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Final Report for

Project Malio: A community-led approach to eliminating open defecation and facilitating sustained behaviour change

Fort Dauphin, southeast Madagascar

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1. Introduction

With just 12% of the population having access to an improved sanitation facility, Madagascar is the fourth least developed country in the world for sanitation (WHO/UNICEF Joint Monitoring Program, 2014). In the southern Anosy Region, more than half of the 85,000 people living in the urban centre of Fort Dauphin do not have access to any form of sanitation, and only 33% of those with access have improved sanitation (Urban Commune of Fort Dauphin, 2015; WaterAid, 2013). This lack of sanitation infrastructure contributes to widespread practice of open defecation, which itself contributes to high rates of diarrhoeal disease throughout the commune as food and water is more easily contaminated by faeces.

To address this, SEED Madagascar (SEED) partnered with local organisation ONG Azafady to implement Project Malio; a three-year urban satiation initiative working towards the elimination of open defecation in Fort Dauphin. In addition to constructing and improving sanitation infrastructure for households and schools, Malio strove to affect sustained behaviour change through targeted education efforts highlighting the value of healthy sanitation and hygiene practices.

Across the three-year project, an additional 11,000 people in Fort Dauphin (13% of the population) gained access to improved sanitation. Supporting behaviour change, 527 focus group sessions were conducted with both household latrine beneficiaries and non-beneficiaries on improved hygiene practices. A total of 7,406 students benefitted from school latrine construction and refurbishments, with 6,567 students receiving water, sanitation, and hygiene (WASH) educational lessons. Moreover, through the formation of 10 *fokontany* (district) monitoring committees, the capacity building of eight partner organisations and the establishment of a town-wide School WASH Committee, Malio's efforts to improve sanitation and hygiene in Fort Dauphin will continue to be sustained beyond the project's end.

This report covers both the activities conducted in the last six months from November 1st 2016 to April 30th 2017 and the entire three-year period of the project from May 2014 to April 2017. Thus, this report provides a comprehensive account of project activity in the final six months alongside a broader evaluation of the overall achievements and impact of Project Malio, detailing lessons learned as well as considerations for future action.



Project Malio promoted improved sanitation and hygiene behaviours, such as handwashing

2. Activity Detail

2.1 Household Sanitation Support

2.1.1 Sanitation Action Planning

Across its duration, Project Malio worked with key stakeholders from 10 *fokontany* to establish and implement localised sanitation action plans; plans to engage the communities of specific districts to direct change in their neighbourhood. When activities commenced in any given *fokontany*, initial emphasis was placed on building the motivation and capacity of important community representatives, including opinion leaders, the chief of each *fokontany,* and elders. The Community-Led Total Sanitation (CLTS) model, in which triggering is designed to incite action for improved sanitation and hygiene practices, and the rationale behind Project Malio's adoption of this approach were outlined and explained. Training also focused on building the skills required to develop and implement the sanitation action plans. Collaboration with stakeholders was crucial in ensuring their support of the initial triggering process and follow-up activities, particularly given the emotive nature of CLTS methodology.

Following key stakeholder training, the Malio team facilitated the creation of *fokontany* representative committees, supporting them to develop their own community sanitation action plan. These plans were tailored to the individual context of each *fokontany* and detailed the steps necessary to reduce the practice of open defecation and promote positive hygiene behaviour within each community. Plans commonly featured steps such as general waste removal, ongoing monitoring of open defecation levels by Community Sanitation Agents (COSANs), community meetings to discuss the health benefits of improved hygiene behaviours and, where they existed, management and maintenance of public or shared latrines. Implementation of the plans was then supervised by monitoring committees comprised of COSANs from each *fokontany*, who will continue to ensure the plans and initiatives which have been developed are being adhered to beyond project close. In total, 84 COSANs from across the ten *fokontany* currently work to monitor progress within their communities, motivating their neighbours to continue to strive for improved sanitation and hygiene practices.

2.1.2 Latrine Construction

At the end of 2016, SEED's construction teams supported households across a third wave of latrine construction in the three remaining *fokontan*y of Ampamakiambato, Tanambao, and Bazarbe. A total of 129 household latrines were constructed in these districts, providing new and improved sanitation facilities to 1,578 people.

As part of SEED's endline monitoring for the project, audit teams conducted nearly 800 household visits to confirm the successful construction and operation of all Malio-supported latrines, as well as to determine the total numbers of beneficiaries (see *Table 1*, below).

Altogether, 799 household latrines were constructed over the three years of Project Malio, with a total of 11,033 people regularly using Malio latrines. This equates to an additional 13% of the population of Fort Dauphin gaining access to safe and hygienic sanitation facilities.

Table 1: Latrine and focus group information from final audit, March-April 2017

Year completed	Fokontany	Latrines built	Total number of latrine users	Average number of users per latrine	Non-beneficiary households attending focus groups
2017	Ampamakiambato	72	1,013	14.07	110
2017	Tanambaro	42	472	11.24	34
2017	Bazarbe	15	93	6.20	21
2016	Amboanato	220	3284	14.93	264
2016	Ambinanikely	68	699	10.28	81
2016	Ampotatatra	59	1,033	17.51	50
2016	Bazarikely	63	548	8.70	25
2015	Esokaka	74	1,040	14.05	117
2015	Ampasikabo	44	867	19.71	52
2015	Amparihy	142	1,984	13.97	214
	TOTAL	**799**	**11,033**	**13.81**	**968**

This final latrine audit, completed with all beneficiaries from across the three years, showed that a remarkable 98% of the Malio latrines are still being used. Of the 18 latrines no longer in use; seven were full, three were destroyed by a fire in Amparihy in May 2016, seven were destroyed by Cyclone Enawao which hit Fort Dauphin as a tropical depression in March 2017 and the one remaining household simply cited “cannot use”. Across the commune, 88% of Malio latrines (*n*784) audited were assessed as being in either good or average condition and 91% were identified as being very clean or clean (see *Table 2*, below, for criteria). It was also encouraging to find that 85% of beneficiaries whose latrines had filled up had emptied them. Interestingly, while Malio latrines were more likely than random non-Malio latrines to obtain the highest rating, non-Malio were less likely to obtain the lowest rating of bad or dirty. Although the majority of households in Fort Dauphin do not have improved sanitation facilities, the positive scores of non-beneficiaries are perhaps reflective of the inherent

motivation these households have to advance their sanitation and hygiene facilities and behaviours.

Table 2: Latrine audit criteria and endline results			
Latrine condition criteria		*Malio (784)*	*Random (441)*
Good	The latrine is very strong; nothing is broken	49%	43%
Average	The latrine is quite strong but one or two things are broken	39%	49%
Bad	The latrine is not strong, several things are broken and it could be dangerous to use	12%	8%
Latrine cleanliness criteria		*Malio (784)*	*Random (442)*
Very clean	There is nothing dirty in or around the latrine; there is no bad smell	52%	45%
Clean	There is a bit of dirt/trash/waste in or around the latrine; there is only a slight bad smell	39%	47%
Dirty	Dirty – there are two or more things inside the latrine that are dirty; there is a strong bad smell	9%	7%

2.1.3 Latrine support focus groups

Throughout Project Year three (PY3), Community Liaison Officers (CLOs) facilitated 67 focus group sessions with 129 beneficiaries, as well as 78 support sessions with 165 non-beneficiaries. These sessions covered a range of topics on hygiene and sanitation best practice including hand washing, latrine use and latrine maintenance. In a survey of 150 PY3 non-beneficiaries, 96% of respondents found the focus groups helpful and 91% of those who had a latrine said they were able to improve their latrine through the maintenance techniques learned at focus group sessions.

In the last six months of Project Malio, the CLOs also conducted 1,102 household support visits to assess household knowledge of improved hygiene and sanitation techniques and ensure improved knowledge was transferred into improved practice. In total, across the entirety of Project Malio, 4,958 household support visits and 527 support focus groups were completed with both beneficiaries and non-beneficiaries, reaching a total of 799 beneficiary households and 968 non-beneficiary households (refer to *Table 1* for *fokontany* distribution).

2.1.4 Monitoring

In conjunction with *fokontany* monitoring committees, participatory monitoring and assessments have been important tools in ensuring sustainable behaviour change for sanitation and hygiene habits. Over three-month periods, each new group of beneficiaries rated each other's latrines for cleanliness, maintenance and availability of essential hygiene materials such as soap, ash and water for handwashing. Beyond the valuable data collected through this participatory monitoring, in line with CLTS methodology this process encouraged beneficiaries to maintain their latrines to a high standard. In PY3, 89% of the 129 beneficiary households were awarded the Gold Standard for latrine cleanliness and maintenance; 65 households in Tanambao, 13 households in Bazarbe, and 37 households in Ampamakiambato (see *Table 3* for participatory monitoring criteria).

Left: A beneficiary stands in front of her new Malio latrine; Right & below: Malio team members conduct audits of newly constructed latrines

Table 3: Rating scale for participatory monitoring	
Latrine cleanliness	
Very clean (Gold Standard) Latrine must meet all of the criteria	○ There is no dirt/trash/waste in or around the latrine ○ There are very few flies ○ There is no bad smell
Clean	○ There are 1-2 bits of dirt/trash/waste in or around the latrine ○ There are some flies ○ There is somewhat of a bad smell
Dirty	○ There are more than 2 bits of dirt/trash/waste in or around the latrine ○ There are many flies ○ There is a strong bad smell
Latrine Maintenance/Condition	
Well maintained/Good condition (Gold Standard) Latrine must meet all of the criteria	○ The latrine has well-built walls and roof ○ There is nothing broken ○ The lid to the latrine pit fits and is currently covering the pit
Average maintained/Average condition	○ The latrine's walls and roof are built, but need improvements ○ There are 1-2 things broken ○ The lid to the latrine pit fits and is currently covering the pit
Poorly maintained/Bad condition	○ The latrine's walls and roof are falling down and the latrine may be dangerous to use ○ More than 2 things are broken ○ There is not lid to cover the pit
Hand Washing Station	
Well maintained/Good condition (Gold Standard) Station must meet all of the criteria	○ The hand washing station is currently in use ○ The hand washing station is in a location close to the latrine ○ The hand washing station has water ○ There are no broken parts ○ Soap is available
Average maintained/Average condition	○ The hand washing station is currently in use ○ The hand washing station is in a location close to latrine ○ The hand washing station has water, ○ There are 1-2 broken parts ○ There is no soap available
Poorly maintained/Bad condition	○ The hand washing station is not currently in use ○ The hand washing station is not located near the latrine ○ The hand washing station has no water ○ There are more than 2 broken parts ○ There is no soap available

2.2 School Sanitation Support

2.2.1 School Friend of WASH

Throughout Project Malio, 17 schools were supported to develop and implement sanitation action plans. These detailed the steps schools needed to take to ensure both students and staff could enjoy a clean and sanitary environment. The plans assigned responsibility for tasks such as cleaning latrines, burning toilet paper, ensuring the availability of soap, and topping up the water buckets for tippy-taps. A school WASH committee was formed in each school to oversee the implementation of the action plans.

Furthermore, Project Malio facilitated the development of a town-wide 'Fort Dauphin School WASH Committee'. Comprised of regional and district representatives from the Ministries of Education, Water, Sanitation and Hygiene, and the regional Diorano WASH network, this committee took responsibility for monitoring WASH progress at 17 schools across the commune and has been evaluating each school against the national Government's official *School Friend of WASH* criteria since the beginning of PY2 (see *Table 4*, below, for criteria and ratings). By project close, eight schools had achieved Level 2 School Friend of WASH status, three schools had achieved Level 1 School Friend of WASH status, and six schools were deemed to have room for improvement. All schools achieving School Friend of WASH status were provided with certificates at a ceremony in April 2017.

Table 4: School Friend of WASH Criteria & Awards

Criteria & maximum points awarded		**Performance level**	**Scale: points achieved**	**Schools awarded**
Management and maintenance *(including school WASH committee, school action plan, & cleaning and management plan)*	12	Room for improvement	Under 56	**EPPs**: Ambinanibe, Lohalovoky, Lanirano **CEGs**: de Reference, Lanirano **Lycée** Technique Professional.
Infrastructure *(including latrines, urinal, water point & handwashing station)*, and School and Educational Environment	36	School Friend of WASH Level 1	56-70	**EPP**: Ambonato **CEG**: Tanambao **Lycée** Pôle.
Norms *(surrounding use of latrines, urinal, water point, handwashing station & waste pit)*	21			
Practices *(including actual use of latrines, handwashing with soap & water preservation)*	41	School Friend of WASH Level 2	70 or more	**EPPs**: Amparihy, Ambinanikely, Ampasimasay, Befalafa, Ampamakiambato, Centre I, Centre II, Tanambao.
TOTAL	**120**			

2.2.2 School Latrine Refurbishment

In the final six months of the project, latrine refurbishment was completed at EPP (primary school) Ambinanibe. The school latrine block received repairs on the broken roof and doors, damaged floors and cracked urinals. The 181 students at EPP Ambinanibe now have access to a safe and functional ventilated improved pit (VIP) latrine.

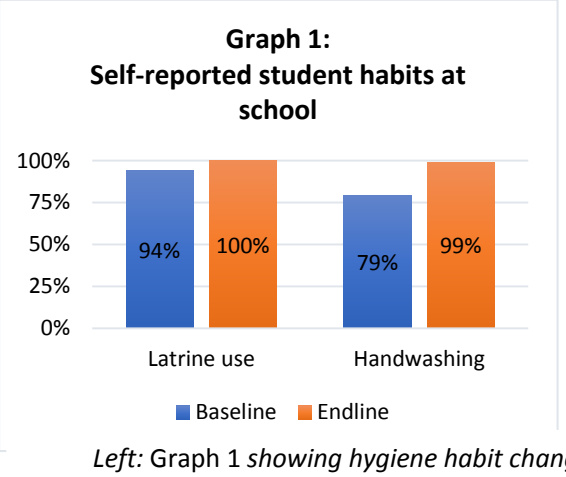
Across the project duration, Malio provided 11 schools with refurbished or newly constructed latrines, benefitting a total of 7,406 students. All school latrine construction has been completed in conjunction with educational mass mobilisations in the beneficiary schools, promoting hand washing, latrine use and latrine maintenance amongst the students. These events took the form of tippy-tap demonstrations, handwashing dance competitions and quizzes on latrine use and maintenance, with a total of 5,636 students participating.

Left: the SCLO demonstrating how to use tippy-taps; Right: Malio team members audit the newly constructed latrine at EPP Ambinanibe

2.2.3 School WASH Education

Throughout PY3, 12 partner primary schools received a total of 141 school WASH educational sessions on latrine use, latrine maintenance, and hand washing, reaching a total of 6,567 students. This achievement was made more significant by high staff turnover for the School Liaison Officer (SLO) position at the beginning of PY3, causing delays in commencing the educational sessions. By reallocating personnel and project resources, alongside support from the wider Malio team, the SLOs completed all target educational sessions for PY3 and delivered mass mobilisations with puppet shows and hygiene quizzes to 17 primary and secondary schools for 5,636 students.

A Knowledge, Attitudes and Practices (KAP) survey was conducted with 300 primary school students to assess changes in sanitation and hygiene behaviour, with the positive results highlighting the efficacy of Malio's school WASH lessons. Students reported both increased use of latrines and handwashing whilst at school (see *Graph 1*, below). Although indication of improved sanitation and hygiene behaviours collected through a system of self-reporting are liable to participant bias – i.e. students report what they know to be desirable behaviours – what these results do indicate is an increase in knowledge of healthy hygiene behaviours. Furthermore, open defecation observations at all 17 schools also highlighted improved sanitation behaviours, with evidence of the practice only visible at three of the 17 schools.



Left: Graph 1 *showing hygiene habit changes at primary schools across the three years;*
Right: A class at EPP Tanambao following a school WASH education sessions

2.3 Public Latrine Support

2.3.1 Amparihy

The Avotry Association continues to manage the Amparihy public latrine with support from the Malio Partner Association Mentor (PAM). In March 2017, Avotry appealed to SEED for assistance with their repairs to the roof, which the SEED construction team provided.

By project close, the public latrine had an average of 78 users per day, compared to an average of 51 users per day prior to the start of Malio. The average cleanliness rating was 1.9 out of 5, where 1 represents "very clean" and 5 represents "very dirty". A business unit, which previously supplied 50% of the rent to support the public latrine upkeep, no longer funds the maintenance. A dispute between the commune and the tenants (Association Fiasatagna) regarding rent payment resulted in the dissolution of this financial support for the latrine. SEED is currently exploring alternative sources of maintenance funding for the Amparihy public latrine.

The Amparihy public latrine before (left) and after (right) roof repairs

2.5.2 Bazarbe

Since August 2016, Malio has worked to facilitate meetings with stakeholders of the Bazarbe commune to fundraise for repairs of the Bazarbe public latrine. The Malio team successfully negotiated an agreement with stakeholders, which enabled the commune to raise the necessary funds for construction materials over the course of a few months. The Malio construction team agreed to provide the labour to complete the repairs, with the refurbished Bazarbe public latrine reopened in mid-June.

2.4 Mass Mobilisation

2.4.1 Global Handwashing Day

On October 15th, 2016, Fort Dauphin celebrated Global Handwashing Day; an internationally recognised day to highlight the imperative of clean hands in preventing the spread of disease. Partnering with the Scouts Association, the Malio team led a mass mobilisation event in the busy market district of Tanambao. The Mayor of Fort Dauphin launched the event with a speech about the importance of hand washing, which was followed by promotional activities including an educational puppet show, hand washing games and quizzes. Over 200 participants attended the event throughout the day and 60 prizes, including buckets, cups, hats and soap, were distributed across activities to encourage positive hygiene behaviours.

Left: Students participate in hand washing relay races at a mass mobilisation; Middle: Schools and organisations march to raise awareness of World Latrine Day; Right: The Mayor washes his hands to raise awareness of good hygiene practices at Global Handwashing Day

2.4.2 World Toilet Day

World Toilet Day is held on November 19th to raise awareness of the global sanitation crisis and the importance of access to hygienic and safe toilets. In PY3, Project Malio commemorated this day by organising a march across the Fort Dauphin commune. Approximately 6,000 students marched through the town to CEG Tanambao, where a puppet show was held followed by hand washing games and trivia quizzes. The vast majority of participants exhibited a good understanding of WASH best practice and desirable behaviour (see *Table 5* below).

Table 5: Knowledge, Attitudes and Practices survey results from World Toilet Day (*n*200)

Participant knowledge				
Can flies carry diseases from faeces onto your food?	95.5% Yes	3.5% No	1% Don't know	
Do you think faeces is dangerous to humans?	98.5% Yes	0% No	1.5% Don't know	
What is the most effective way to prevent diarrhoeal disease?	95% Handwashing with soap	2% Sleeping	2% Visiting a doctor	1% Antibiotics
Participant attitudes				
Do you prefer to use a latrine or openly defecate	95% Use a latrine	2% Openly defecate	3% No preference	
Do you think that open defecation is a problem in Fort Dauphin?	96% Yes	4% No		
Participant practices				
Do you wash your hands after defecating?	90.5% Yes	9% Sometimes	0.5% No	
If you wash your hands after defecating, do you use soap?	87.% Yes	7.5% Sometimes	5% No	
Do you treat your water? If yes, how?	37% Yes, boil	57.5% Yes, chlorine	3.5% Yes, other method	2% No

2.4.3 Partner Associations Capacity Building and Training in Mass Mobilisation

Across the span of Project Malio eight partner associations completed the 11 professional training sessions conducted by Malio's PAM. This training covered topics such as compelling communication of WASH issues, budgeting, proposal development, designing effective monitoring and evaluation plans, and marketing. After completion of all training sessions, partner associations were supported to design their own mass mobilisation events promoting WASH issues in the commune.

In PY3, Malio worked with four partner associations; Fikambananiny Tanora Ambinanikely (FTA), Fikambanana Ara Sosicely Tanambao (FISOTA), Fikambanana Ampotatra Miray Inina (FIAMI), and Firaisan'ny Skotisma eto Madagasikara (Scouts). All four partner associations

successfully completed the professional training with support from the PAM. In activity evaluations, all participants representing the four partners found the trainings “very useful”, reporting that they particularly enjoyed group work activities. Participants highlighted that they especially valued the organisation and presentation of the training sessions; indicative of the commitment and ongoing professional development of the PAM, Mamatiana. When asked about what additional topics organisations would want training sessions on in the future, English language and leadership trainings were the top two responses; this has been noted in project learning for further SEED initiatives.

Following completion of training, each of the four partner associations developed and executed their own community events between February and April 2017:

- FTA organised a clean-up of the open defecation site at Ankoba beach as well as additional areas across the crowded residential area of Ambinanikely. They also built and erected signboards encouraging residents to reduce waste and open defecation, and coordinated an event with over 40 participants at EPP Ambinanikely the following day. Activities included a hand washing demonstration, a quiz, and a puppet show about healthy hygiene practices.

- FISOTA organised a clean-up of sites across the bustling Tanambao market area, with volunteers putting up signs reminding people to keep the area clean and stop open defecation. Afterwards, an event was held at EPP Tanambao with over 60 participants engaging in sanitation and hygiene games.

- The Scouts began with a volunteer clean-up at the outlying *fokontany* of Ampamakiambato. Their mass mobilisation event was attended by approximately 100 people and included a hand washing demonstration and presentation focusing on household water treatment methods, such as solar disinfection of bottles (SODIS) and bleach.

- FIAMI organised a clean up the Ampotatra open defecation site. Volunteers began the day cleaning up the beach and erecting signs condemning open defecation, before launching into more jovial activities including beach football and water relay races, which attracted more than 50 participants.

Left: Volunteers organised by FTA clean up the Ankoba beach open defecation site;
Right: Students watch a puppet show at FISOTA’s event at EPP Tanambao

2.5 Mass Communication Campaign

2.5.1 IEC Materials

The information, education and communication (IEC) materials developed by Project Malio served to raise awareness of the project and promote healthy sanitation and hygiene habits. IEC materials have been used in many facets of the project; as prizes for mass mobilisation activities, attire for partner associations and health volunteers at events, and incentives for motivated beneficiaries and non-beneficiaries. *Table 6* (below) shows the total number of IEC materials distributed over the duration of Project Malio. Combined with the project's radio broadcasts, IEC and mass media efforts have contributed to making Malio a household name in the community, ensuring the continuity of messages well beyond Malio's end.

Table 6: Malio Information, Education & Communication material distribution

IEC Material	Distributed in PY3	Total distributed
T-shirts	413	1,226
Buckets	1,234	3,973
Cups	1,040	1,949
Hats	436	1,131
Sarongs	294	1,003
Leaflets	100	2180
Exercise books	1,705	7,117
Pens	2,089	7,737
Soap	823	5,060
Billboards	2	6
Signboards	6	11

2.5.2 Radio Broadcasts

Throughout Project Malio radio broadcasts consistently proved to be one of the most effective ways to ensure broad reach of sanitation and hygiene messages to the residents of Fort Dauphin. In December 2016, a new radio broadcast was developed telling the story of a family maintaining their latrine. It was aired twice a week across three radio stations. The total number of broadcasts from both PY3 and the project duration are shown in *Table 7*.

Table 7: Malio radio broadcasts

Type of broadcast	No. aired in PY1	No. aired in PY2	No. aired in PY3	Total
Community interview	48	130	93	271
Short information slot	360	821	630	1,811
Drama episodes	45	109	222	376

As part of Malio's endline evaluation, 500 random participants across Fort Dauphin completed a survey assessing the reach of the project's IEC and mass media materials. 86% of respondents had heard of Project Malio, with 74% of those reporting they had heard short Malio radio slots, and 93% seeing project messages and logos on IEC materials. Of the respondents who had heard a radio broadcast, 98% could correctly identify at least one major sanitation and hygiene theme.

2.6 Research and Dissemination

2.6.1 Dissemination of Project Learning

As Project Malio progressed, it became increasingly clear that learning from the project would be valuable to the development of other sanitation programmes locally, nationally and internationally. Throughout the course of the project, Malio's Sanitation & Hygiene (S&H) Specialists have disseminated project research and learning documents to a number of WASH-related online communities such as the Community-Led Total Sanitation Knowledge Hub, Sustainable Sanitation Alliance forum (SuSanA), HeyZara, and IWA WaterWiki.

In May 2016, Project Malio was selected to present a poster on the project's hybrid application of CLTS to improve urban sanitation at the *WASH Futures* Conference in Brisbane, Australia. The S&H Specialist then published and presented an academic paper in July 2016 at the *39th Water, Engineering and Development Centre* (WEDC) Conference in Ghana (see section 2.7.2 for details). SEED has recently been selected to publish and present an academic paper again this July at the *40th WEDC Conference* at Loughborough University in Britain (see section 2.6.2 for details).

Left: Dr. Mamy, Head of Community Health at SEED, presenting a poster on CLTS at the WASH Futures Conference in Australia; Right: Malio's Project Coordinator and S&H Specialist at the 4th annual FSM Conference in India

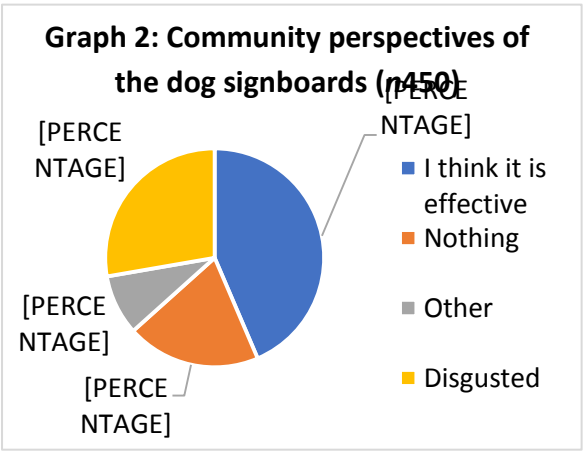
2.6.2 Faecal Sludge Management

In February 2017, Malio's Project Coordinator and S&H Specialist attended the 4th *International Faecal Sludge Management* (FSM) Conference in Chennai, India. Presenters discussed global best practices for the collection, transport and treatment of faecal sludge from pit latrines, septic tanks and other onsite sanitation facilities in developing countries. This learning prompted the Malio team to reflect on the (non-)existing state of FSM in Fort Dauphin. Learning from both the conference and Malio's implementation have informed the foundations of a follow-on urban sanitation project focusing on FSM and establishing further sanitation infrastructure and services in Fort Dauphin.

After returning from the FSM conference, the Malio team held a workshop to build the capacity of latrine emptiers. Ten latrine emptiers from across the town participated in the session, which focused on health and safety, construction tips, and communications and marketing. In the opening group assessment, the emptiers could correctly list 20% of safety hazards and all items of recommended[1] personal protective equipment (PPE). By the end of the workshop, the participants were able to list all five safety hazards and associated PPE correctly. All participating emptiers received PPE. Additionally, Project Malio led a research project to investigate the barriers to latrine emptying and broader FSM needs in Fort Dauphin, the findings of which will be presented at the aforementioned WEDC Conference in July (Kirsch & Hammersley-Mather, 2017).

2.6.3 Community-Led Total Sanitation (CLTS)

Aligning with the CLTS shock-and-shame methodology (see *Table 8* for background to CLTS), in PY2 the Malio team designed a signboard that depicted a person openly defecating next to a dog openly defecating. Dogs are highly taboo in Malagasy culture, and the design of the signboard generated intense debate across both ONG Azafady and SEED. The subsequent organisational learning, along with the broader challenges faced whilst adhering to the CLTS methodology in a context of strict cultural norms, informed the paper presented at the 2016 WEDC Conference in Ghana (Lomas & Hammersley-Mather, 2016).



Left: The dog signboard is intended to shock viewers, prompting reflection on sanitation behaviour at defecation sites. Right: Graph 2 *shows opinions on the signboards varied widely*

After it was clear that community leaders – including both commune authorities and community elders – supported the proposed signboards, five were erected at open defecation sites across the Fort Dauphin commune. KAP surveys were completed in the surrounding areas to assess reactions to the images, with opinions varying greatly. Approximately 59% of respondents (*n*450) correctly identified the message the signboards intended to elicit, while 21% did not understand the visual, 2% listed another understanding, and 19% felt the signboard was trying to cause offence. Approximately 75%

[1] The International S&H Specialist and Head of Construction compiled a list of recommended items based on international best practice and their availability in Fort Dauphin.

of the residents surveyed near the signboard reported using a latrine, while the other 25% reported openly defecating. Incredibly, 65% of respondents who reported openly defecating said the signboard had made them change their behaviour. Although participant bias is a consideration, this strong result is indicative of the efficacy of using cultural taboos to reinforce CLTS methodology.

Table 7: Background to CLTS

▸ Established in 2000 in Bangladesh as a response to the low success rates of previous hardware centric sanitation projects (Kar & Chambers, 2008)

▸Prescribes a collection of participatory exercises to 'trigger' awareness of detrimental sanitation & hygiene practices, implemented widely in the global South (Galvin, 2014)

▸ Traditional methodology limits practitioners (such as CLOs) to facilitation, ensuring the onus is on the community to take ownership of building their own latrines without any technical advice or hardware subsidies.

▸By igniting a sense of disgust & shame among the community, there is a collective realisation that the impact of open defecation is ingesting the faeces of neighbours. This realisation sparks collective action to improve sanitation behaviours

▸Most effective in rural settings, with challenges in urban contexts relating to insufficient access to land & local construction materials, the sheer size of urban populations, & the lack of definable borders between hamlets, which exist naturally in rural settings

CLTS: The SEED approach

▸Hybrid CLTS approach, combining triggering to mobilise communities into action with subsidies to support the construction of latrines to motivated beneficiaries

▸Shock techniques are designed to help communities reassess their sanitation conditions & highlight the detrimental health implications of open defecation, including graphic 'faeces-to-food transmission' demonstrations, 'shit calculations' measuring the amount of faeces produced by the community each year, & defecation area mapping

▸Triggering process condensed to a single morning due to time limitations, resulting in the omission of activities such as transect walks due to the large size of the *fokontany* & lack of defined borders

▸ Contra to original CLTS methodology, provision of a subsidised ventilated improved pit (VIP) latrine to beneficiaries contributing small but meaningful financial investment & labour in latrine construction → adaptation aims to support both latrine and behavioural sustainability; latrines built with technical support are likely to be of a higher standard and therefore last longer, in turn increasing the likelihood beneficiaries use, maintain and empty their latrines

▸ Behaviour change supported by comprehensive hygiene education and motivational household visits facilitated by CLOs and COSANS who support project activities from within each *fokontany* (Milward, Pradhan & Pasteur, 2014)

▸ CLOs regularly visit latrine beneficiary households to provide 1-to-1 support and facilitate small focus groups, providing advice and encouragement to beneficiaries

3. Review of Malio Outcomes

3.1 Outcome 1: Community Action Plans

Outcome 1: Town-wide uptake of community action plans to reduce the practice of open defecation and institutionalise positive hygiene practices, leading to improved health across the community		
Indicator	**Target & Timescale**	**Final Result**
The number of community action plans developed and being implemented	*Fokontany*/year: 4 PY1; 8 PY2; 10 PY3	**Achieved:** 10
The number of people reporting hand washing after defecating and before eating	40% of random survey participants self-reporting handwashing at project mid-point; 60% of random survey participants self-reporting handwashing at project close	**Achieved:** 98% (488/500)
Level of hygiene knowledge amongst community members at mass mobilisations	Average score of 60% in hygiene quizzes at mass mobilisations, held four-times per year for each year of the project (total: 12)	**Almost achieved:** KAP surveys completed at 6 mass mobilisations showed scores over 80%; total of 11 mass mobilisations
The number of people remembering key messages from radio shows	40% of random survey participants who heard at least one radio show correctly answering questions on the content; every month from PY1, month-4	**Achieved:** 98% (358/366) of people correctly identified at least one main content message
The number of households outside triggering zones requesting Malio's help to construct a latrine	PY1: 15 households; PY2: 50 households; PY3:100 households	**Achieved:** 436 households
Level of diarrhoeal disease in Fort Dauphin	10% reduction in the annual number of diarrhoeal cases in children under-5 across Fort Dauphin at the end of PY3	**Unknown**

While self-reported data is subject to participant bias, near-total success in handwashing knowledge dissemination is indicated by 98% of respondents in random surveys reporting the practice. Positive WASH knowledge was further bolstered by both mass mobilisations and radio broadcasts exceeding targets.

Over 400 households requested support from SEED in latrine construction and all target *fokontany* developed and implemented Community Action Plans. Active steps taken by communities both within and beyond intervention zones confirm the efficacy of SEED's adapted CLTS model in motivating communities to improve their own sanitation status.

Unfortunately, data provided by the local medical centre (CSB) was incomplete and inaccurate, and thus had to be disregarded. This is suspected to result from a change in management of the CSB during the project. With the link between positive WASH practices and reduced diarrhoeal disease well established (WHO, 2014), and Malio demonstrating strong KAP indicators on sanitation and hygiene, there is an inference that the project contributed to reduce levels of diarrhoeal disease.

3.2 Outcome 2: Household Latrines

Outcome 2: Increased number of household latrines and motivation regarding their use and maintenance, leading to a reduction in the practice of open defecation and subsequent diarrhoeal disease at the household level		
Indicator	**Target & Timescale**	**Final Result**
The number of households building and using latrines as a direct result of the project	PY1: 300 households; PY2: 700 households; PY3: 800 households	**Almost achieved:** 799 households
The number of households actively participating in support groups	PY1: 300 households; PY2: 700 households; PY3: 800 households	**Almost achieved:** 799 households
The number of households maintaining latrines built as a direct result of the project	75% of households achieving "gold status" by project close	**Not achieved:** 49% of households
The number of households emptying latrines built as a direct result of the project	300 households by end of PY2; 700 households by end of PY3	**Not achieved:** 274 households
Level of diarrhoeal disease amongst latrine recipients	25% reduction in the annual number of diarrhoeal cases in children under-10 in latrine recipient families by project close	**Achieved:** 85% reduction in beneficiary children under 5 suffering from chronic diarrhoea; 23% increase in beneficiary children never having diarrhoea
The number of households no longer practising open defecation and now using improved sanitation facilities	At least 800 households by project close	**Unknown**

A high water table at the selected site prevented construction of the final latrine. When considering challenges associated with land use and a town-wide cement shortage, the construction of 799 latrines constitutes a major success. Encouragingly, levels of diarrhoeal disease far exceeded expectations with major reductions in chronic diarrhoea.

“Gold status” was achieved by just less than half of beneficiaries, significantly lower than the 75% target. However, an additional 39% achieving the next level indicates that 88% of beneficiary latrines were clean and kept in at least an adequate condition; perhaps a more realistic achievement in families unfamiliar with sanitation infrastructure, and with an average of 14 users. Nonetheless, SEED will continue to work with COSANs to motivate and educate households on latrine maintenance.

While only 274 beneficiaries had emptied their latrines, this still comprised 85% of the 321 latrines that had filled by project close. Improving latrine emptying and FSM services in Fort Dauphin has become a priority for SEED’s WASH programme.

Self-reported data on exclusive latrine use is unlikely to be reliable for beneficiaries who have been supported to construct a latrine, and so while all beneficiaries have access to latrines, exclusive use was impossible to determine.

3.3 Outcome 3: School Sanitation

Outcome 3: Increased number of school latrines and motivation regarding their use and maintenance among the town's children, reducing the practice of open defecation and diarrhoeal disease in those most vulnerable to hygiene related illnesses		
Indicator	**Target & Timescale**	**Final Result**
Number of schools supported by Malio to develop and implement sanitation action plans	PY1: 7; PY2: 16; PY3: 18	**Almost achieved:** 17 schools
Number of schools using and maintaining improved sanitation facilities	PY1: 2; PY2: 7; PY3: 13	**Almost achieved:** 11 schools
Number of children engaged in participatory hygiene education sessions	10,000 each year	**Not achieved:** a total of 9,139 students engaged in mass mobilisations whilst 6,567 participated in WASH education sessions.
Sanitation action plan co-developed and implemented by regional and district Ministries of Education	Action plan designed by PY1, month-7; action plan implemented from PY1, month-7	**Adapted:** commune-wide School WASH Committee monitoring school WASH outcomes
Number of public schools achieving national *Friend of WASH* or equivalent status	13 by project close	**Almost achieved**: 11 schools achieved *Friend of WASH* status

With 17 school sanitation action plans supported and 11 schools recipient of improved sanitation facilities, Project Malio contributed greatly to improve the WASH environment for students across Fort Dauphin. Ongoing problems with the mains water supply led to the difficult decision not to restore the sanitation facilities at two schools, EPPs Centre I and Centre II. With existing infrastructure requiring water for flushing mechanisms, the facilities would have soon fallen into disrepair. Despite these challenges, both schools engaged fully with Project Malio and SEED intends to support the renovation of the facilities once a mains water supply can be guaranteed.

With the SLO replaced four times in the last 16-months of the project, SEED struggled to engage the target number of children in participatory hygiene education sessions. Nonetheless, almost 10,000 students participated in mass mobilisations and SEED will continue working closely with schools through the development of a School WASH Project. This project will also support schools to achieve the revered Friend of WASH status.

A lack of engagement from regional and district Ministries of Education meant that SEED supported a town-wide School WASH Committee rather than the intended sanitation action plan. The WASH Committee comprised a broader spectrum of government bodies which took responsibility for school WASH monitoring.

3.4 Outcome 4: Communal Latrines

Outcome 4: A communal latrine is operational with sustainable cleaning and maintenance mechanisms, thereby increasing access for overcrowded households, reducing contamination of local water sources and improving health amongst the most disadvantaged		
Indicator	**Target & Timescale**	**Final Result**
Public latrine and business unit coordination committee established	Committee established by the end of month-6, PY1	**Achieved**
Communal latrine is open and being used on a daily basis	Average users/day PY1: 100; PY2: 125; PY3: 150	**Partly achieved:** 78 users/day
Communal latrine is clean and well kept	Cleaned at least once a day every day throughout the project	**Achieved**
Business unit action plan formally established and being implemented	1 business unit by month-9, PY1	**Not achieved**
Business unit rent is available to fund latrine maintenance	Business unit contributing this by end of PY1	**Achieved**
Public latrine is operating independently and sustainably	One public latrine unit by project close	**Almost achieved**

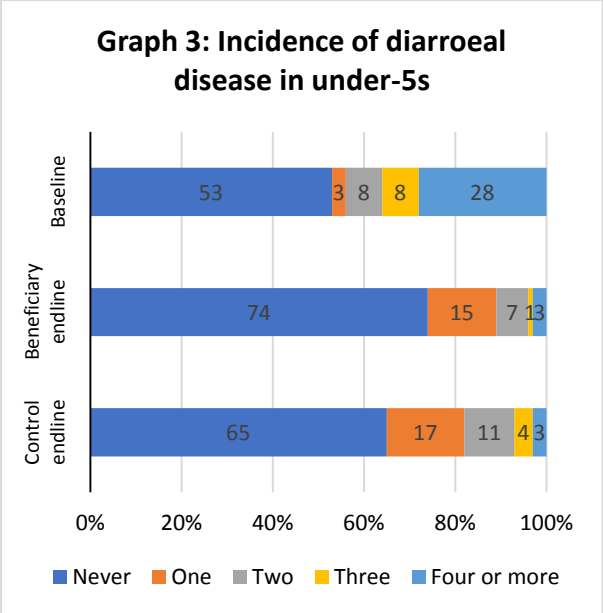
Daily cleaning contributes to the public latrine's high average score of 1.9/5, where 1 represents "very clean" and 5 represents "very dirty". While the daily latrine usage numbers are below the target, given the cleanliness of the latrines it is likely that the target set before the project was simply too ambitious. With latrine users paying 50 MGA per use, the latrine covering its day-to-day cleaning and maintenance costs and management independent of SEED constitute major successes.

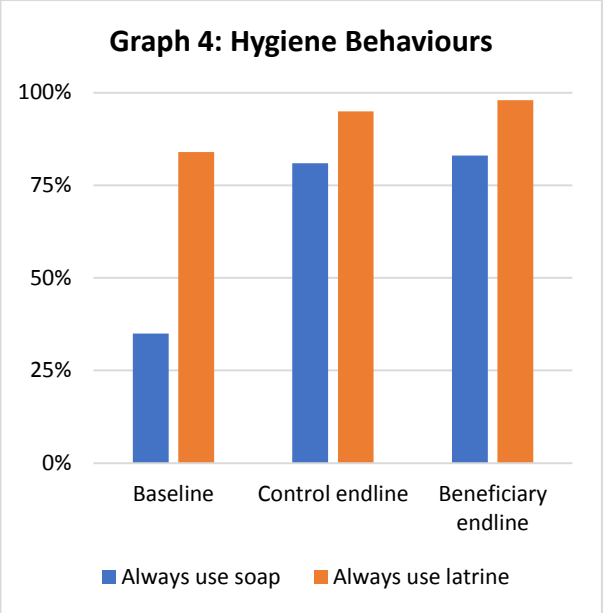
Although latrine and business unit coordination committee was established and rent from the business unit was available in the first year, neither function is currently operational, making the indicators deceptive. A dispute arose about rent payments from the women's artisanal association, and while rent payments were initially paid, no rent has been received since February 2016. A public building, the Commune has refused to assist in either collecting rent or evicting the artisanal association. Although latrine usage charges ensure day-to-day maintenance costs, more extensive, larger scale maintenance costs that are likely to incur in the future will not be supported by rent received from the association. It therefore cannot truly be described as operating sustainably.

4. Conclusions, Learning and Next Steps

Across the three-year initiative, the Malio team continued to learn and improve their capacity to effectively manage and implement the project. As the project progressed, training focussed less on core WASH knowledge and CLTS methodology to project management and organisation skills. Capacity building focused on the team's planning and time management skills, along with building confidence in providing and receiving feedback. Quarterly presentations of project results and subsequent activity planning ensured the team was clear and consistent in their focus and priorities, which were further delineated on a weekly planning board and through monthly management meetings. This ongoing investment in the ability of staff to deliver project outcomes ultimately contributed to the successful completion of the project.

As Project Malio came to a close, the team reflected on some of its major achievements. These include sanitation and hygiene learning disseminated by town-wide mass mobilisations and IEC materials; more than 6,500 students benefitting from WASH educational lessons; and 11,000 extra people in Fort Dauphin now able to access to improved household sanitation facilities. Despite many challenges, including a regional shortage of cement in PY3 that delayed latrine building, all project activities were completed on time by project close. Indeed, as *Graphs 3* and *4* show, these Malio activities have contributed greatly to improving sanitation and hygiene outcomes and habits in Fort Dauphin and improving public health.





*Both depicting self-reported changes between baseline (*384*) and endline (beneficiary:* 794*; control (randomly selected):* 384*),* Graph 3 *shows decreases of the monthly incidence of diarrhoeal disease in children under-5 while* Graph 4 *depicts improvements to hygiene behaviours*

The Malio project design was underpinned by the drive to ensure sustainability of its health promotion messages across the local community, but indeed to contribute to learning in broader international development and WASH spheres. The team's commitment to recording learning – from internal project learning documents and lessons-learnt papers through to peer-reviewed journal articles and presentations at internationally-renowned conferences – will ensure SEED is best placed to build on Malio's sanitation and hygiene successes. Already in the early stages of development, SEED plans to expand its school WASH efforts in Fort Dauphin through refining the WASH educational curriculum developed during Malio. The proposed project will deliver further WASH educational sessions to a large number of students and meet additional school WASH infrastructure needs, including safe water access at schools, which the Malio team identified as being a major priority for long-term outcomes across WASH in schools.

In the coming months SEED will also prioritise the long-term need for FSM infrastructure in Fort Dauphin. SEED is currently conducting additional research into best practices for urban FSM services in order to bridge the growing gap between household sanitation infrastructure, such as the latrines constructed during Project Malio, and the urgent need for town-wide, public services delivering faecal sludge transport and treatment. With the additional 799 latrines constructed by Project Malio, and an average of three households using each latrine, problems surrounding the safe emptying and disposal of waste will quickly become critical, presenting a clear and pressing need for the provision of safe and sustainable FSM in Fort Dauphin.

The Malio team in their final group photo

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