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sustainable environment, education & development

Interim Report

Project Fatsaka (Phase II): Increasing long-term access to safe drinking-water though community-led water source management in Mahatalaky

Activities conducted from April - October 2017

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SEED Madagascar

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1. Summary

Over 65% of Madagascar's rural population lacks access to safe drinking water, often forcing households to consume unsafe water from rivers, ponds and rice paddies (WHO 2015). With over 95% of rural inhabitants living in areas where widespread open defecation is practiced, unimproved water sources pose a severe risk of waterborne disease (Ryan 2014). The burdens of associated high mortality and morbidity rates also result in devastating socioeconomic impacts. By impeding education and impairing productive livelihood activities, the lack of access to safe drinking-water and poor drinking-water practices further entraps rural communities, such as those in the remote Mahatalaky Rural Commune (MRC) in the southeast Anosy Region, into vicious cycles of poverty.

In response, Project Fatsaka has innovatively adopted and adapted a Community-led Total Sanitation (CLTS) approach to motivate communities to use their improved water sources. Through community-led learning and technical training, Fatsaka seeks to improve drinking-water practices and build community capacity to manage and maintain their wells independently. Since the current phase (Phase II) commenced, CLTS-inspired triggering sessions have been conducted in 15 communities across the MRC, facilitating the development of action plans and well committees for each individual well. SEED has also facilitated health education workshops on the implications of poor water, sanitation and hygiene (WASH) practices. In addition, the project has focused on building stronger ties with governmental institutions by strengthening the capacity of the local Commune and encouraging them to assume their responsibility in rural water resource management. Monitoring, Evaluation and Learning (MEL) of the initial 13 communities from Phase I allowed the team to further develop and adapt project delivery methods, ensuring valuable lessons informed Phase II to achieve long-term sustainable access to safe drinking-water in the MRC.

The recent midterm review highlighted the positive impact the project has had so far. Shock tactics have sensitised communities to the importance of safe water source consumption; motivating them to form well committees and financially contribute to well repairs. Since baseline there has been a 17 percentage point increase in households using wells as their Primary Water Source (PWS) and 14 out of 15 communities have already taken tangible steps towards implementing their action plans. Five villages had an impressive 100% of households using a well as their PWS, up from an average of 65% of these same villages at baseline. SEED's activities to engage the authorities have been particularly successful, including the MRC's allocation of scarce financial and human resources to water infrastructure management.

Over the next reporting period, Fatsaka aims to build on these results to further increase motivation amongst community members to choose safe drinking-water, and ensure the continued implementation of community action plans.

2. Key Terms

2.1. Key terms and definitions

Key term	Definition for the purpose of this report
Functional well	A well that is sealed (i.e. concrete structure intact) and water can be drawn from the hand pump.
Primary water source (PWS)	The main source of water of a household for drinking and cooking.
Utilisation rate	The percentage of the sample population using the water source of focus (i.e. the well, a river source, etc).
Sole/exclusive use	Use of a specific water source for a specific function; for example, drinking and cooking water is solely taken from a well, or rivers may be the exclusive site of bathing water.
Improved water source	A water source that through its construction is likely to be protected from external contaminants particularly faecal contamination; examples include piped water into dwellings, protected springs, rainwater collection and protected dug wells (i.e. a lined with concrete and fitted with a secure water lifting device such as a hand pump). All Project Fatsaka wells are protected dug wells.

2.2. Drinking water quality and risk

The WHO (1997) guidelines classify the following thermotolerant (faecal) coliforms or E. coli counts in water supplies as increasing magnitudes of risk:

CFU per 100ml	Level of Risk	Category & Colour Code
0	None: in conformity with WHO guidelines	A (blue)
1-10	Low risk	B (green)
11-100	Intermediate risk	C (yellow)
101-1000	High risk	D (orange)
>1000	Very high risk	E (red)

3. Activity Detail

3.1. Initial baseline assessment

Prior to project implementation, a thorough baseline assessment identified community needs, determined well conditions and evaluated drinking-water behaviours in 15 target communities. Baseline surveys were developed collaboratively by the project's International WASH Specialist and Malagasy CLOs, ensuring the local context was prioritised in adapting international best practice recommendations.

The baseline assessment verified the precarious conditions of well infrastructure and the barriers to accessing improved water sources. Seven out of the 15 wells were not functional; these communities resorted to rivers and other surface waters for drinking and cooking purposes. Out of the eight functioning wells, only two did not require any repairs. Seven wells were situated over 20 metres from a potential contaminant, such as zebu, human faeces or litter. Unsealed wells are particularly susceptible as rainwater runoff can seep into a well causing contamination. Additionally, there were no functional wells that were both located over 20 metres from external contaminants and also did not have cracks in the concrete platform. All of the 15 target wells were therefore found to be at risk of contamination.

Water testing yielded alarming results with faecal contamination present in three different states of wells tested; 1) one functional sealed well, 2) one broken well that had the concrete slab removed at point of use to draw water from a roped-bucket, and 3) one broken well that was permanently open, with water drawn with a roped-bucket. Furthermore, the baseline analysis confirmed the prevalence of poor drinking-water practices and found that access to a functional well did not necessarily transfer to high levels of well usage. Only 59% of all households (HHs) were using a well and almost half of the HHs lacked motivation to walk further than five minutes (one-way) to a safe drinking-water source; indeed, many HHs reported to prefer surface drinking-water due to closer proximity to the home. Additionally, only 19% of HHs used covered containers to store drinking-water and just a quarter treated their water prior to consumption, raising concerns over the lack of safe water collection and storage.

Despite demonstrating an understanding of the health implications of drinking contaminated water, beneficiaries expressed low levels of motivation to engage in safer drinking-water practices. Indeed, in accordance to *the Drinking Water Practice* Levels (please refer to Appendix 1) 59% of the population sampled had unsafe drinking-water practices, highlighting the need for holistic community capacity building that focuses on motivating, educating and training communities.

Left: With the well in her community broken, this woman collects water from the river.
Right: CLO conducts HH survey with a young mother in Tsialanga.

3.2. Community triggering

Following its successful application in previous SEED projects, Project Fatsaka adopted and adapted a CLTS approach. Inherent to the CLTS methodology is the use of graphic demonstrations designed to shock and shame communities, propelling them to take immediate action to end open defecation and improve sanitation behaviours. Many of the prescribed techniques and activities used in CLTS were easily transferrable to the context of water consumption, allowing the team to sensitise communities to the severity of drinking-water behaviours and motivating them to assume responsibility over their wells.

Prior to the CLTS triggering sessions, CLOs organised meetings with village chiefs, elders and opinion leaders to gain their support and advice, whilst also building momentum for the project. After motivating HHs to attend sessions, CLOs conducted CLTS-inspired triggering techniques. Participants were encouraged to map their villages and water sources and join transect walks; identifying water points, open defecation sites and other potential sources of contamination. The CLOs demonstrated the movement of faecal matter, emphasising the link to diarrhoeal disease. Effective shock tactics piloted in Phase I were conducted during each session to highlight the invisible dangers of unsafe water collection, consumption and storage. For example, amongst other methods, the *shit in a glass* technique – which involves dipping a strand of hair in excrement on the ground and then into a glass of water – demonstrated the dubious quality of seemingly clean water and the importance of accessing improved water sources.

Following the triggering sessions, CLOs encouraged community-led discussions to reinforce community members' aversion towards their own drinking-water and sanitation practices. During the discussions, communities also emphasised the importance of regaining responsibility over their community wells, enabling SEED to clarify its role as an independent advisor, providing only support and training. Reiterating communities' ownership of their wells helped to instil a sense of responsibility amongst community members, reinforcing confidence in their own abilities to take collective action to ensure access to safe drinking-water.

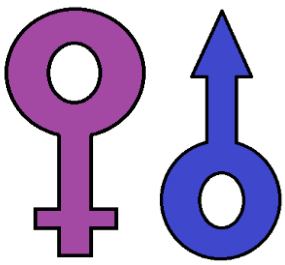
Left: A woman places a leaf that represents a water point on a drawn-out map of her community. Right: a CLO gathers the community of Antavibe to demonstrate the 'shit in a glass' technique.

3.3. Well committees and action plans

Following the CLTS triggering sessions, CLOs revisited the communities to facilitate discussions around the formation of achievable, community-led action plans for each village. Community members gathered together to discuss desired changes and determine the necessary steps to repair and maintain their wells in a collective effort. Participants were encouraged to list priorities and develop plans that outlined the necessary procedures for future well management and maintenance. Action plans typically included well site cleaning schedules, the formalisation of community agreements *(dina)* for well use and an outline of a suitable financial system to meet any required reparation needs, now and in the future.

Participatory meetings encouraged strongly motivated community members to form well committees. Community members collectively negotiated the well committees' responsibilities and clarified structures on how to oversee the implementation of the action plans, delegate tasks and enforce the rules of a *dina*. The formation of well committees is a crucial step to ensure that communities have the capacity to manage and maintain their wells without external support from SEED in the future. Furthermore, community-led management approaches deepen the beneficiaries' sense of ownership and responsibility over the wells. In the coming months SEED will provide well committees with technical and financial training to prepare members to lead well management and maintenance tasks.

During the formation of well committees, SEED placed a particular focus on the participation of women. The midterm assessment found that 98% of the primary water collectors in the 15 target communities were female (please refer to *3.2* for more on demographics). As women play a significant role in the decision-making process surrounding drinking-water practices, Fatsaka has encouraged women's active participation. Unlike Phase I, on the advice of the Malagasy team, Phase II has not focused on establishing separate women's associations and women-only meetings. This is due to cultural norms regarding engagement with women in community discussions. During these discussions, men often answer questions on behalf of women. To ensure women's voices are heard, CLOs listen to the men, but then reframe their questions for the women, with subtleties in CLOs body language and tone demonstrating their openness to women's engagement whilst ensuring their participation is culturally accessible. This has proved successful, with 40% of committee members being female and all of the established well committees included at least one female member.



2 out of 5 *water committee members are* ***female***

3.4. Phase I pilot follow up

SEED's CLOs conducted follow-up visits in 11 of the 13 wells from the pilot phase in order to monitor motivation levels and current well management structures since the project's completion in May 2016. Ten of these 11 wells were in use, and the sample showed that overall 83% of HHs using a well as their PWS. Over one-third (39%) of HHs were paying contributions for well maintenance, and only 5% were unaware of existing *dina* for well use. Unfortunately, with only two CLOs working in the geographically dispersed 15 communities of Phase II, the project currently lacks the human resources to undergo extensive monitoring and follow up support of all 13 Phase I wells.

The midterm review has highlighted that further human resources are needed to maximise the contribution of the project's innovative approach to national and international learning, particularly by conducting rigorous MEL with Phase I communities. Additionally, following the recent outbreak of bubonic and pneumonic plague, SEED has reviewed its security guidelines and no longer permits staff to travel on *taxi-brousse* – a form of cheap local transport. Staff must now travel by motorbike or 4x4, which is significantly more expensive. To enable this, SEED is in the process of mobilising extra funds for an additional CLO to conduct these activities, ensuring valuable lessons from Phase I are transferred and addressed in Phase II.

3.5. Commune engagement


Left: Commune management of wells will be strengthened, ensuring improved water for all
Right: A child enjoys clean water before the dina *prevents children using well*

Significant progress has been achieved on building stronger ties with local institutions. SEED has conducted monthly meetings with the Commune and the Mayor of Mahatalaky to clarify project objectives and mobilise cooperation on behalf of local authorities. The Commune has shown great interest in collaboration, evidenced by its recent agreement to implement the Water Code (*Le Code de l'Eau)*; a national law that ensures that water infrastructures are maintained and sanitary.

Prior to this phase of Project Fatsaka, the Commune were unaware of the existence of the Water Code or their legal requirement to fulfil their duties it outlines, highlighting the dearth of communication and support offered by national government bodies to those operating in regional and commune-level settings. This includes a lack of capacity building or policy recommendations at the top-level of government for the commune level to actively implement regulations regarding water infrastructure maintenance. SEED will continue to work with the MRC to bridge this gap in law, by providing capacity building.

When SEED presented the issue of water point maintenance in the MRC to the relevant local authorities, they immediately sought to resume responsibility to adhere to the Water Code. Through regular meetings, SEED highlighted that communities will need support and guidance further into the future. The Mayor has designated two officials to conduct regular follow-up sessions with the Fatsaka team and monitor community progress towards the fulfilment of action plans. SEED will provide ongoing training and capacity building of these two Commune Agents to ensure their capacity to survey and assist communities with well reparation and maintenance tasks beyond project finish. This includes specific training, both together and individually, but also on-the-job training in the field throughout the remainder of the project. By engaging with the Commune, Fatsaka strives to guarantee governmental support for all target communities and increase sustainable access to an improved water source.

Community members clean the area around the Maravato well in a collective effort.

3.6. Educational focus groups

It is clear that remoteness, isolation and insufficient access to education encumber many community members in fully comprehending the advantages of safe water consumption. At midterm, focus group sessions showed that whilst most community members were able to identify that unsafe water causes illness, very few were able to describe what these illnesses would be and how to prevent them. Very few participants could identify microbes as the cause of diarrhoea and other waterborne infections from consuming unsafe sources. A fundamental lack of connection between preventative methods and positive health outcomes was apparent.

To mitigate this issue, SEED then held brief educational sessions. Adopting a Socratic method (Paul and Elder, 2007) to encourage critical thinking, the team stimulated community members to reflect on the economic benefits of improved drinking-water practices. Questions motivated community members to consider their current habits and independently come to conclusions about the cost of preventative measures in comparison to treating illness related to unsafe water consumption.

Topics included, but were not limited to: investing in sealed jerry-cans versus open buckets for water storage; purchasing *Sur Eau* (a local hypochlorite solution for water treatment) or boiling water to treat it versus consuming untreated water; and financially contributing to well repairs versus seeking curative treatments for easily preventable waterborne diseases. In addition, SEED facilitated discussion around different water treatment methods and demonstrated the use of *Sur Eau.* CLOs discussed the availability of *Sur Eau* within the communities and identified potential vendors to improve access to treatment solutions. Finally, community members were encouraged to act as 'agents of change' by spreading insights of the CLTS triggering and educational session to those who were unable to attend the meetings.

Education sessions will remain a crucial component of ongoing Fatsaka engagement, including through School WASH lessons commencing in February 2018, Well Committee trainings and community meetings. Additional monitoring will ensure delivery is tailored for each community if knowledge-understanding connections are not improved.

4. Monitoring, Evaluation and Learning (MEL)

The Fatsaka objective to create a scalable model that increases the use and community-led maintenance of wells requires rigorous MEL in order to document and evaluate the project processes and progress. In addition, ongoing MEL has enabled the project to be flexible and responsive to emerging needs and developments in context, as per the example of educational sessions above in section *3.6*.

The project logic summary, which informed the design of MEL, is outlined below.

Objective	Activities	Outcome	Outcome indicator
To increase access to clean drinking water by working alongside 28 rural communities to develop a sustainable community management structure and build local community and regional official capacity to manage and maintain protected water sources	Water source mapping and commune-level engagement	Increased motivation, ability and action amongst community members to use and maintain protected wells	80% of communities are monitoring their well without any external influence or intervention
	Fatsaka pilot community follow-up		70% of wells are repaired within 6 weeks of breaking
	Community identification and initial meetings		85% of committees are implementing a well management plan
	Community triggering and action planning	Improved water quality in all 15 community wells	75% reduction of faecal coliforms/100ml well water amongst 80% of communities
	Well assessment and repairs		
	Well committee establishment, training and support	Broader awareness of local well conditions and increased capacity of commune authorities to carry out water source management duties	Commune authorities aware of maintenance and management issues at 85% of wells
	IEC materials distributed and cross-community learning visits	Increased long-term sustainability of community wells leading to increased sanitation and reduction in illnesses	65% of communities require no well-related assistance
	WASH education in schools		15% reduction of cases of diarrhoeal disease across all communities

4.1. Methodology

To measure progress towards key project indicators, baseline and midterm (6-month) assessments were conducted. These were comprised of surveys with HHs, community health workers and local leaders, alongside focus groups at the community level, observation of participant water storage and treatment practices and well site observations and water testing.

All HH surveys completed at baseline (*n*=135) and midterm (*n*=90) were conducted with the primary water collector of that HH. If the primary water collector could not be located, the survey was not completed, and another HH was selected in its place. HHs selected to participate in the surveys were chosen through a stratification methodology; purposive sampling was used and HHs stratified into *Close* (<5 minutes' walk from the well), *Medium* (5-9 minutes' walk from the well), and *Far-away* (>9 minutes' walk from the well*)* groups, with significance to their location to their well.

Paper-based baseline surveys were conducted by trained enumerators which were translated onsite, enabling further questioning led by the International WASH Specialist. Midterm surveys were comprised of multiple-choice questions conducted through Open Data Kit (ODK) mobile surveys. Both baseline and midterm surveys aimed to evaluate the participants' levels of knowledge and motivation with regards to drinking water practices, and at midterm, measure potential changes in behaviour and attitudes. To reduce subject bias during questioning of drinking-water practices, participants were not presented with multiple-choice options, but rather the enumerator was trained to select only those responses the participant listed.

In addition, focus groups were conducted at midterm to explore the challenges that communities faced in following advice from the CLOs throughout the project. As with baseline surveying, onsite interpretation allowed the International WASH Specialist to actively participate in all focus group sessions, allowing both he and the CLOs to further explore identified themes if required.

4.2. Participant demographics

Almost all the participants who completed midterm surveys (98%) were female and over half (62%) were under the age of 30. The mean age represented was 28.2 years and the mode was 20. Less than 15% were the head of their HH (12%). As the primary water collectors of their HHs, this group of beneficiaries play a key role in influencing the decision-making process for HH drinking-water practices. Most participants had low levels of education; more than half had received no formal education at all and only 10% had received above primary school level.

4.3. Diarrhoeal Incidence

One of the key indicators selected to measure the impact of the project was diarrhoeal incidence in children under five. Of the HHs sampled at project month six, 72% had a child under

A CLO leads a focus group while the International WASH Specialist takes notes in Mananra II

the age of five (69% at baseline). Ongoing monitoring of Fatsaka Phase II has afforded SEED valuable learning regarding the use of diarrhoeal incidence as an indicator in this cultural setting. Indeed, it has proven difficult to capture the true incidence rates; cultural inappropriateness of addressing diarrhoea and low levels of understanding what defines diarrhoea have likely led to widespread underreporting and recall bias in HH surveys. In

addition, due to the widespread poverty and isolation of people living in the MRC, the target population are often unable to travel to the local hospital and receive treatment, hence hospital records show low levels of diarrhoeal incidence. From the period between January and April 2017, the MRC health centre – servicing more than 10,000 people – treated a mean of 27.5 children under age five and 22.25 people over age five for diarrhoea. These low figures were further supported by focus group discussions which highlighted a general reluctance to attend formal health services due to proximity and cost. Whilst the indicator will remain, the specific cultural challenges regarding discussion of diarrhoeal incidence mean self-reported data on this topic cannot be interpreted as a wholly accurate measure of progress.

In attempt to explore differences in reporting diarrhoeal incidence, frequency of diarrhoea amongst children under five was discussed in focus groups at midterm. Because focus groups allowed for more context-driven discussion, in a more comfortable setting than a one-to-one survey and with the benefit of community members able to relate to the experiences of others, the Malagasy team thought it was worth trying to gain qualitative data on diarrhoeal incidence. Other discussion included the effects of diarrhoea, the cost of treating it and water treatment methods. Similar to baseline surveying, these sessions were led by the Malagasy CLOs and real-time interpretation allowed the International WASH Specialist to take notes and take an active role in moderating and directing the discussion. Real-time interpretation is a research tool whereby a relevant specialist is able to use an interpreter to take an active role in focus groups without disrupting the flow of discussions, but ensure meaningful exploration during discussion (Barbour, 2013; Quintanilha et. Al, 2015). This alternative methodology heard all the communities claim that there had been a decrease in diarrhoeal disease since their community well was constructed. Furthermore, three communities stated that there has been a reduction since Project Fatsaka had begun working with them 6-months previously.

4.4. Well Functionality

Baseline assessment included well site observations to measure changes in well conditions and utilisation as a PWS. Throughout the project, regular monitoring of well sites will be ongoing in order to assess needs of each community.

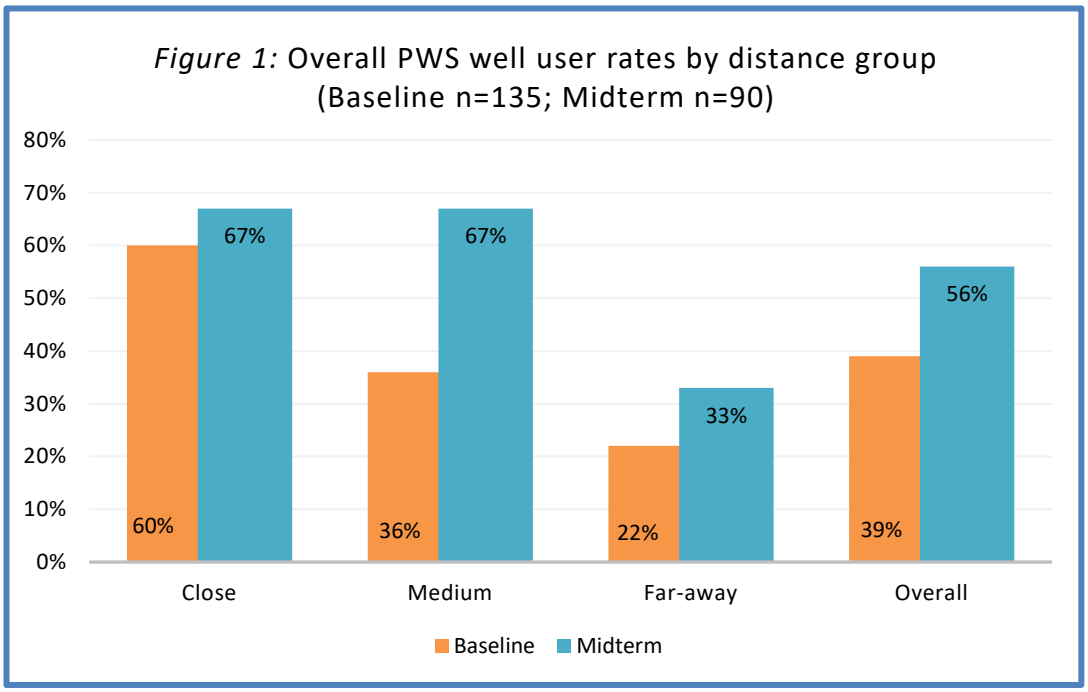
Wells are assessed on their functionality, and their risk from external contaminants, such as OD sites and cracks in the concrete structure. By project finish, Fatsaka strives to ensure 15 wells are functional, clean, have a fence in place that stops animals from accessing the well, and is free from risk of external contaminants. Progress towards reducing the risk of wells to external contaminants will be conducted following further training on maintenance and reparation activities.

Since baseline, the functionality status of two wells has changed. Replacement of the inner valve at Mananara Centre well has led to its full repair, and hence a functional well at midterm. On the contrary, the school well in Tsagnoriha Centre has fallen into disrepair as the inner tube cracked due to over forceful hand pumping. As such, at midterm, as at baseline, eight out of the 15 wells were functioning.

4.5. Well Use

*At mid-term, all eight functional wells were being used and had an overall user rate of **88%** compared to **60%** at baseline*

Improved water sources, such as protected dug wells, are much less likely be contaminated by pollutants including faeces than unprotected sources. As such, using wells as a PWS minimises risk of contracting waterborne diseases. HH surveys conducted at midterm found that more than half (56%) of sampled HHs reported using wells as their PWS, with the remaining 44% comprised of river-water (27.5%) and other surfaces of water including non-moving smaller bodies of water, such as puddles and rice paddies (16.5%). This shows a 17 percentage point increase of well water as a PWS in the overall sample population in just six months, with the largest increase seen in *Medium* HHs (see *Figure 1*, below).



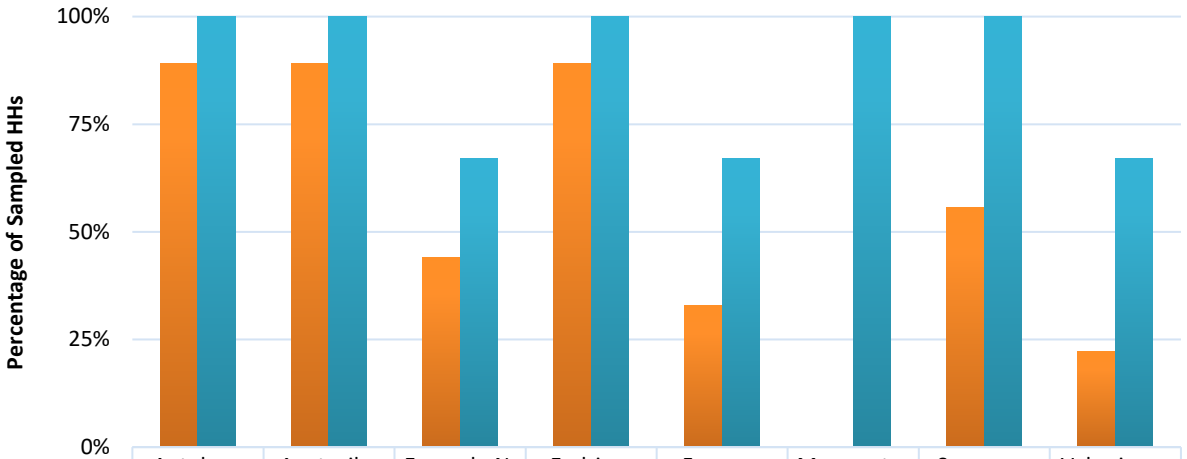
At baseline, just 16% of HHs used wells exclusively for cooking and drinking-water. However, at midterm this rose to 23% of the total sampled population. Thus, the midterm survey indicated that since baseline there has been a seven percentage point increase in wells being used as the sole water source for all cooking and drinking purposes.

At baseline, eight wells were functional and seven were non-functional. Of the non-functional wells, two with broken handpumps had been cracked open and were being used by the communities at both baseline and midterm. The user rate for these wells had increased by 12% with an overall user rate of 67% by midterm.

***100%** of Close and Medium HHs were **using a well as their PWS** at midterm when a functioning well was available*

Similar to baseline, less than 20% of well users claimed proximity was a factor in use of wells, despite a clear association between distance and well use (p-value =0.01). Surveys conducted at midterm found that 100% of *Close* and *Medium* HHs were using a well as their PWS when a functioning well was available in their community, compared to 87% and 50% respectively at baseline. An increase in well use as a PWS of *Far-away* users also grew from 33% at baseline to 63% at midterm for communities with a functioning well. Figure 2. below displays the change in all HHs using a well as a PWS by villages with a functioning well.

Figure 2: All HHs using a well as their PWS when functioning well avaliable



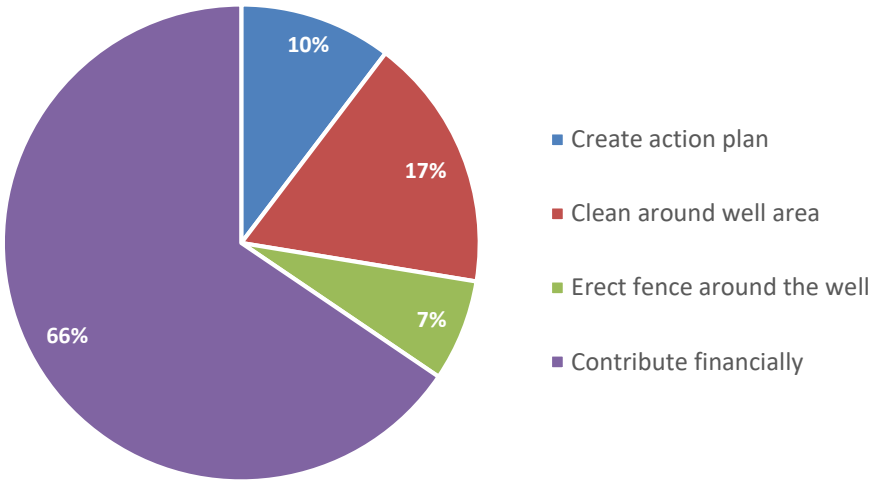
	Antohov.	Anatavibe	Emanah. N.	Endriasy	Fenasoa	Man centre	Soananga	Vaharinoro
Baseline	89%	89%	44%	89%	33%	0%	56%	22%
Midterm	100%	100%	67%	100%	67%	100%	100%	67%

4.6. CLTS Inspired Triggering

All** participants who attended a **triggering session** stated that they found the session **"interesting"

15 triggering sessions were conducted, with over 90% of attendees claiming that the session made them think about their current drinking-water practices. Over two-thirds (69%) of participants stated the triggering motivated them to want to change their drinking-water practices; almost half (47%) claimed to actually do so. Furthermore, 69% of those that attended the session stated that they have since actively contributed to the improvement of their community well.

Figure 3: Popularity of tasks contributing to Community Action Plans, by HH



Results from focus group discussions suggested that the most shocking aspects of the triggering sessions were that of the *shit in a glass* technique, the transect walk and the explanation of drinking bathing water (please refer to *2.2 Project Activities* for further explanation). Focus group participants claimed that they were "particularly touched" by the demonstration of the *shit in a glass* technique because they found it easier to conceptualise how faecal matter can be present in bodies of water even if the water looks, smells and tastes clean.

*Almost **half** of all the respondents of the midterm surveys stated that they had noticed an **increase in well users** since the beginning of **Project Fatsaka***

In gauging overall community responses to the project, community observation of well use was overwhelmingly supportive of Fatsaka, with 45% of the HHs surveys noticing an increase of well use from project commencement. This was compared to just 6% who claimed there had been a decrease. At midterm, 84% knew about a well committee in their community; up from 64% who knew who looked after the well at baseline. 83% of the sampled population stated that the water committee in their community had taken action since Fatsaka commenced.

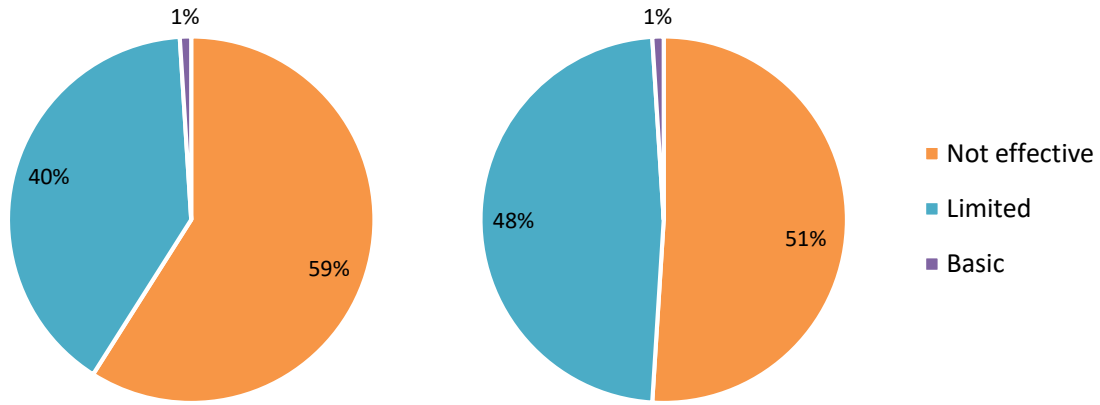
4.7. Drinking-Water Practices

*Well users were **1.5 times** more likely to cover stored **drinking-water**, **protecting** it from dirt and other **contaminants***

To assess drinking-water practices SEED used household surveys and participant observation, and measured these using the drinking-water management practice level ladder developed by the IRC WASH (2016). This tool was taken and modified by the IRC WASH Cost Programme (McIntre, et al., 2014) and the SSH4A programme (2016). The practice level ladder ranks HH drinking-water practices into one of four levels: *Not Effective* (high risk to human health),

Limited (moderate risk), *Basic* (low risk) and *Improved* (no risk) (please refer to Appendix 1 for definitions).

Figure 4: Changes to drinking water practices as per WASH ladder
Baseline: n=135; Midterm: n=90



The encouraging results in *Figure 4* highlight the positive behaviour changes in beneficiary drinking-water practices. These outcomes are especially promising as the data was collected before educational sessions commenced. The changes indicate that the triggering alone motivated a proportion of the target population to independently take initiative to change their drinking-water practices; it is thus reasonable to expect a much more significant increase in positive drinking-water practices following the educational and training sessions.

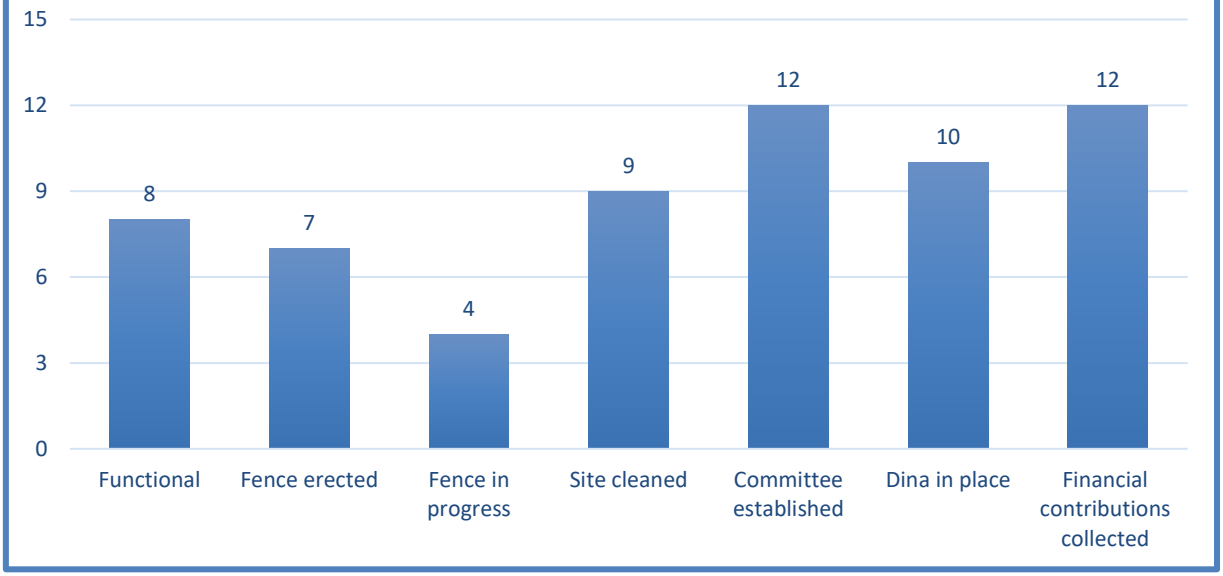
4.8. Community Action Plans

Following triggering, SEED supported each community to establish their own action plan with steps to improve their well. Action plans were developed by the community and as such were contextual to their own priorities and specific needs, but typically included well site cleaning schedules, developing and formalising community *dina* for well use and outlining a suitable financial system to meet well maintenance and reparation needs. By midterm, all but one community had taken the necessary steps to achieve their action plan; *Figure 3* shows the results achieved to date.

***All but one community** had taken steps **in achieving their action plans** by midterm review*

While communities that had a functioning well were 2.2 times more likely to have erected a fence, others made progress, too. Out of the four wells that had not commenced building a fence, two had cleaned the well site, two had collected financial contributions and three out of the four wells were in use.

Figure 5: No. of wells achieved action plan targets (n=15)



4.9. Water Testing

Water tests for presence of thermotolerant (faecal) coliforms were conducted to assess drinking-water quality for all but one of the well sites, and at two surface water sources. Marovato well could not be tested as there was no water present due to recent droughts in the area. SEED's water-quality metrics are aligned with the WHO guidelines for drinking-water quality (1997; see *2. Key Terms*). Two samples were tested from each source to measure thermotolerant coliforms (TtC), an indicator for faecal contamination.

A Portable DelAgua testing kit tested for TtC through membrane filtration methodology. Once filtered, samples were incubated for 16-18 hours with membrane lauryl media at 44.5°C (+/- 0.5°C). TtC colonies present could be visually counted and are expressed as colony forming units per 100ml (CFU/100ml), results are shown in *Figure 4 below*.

At midterm, one-third of all the wells tested had no presence of faecal coliform and thus, according to WHO guidelines, posed no risk to health. The remaining nine wells had faecal contamination, of which six had been classified as being an intermediate risk. In addition, an alarmingly high level of faecal contamination was found in a river located in one of the target communities (1680CFU/100ml), thus posing 'very high' risk. During focus groups at midterm, participants stated that whilst the number of people using this river for drinking was decreasing, it was still in use. The alternative option for this community was a well that, whilst still contaminated by faeces, only posed a 'low risk' (7CFU/100ml).

With further community action, Fatsaka strives to ensure that no one uses high-risk drinking sources, but rather use their well. In the following months the project will facilitate technical training, well repairs and the treatment of wells, aspiring to reduce the number of CFU/100ml in each well to zero.

Figure 6: Midterm summary of well status, including data for two surface water controls. Please note there is no data for Marovato well as it is dry.

Location	Functioning	Fence Status	Foul Odour[1.]	Turbidity (NTU)[2.]	Thermotollerant coliforms (CFU/ 100mL)	Level of Risk
Androtsy well	No; well head removed	In progress	Yes	5	18	Intermediate
Ananalava well	No	In progress	No	5	8	Low
Emaharena well	Yes	Yes	No	5	1	Low
Fenosoa well	Yes	Yes	No	5	1	Low
Soananga well	Yes; but cracks in concrete platform	Yes	No	5	7	Intermediate
Vaharinoro (School well)	Yes	Yes	No	5	0	None
Antavibe well	Yes	In progress	No	5	0	None
Antahovary well	Yes	In progress	No	5	0	None
Endriasy well	Yes	Yes	No	5	0	None
Mananara Centre well	Yes	No	No	5	0	None
Tsagnoriha Centre (School well)	No	Yes	No	5	12	Intermediate
Ankanzomasy I well	No; well cracked open for use	Yes	No	5	83	Intermediate
Ankanzomasy II well	No; well cracked open for use	No	No	5	19	Intermediate
Esiasia well	No; well head removed open, well water risen	No	Yes	5	96	Intermediate
Marovato well	No	No	-	-	-	-
Surface water - Marovato	-	-	No	-	10	Low
Soananga river	N/A	-	No	10	1680	Very High

[1.] Foul odour is an indicator of algae or bacteria present in the water source.

[2.] Turbidity is measuring the level of transparency of a water sample due to the presence of suspended particulates.

Case Studies

Pela; *President of temporary water committee - Mananara Centre Village*

Pela has been passionate about using the well since its installation in 2004. After a cholera outbreak devastated her village in 1999, killing adults and children alike, Pela decided to make clean water her priority.

*"**So many people died** because they used the dirty river water"*

Alongside other motivated individuals Pela decided to form a well-committee, but without any training, did not have the skills to effectively manage and maintain the well.

*"I am **happy** to be working with **SEED** on Project Fatsaka, I want to motivate the rest of the community to use the well. The **well water is clean**, and I want to keep it that way"*

Baseline results found that none of the sampled population at Pela's village were using the well. After just six-months of working alongside project Fatsaka, all of the sample population were using the well. In the coming months, SEED will work alongside Pela and the other well committee members so that they the skills needed to manage and maintain their well effectively.

Claudine*; Community Health Worker - Beandry Village*

As the local health worker in Beandry Village, Claudine strives to improve community health and supports all of SEED's work.

*"Since SEED began working here **everyone** in the village is now using the **well**."*

Midterm surveys found a 100% of the sampled population were using the well.

*"There has been **no diarrhoea** in the village since, but there is a current epidemic in a neighbouring village. I have seen **three people already** today with diarrhoea."*

Claudine has decided to become a member of the newly formed well committee as the Beandry Well Committee Treasurer. She desires to create a healthier Soananga Village and eradicate diarrhoea.

Mbola, *Vaharinoro Village*

Meet Mbola; he is 14 months old and has four brothers and sisters. When he gets really sick from diarrhoea, his mum and dad have no choice but to take him to the local hospital. To get there and seek treatment is a cost that his family simply cannot afford. Before the Fatsaka educational session, Mbola's mother Divina did not realise that drinking clean water could prevent diarrhoeal disease.

To make sure that Mbola stays healthy, his mother said she wants to always boil water.

*"It only takes **5-minutes to boil water**, but it takes days to go to the local hospital, I know what I will do from now on –*
***Thank you SEED**"*

5. Conclusion and Future Action

The most noteworthy success of Project Fatsaka to date is the high level of commitment from communities towards improving their drinking-water practices. CLTS methods appear to have influenced many communities, who reported great interest in the triggering sessions and have taken action to re-assume responsibility over their wells. Communities have demonstrated great mobilisation efforts to renovate their well sites and offer financial contributions, despite the majority of families living in severely impoverished conditions. The high levels of participation, mobilisation and active engagement clearly indicate the communities' commitments to project outcomes. Engagement efforts with the Commune and the Mayor of Mahatalaky have also proven to be highly effective. Local authorities have affirmed their responsibilities and demonstrated increased collaboration with SEED and the target communities to ensure that wells are maintained and managed effectively.

In the coming months, SEED will support the development and execution of community action plans, assist with the creation of *dinas* and deliver technical training on well maintenance, management and reparation. In addition, SEED's construction team will assist well committees to carry out essential well repairs. Monthly monitoring visits will offer support and advice to well committees on how to overcome challenges as they carry out their action plans.

To ensure long-term sustainability of the project, a focus will be placed on the continuation of building the capacity of the local government. By facilitating discussions around rural water management at the Commune level, local authorities will be encouraged to gradually assume a

greater role in supervising and supporting well committees. In addition, training sessions will ensure that the two Commune Agents working alongside Project Fatsaka have the necessary skills to ensure the Commune continues to work in the remote communities beyond the project.

The project continues to identify new strategies and opportunities to share the findings and potential of Fatsaka's innovative methodology with the wider international community through research articles.

Information, Education and Communication (IEC) materials will be created and distributed at both community and HH level to reinforce key project messages. A particular emphasis will be placed on developing pictorial resources to engage beneficiaries with low levels of literacy. Further health education sessions will highlight the importance of safe water collection, storage and treatment processes, motivating and educating HHs to make improved decisions regarding drinking-water practices. WASH lessons in schools will ensure that even the youngest community members internalise the importance of improved sanitation and hygiene practices. Once well committees have begun to achieve their action plans, cross-community learning visits will enable communities to showcase effective strategies for well management with those communities who have struggles. Through these cross-visits, SEED hopes to encourage less motivated communities to take the necessary actions to attain sustainable and long-term access to safe drinking-water.

6. References

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7. Photographs

The expression on a man's face while looking at his community's open defecation site

Nary, the project manager, supporting a triggering session

Conducting a household survey

Delivering a triggering session

Delivering an educational WASH session

Demonstrating how faeces contaminates water

The International WASH specialist takes notes at an educational WASH session

Community cleaning up a well site

A woman using a broken well

A woman proudly using a functioning well at Androtsy village

Appendix: Drinking Water Practice Level Taken from IRC WASH

Practice Level	Safe Drinking-water Management
Improved	Drinking water always comes from an improved source (piped or protected spring) and is: • Collected safely • Stored safely • Drawn in a safe manner • Water is treated
Basic	Drinking water always comes from an improved source (piped or protected spring) and is: • Collected safely • Stored safely • Drawn in a safe manner • But not treated
Limited	Drinking water sometimes comes from an improved source (piped or protected spring) • But is not treated • Not collected safely • Not stored safely • Not drawn in a safe manner
Not Effective	Drinking water comes from unimproved source - surface water, unprotected spring or unprotected dug well.