaking tap, check if they have done something about it. (WAF M-4)

The overall goal is to decrease the reliance on the government by providing support and encouragement to water committees to promote greater self-reliance.

In principle, mandating Roko Tui's to support WCs arguably constitutes a form of 'backstopping' in that it is designed to encourage WCs to be more active as well as increase their accountability.

How this plays-out in practice, however, is not yet known as the COVID pandemic has diminished WAF's ability to undertake regular village visits and we were not able to interview Roko Tui's to capture their perspectives.

Community Water Committees

As in Solomon Islands, it is the responsibility of the Water Committee to "manage, operate and maintain water supply and sanitation projects" in rural Fiji (Fiji Gov, 2021: 16). Interestingly, the 2012 policy mentions "water committees" only twice, whereas the new policy mentions water committee's ten times; signalling, perhaps, greater recognition of their importance. The policy further determines that the Ministry of iTaukei Affairs (in iTaukei villages) and Advisory Councils (in non-iTaukei contexts) are also to assist with the establishment of water committees. Lastly, the revised policy stipulates that the committee must include not only "one or two female members" (as per the 2012 policy) but now also some "youth members" from the community (Fiji Gov, 2021: 16).

Regardless of improved membership policy, according to most of the WAF respondents many, if not most, Water Committees are under-performing:

“ ...we have concluded that most water committees exist but they are not functioning. (WAF-M2)

“ ...some problems are still with the water committee, with the job they have to do. Some of them they know, some don't know, and some they know but leave it. You know, laxity from their side to clean the catchment, clean the pipeline, wash the tank etc. (WAF-M1)

Another respondent highlighted that there is a difference between iTaukei and Indo-Fijian communities:

“ In [some] Indo-Fijian communities we were taken aback. We went to Nalebaleba ...they have collected household water levies to such a degree that whenever there is a drought, they don't want to call the commissioner, they'll pay for their own water trucks... For Fijian communities, it is a bit hard to try and get these kinds of cooperation. (WAF-M4)

The reference to water trucks refers to the Fiji government's policy of fully subsidising water carting to communities if there are water shortages. According to many people – both CSO and government actors – this "impedes communities' self-organising" capabilities and delimits "resilience" (see Love et al. 2021: 63).

Water Committee challenges

Based on the WAF interviews (n=6), the following issues were the main factors (in order of prevalence) identified as impacting WC performance and delimiting WASH outcomes.

- **Lack of knowledge of WC roles & responsibilities**
- **WC funds management**
- **Low retention of WC members**
[changing WC members]
- **Lack of diversity in WC membership**
[too many older people, need youth]
- **Lack of tools and spare parts**
- **Lack of awareness about policy.**

Self-funding for sustainable water supply

One WAF respondent suggested that water systems in Kadavu tended to be **more sustainable** due to greater **access to money** from farming *yaqona* [kava] (WAF M-1). Another stated that WASH was better in Indo-Fijian communities because they know how to manage money (WAF M-2). Yet another felt that it was not "money" that was the issue but rather "the water committee", for example: because they keep changing the members [...] some new members don't know how to operate or maintain the water system" (WAF M-3). Managing money was also cited as a common problem:

“ They [WCs] are not very good in managing their finances. In some villages they contribute monthly ... but the committee can't manage that money properly ... So it's only the funding; they know what to do, they know how to manage their system but money, that's a different case altogether. (WAF-M2)

Would the proposed TB approach improve water outcomes?

As a hypothetical, respondents were asked if the WAF visited communities 4 times a year to simply run awareness/training – not undertaking repairs – would it improve water outcomes? All but one of the WAF respondents thought that such **backstopping would greatly improve water management outcomes**:

“... it's because of their laxity in not maintaining their system. That's why I am saying, if we keep on visiting them, and keep on doing this awareness it will help them. (WAF-M2)

The respondent who was unsure, was hesitant only in terms of whether the WAF had the resources to do this.

DISCUSSION

In both Solomon Islands and Fiji respondents highlighted money as a determinate in water management outcomes. In Solomon Islands, it was primarily "a lack of money" that was considered a key issue. However, in our formative research in Solomon Islands we found that the village with the least amount of average household income had, by far, the best community water management regime of the eight case-study villages (see Love et al., 2020). In Fiji, there were mixed views, but it was primarily **money management** that was considered the issue, rather than income per se. This suggests that whilst money may be an important driver, a suite of other factors are at least as determinate. Referencing "money" as the sole variable informing community water management outcomes oversimplifies what is a much more complex and dynamic reality.

Developing sustainable financing strategies for ongoing operations and maintenance is critical to successful community water management (cf. Phinehas & Sile, 2019). The data herein further supports the view that sound financial management strategies and skills are required if water committee's and communities are to sustain a community water system in the longer-term. In both Solomon Islands and Fiji, financial mismanagement was reported as an issue, yet in Solomons we saw that when informed and encouraged, some people can be motivated to act (e.g. raising funds in Duidui and Maravovo for water system maintenance).

A key learning from this study is that it is not only **technical support** that is required - with a focus on proactive operations and maintenance (risk management, protecting dams) - but **also managerial support** is paramount if water committees are able to achieve 'good' water outcomes. More training and skills transfer are required than is currently resourced and implemented in Solomon Islands and Fiji.

Topics that need more attention include raising and managing funds, water committee roles and responsibilities, the importance of WC membership diversity and engaging better with the wider community.

More emphasis and support (training and awareness) regarding financial management is required. Backstopping can help facilitate this.

Importantly, these 'topics' cannot be meaningfully tackled through a "one-off" workshop at system implementation. Project-based support is unlikely to build capacity that is actionable, sustainable and suited to all situations and future problems.

Moreover, using predominantly an "educational model of social change" approach, combined with a non-participatory and non-scaffolded pedagogy, is not a very effective way to disseminate knowledge and drive transformative community development (e.g. Ife, 2013; Westoby & Dowling, 2009). To be actionable, people need the self-efficacy that comes from progressive, hands-on learning. More contextually appropriate capacity building pedagogies are required (local, real-world examples).

Findings from both countries suggests that proactive action by WCs is the exception and most water management actions are reactive. Motivation and cooperation in water management – especially in Solomon Islands – is weak. Combined with competing priorities, this is clearly a significant barrier to improving community water management. To support resilience, and the collective action required to support 'good' community water management, motivation is a critical component (see Cunningham, et al., 2021).

Our backstopping research suggests that motivation, cooperation, clarity about WC roles and responsibilities and the importance of water system self-financing are as important as providing technical advice on proactive operations and maintenance.

Backstopping can't build motivation on its own. But the right type of regular, semi-structured interaction with water committees after installation/upgrading of a water system may offer a useful scaffold to help guide, elevate, and motivate Water Committee's to be more proactive than they currently are.

The proposed backstopping requires an increase in capital outlay. Moreover, it is recognised that like all PICs, Solomon Islands and Fiji water departments are hampered by resource and logistical challenges. Nevertheless, a well-coordinated and streamlined backstopping routine, harmonised with other department activities, may well be cheaper in the longer term - given the frequent breakdowns and rehabilitation of systems currently required to service rural populations.

CONCLUSION

The conventional community water management model, entailing short term, project-based engagement and support that is mostly linked to infrastructure installation and handover, is not effective, on its own, as a means to prepare communities to supply safe and reliable water, at least the context of rural Solomon Islands and Fiji communities.

Ongoing support is needed; backstopping, by a suitable water professional, preferably from government or water utility, is a mechanism to provide such support.

This support is needed to address the technical issues beyond the basic maintenance topics covered during handover, such as proactive maintenance and risk management. But equally important, this support needs to address **management issues**, in particular the motivation, membership and accountability of water committees, and the mobilisation of collective action by all community water users.

A good technical backstopping regime would be versed in all these areas, and as such, the approach might be better termed "**Water Committee Backstopping**". "Water Committee Backstoppers" should also use stories and discussion (*tok stori, talanoa*), rather than conventional education models, to affect change.¹⁰

Water Committee Backstopping (WCB), delivered through and at the provincial government level, reflects a "middle-up-middle-down" approach. Given the relatively poor 'success' rate of NGOs to substantially improve WASH outcomes in PICs over the last few decades, provincial level agencies are the logical level for such activities; especially given the polycentric and dual governance system in Fiji and the accelerated decentralisation trends currently under-way in Solomon Islands and other PICs.

However, such initiatives must be well-resourced. Evidence demonstrates that under-resourced decentralised WASH strategies in low- and middle-income countries can unintentionally result in a decrease in rural WASH services (Lockwood & LeGouais, 2015). Given the recent policy changes in Fiji, a deeper understanding of the Roko Tui's role and capacity to support water committee's is warranted. So too a more in-depth understanding of the capacities of Provincial Environmental Health Department officers in Solomon Islands is needed to better appreciate how such WCB might be integrated into current WASH sector activities.

If rural water systems continue to have short life spans due to inadequate water management this will continue to drain government finances, place a burden on users and expose people to unsafe and unreliable water supplies.

Water Committee Backstopping is not a silver-bullet solution but may prove to be a feasible, cost-effective, and contextually-appropriate means of scaling-up and sustaining rural WASH service delivery in the long term. The findings from this study certainly demonstrate that backstopping is deemed valuable by participants and can lead to some behaviour change. Further research – such as economic modelling, provincial government capacity and needs assessment and longer-term and well-resourced pilots – are required to rigorously assess whether WCB is a feasible and effective approach in PICs.

RECOMMENDATIONS

1. Projectised improvement of rural water management needs to be complemented by a mechanism, such as Water Committee Backstopping, to provide ongoing support over the long term and reduce the financial, health and wellbeing costs of water systems that fail well before their life span.
 - Water professionals or others (such as Roko Tui's) who may provide backstopping must be versed in much more than the technical know-how for basic maintenance and repairs. Backstopping needs to include:
 - Developing sustainable financing strategies for operations and maintenance (e.g. fundraising, fees, contributions) and include ongoing guidance on the importance of transparency and reporting back to the community
 - Financial management skills
 - Strengthening of the water committee (e.g. importance of membership diversity, clarification of roles and responsibilities of WC and members, ways of mobilising the community)
 - Technical skills for proactive maintenance and risk management, including supply and demand management.
3. Backstopping should maximise its capacity building and learning potential through regular 2-3 monthly visits, preferably by a regular set of Backstopper's, who develop familiarity with a community setting and group of water committee members.
4. Backstoppers must recognise that communities have different water systems with different social and environmental settings, and therefore have unique problems and capacity needs.
5. Fiji may be better positioned than Solomon Islands to implement backstopping approaches, as it has more resources and capacity and, given the recent policy revision, tasks the Roko Tui's Office with monitoring and supporting WCs. Investigation of how the Roko Tui's amplified role in supporting water and sanitation programmes unfolds in practice is worthy of attention. Such research is required to assess the Roko Tui's level of capacity and willingness to undertake these tasks.
6. Solomon Islands is embarking on greater decentralisation, as evidenced through the establishment of Ward Development Committees and recommendations contained in the *Draft RWASH Strategic Plan (2021-25)*. Targeted research on the capacity of RWASH and provincial Environmental Health Department staff to provide backstopping is warranted.
7. Detailed financial modelling exploring current government water system expenditure and the cost of different backstopping scenarios and impacts should be undertaken to ascertain if backstopping is, in fact, cheaper in the long- term than rehabilitating water systems with shortened life spans due to inadequate management.
8. In Solomon Islands, a larger pilot including sites from outside of Guadalcanal, with a longer backstopping implementation period (to better account for seasonal factors), is required to provide clearer insights about attribution and more rigorously assess the effectiveness of the backstopping approach in PICs.

END NOTES

¹ See Love et al., (2020 & 2021) for more on the political economy of rural water in Solomon Islands and Fiji.

² Griffith University (HREC 2018/793), Solomon Islands Health Research and Ethics Review Board, MHMS (HRE037/18).

³ We found this in many communities in both Solomon Islands and Fiji during our PHASE 1 research. This point has recently been noted by Nelson et al. (2021) in Fiji.

⁴ This was echoed in our formative research, where the three villages with comparatively 'better' water management outcomes (Manakwai, Kolosori and Hovi) all recorded **lower management satisfaction** levels than the villages with much poorer water management and WASH services. These three villages also all had financial contribution systems, whereas most the others did not (see Love et al., 2020).

⁵ Under the *Water Act 2007*, the Water Authority of Fiji (WAF) is responsible for both urban and rural water supply and sanitation. Additionally, the Department of Mineral Resources is responsible for ground water sources and the Ministry of Health and Medical Services (MHMS) are responsible for monitoring water quality standards and undertaking water safety planning in communities. Lastly, various non-government organisations are active in the sector in both capacity support and water infrastructure implementation roles, as are numerous foreign state and multilateral donors.

⁶ There are 1,193 registered iTaukei villages in Fiji (called *koro*'s). Non-registered villages – whether inhabited by indigenous Fijians (officially called "iTaukei") or Indo-Fijian's (officially called "Fijians of Indian descent") – are classified as "settlements".

⁷ For Fiji, ethics approvals were granted from Griffith University (HREC 2018/793) and The University of the South Pacific (ref # Dr Sarah Pene/2018). We also received approvals from the Ministry of I-Taukei Affairs.

⁸ Roko Tui is the title for the executive head of any of Fiji's 14 Provincial Councils. The name Roko Tui is derived from what was traditionally used as a title (in some regions) denoting the Paramount Chief. Today, the role of Roko Tui is often given to the Paramount Chief of a region's most chiefly clan. Interestingly, only the Roko Tui has the authority to enforce most Acts and legislations in registered Fijian villages. A health inspector from the MHMS, for example, cannot enforce the *Public Health Act* in a registered village but only provide assistance and advice (see Love et al. 2021: 64).

⁹ *Talanoa* is a traditional word used in Fiji and across the Pacific to reflect a process of inclusive, participatory and transparent dialogue. The process of *Talanoa* involves the sharing of ideas, skills and experience through storytelling, and has also become a research methodology (e.g. Vaoleti, 2006). *Tok Stori* is a form of discursive group communication (cf. Sanga & Reynolds, 2018) and has much symmetry with *Talanoa* – they both foreground Pacific cultural values and acknowledge the importance of positionality and dialogue.

REFERENCES

- Anthonj, C., Tracy, J.W., Fleming, L., Shields, K.F., Tikoisuva, W.M., Kelly, E., Thakkar, M.B., Cronk, R., Overmars, M. and Bartram, J., 2020. Geographical inequalities in drinking water in the Solomon Islands. *Science of The Total Environment*, 712, p.135241.
- Baumann, E., 2006. Do operation and maintenance pay? *Waterlines*, 25(1), 10–12.
- Bautista, E., 2018. Improving Governance for Effective Service Delivery in the Solomon Island, The European Union CSO-LA Programme: civil society organisations and local authorities.
- Chan, T., MacDonald, M.C., Kearton, A., Elliott, M., Shields, K.F., Powell, B., Bartram, J.K. and Hadwen, W.L., 2020. Climate adaptation for rural water and sanitation systems in the Solomon Islands: A community scale systems model for decision support. *Science of the Total Environment*, 714, p.136681.
- Clarke, M., Feeny, S., Donnelly, J., 2014. Water, Sanitation and Hygiene Interventions in the Pacific: Defining, Assessing and Improving 'Sustainability'. *The European Journal of Development Research*, 26, 692-706.
- Cleaver, F., 1999. Paradoxes of participation: questioning participatory approaches to development. *Journal of International Development*, 11, 597-612.
- Cunningham, I., Willetts, J., Winterford, K. and Foster, T., 2021. Interrogating the motivation mechanisms and claims of asset-based community development with self-determination theory. *Community Development*, 1-20.
- Dahan S., 2018: *Rapid Review of Water Knowledge for Pacific Small Islands Developing States*. World Bank, Washington, DC.
- Department of Water & Sewerage, 2021. *Rural Water and Sanitation Policy*, July, 2021. Ministry of Infrastructure and Meteorological Services.
- Fiji Bureau of Statistics (FBoS), 2018. Fiji Bureau of Statistics Releases 2017 Census Results. Fiji Gov. 10 Jan., 2018. <https://www.fiji.gov.fj/Media-Centre/News/Fiji-Bureau-of-Statistics-Releases-2017-Census-Res>
- Fleming, L., Anthonj, C., Thakkar, M.B., Tikoisuva, W.M., Manga, M., Howard, G., Shields, K.F., Kelly, E., Overmars, M. and Bartram, J., 2019. Urban and rural sanitation in the Solomon Islands: How resilient are these to extreme weather events? *Science of The Total Environment*, 683: 331-340.
- Harvey, P. A. and Reed, R. A. 2007. Community-managed water supplies in Africa: Sustainable or dispensable? *Community Development Journal*, 42(3), 365-378.
- Hutchings, P., Chan, M. Y., Cuadrado, L., Ezbakhe, F., Mesa, B., Tamekawa, C., & Franceys, R. 2015. A systematic review of success factors in the community management of rural water supplies over the past 30 years. *Water Policy*, 17(5), 963–983.
- Hutchings, P., Franceys, R., Mekala, S., Smits, S., James, A.J., 2017. Revisiting the history, concepts and typologies of community management for rural drinking water supply in India. *International Journal of Water Resources Development*, 33, 152-169.
- Ife, J., 2013. *Community development in an uncertain world*. Cambridge University Press.
- Klug, T., Shields, K. F., Cronk, R., Kelly, E., Behnke, N., Lee, K., & Bartram, J. 2017. Water system hardware and management rehabilitation: Qualitative evidence from Ghana, Kenya, and Zambia. *International Journal of Hygiene and Environmental Health*, 220(3), 531–538.

Lockwood, H. & Le Gouais, A., 2015. *Professionalising community-based management for rural water services*. (Briefing notes series, Building blocks for sustainability). The Hague, the Netherlands: IRC

Love, M., Souter, R., Gonzalez Botero, D., Pene, S., and Beal C., 2021. Pacific Community Water Management Plus: Phase 1 Findings Report for Fiji. International WaterCentre, Griffith University. Nathan: Australia. Available at: https://www.watercentre.org/wp-content/uploads/2021/03/PaCWaM-Fiji-Country-Report_FINAL.pdf

Love, M., Beal, C., Gonzalez-Botero, D., Bugoro, H., Panda, N., Roiko, A., Benjamin, C., Hagabore, J., Ooi, J., Magreth, C., and Souter, R.T. 2020. *Pacific Community Water Management Plus: Phase 1 Findings Report for Solomon Islands*. International WaterCentre / Griffith University: Brisbane, Australia; Solomon Islands National University: Honiara, Solomon Islands. Available at: https://www.watercentre.org/wp-content/uploads/2020/12/PaCWaM-Sol-Is-Country-Report_FINAL.pdf

MacDonald, M. C., Chan, T., Elliott, M., Kearton, A., Shields, K. F., Barrington, D. J., Souter, R. T., Powell, B. R., Bartram, J. & Hadwen, W. L., 2017. Temporal and thematic trends in water, sanitation and hygiene (WaSH) research in Pacific Island Countries: a systematic review. *Journal of Water, Sanitation and Hygiene for Development*, 7 (4) 352–368.

Ministry of Infrastructure & Transport (MoIT). 2016. *National Water and Sanitation Policy*. Department of Water & Sewerage. Fiji Government. November, 2016.

Ministry of Infrastructure & Transport (MoIT) 2018, *Fiji Rural Water and Sanitation – Practical guidelines for Rural Water Supply Management Plan*, Department of Water & Sewerage, Ministry of Infrastructure & Transport, Fiji.

Nelson, S., Abimbola, S., Mangubhai, S., Jenkins, A., Jupiter, S., Naivalu, K., Naivalulevu, V. and Negin, J., 2021. Understanding the decision-making structures, roles and actions of village-level water committees in Fiji. *International Journal of Water Resources Development*, pp.1-18.

Pearce, T., Currenti, R., Mateiwai, A. and Doran, B., 2018. Adaptation to climate change and freshwater resources in Vusama village, Viti Levu, Fiji. *Regional Environmental Change*, 18(2): 501-510.

Phinehas, N., & Sile, M. I. 2019. Women Inclusion, Technical Support, Funds and Maintenance of Handpump Operated Boreholes: Case of Kitui South Sub-County. *Journal of Public Policy & Governance*, 3(2): 22-42.

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‡ Fiji – Jaldouser. Own work, CC0.
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Prüss, A., Kay, D., Fewtrell, L. and Bartram, J., 2002. Estimating the burden of disease from water, sanitation, and hygiene at a global level. *Environmental health perspectives*, 110(5): 537-542.

Sanga, K. and Reynolds, M., 2019. Melanesian tok stori in leadership development: Ontological and relational implications for donor-funded programmes in the Western Pacific. *International Education Journal: Comparative Perspectives*, 17(4): 11-26.

Souter, R., and Schuch, G., 2017. *Rapid review of water knowledge for Pacific small islands developing states. A review for the World Bank, Pacific*. International WaterCentre, September, 2017.

Souter, R.T., Love, M., Hagabore, J., Benjamin, C., Bugoro, H., Panda, N., and Beal, C. (2021) Pacific Community Water Management - Strong Water Committee in Fiji – Implementation Guide International WaterCentre at Griffith University.

Vaioliti, T.M., 2006. Talanoa research methodology: A developing position on Pacific research. *Waikato journal of education*, Vol 12, pp. 21-34.

Water Authority of Fiji (WAF), 2016. Rural & Maritime Water Supply Scheme: What communities need to know when applying for the Water Supply Scheme. <http://www.waterauthority.com.fj/en/brochures/>

Westoby, P. and Dowling, G., 2009. *Dialogical community development: with depth, hospitality and solidarity*. Tafina Press.

Whaley, L. and Cleaver, F., 2017. 'Can 'functionality' save the community management model of rural water supply? *Water resources and rural development*, 9, pp.56-66.

World Bank Group. 2017. *Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-Country Review*. World Bank, Washington, DC.

WHO and UNICEF, 2017. Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. WHO and UNICEF, Geneva.

WHO and UNICEF (JMP), 2017. Drinking water service levels data. WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP). Accessed 16/1/2020. Available at: <https://washdata.org/data>

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