

Challenges and opportunities with social inclusion and community-based water management in Solomon Islands

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Summary

Motivation: The levels of rural water services are poor in Pacific Island countries (PICs); ineffective water management (WM) is one of the key reasons. Greater social inclusion in WM groups is a key goal of Sustainable Development Goal (SDG) 6, but there is a lack of data on the make-up of WM

groups and what appropriate and effective inclusivity in WM looks like in the region.

Purpose: This article contributes to filling these gaps by examining national community WM policy and the attributes and activities of rural WM groups, in practice, in villages across Solomon Island. The purpose is to influence government policy and guidance relating to the structure and functionality of rural WM groups.

Methods and approach: Qualitative and quantitative data were gathered from eight rural communities in Solomon Islands between 2018 and 2020, by a team of international and local Solomon Islander researchers. Detailed data from six formalized WM groups combined with an analysis of national policy and rural WM guidelines are used to identify strengths and weaknesses in current WM policy and approaches.

Findings: WM group inclusivity has improved with regard to women, but they still often remain excluded from decision-making. Young people are essential to the ongoing operation of water systems yet were rarely formal members of water committees. Intra-village levels of social cohesion were stronger than village-wide. Most water committees had collapsed in the past, lacked institutional sustainability and failed community expectations. Factors informing this included the high mean age of committee members, multiple obligations of executives, and often poor intra-village social and geographical representation.

Policy implications: Villages are not homogenous communities, but include many smaller social units—tribes, extended families, different faith groups—that tend to have stronger social cohesion than “village-wide” groups or committees. Moreover, many of these groupings are often socio-spatially demarcated in formalized “zones/areas” of a village. This needs to be reflected in WM group membership and national policy guidelines. At these levels, social cohesion, collective action, and agency are greater than at the village-wide level, offering opportunities for more inclusive and effective WM outcomes.

Keywords: community water management, culture and water management, Pacific islands, social inclusion, Solomon Islands, water committees

1 INTRODUCTION

The provision of water and sanitation services in Pacific Island countries (PICs) is among the lowest in the world—only half of the population use improved drinking water sources and only a third use improved sanitation (WHO, 2016). An added challenge is that aid projects in the PICs are regarded as less effective than other parts of the world (Wood et al., 2021). In Solomon Islands, despite efforts by the government and aid organizations, the provision of sustainable and appropriate water, sanitation and hygiene (WASH) services remains poor. As of 2017, only 60% of the rural population had access to a source of water that met the Sustainable Development Goal (SDG) 6 definition of basic service level (WHO/UNICEF, 2019). This is in stark contrast to 91% of the urban population. As for many PICs, this disparity between rural and urban populations is due to the isolated geography and remoteness of rural communities, the high cost and challenges of transport between islands, limited access to resources and markets, and vulnerability to extreme

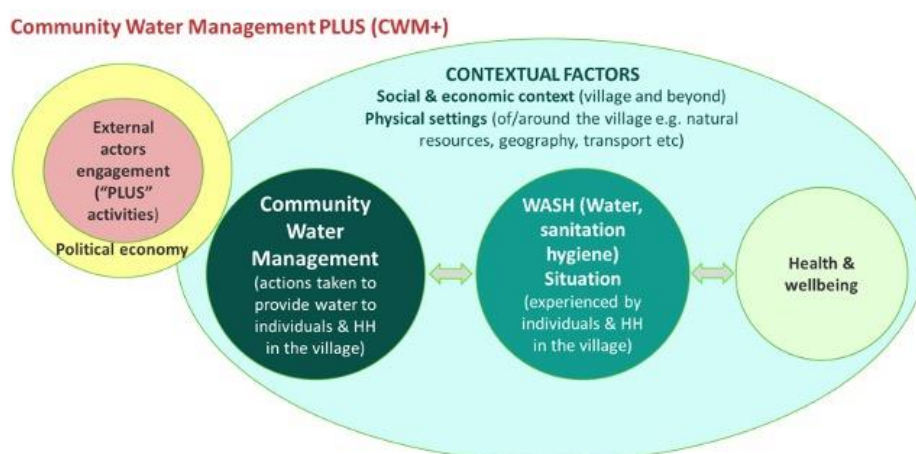
weather events that can permanently damage WASH infrastructure (Anthonj et al., 2020; Dahan et al., 2019; Dorvella et al., 2021; Fleming, et al., 2019; Hadwen, et al., 2015; McDonald et al., 2017; MHMS, 2014).

1.1 Community water management

In rural contexts in low- and middle-income countries, community-based water management (CWM) is, for the foreseeable future, the only feasible approach to providing water services (e.g. Barde, 2017; González Rivas et al., 2014; Lockwood and Smits, 2011; Whittington et al., 2009). So too in Solomon Islands, the ongoing management of rural water systems is the responsibility of community members (Chan et al., 2020). This is largely due to the inability of the government or the private sector to provide water supply services to the many small and remote rural communities that make up 80% of the population.

CWM actions and arrangements that work well in one village do not necessarily work well in another, because: a) villages in the region are marked by heterogeneity (no two villages are the same); and b) a wide range of factors influence WASH outcomes. Important factors include: the geo-physical environment of a village (including its size and lay-out) and its water-catchment particulars; village-level social and economic structures (population, number of tribes, leadership structure and effectiveness, religious affiliations, livelihood portfolios); broader contextual factors (such as settlement history, logging, land disputes); and interactions or engagement with people and organizations residing outside the village (including the history of “projects” and past experience with older water systems). Figure 1 is a representation of the analytical framework employed by a larger study of which this research was part—the “Pacific Community Water Management plus” (PaCWaM +) project—which hinges on the concept of community water management “plus.”

Figure 1: Graphical summary of the key concepts underpinning the PaCWaM+ research, identifying key influencers of community water management, including 'plus' activities by external actors



The community water management plus (CWM+) model is widely considered a viable improvement on the “one-size-fits-all” basic CWM model and argues that long-term external support—following the initial hand-over of water infrastructure to a community—is generally required if community water systems are to be self-sustainable in the long term (Baumann, 2006; Hutchings et al., 2016, Souter & Schuch, 2017). The CWM+ literature has identified a range of

intrinsic and extrinsic factors that inform the success of CWM, but there is a need for further research to identify these factors in specific socio-cultural, economic and environmental contexts—such as in PICs. Furthermore, there has been limited investigation of how wider factors, such as institutional and customary norms, may better inform the success or failure of maintaining village water systems (Joubert & Summers, 2018).

1.2 Social inclusion in CWM

For self-managed water resources, social inclusion is deemed necessary to secure more equitable and sustainable water management and supply outcomes (Gunda et al., 2018). Evidence from Vanuatu, for example, suggests that women’s increased participation in water management groups improves water management and system functionality (Mommen et al., 2017). In Solomon Islands, women’s participation in CWM is now a mandated requirement for the installation of new, or the upgrade of old, water systems (see further below).

Social inclusion is about working towards “a society for all” and is about more than simply improving access to resources (Atkins & Marlier, 2010). Rather, it can be defined as a process of improving social participation through enhancing opportunities, access to resources, voice and respect for rights (UN, 2016, p.20). Inclusion is understood relative to exclusion and the factors that prevent individuals from full participation in social, economic and political life (Beal & Piron, 2005).

The importance of furthering inclusive development was the basis of the United Nations’ 2030 Agenda for Sustainable Development, which emphasizes that global development requires a more integrated vision grounded in sustainability, equity and inclusion (UN, 2016). The active and meaningful participation of all members of society, especially groups at risk of marginalization, is widely seen as critical to improving WASH outcomes, and this is emphasized under SDG6 (UN, 2015).

There is a substantial body of literature on social inclusion in the context of WASH (e.g. Groce et al., 2011; Ndesamburo et al., 2012; Redman-MacLaren et al., 2018; SIMAVI, 2018; WaterAid, 2010; WHO/UNICEF, 2019) and community-based water management (e.g. Cleaver, 1995, 1999; Cleaver & Toner, 2006; Mommen et al., 2017; Were et al., 2008). Since the 1970s, perspectives on women and gender issues in WASH have evolved considerably (Fisher et al., 2017). Although the umbrella concept of “gender equality, disability and social inclusion” (GEDSI) encompasses broad-ranging and cross-cutting rubrics that encapsulate not only gender but also other vulnerable and marginalized members of society, there is a dearth of data on the current levels of social inclusion in the context of CWM in the PICs, what local factors enable and/or inhibit social inclusion in water management groups (such as water committees), and what other kinds of social inclusion might need to be added to current understandings to make the concept of “inclusion” more culturally and contextually relevant.

The broader PaCWaM + research sought to apply a strengths-based approach to identify factors that influence the success of water management in Solomon Islands and Fiji. By examining a range of villages across different physical and socio-economic contexts we identified a range of factors that aligned with “good” water management in each country (see Love et al., 2020a and Love et al., 2020b for details). The main measure of how successful a village was at managing its water system was the status of water (and sanitation and hygiene) services available to community members. We assessed water accessibility, availability, and reliability at the household level and drinking water quality. We also measured sanitation and hygiene situations as a secondary measure of “good” CWM. This article draws on a sub-set of the overall PaCWaM + findings to explicitly

focus on social inclusion at the level of water management groups to answer the research question: what are the challenges and opportunities for improving social inclusion in community-based water management in Solomon Islands?

The article is structured as follows: Section 2 provides an overview of rural water management in Solomon Islands, section 3 describes the study design, section 4 presents the results and our analyses of water management group specifics, and section 5 summarizes our findings and presents recommendations aimed at policy-makers and practitioners.

2 RURAL WATER MANAGEMENT IN SOLOMON ISLANDS

The Solomon Islands consist of six major and approximately 900 smaller islands, forming a scattered archipelago of mountainous islands and low low-lying coral atolls in the southwest Pacific. The most recent estimate of the country's population is around 680,00 (SINSO, 2020), with the majority (81%) living in small, widely dispersed coastal settlements (SINSO, 2009). Solomon Islanders are a diverse mix of cultures, with over 80 different languages and dialects spoken. Reflecting the social diversity and geographic fragmentation of the country, the character of local community governance regimes varies considerably, although they all tend to be organized around some configuration of quasi-traditional authority structures and those of the various churches (World Bank, 2013, pp. 7–12). Logging has touched most areas of the country and has long been a key contributor to the national economy, with rates of extraction significantly exceeding the estimated sustainable yield (Global Witness, 2018). Although there is a diversity of experiences, disputes over land tenure and especially title stemming from the short-term fiscal gains associated with logging have had a negative impact on village-level governance and intra-community co-operation and collective action.

Due to the isolation of many villages and the resource constraints of government actors, it is impractical to maintain a fee-for-service model or use a centralized maintenance model to ensure the provision of water services in the country (MHMS, 2014). In practice, water projects tend to focus on infrastructure construction, with the government's Rural Development Program (RDP) and the Rural Water, Sanitation and Hygiene (RWASH) programme of the Ministry of Health and Medical Services (MHMS), as well as non-governmental organizations (NGOs), establishing village water committees after the construction of a water supply system (MoHMS, 2014, p.14; RWASH, 2019a). Hence, the management of a water supply system is largely determined by each village, but with some influence from funders, government and NGOs.

The goal of the national RWASH policy is to improve the health and well-being of rural communities through improved and appropriate WASH facilities and hygiene practices and places "community ownership" at the centre of this approach (MHMS, 2014, p.6; RWASH, 2019b, pp. 9–10).

A cost-sharing component has been introduced, making communities "fully responsible" for the operation and maintenance of their water system (e.g. cleaning a dam, replacing washers and taps and repairing broken pipes) (RWASH, 2019b, p. 11). Several RWASH manuals provide guidance for water committees on running meetings, working with the wider community and working with other community leaders (RWASH, 2019a, 2019b). In terms of social inclusion, the RWASH policy dictates that women must be involved and represented "equally with men in WASH committees and as caretakers," and also encourages persons with a disability to participate (RWASH 2019b, p.11). The guide makes no mention of youth or other micro-level factors, such as spatial and/or tribal representation.

3 METHODS

As noted above, the data used in this article were collected as part of a larger research project exploring how governments and civil society organizations (CSOs) might better support more inclusive, resilient, and sustainable CWM outcomes in the PICs. Data were collected between late 2018 and late 2019 in eight different rural communities in Central, Guadalcanal, Isabel, Malaita, and Western Provinces in Solomon Islands (see Figure 2). Follow-up research visits were made to four of these villages in the period 2020–21. The study design was led by a team of international researchers, with input from local partners, while data collection was primarily undertaken by in-country research team members from the School of Public Health, Solomon Islands National University (SINU). Two Solomon Islanders, a woman and a man, undertook fieldwork in each village, and three of the international researchers assisted with the fieldwork in four of the eight villages. The SINU team were trained in research ethics, qualitative and quantitative data-collection methods, and co-designed the survey and interview instruments as well as assisting with data analysis through a series of workshops.

The research methodology comprised a mixed-methods approach, drawing on a range of quantitative and qualitative techniques. Qualitative data collection consisted of key informant interviews (KIIs) and group interviews (GIs). We focused on depth over breadth, with researchers spending five to seven days in each village. Across all study sites, KIIs were undertaken with 105 individuals (63 males and 42 females), and 16 GIs were held with water committees and women's groups (Table 1). Participants were identified based on a mix of targeted and snowball sampling and typically included youth group representatives, religious leaders, customary leaders, elders (life histories), women's group members, project actors, water committee members, people with disabilities, health workers, and teachers. Interviews were conducted in Solomon Islands Pijin, audio-recorded (with consent), transcribed (a mix of paraphrasing and verbatim quotes, using time codes) and then translated into English. Language was not an issue as everyone interviewed spoke Solomon Islands Pijin—the main lingua franca used by the 70-plus language groups in the country. Two sets of household surveys (HHS) were also undertaken in each village. Ultimately, 436 HHS were undertaken, of which 220 focused on socio-economic factors and 216 on WASH matters (Table 1). The HHSs and KII guides were pre-tested in peri-urban rural locales outside Honiara, and some more minor adjustments were made after fieldwork in the first two villages. All qualitative data were entered and coded in NVivo™ to assist with thematic analysis, using a grounded theory methodology (cf. Strauss & Corbin, 1997).

All required ethics documentation was completed and approved prior to commencement of data collection from the relevant research institutions and agencies. In addition, permission was sought from community leaders in each village prior to site visits and data collection. Informed consent was obtained from all respondents prior to participating in village data-collection activities.

3.1 Research sites

Site selection was designed to encompass a range of bio-cultural contexts (e.g. socio-cultural, economic, environmental and geographic) and different CWM arrangements, including differing types and amounts of external support. Inception workshops with stakeholders (e.g. RWASH, CSOs) were critical to identifying study sites. Figure 2 shows the location of the villages and Table 1 provides a demographic summary.

3.2 Limitations

The research design aimed to include as much diversity as possible in the site selection to ensure the results were representative of the country. However, due to financial and logistical constraints the number of study sites was limited to eight, spread across five of the nine provinces. Additionally, searching for a range of implementation examples and geographical locales

unintentionally resulted in all our water system types being gravity-feed systems (albeit often supplement by other systems, such as wells and rainwater tanks). Lastly, as the overall study was applying a strength-based approach—working in communities where water management was reported to be “good”—at least some of these villages are likely have a better WASH situation than many other villages. Despite these caveats, we believe that the findings concerning social inclusion and CWM are applicable across much of the country.

Figure 2: Map of Solomon Islands and case-study village locations

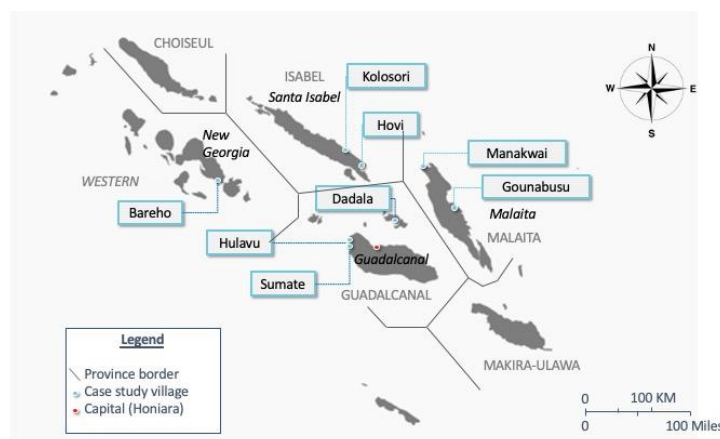


Table 1 Solomon Islands Case-Study Village Demographics

Village name	Province	Population ¹	No. of households (HHs)	Main religion	No. of tribes	No. of village zones/groups
Bareho	Western	300–500	78	Seventh Day Adventist	12	3
Dadala	Central	130–50	31	Anglican; 1 HH other	4	4
Gounabusu	Malaita	~170	44 (30 occupied)	South Sea Evangelical Church (SSEC); 1 HH SDA	3	4
Hovi	Isabel	~120	25	Seventh Day Adventist	3	4
Hulavu	Guadalcanal	300–400	80–86	SSEC; 1 HH SDA	4	4
Kolosori	Isabel	320	52	Anglican; 1 HH other	2	4
Manakwai	Malaita	~540	80–100	SSEC-Estate; (majority); SSEC	9	5-6

¹ Exact population numbers were difficult to determine. In addition, all villages experience a significant increase in population levels during holidays, especially at Christmas.

				(original) (one tribe & zone)		
Sumate	Guadalcanal	300–400	70–80	Catholic; few HHs other	4	4

4 RESULTS: COMMUNITY WATER MANAGEMENT IN PRACTICE

4.1 Water system characteristics

All the villages had a gravity-fed water system piped from a source uphill, and all sources were open-surface waters with a dam except in Dadala and Manakwai, which both had spring sources. Water was piped to shared tap stands through a reticulated system, with the number of houses sharing each tap varying by village, e.g. Hovi had the lowest household to tap ratio (0.8), Sumate the highest (6.5). All of the current water supply systems were constructed with assistance from the Solomon Islands government except for Gounabusu, whose system was built by an NGO (in the past NGOs constructed the water systems in some of the other villages).

4.2 Water management group attributes

Water management can be broadly defined as people being organized and undertaking water management activities. We deliberately did not assume that a water committee (WC) was an essential component of water management. Five of the eight villages—all but Gounabusu, Hulavu and Sumate—had a formal and widely recognized WC at the time of initial research (Table 3). Gounabusu had no water committee but a large number of respondents reported that the village strategy was that “everyone is the water committee.” In practice, this means that each household is responsible for the maintenance and repair of their own pipes and tap stand. When there is a problem in the system, such as a dam blockage, burst pipe etc., “volunteers” (mainly younger men) worked together to fix it. Both Hulavu and Sumate had a small, informal, ad hoc group of people (most of whom lived in an area of the village closest to the reservoir and dam), but post-fieldwork in Hulavu this group was expanded and formalized. For the sake of analysis, the attributes of the re-formulated and formalized WC at Hulavu are described, bringing the total number of water committee attributes under detailed investigation to six.

Six of the eight sites have had water committees in the past that had collapsed for several reasons, summarized in Table 2. The two exceptions were Kolosori and Dadala, where formal WCs were a relatively new approach to water management. The waxing and waning of water committees underlines that water management through committees is a challenge (cf. Chukwuma, 2016). The death or loss of senior water committee members was also a recurrent factor delimiting the performance of the water committee in four of the six case-study villages.

Table 2. *Reasons Given for Collapse of Previous Water Committee*

Village name	Reasons for previous water committees failing/collapsing
Bareho	The communal rainwater tank committee dissolved just a few months after the system was handed over (and is now overseen by a village leader and church elders).
Gounabusu	Primarily due to social conflicts, as well as the death of several key members.
Hovi	Due to a general “lack of commitment.”
Hulavu	Due to a range of factors, with aging, death, illness, and village collective action challenges all considered contributing factors.
Manakwai	Followed the breakdown of the water supply system (in part, due to vandalism). The shrinking of the current committee in Manakwai (from 10 to

	four) is due to a dynamic mix of factors, from death, ill-health, and mobility (a member moving away to be nearer to a hospital and sick family members) to a decline in village-wide collective action.
Sumate	Due to a range of factors, with aging, death, illness and village collective action challenges all considered contributing factors.

While influenced by the implementer, the community determined how a water committee was structured. In our sites the size of committees varied from four to 18 people. Bareho, which had the largest number of members, had two water committees—a *planning committee* and a *maintenance committee*. The gender composition of the WCs differed, with the overall percentage of female members ranging from 11% (Kolosori) to 50% (Dadala and Manakwai) (Table 3).

Table 3 *Water Committee Size and Structure*

	Total	Executives	Members	Male*	Female*	% Female
Bareho[▲]	18	3	15	14	4	22%
Dadala	12	5	7	6	6	50%
Hovi	8	2	6	5	3	38%
Hulavu	8	3	5	6	2	25%
Kolosori	9	4	5	8	1	11%
Manakwai	4	2	2	2	2	50%

▲ In Bareho, there was a communal rainwater tank committee established in 2015, but it collapsed soon after.

* Includes executives and general members.

Table 4 shows the mean age of water committee members. Dadala had the youngest mean age—36 years, Manakwai the oldest, with the combined mean age of all WC members standing at 46.3 years. The mean age of the national population at the time of the last census was less than half this, at 22.5 years (SINSO, 2009). In all case-study villages, except Bareho, women water committee members tended to be younger than the men. There were no people with disabilities in any of the WCs.

Table 4 *Age of Water Committee Members (Mean)*

Village name	WC members average age	Male average age	Female average age	Village-wide average age
Bareho	53	48	58	29
Dadala	36	38	34	23
Hovi	50	51	50	33
Hulavu	43	48	37	21
Kolosori	42	44	40	25
Manakwai	54	57	53	27

The RWASH Community Manual offers an example of how the executive leadership group in a water committee may be structured, citing a chairperson, secretary, and treasurer (RWASH, 2019b, p. 6). In the study sites there were some exceptions/innovations to this. In Hovi, there was no secretary position, in Kolosori, there was a “technical officer” named as part of the executive group (in charge of the four maintenance members), while in Dadala there were two vice-chairperson

positions. It is noteworthy that in Bareho the most active individuals in terms of maintenance were two “volunteers” who were not officially members of either WC group.

Table 5 includes individual data on WC executives, focusing on the attributes of age, sex, and their “other” roles in the community. In total, there were 19 executives, of which nine were members of other committees while eight held executive positions in other village groups (note that village chief and pastor are considered akin to executive positions given that they involve equivalent, if not more, time and labour as being an executive member of a committee). Only two WC executive member had no other formal roles in their village. The mean age of all executives was 57 years, with men (51 years) being considerably older than women (37 years).

Table 5 *Water Committee Executive Attributes*

Village	Sex	Age	Executive position	Other community roles
Bareho	M	61	Chairman	Treasurer, high school committee
	M	63	Secretary	Tribal committee spokesman
	M	55	Treasurer	Community Policing committee (member)
Dadala	M	41	Chairman	Village committee (member)
	M	42	Vice-chairman 1	Vice-chairman village committee
	F	40	Vice-βchairman 2	Village committee (member)
	F	37	Treasurer	Primary school committee (member)
	F	38	Secretary	Mothers' Union (member)
Hovi	M	45	Chairman	Village committee (member)
	F	52	Treasurer	Treasurer, Church committee; Treasurer, school committee
Hulavu	M	45	Chairman	Vice-chairman Kindy school committee / Fundraising committee (member)
	M	54	Treasurer	Chairman, Kindy committee
	F	22	Secretary	
Kolosori	M	42	Chairman	Village chief
	M	49	Treasurer	
	M	53	Secretary	School committee (member)
	M	50	Technical Officer	Catechist/vestry committee (member)
Manakwai	M	53	Chairman	Church committee (Pastor)
	M	61	Treasurer	Treasurer, Church committee

5 COMMUNITY WATER MANAGEMENT AND SOCIAL INCLUSION

The United Nations Agenda for Sustainable Development (Agenda 2030) advocates a “leave no one behind” strategy. SDG6 focuses on access to water and sanitation “for all” with Goal 6.B specifically stating the need to “Support and strengthen the participation of local communities in improving water and sanitation management.” The data presented make clear that the specifics of support and participation are context-dependent. Three key factors related to social inclusion and community water management have been identified. First, there is some evidence that the mandate to include women in CWM is having some effect. Second, there is clear indication of dual or multiple responsibilities by WC members with many executives holding other significant roles in their village. Third, there is an absence of youth in both leadership and general membership roles. We now examine each of these points in turn, providing some further data where appropriate, before turning to one other key aspect of social inclusion—how and why tribe and household location intersects with CWM and must also be considered a key component of social inclusion.

5.1 Gender and social inclusion

The first critical factor evident from the data on water committees concerns gender. Gender norms differ somewhat across Solomon Islands. In some areas, such as Malaita, there are more rigid gender norms and roles than in other areas of the country (Homan et al., 2019, p. 4). Global evidence (Nishimoto, 2003), as well as findings from neighbouring Vanuatu (Mommen et al., 2017), suggest that women’s involvement in a water committee is associated with more effective water management, including more regular meetings and revenue collection and better functioning water systems. In their analyses of 365 water committees, Mommen et al. (2017, p. 222) found that 16% of members were women and 49% of all WCs had at least one woman in an executive position (53% secretary, 40% treasurer and 7% chair). Our (much smaller sample) had a greater proportion of female members overall (29%) but fewer women in executive positions.

The government has recognized that moving from policy to practice in relation to gender equity will be slow and challenging, but there is evidence that the RWASH “mandate” to have at least one woman in each water committee has resulted in some attitudinal changes among male committee members and community leaders. In Hovi—where there are three women on the WC (including one treasurer)—a male representative stated that having women on the committee was a *“very good idea as ladies are the ones who mostly use the water so they have a concern; men use water to swim [wash] only and nothing else...”* When the government constructed the water supply system at Manakwai it insisted that the WC must have some women members. One of the current members stated: *“Many women were asked, but they were afraid [to join]”* (Female WC member, Manakwai). The current WC chairman noted that he, like many other men at the time, were reluctant to have women on the committee as it is *“not our custom.”* However, he now acknowledges that it was a *“wise move”* as *“women listen to women”* and use more water than men:

“RDP advised the community that women must also be included in the water committee, although in our culture women were not allowed to have a say in any decision making [...]. We [now] realise that it’s easier in terms of teaching other women to look after the water supply and tap stands. When we need teaching and giving awareness to other women in the community, we send the female members to carry out the task. This makes work easier for us men, not having to deal with teaching the opposite gender” (Water Committee Executive, Manakwai).

This was also echoed in Gounabusu, where men in the now defunct WC were also initially reluctant to include women in the committee, but later did so.

Clearly, the quota rule has gained some traction. However, there is evidence that the quota does not necessarily allow for the nuance needed to navigate the full range of complexities surrounding

gender equity, e.g. inclusion is not just about having women on the water committee but also from which tribes/clans they come, their kin relationships to key water committee members and, ultimately, a question of whether they have the agency to raise concerns and advance women's WASH issues through membership in the committee. Wider evidence from gender and WASH research in Solomon Islands certainly demonstrates that women's participation in WCs can have negative unintended consequences for the women involved (UNICEF, 2018).

Female respondents were asked about whether they felt women had a voice in the village and what were the key challenges that women faced. Nearly all the female representatives of the church group stated that they believed that they, personally, and women more generally, had a voice in the village. However, this was very culturally prescribed, with many highlighting that it was primarily at church and through the women's group representative that women's views were voiced: *"During Sunday service in the church [...] women have the courage to talk"* (woman, Hulavu). Research suggests that Melanesian Christianity has provided an avenue for women's agency to thrive (e.g. Douglas, 2000; Eriksen, 2005). However, as other scholars have noted, this simultaneously contributes to further reinforcing women's "double burden" and does not question or transform women's structurally enforced subordinate position in society as such (e.g. McDougall, 2016, p. 113). Regardless, the women with whom we spoke generally saw themselves as having a voice, although their degree of agency and inclusion remains—in a Western-liberal-democratic sense—limited. Moreover, numerous women noted that they have rarely, if at all, been actively engaged in decisions or actions on water management, other than cooking for workers when the the water system was being installed. In Hulavu, the women's group representative stated that they had *"never taken part in WASH programs because they were not informed, aware, or trained."* Similarly, in Bareho, a female participant complained that *"the water committee has never involved women in their meetings to discuss the water situation in the village [...] and this should change."* There is clearly room for improvement.

5.2 Multiple responsibilities

The second inclusion factor concerns the multiple responsibilities of executive members of water committees. As shown in Table 5, most WC executives were also members or executives of other committees, meaning that they have two or more responsibilities. Committees are a ubiquitous part of village governance across most rural villages in the region. In Solomon Islands, the most common committees are church, education, youth, women, and health, all of which are a legacy of the missionary/colonial era (cf. Allen et al., 2013, pp. 71–72). The eight study villages had a variety of different committees, with the number ranging from five to nine. Across the different villages, between 27% to 96% of surveyed households reported having a member in a village committee.² The obligation to be materially invested in "community" is essential to the Melanesian ethos of defining value and order in collectivist terms. In anthropological terms, this has been referred to as the "relational" aspect of Melanesian personhood (Strathern, 1988) that reflects the preference for emphasizing the "whole over the part" (Eriksen, 2005). Nevertheless, across all study sites many (especially older) respondents complained that the effectiveness of and participation in the water committee had declined substantially over the last 10 to 20 years. The reasons for this were typically expressed in terms of moral and social decline (e.g. "selfishness," land/chiefly title "disputes," growing "individualism" and so on).

All but two WC executives were members of other committees (Table 5) and this extends, albeit less so, to general committee members: 12 (32%) of the total 38 non-executive members also belonged to other committees. The challenge of multiple responsibilities among WC members

² Dadala (82%), Gounabusu (96%), Hulavu (59%), Hovi (50%), Sumate (43%), Kolosori (43%), Bareho (49%) and Manakwai (27%) (n=220 households).

reflects the power dynamics of village life; older men are seen as natural leaders and are keen to be associated with executive positions on village committees, as such roles attract and reinforce prestige, regardless of actual individual or committee performance. This desire to hold executive positions on village committees delimits the scope for widening social inclusion, including the diversity and make-up of WCs. This is especially evident with regard to youth.

5.3 Where are all the young people?

A third factor to emerge from the data is the age disparity evident in WC membership, with a disproportionate absence of youth in both leadership and general member roles.

Youth is a culturally specific category. The national youth policy, for instance, defines “youth” as persons between the ages of 15 and 34 years (SIG, 2017).³ Youth participation in decision-making in Solomon Islands reflects a complex mix of cultural, political, historical and circumstantial factors (Ride, 2019; UNDP, 2017). There is a strong asymmetrical character to intergenerational relationships whereby social norms favour older men (and women). Historically, status was derived largely from birth-order, lineage (tribe/clan) and rank (e.g. chief). Today, this has expanded to include socio-economic status, education attainment and political capital (engagement in village, provincial and/or national decision-making). Norms of intergenerational asymmetry are regarded as simply part of “*kastom*” [custom] and the “proper” order of things. Youth are often relegated to low-status work as labourers for family, community projects and businesses. Village elders (men and women) have more status and rights to speak at public gatherings and meetings, and the active participation of youths in public forums is rare (Ride, 2019) and typically restricted to church groups (Homan et al., 2019, p.17). Lastly, married young men and women attract more respect—and hence have more of a “voice”—than those who are unmarried.

However, the paucity of youth representation in WC membership runs against the grain of the demographic reality of the country. Solomon Islands has the second youngest population in the Pacific and its rapid population growth rate means that this trend will only increase. In 2009—the most accurate national census data available—59% of the population was aged 24 years or younger, the median age was 20 years and the average age was 22 years (SINSO, 2009). This is in stark contrast to the mean age of WC members, which was 45 years (ranging from 21 to 63 years). There were only four individuals aged 25 or under (6% of total WC membership). Only two of the eight WCs under discussion, Hovi and Dadala, had a dedicated “youth representative” on the committee.

Youth are represented in village governance through the formal “youth group” or “youth committee” (typically a church-co-ordinated group). This does not mean, however, that the elected “youth rep” is necessarily a young person (according to the national definition of 34 years or under). For example, in Bareho the youth secretary is 48 years of age, in Dadala the youth group leader is 46 years of age and in Hovi the youth representative on the WC is 43 years old. This is another form of marginalization—youth being represented by people who are not young, and has been referred to as “structural minimisation” (Craney, 2019).

Data from interviews, informal discussion, observation, and secondary literature all reiterated that young people, especially men, are often deemed a “problem.” This is especially the case with younger males, school dropouts, and people marginalized because of breaking cultural norms, such as unmarried mothers and people outside the church (e.g. “backsliders” in Seventh Day Adventist villages).

³ Note that the United Nations’ definition of youth is 15–24 years of age.

For example, in Bareho, an older female respondent noted:

“It is the young people that cause problems the most [...] when they earn money from beche-de-mer [sea cucumber harvesting], they often engage in drinking that causes disturbance and make women and children fear for their safety” (Women’s Group Representative).

Another respondent from Bareho believed that low youth involvement in civic matters was due to fear and shame:

“...most youths do not participate in youth programs in the church. Some are scared to join because they do not know how to read or write properly” (female Youth Representative).

Youth can be destructive, however. In Manakwai, the earlier water system was vandalized by disgruntled young men who were angry about frequent disruptions, low tap-stand coverage and poor water pressure in several areas of the village (namely the “Highlands,” which is populated by households who were not members of the newly dominant Christian denomination). Vandalizing water systems to express wider social grievances is a common experience in Solomon Islands, especially in land-tenure disputes about logging royalties.

Are such blanket negative characterizations productive, though? A worker at the local NGO, Solomon Islands Development Trust (SIDT), stated:

“[Some] communities see youths as demeaning and troublemakers [and] thus are not fit to make decisions on a community level [but we at SIDT have found that] their high energy levels make them effective agents in social change” (Lepping, cited in UNDP 2018, p.22).

The critical view of young people belies the fact that across all research sites they were critical both to constructing the water system and, typically, were the most active in terms of ongoing system operation and maintenance. In Dadala, for instance, the youth group “support the water committee with fundraisings [by collecting fish to sell]” (male WC Representative). In Kolosori, it was reported that the youth group and Sunday School children “...are the main people who help the water supply committee look after the system. When there is something wrong [...] the water committee use the young children to help” (female Youth Representative). Similarly, in Gounabusu, “...if there is a problem with the water supply due to a blockage at the dam or broken pipes [...] the young people in the village will fix the problem” (male Religious Leader). In Bareho, it is primarily two young men who are not members of the WC (one of whom is a “backslider”) who undertake the bulk of system repairs and maintenance. More examples could be given, but the point is that young people are the “hand of work” in maintaining the water system yet are largely excluded from formal WC membership.

Numerous commentators have complained that the government and CSOs have focused too much on urban economic youth programmes at the expense of rural areas, and have called for more inclusive youth representation in decision-making at village, provincial and national levels (e.g. UNDP, 2017). Given that six of the case-study villages previously had water committees that have collapsed, and in at least four of these cases the collapse was partially caused by the death of WC members or their becoming less active due to age or ill-health, highlighting the need for greater institutional longevity to ensure WC sustainability.

5.4 Zones/areas and tribes—alternative avenues for inclusive community-based water management?

Other than age and gender, most villages attempted to have relatively inclusive membership in terms of socio-cultural (tribal) and spatial representation. Village “zones” or areas were often used as spatial administrative groupings within a village, with nearby households working together on a

set task, such as church fundraising or community work (e.g. in Dadala, village clean-up activities are allocated by zones). In many villages, this spatial demarcation has its antecedents in the colonial era (e.g. Sumate, Hulavu), while in others it has been instigated by village leaders to assist outsiders better navigate and work with the whole community (e.g. Bareho). In some cases—such as Sumate and Hulavu—zones largely follow tribal affiliation (e.g. four tribes represented by four zones).

Like zones, tribal/familial groupings are often operationalized in collective action in regard to specific issues, such as house building, fundraising for marriage, assisting with school fees, etc. These smaller socio-cultural groupings can be quite effective. In Sumate, for example, the construction and funding of the Shamael Habu Primary village school was wholly led by members of the Kidapale tribe (zone 3). Importantly, tribe/familial groupings extend well beyond the physical confines of their village, offering an avenue for leveraging wider support through kin who are resident elsewhere (typically an urban centre).

There are numerous potential benefits of considering zone representation in CWM: there is already existing social cohesion and collective action at this micro-proximal level; there is greater potential for agency among individuals; and we observed that levels of water system service differ within a village, typically in alignment with zones/areas and their proximity to water sources. It is critical to recognize this heterogeneity and consider how zone representation shapes CWM outcomes and how it might address multiple forms of exclusion.

There was an effort, in many cases, to provide inclusive tribal and spatial representation on the village-wide water committees. For example, in Manakwai, the original WC group tried to include a representative from each of the tribes, but not everyone took up the offer (due to intra-village schisms regarding church affiliation and land disputes) and many had died, leaving only a narrow and non-representative group of members. In Hovi, members were basically drawn equally from all three tribes and across all four zones of the village. In Bareho, there were 12 tribes represented in the village and while not all are represented in the 18 positions on the WC, they are (albeit unequally) drawn from across all three demarcated village zones. In the newly formalized WC in Hulavu, members were drawn from only three of the four tribes and three of the four zones—there was no representation from zone 3 or the Haumbata tribe, and only one member from zone 4. Currently, 75% of the WC members in Hulavu were located in zone 1 (nearest the dam and storage tank and mainly made up of many members of the previous informal water management group). During initial research, zone 4 in Hulavu—which contains nearly a third of the village population—was not receiving any water due to a pipe breakage in the system.

Although a largely positive mechanism for social inclusion, zones and tribes can also be a means of exclusion. In Kolosori, there is a clear demarcation between what are considered the “higher class” and the “lower class” peoples, with households in zone 3 being the latter. This has consequences for WASH access and CWM. As one female respondent noted, *“people residing in zone 3 are always neglected when things like solar panels are distributed to the community, so they have decided not to join in any community work.”* Additionally, there are fewer tap stands in zone 3 than in the other zones, while many water committee executives have their own household tap stand. Such exclusion limits co-operation and collective action. In Manakwai, there are some similar divisions that have a basis in intra-community religious differences but are materialized through inequitable water services. Households residing in the “highlands” (zones 3 and 5) are members of the original (and now minority) church and have fewer tap stands than the rest of the village as well as low water pressure. The households in this area were initially not included in the government water project but the chair of the WC decided to use some of the old water system pipes to extend the service to this part of the village to, in his words,

act as a form of “insurance” and “security.” This move was informed by the vandalization of the previous system by disgruntled and excluded community members.

Rural villages in Solomon Islands are dynamic entities—most date from the colonial/missionary era and are not the “traditional” artefact that many outsiders take them to be (cf. Stasch, 2010). Moreover, the practice of several tribes residing on the land of one tribe has little socio-historical continuity. Combined with a growing population and inevitable village expansion, this all poses collective action challenges for CWM. Operating at smaller and differently aligned levels—such as zones and/or tribes—may provide an alternative and more effective medium for water management than village-wide committees alone. Indeed, in Hulavu, it was suggested that “*each zone should have a water committee to look after the water, so people use it wisely.*” In neighbouring Lambi village, disgruntled villagers in zone 2 have recently formed their own water committee in view of the weak actions of the village-wide committee.

Working at smaller and/or differently aligned levels, perhaps of tribe or zone, may have other advantages. At the village-wide level, senior men dominate decision-making processes (e.g. Dyer, 2018; UNICEF, 2018). Women can and do have some influence on community decision-making processes through “indirect” or “passive” means, via their husbands, brothers, and sons, but they also have different degrees of agency at different levels (e.g. village-wide, zone/area, and household). At a tribal or zone level, women are surrounded by extended family members and typically have more respect and “right” to have their voice heard than they do at the village-wide level. It is no coincidence that in Sumate it was a formidable (older) retired female teacher from zone 3 who instigated, managed, and led the successful construction and operation of the school—with no senior male, CSO, or government support. Although this example lies beyond the domain of WASH, it may offer insights into how CWM might gain more traction, and facilitate greater social inclusion, by thinking beyond the ideal of the homogenous “village” level alone.

6. CONCLUSIONS AND RECOMMENDATIONS

The case studies this article has explored raise numerous challenges but also point towards opportunities. Our examination of social inclusion and CWM in Solomon Islands echoes findings from other parts of the world that underscore that water management is inherently political and affected by broader community dynamics, social relations, and inequalities (e.g. Cleaver, 2012; Mosse, 1997; Whaley & Cleaver, 2017). It is critically important to understand the contextual specifics that inform the make-up of CWM groups. To fulfil SDG6, especially 6B—“support and strengthen greater community participation in water and sanitation management”—social inclusion needs to be appropriately contextualized. In this short conclusion we reiterate our key findings and offer some recommendations for government (especially RWASH) and CSOs engaged in implementing rural water supply in Solomon Islands. These recommendations are also largely relevant to neighbouring Vanuatu and Fiji.

1. Women are part of almost all village water-use activities and have influence and authority in how water is managed at the household level. There is a need for further consideration of how their knowledge can be harnessed to improve women’s overall involvement in community water management. Women in active roles in water committees, such as managing demand or assisting with maintenance, could improve the overall management of village water systems.
2. Young people are often the “heavy lifters” in maintaining water systems, yet they are generally excluded from formal membership of water committees, and rarely have a voice in management decisions. Greater representation of young people is needed on WCs to

improve their buy-in to looking after the water systems. More youth participation in WCs would also strengthen the longevity and resilience of these committees as they are typically made up of aging men.

3. Villages often use zones or areas within a village as spatial administrative groupings, with households in the same area working together on set tasks. Working at smaller levels than the whole village—such as zones/areas or tribes—may provide a more effective mechanism for triggering and sustaining water management activities. Importantly, working with small levels of existing social cohesion is more likely to overcome multiple forms of exclusion.
4. Many WC executives hold other significant roles in their village. In line with recommendation 2, sharing executive roles more widely among community members would allow for greater diversity in age and gender in WCs. This would reduce the pressure on aging, busy committee members, allow for greater intergenerational transfer of skills and knowledge, and encourage engagement by diverse community members.

Social inclusion must be suitably contextualized in order to achieve the aspiration of strengthening greater community participation in water and sanitation management (SDG6). Greater inclusion in CWM groups in Melanesia is about more than simply ensuring greater participation of women—attention to age, multiple responsibilities, and socio-cultural and spatial representation are also important considerations.

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ETHICS STATEMENT

All required ethics documentation was completed and approved prior to commencement of data collection.⁴ Permission was also sought from community leaders. Informed consent was obtained from all respondents prior to participation. All information provided by respondents was treated as strictly confidential, and all data were deidentified.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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