



**Maria Stroot
Fonds**



IMPACT EVALUATION

of the

**DEI SAFE WATER AND SANITATION PROJECT
IN DEI FISHING VILLAGE
NEBBI DISTRICT,
UGANDA**

PROJECT FUNDERS

**Development Cooperation Ireland, Cordaid
and Maria Stroot Fonds**

PROJECT IMPLEMENTER

**Agency For Accelerated Regional Development
(AFARD)**

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Dr. Alfred Lakwo

ACRONYMS

€	Euro
AFARD	Agency For Accelerated Regional Development
BMC	Beach Management Committee
DCI	Development Cooperation Ireland (Irish Aid)
GTI	Gastro Intestinal Infection
HIV	Human Immunodeficiency Virus
Km	Kilometer
LAIP	Lakeshore AIDS Initiative Project
LC	Local Council
MSF	Maria Stroot Fonds
PLWA	Persons Living With AIDS
RTI	Respiratory Track Infection
sWATSAN	Safe Water and Sanitation
UBOS	Uganda Bureau of Statistics
Ushs	Uganda shilling
VHC	Village Health Committee
WHO	World Health Organization

EXECUTIVE SUMMARY

Rational for intervention

Nebbi district is one of the 86 districts in Uganda. With a population of 485,017 people of whom 85% are rural and six in every ten people live on less than US \$ 1 a day, income poverty remains high. Yet, safe water and sanitation related problems are equally high. With access to safe water and latrines being 65% and 44% respectively while latrine use is a paltry 17% the 3-year District Development Plan 2006/7 rightly acknowledge the challenges related to environmental health in the district. This situation is worst among fishing communities where access to safe water for drinking, cooking and washing is only 26% and sanitation and hygiene index is staggering only between 0.4 - 0.6. This has led to cholera pandemic as well as a high health burden from otherwise preventable diseases like malaria and gastro-intestinal infections. However, evident herein is that both safe facility provisions are inadequate just like the knowledge, attitude and practices required to maximize health condition returns to the people. Importantly, it is evident that sanitation is always given a lower preference in government support that prioritizes water supply (cf. Maat, *et al*, 2005: 3).

The project focus

The Dei Safe Water and Sanitation Project (DSWSP) implemented by AFARD with funding support from Development Cooperation Ireland (DCI) through the Embassy of Ireland in Uganda, Maria Stroot Fonds and Cordaid was designed to bridge this missing link between safe water provision and sanitation education. The project aimed at promoting positive changes in the health condition of the community as a result of improved knowledge, attitudes, and practices in environmental health (sanitation). Thus, the project impact envisaged changes in the health condition of the people of Dei through the reduction of prevalent unsafe water and sanitation chain related diseases so as to further reduce lost days to illness and health cost. With reduced predisposition to morbidity was also noted expected change in social cohesion.

By using the Participatory Health And Sanitation Transformation (PHAST) and Applied Health Education And Development (AHEAD) models for sanitation and hygiene transformation, it met all its project deliverables within the one year of operation. The local change agents were established, safe facilities were provided, community education and awareness creation events were held, locally-sensitive community policing approaches established and routine progress tracking were held allowing for flexible management approach.

Purpose of the study

The objective of this study was to assess the (i) project impact in terms of the changes in health conditions; (ii) project outcomes reflected by changes in the knowledge, attitude and practices related to safe water and sanitation chain management; in order to have discernable (iii) learning points for future replication.

Methods

To accomplish this objective, a household questionnaire that captured both household and individual household members' related information was administered in 241 of the initial 250 households surveyed during the baseline study. A final review meeting was also conducted as a hand-over meeting in which practical issues about the project processes, outcomes, and the way forward were discussed. Equally, direct observation and documentary reviews were the other complementary data collection methods used.

Findings on project related changes

In terms of gains in the health conditions, it is evident that the Dei Safe Water and Sanitation Project yielded good positive gains for the fishing community. While overall 11% of the population was saved from falling sick, the year 2006 was the first ever when Dei fishing village came out as the '*island without cholera*' given that there was no cholera outbreak. As an unintended impact, there was a change in the health seeking behavior as is exemplified by the increase in the utilization of hospitals (minimum of 40Km away) and a health unit in the area. Further, 20% of the baseline days lost to sicknesses were saved as few people fell sick implying almost Ushs 2,480,000 (€1,102) gained at the local unskilled labor rate. Finally, although in terms of cost savings the finding indicates that generally more money was spent on medical cost, by controlling for other sicknesses outside the project realm, the comparison reveals that 54% (Ushs 1,598, 935) of the total expenditure variance between the baseline and end-of-project time was saved.

From the analysis of water access and handling, Dei safe water and Sanitation Project: (i) increased access to safe water both for drinking and domestic use by 23%; (ii) reduced the distance to safe drinking water by 36% and generally reduced the time for accessing safe water for domestic uses; and (iii) improved on water handling practices for drinking by 9.7% let alone rendering the un-needed processing of water for domestic uses.

Further, by using a simple sanitation and hygiene index, it is evident that the project made a remarkable change in safe sanitation practices of the Dei community. The overall sanitation index increased by 0.2 scores and particularly in home hygiene and vector control practices. These changes included covering containers used for storing drinking water, serving food on individual plates, sleeping in a separate room and under a mosquito net, safe food handling and maintaining safe home facilities clean. The people also erected basic safe home facilities such as bath shelters, kitchens, and cloth line.

However, due to the limited number of facilities as well as the existing norm, it still takes a longer time queuing to access water for drinking. Malaria has remained persistent in the area and improving safe personal hygiene practices remain an area of dire need.

Lessons learnt

Building on the above achievements made, what worked well (success) and did not work well (challenges), it is evident that replication should be built upon:

- Effective community participation right from design, implementation, and review. This should target women and men as well as the vulnerable groups like children, PLWA, and the elderly. Local institutions should equally be engaged.
- A mix of facility supply and 'best practice' compliance demand should be pursued based on exemplary leadership and local standards and should use local change agents who should bridge the knowledge gap before tasking the community with standards' enforcement.
- A multi-actor approach using multi-communication channel based on local realities so that a bridge is built between the knowledge gap and better attitudes and practices.

From all these observations, the Dei Safe Water and Sanitation Project was a success. It responded to the needs of the community, met all its deliverable outputs and outcomes, and has set in place sustainability structures. Its replication is therefore a feasible investment in the lives of the people and is a move towards achieving the Millennium Development Goal (goal 6 & 7).

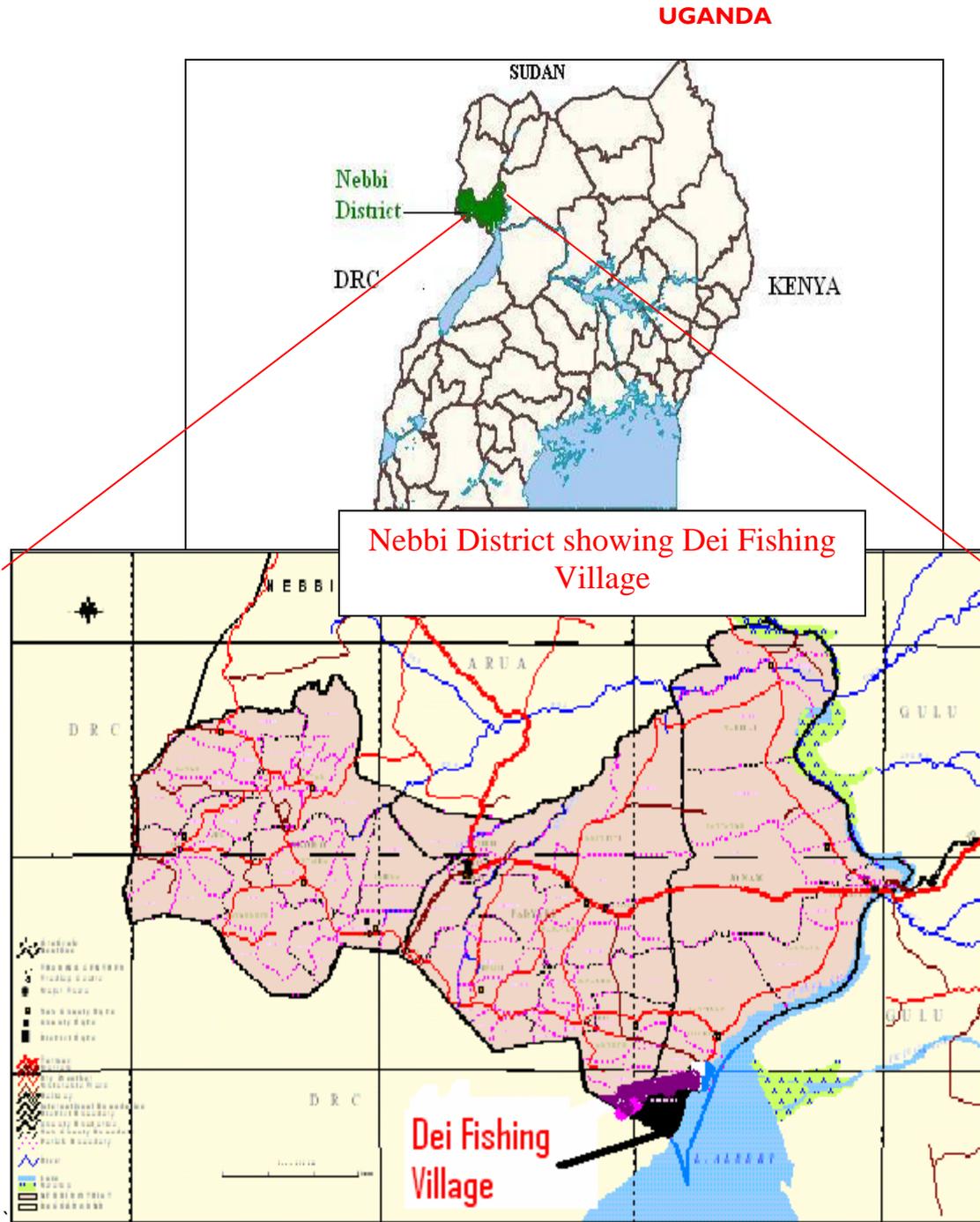
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Figure 1: Map of Uganda showing Nebbi district and the project area



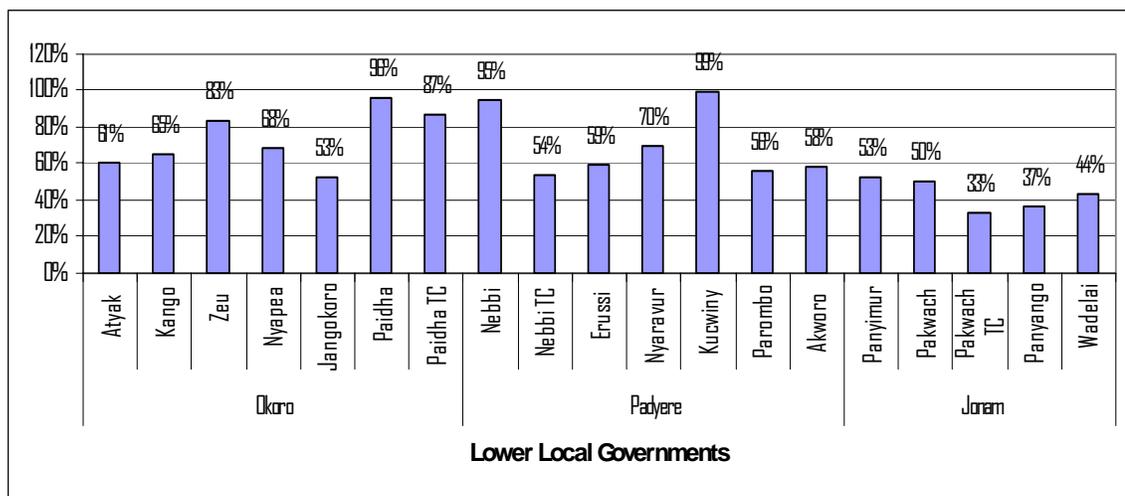
1.0 INTRODUCTION

1.1 The burden of unsafe water and sanitation in Nebbi district

Nebbi district is one of the 86 districts in Uganda. It is disadvantageously located in northwestern Uganda where the long period of war both within it like the Uganda National Rescue Front and outside of it in Southern Sudan, the Democratic Republic of Congo, and Acholi sub-region have caused a lot of ‘development roadblocks’ largely due to non-UNHCR supported refugee influx, inaccessibility to Kampala the trade centre of Uganda, and a declining government focus on investment in the area as war affected political stability. No wonder, six in every ten people live on less than US \$ 1 a day (UBOS, 2006).

Administratively, Nebbi district has 16 sub-counties, 3 Town Councils, 87 Parishes and 1329 villages. According to 2002 Population and Housing Census, the population totals to 435,360 (now projected to 485,017 people). Of these, 52% are females and 48% males, 56% are children below 18 years and 85% live in rural areas. The people, however, have a low social/human development status. For instance, literacy level stands at 59% (females 44%, males 75%); access to safe water points and latrines is 65% and 44% respectively. Only a negligible 0.5% has access to (thermal) electricity¹ and those who own a permanent housing unit are only 3%.² It is, therefore, not surprising that the life expectancy in the district is only 46 years (males 45, females 47).

Figure 2: Safe water coverage by lower local governments



Source: Nebbi District Development Plan 2006-09

¹ Almost all the household (97%) use firewood and charcoal for cooking

² 1.4 % lives in semi permanent and 93% grass thatched roofs (UBOS-November 2005)

The above development status portrays a greater demand for poverty reduction especially in terms of health needs. Rightly, the 3-year district development plan recognizes that there is poor environmental health condition in the district. According to the development plan (table 13), access to safe water sources is 65% and latrine 44% and latrine use is a paltry 17% (UBOS, 2005) with a worst situation in Jonam county (43%) when compared to Padyere (68%) and Okoro (74%) county.

Jonam county is predominantly occupied by fishing communities. Indeed, a study conducted by AFARD in Dei a typical fishing village in the district revealed a deplorable condition (Lakwo et al, 2006). The study indicated that the sanitation and hygiene index was staggering between 0.4-0.6 because:

- A comprehensive use of safe water source for drinking, cooking and washing was only 26%.
- There was generally a low awareness about the dangers of using unsafe water.
- The water chain was not safe making even safe water unsafe. This included the use of: (i) dirty jerry cans for fetching water; (ii) dirty and uncovered pots for storage; (iii) single cups for both drawing water from a pot and for drinking.
- While 66% of households owned and used pit latrines, 12% depended on shared latrines and 22% simply used the bush hence endangering the life of even those who had latrines. Yet, almost half the existing latrines were in bad conditions and faeces of children were considered harmless hence thrown at the edge of the compound.
- Garbage pits for solid waste and soak pits for liquid waste disposal were used by only 30% and 50% of the households respectively.
- Only 26% of the people slept under mosquito nets.
- Personal and home hygiene practices was poor as children were mainly dirty.

Consequences of inaction

These conditions of inadequate facilities, inadequate knowledge on preventive health, and harmful practices regarding personal, home, and community hygiene culminated into high prevalence of otherwise preventable water/sanitation related diseases such as bilharzia, malaria, skin disorder, and diahorrea/dysentery. Cholera became an annual epidemic and many people died from it.

These situations exert enormous health burden on the community. For instance, in the month preceding the baseline survey 38% of the population who fell sick simply suffered from malaria, gastro-intestinal tract infections (GIT) and respiratory tract infections. They incurred costs such as an average of 5 days that month lost to sickness; about Ushs 1.6 million (with a per capita of Ushs 40,000) spent on treatment drug shops, and the community expressed loss of esteem as finger pointing for witchcrafts were also made.

1.2 The Strategic Response: Dei Safe Water and Sanitation Project

Dei Safe Water and Sanitation Project (DSWSP) was implemented by AFARD with funding support from Development Cooperation Ireland (DCI) through the Embassy of Ireland in Uganda, Maria Stroot Fonds and Cordaid. It evolved from the Lakeshore HIV/AIDS Initiative Project (LAIP) when a DCI monitoring and supervision team visited Dei. The community, especially those living with HIV/AIDS, reiterated the fact that a healthy life is more than just the prevention of HIV infection. Rather, it also entails having less disease burden like those caused by cholera pandemic.

This project intended to build a healthy Dei Community by positively changing the health conditions together with health related knowledge, attitude and practices of the community in order to reduce the incidences of preventable diseases. By so doing, the community was envisaged to enjoy positive benefits deriving from a decline in morbidity rate which would translate into more time for gainful activities, savings on health cost, and a cleaner environment. The Participatory Health And Sanitation Transformation (PHAST) and Applied Health Education And Development (AHEAD) models for sanitation and hygiene transformation were the vital approach for the project.

1.3 Project achievements during the year

During the one year of implementation, the following achievements (in terms of deliverable outputs) were made:

Table 1: Outputs of the projects

Key areas	Achieved
1. Establishing and strengthening local change agents	<ul style="list-style-type: none"> • A debriefing meeting was held in all the five villages to explain the project to the communities. This led to awareness and formation of local management structures. • Village Water and Sanitation Committees were formed in all the 5 villages. This later became the Village Health Committee (VHC). • 50 VHCs were trained in community mobilization and education, inspection, and enforcement skills. • 80 VHCs, BMCs, and facility management committees were trained in education and management skills. • 20 VHCs who finally remained vigilant in the project work were provided with gumboots, umbrellas, t-shirts and certificates. • Water point and VIP latrine management committees were established and trained. • VHC operations were supported with basic allowances.
2. Supply of improved facilities	<ul style="list-style-type: none"> • 2 shallow wells and 2 bore holes were constructed. However, the second borehole was finally found unsafe for human consumption. • 2 public VIP latrines were constructed. • 10 improved local latrines were constructed for vulnerable

	<p>families</p> <ul style="list-style-type: none"> • Water source and VIP management committees were trained in sustainability and accountability issues. • 275 insecticide treated mosquito nets were procured and distributed to PLWA and expecting and nursing mothers.
3. Creating demand for improved sanitation practices	<ul style="list-style-type: none"> • Community awareness among 59 (13 women) LCs and Beach management committees was conducted. • Community awareness education was conducted twice in all the 5 villages for 300 people (182 women). • 2000 posters were produced and disseminated • Home hygiene demonstrations were conducted to 1354 households involving women, men, and children • Unhealthy community waste dumping grounds were cleaned
4. Strengthening community policing	<ul style="list-style-type: none"> • A community bye-law was formulated by the community with the help of a magistrate. It was approved by Panyimur Sub county Council and launched by the Chairperson L.C.V Nebbi district in the presence of the Resident District Commissioner, District Health Educator and the LC III Chairman Panyimur Sub County. • Home hygiene educations were conducted in 677 households by the VHCs with technical support from the in-charge Dei Health Centre and AFARD field staff. • Home inspection visits were conducted in all the villages. • Meetings were held involving VHC, LCs and other community leaders to ground the implementation of the byelaw. • Popular courts were held to enforce the byelaw.
5. Tracking performance	<ul style="list-style-type: none"> • A baseline survey was conducted • 5 review meetings were conducted • Safe and Healthy Dei Village Sanitation Register book was established

Source: adapted from progress and financial reports

1.4 Purpose and scope of the evaluation

This intervention in safe water and sanitation promotion has been the first AFARD's undertaking. Yet, basing on community expressed needs, AFARD's next 5-year strategic direction also lay emphasis on sWATSAN component more specifically among the fisher community, this evaluation aimed at finding out:

- Focus 1: What changes occurred in the knowledge, attitude and practices related to safe water and sanitation chain management among the people of Dei fishing village.

- Focus 2: What impacts the project had on the health conditions of Dei fishing community.

- Focus 3: Learning lessons for replication.

1.5 Assessing impacts ... theoretical arguments

The three focuses above are concerned with outcomes (focus 1), impacts (focus 2) and lesson learning (focus 3). This makes this study oriented to both accountability and organizational learning because results are to be proved (as was envisaged) and how the results were attained to be explored for future undertaking. This integral approach is based on the fact that impact is about change (effects) in the face of counterfactual³ which Roche (1999) rightly defines, 'impact is the lasting or significant changes – positive or negative, intended or not – in people's lives brought about by a given action or series of actions'.

In line with this definition, impact, as changes in the life of beneficiaries, is seen as dynamic, multifaceted, contextually specific, path dependent, and is contingent on specific events/conditions (Herbert and Shepherd, 2001). This view deviates from the logframe notion hitherto that impact is a linear occurrence which takes place in a long time after an intervention (that is to say, inputs = outputs = effects = impact). Thus, in this study, both outcomes and impacts are seen as changes/effects of intervention.

³Impact is conceptualized as the difference between what changes occurred with intervention and the situation if intervention had not been made. This is measured by either gross or proportionate gain with same clients longitudinally; or net gain between clients and non-clients in snapshot studies.

2.0 METHODOLOGY

2.1 Study design

Deriving from 1.4, this study used a longitudinal approach. It was the very households in which the baseline study was conducted in January 2006 that were involved in the household survey for this study in January 2007. This was done with the view to compare *ex ante* and *post* intervention changes in these households given that no other intervention was in the area to promote safe water and sanitation.

2.2 Methods of data collection

Table 1 below presents a summary of the various methods of data collection used in conducting this study.

Table 2: Methods of data collection

Levels of analysis	Focus of ToR	Key question	Core variables	Data collection methods
Project objective (Outcome)	Focus 1: Changes in knowledge, attitude and practices (KAP) regarding safe water and sanitation chain management	What changes did the project make on the existing KAP relative to the baseline situation?	<ul style="list-style-type: none"> • Access to and utilization of safe water • Sanitation and hygiene index comprised of personal and home hygiene and vector control practices 	<ul style="list-style-type: none"> • Longitudinal household survey as above but covering both household and individual members' KAP in relation to the envisaged product and outcome changes. • On-spot observations of key facilities and practices
Project purpose (Impact)	Focus 2: Changes in the health conditions of the beneficiaries	What changes in the health conditions did Dei community attain from the project?	<ul style="list-style-type: none"> • Disease prevalence • Health seeking behavior • Number of days lost to sickness • Medical cost expended 	<ul style="list-style-type: none"> • Longitudinal household survey in the same households that were interviewed during the baseline study. Questions asked covered individual members health conditions and responses in relation to the envisaged impact changes.
Implementation strategies	Focus 3: Lessons learnt from planned and adjusted implementation strategies for replication	What lessons can be learnt from the project implementation for an effective replication?	<ul style="list-style-type: none"> • Success factors and Challenges 	<ul style="list-style-type: none"> • Review meeting with the beneficiary community. • Documentary review

3.0 EVALUATION FINDINGS

Attention in this part is given to the presentation of empirical findings. For a review of the study population, see annex 1. In the findings, quantitative data derived from comparison between the baseline and the end-of-project assessment status is enriched with qualitative data from the relevant literatures reviewed and the meeting held with the community. It is in this way that it is worthy to start this analysis of findings with the remark by one of the Village Health Committee member about the entire project cycle as hereunder:

Box 1: The story of Mrs Apolina Kasiano

The story of Mrs Apolina Kasiano a village health committee member of Dei C village in Dei Fishing Village

We must accept that Dei was simply a bush and not worth calling a village with homes fit for human habitation. The village was filthy. Many people especially children were not bathed regularly. At best, a child is bathed once a day in the evening. Many bathed in the lake. Issues to do with their clothing, finger and toe nails, and teeth were considered irrelevant.

Homes lacked the basic facilities that can make one clean. Latrines were lacking. Majority of those who had one had them without cleanliness as holes were uncovered and faeces littered in them. No privacy was secured in the latrines as there were no shutters. Hence flies were all over and bad smell was typical of almost all latrines. [Faeces of children were thrown anywhere because they were considered as not harmful to health.

Similarly, utensil drying racks were multipurpose units for drying fish, utensils, clothes, shoes, and other food stuffs. Majority also had no soak pits for dirty water that were simply poured on the compound. There were also limited bathing shelters. The few available took any structure and lacked cleanliness too.

Finally, our practices of controlling disease spread were unsafe as water handling were unhygienic as well as the collective eating from the same plate ('siniya') and washing hands in the same basin (called 'kataza').

We did not know the after effects of our negligence. Sickness, loss of money and productivity, esteem, and blaming one another for casting spells (bewitching). Malaria was a song in almost all homes. Diarrhea and dysentery were also common. Cholera disease then became synonymous with Dei in the district. Once District

officials would hear of cholera they would run to Dei even if the noted cases were elsewhere. People would also discriminate against us whenever we would travel to other towns like Nebbi during an epidemic outbreak.

When LAIP came and later we got safe water and sanitation points together with home-to-home and collective education, we started to see the need for having a healthy Dei. Community leaders, women and men and lithers came together and formulated a common bye-law and we [people] selected who were to enforce it.

You can see for yourself now. Everyone is proud of the kind of homes they have. Safe water points are now filled with people longing to fetch water there and the line is too long yet no one is willing to go to the lake anymore. Latrines are in almost all homes. Those without land have been given some space to construct one or are sharing with their landlords. Drying racks, soak pits, bath shelters, etc which are clean and used appropriately are a common sight. Attempts at keeping children clean are also being adopted. Indeed life has changed for the better. People in Singla now say, 'you have put a curse on cholera to come and kill us alone'. And now, fewer cases of sickness are occurring and the calling of one a witch has also disappeared.

Source: Progress Report (Dec. 2006)

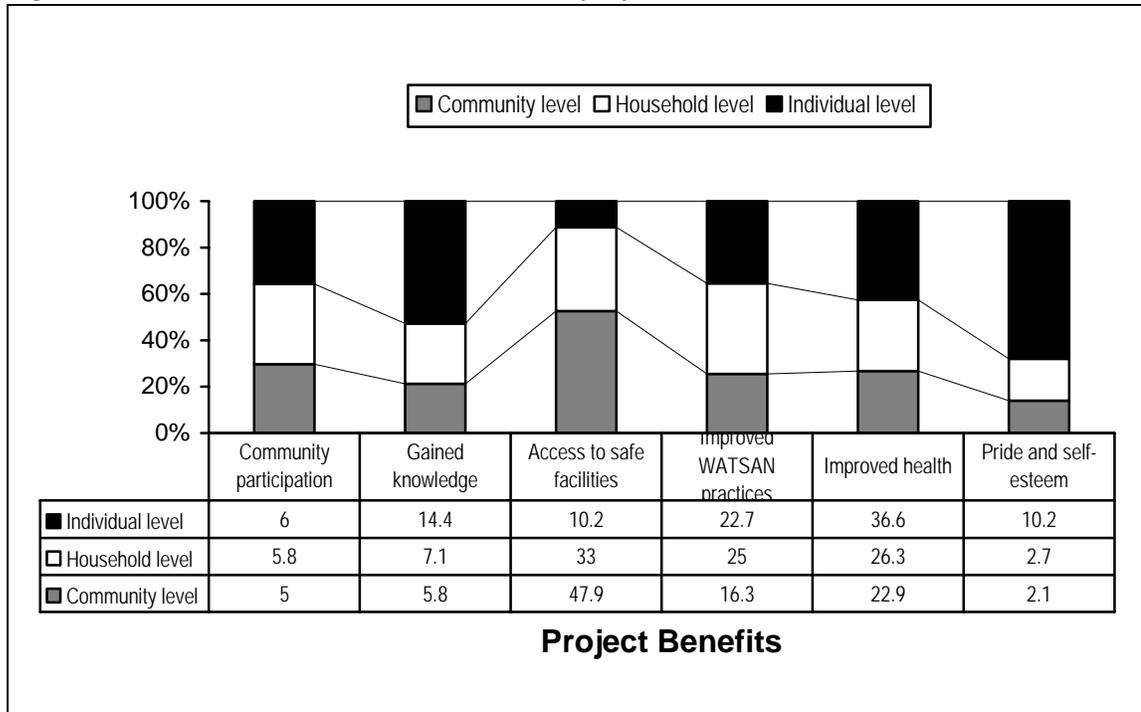
The above citation presents a vivid highlight of the project as will be discussed below in line with the Terms of Reference of the study.

3.1 General changes derived from the project

To explore the changes brought about by the project in Dei, household respondents were asked what they saw as the general positive contributions of the project in their community, household and to them as individuals. Figure 3 below show the responses. Generally, it reveals that it is acknowledged that:

- At the community level, increased access to safe facilities, improved health, and improved sanitation practices were their main positive contributions of the project.
- At the household level, increased access to safe facilities followed by improved health and improved sWATSAN practices were the leading benefits.
- At the individual level, gains in improved health, improved sanitation practices, and better knowledge were the crucial benefits from this project.

Figure 3: Positive contributions of the project⁴



However, during the review meeting some members pointed at some unanticipated negative effects of the project which mainly related to the enforcement of the community bye-law. It was noted that the bye-law enforcement has led to:

- (i) Confiscating of properties like the few accumulated assets that in turn left the people poorer.
- (ii) Land wrangles as many people are struggling for space to erect the required facilities.
- (iii) Other local council court cases and quarrels due to trespassing by people without latrines and no open land where to dispose their excreta.

⁴ Below were the clusters used for the gains received:

- Community participation includes ability to participate in community meetings, taking part in enforcing bye-laws, provision of support to the needy.
- Gain in knowledge was mainly being aware of safe water and sanitation chain management.
- Access to safe facilities includes having safe water points, public VIP latrine, and constructing own safe home facilities.
- Access to health facilities includes gaining confidence in using and actually securing services from modern health facilities.
- Improved practice refers to using safe water, and safe personal and home hygiene practices.
- Improved health includes experiencing few sicknesses, spending less money on treatment and especially experiencing no cholera outbreak.
- Pride and esteem includes having peace of mind, the feeling of being clean and associating with Dei.

- (iv) A feeling of discrimination given that even the elderly people who did not benefit from facility provision and the sick (especially those suffering from HIV/AIDS but were tested for sero-status late) are subjected to the same community rule which is a sign of discrimination.

3.2 Changes in access to and utilization of safe water

To ascertain changes brought about by the project in knowledge, attitude and practice, two critical measures were used, namely access to and utilization of safe water and sanitation and hygiene practices. Under safe water, households were asked the same set of questions asked during the baseline survey. The questions explored issues around water sources, distance, time, and processing. Table 3 below presents a summary of the responses.

Table 3: Access to and safe water handling

Indicators	Baseline	End-of-project	Variance
Use of safe water (%)			
Drinking	76.3	99.2	22.9
Cooking	3.2	21.1	17.9
Bathing	2.4	34.5	32.1
Washing	2.4	16.7	14.3
Safe water access within 0.5 Km distance (%)			
Drinking	62.0	97.9	35.9
Cooking	0.0	21.0	21.0
Bathing	0.0	34.6	34.6
Washing	0.0	17.1	17.1
Access within 30 minutes of queuing time (%)			
Drinking	33.8	89.2	(-55.4)
Cooking	71.9	20.9	51.0
Bathing	74.0	34.0	40.0
Washing	83.2	17.1	66.1
Water processing (% Yes responses)			
Drinking	1.6	11.3	9.7
Cooking	2.9	1.7	-1.2
Bathing	42.6	2.5	-40.1
Washing	5.4	1.3	-4.1

Note: Parenthesis presents where no gains were made. Figures with negative signs but outside parenthesis are where implied gains were achieved.

What can be seen is that:

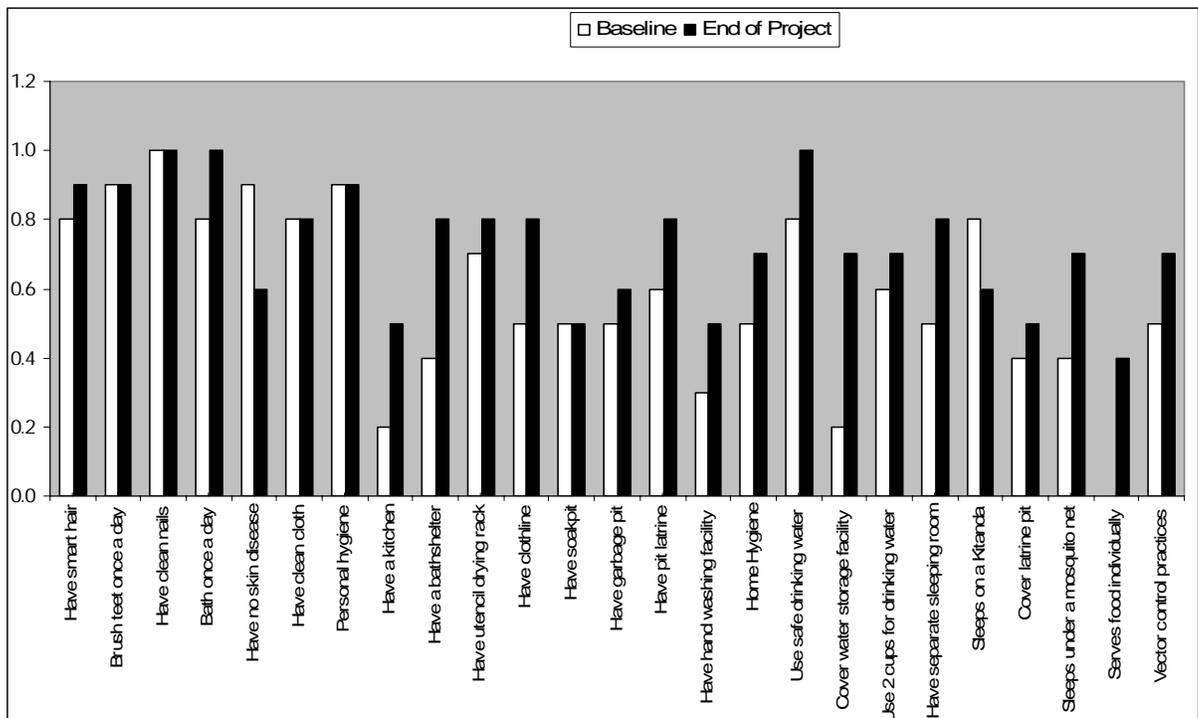
- There has been an increase in the use of safe water both for human consumption and domestic use. This is a sign that the supply of safe water points backed by education created a positive change in the community to ensure that good health is not only by drinking safe water but also by avoiding water-related vectors that inhabit unsafe water sources.
- The supply of safe water point increased access within 0.5Km beyond water for drinking use only but also for other domestic uses which hitherto never utilized safe water.

- Generally, the time to queue for water has significantly reduced for domestic use than for drinking purpose. This difference can be accounted for by the norm of fetching water. Women individually fetch water for drinking and especially in the morning hours. This leads to crowding at water points. While water for other domestic uses are fetched mainly by children/dependants and as and when needed given that households don't have the same cooking, bathing, and washing time.
- Finally, the figures for water processing are largely negative meaning that few households are processing their water before use. These are considered gains because the two domains are different. During the baseline time, households never used safe water points and hence had to adopt certain practices to ensure that the water was safe for use. With the project, processing of safe water is no longer considered a necessary water handling practice.

3.3 Changes in the safe sanitation and hygiene practices

To explore changes in safe sanitation and hygiene practices, three variables, namely, personal hygiene, home hygiene, and vector control practices were looked at. These variables were used to construct a simple sanitation and hygiene index. The index is developed from a weight of 1 for those with and 0 for those without the required safe sanitation practices. The overall observed total is then summed and divided by the expected total and thus the higher the value (i.e., being closer to 1) the safer the sanitation and hygiene condition and vice versa. Annex 2 contains the details.

Figure 4: Safe sanitation and hygiene practices



From figure 4 above, it is evident that the project positively changed safe sanitation and hygiene practices by 0.2 scores and particularly in home hygiene and vector control practices (each with 0.2 scores upwards). These changes were marked in starting to cover containers where drinking water is stored, serving food on individual plates contrary to the norm where family members eat from the same big plate (locally known as 'siniya'), sleeping in a separate room (not shared with animals and also not doubled as a kitchen but cautiously under a mosquito net, and by erecting basic safe home structures like a bath shelter with privacy, a kitchen facility, and cloth line. Such good practices are also adopted in food handling practices and safe home facility conditions as can be seen in the tables 4 and 5 below.

Table 4: Safe food handling practices (%)

Indicators	Baseline	End-of-project	Variance
Washes hand with detergent before cooking	8.7	68.6	59.9
Washes hand with detergent before eating	16.2	80.2	64.0
Serves food on individual plate	1.2	36.7	35.5
Pour water for washing hand before eating individually	0.0	33.3	33.3

Table 5: Safe home facility conditions

Good conditions of facilities	Baseline	End-of-project	Variance
Kitchen	42.5	48.4	5.9
Bath shelter	39.1	57.7	18.6
Utensil drying rack	33.3	58.1	24.8
Cloth line	44.1	60.1	16.0
Soak pit	27.8	49.3	21.5
Water container cover	30.5	64.2	33.7
Garbage pit	25.4	47.0	21.6
Cups for drawing water	31.0	64.9	33.9
Bed room	30.1	60.8	30.7

However, other than not changing the entire personal hygiene practices, the community experienced negative changes in the contraction of skin diseases and failing to shift to sleep on a bed higher than at least 7 feet from the ground. These can be seen from the slow uptake to use safe water for bathing and reliance on fishing where majority sleep by the lake shore awaiting transactions and hence consider it less important to buy a bed.

3.4 Changes in the health conditions

As was noted under 3.1 above, improved health was given an across-the-board benefit rating of over 20% at all levels. Thus, to explore further into these gain, a number of variables specified in table 2 at the impact levels were analyzed by comparing the proportion of those who fell sick in the month preceding the survey. Basing on the fact that the timing of both the baseline and the end-of-project surveys were the same and that no weather changes did take place, it is evident below that

there were some changes in the health condition of the people of Dei as can be seen from table 6 below.

Table 6: Health condition indicators

Variables	Baseline	End-of-project	Variance
Population affected			
Total population who feel sick	477	312	165.0
Proportion of total survey population (%)	38.4	27.2	11.2
Disease patterns (Type of sicknesses - %)			
* Malaria	38	42	(-4)
* Gastro intestinal worms	25	18	7
* Respiratory track infection	24	15	9
* Others	13	25	(-12)
Health services seeking behavior (Where treated - %)			
* Hospital	0.7	12.9	-12.2
* Health centre	0.0	20.5	-20.5
* Clinic	98.3	64.9	33.4
* Home	1.0	1.7	(-0.7)
Labour days effects			
Total number of days lost	2,440	1,944	496
Average days lost	5	6	(-1)
Cash expenses			
Total expenses incurred	1,651,709	4,612,700	(- 2,960,991)
Per capita expenditure	3,463	14,784	(- 11,322)

Note: Parenthesis presents where no gains were made. Figures with negative signs but outside parenthesis are where implied gains were achieved.

Evident from table 6 above is that, generally, both gains and losses were made in different variables of the health conditions measured. Overall, 11% of the population was saved by the intervention from falling sick. Associated with this gain, and as a hailed benefit of the project, the project reports, community review meeting, health unit annual report, and household response to improved health reported the year 2006 as the first ever when Dei fishing village had no cholera outbreak despite the fact that cholera broke out in the adjacent Mahagi Port 10Km to the south and spread outwards to Singla fishing village 8Km away to the north. It was, therefore, not surprising when community referred to Dei as the *'island without cholera'* along the L. Albert fishing villages.

As an unintended impact, community education and awareness created a change in the health seeking behavior as is exemplified by the increase the utilization of hospitals (minimum of 40Km away) and a health unit in the area. With about 33% seeking treatment from hospitals and the health centre, the utilization of clinics (largely drug shops given their operational status) reduced a similar proportion. This changes were linked by the in-charge health unit as a result of his co-participation in

the project activities such as training of local change agents and awareness creation events during which the need for using better health facilities were echoed.

In terms of productive days gained/lost due to sicknesses, it is evident that 20% of the baseline days were saved as few people fell sick although for slightly longer number of days. This 1.1 days in excess of the average days lost were attributed to HIV/AIDS cases that mostly dragged the PLWAs for longer duration of being sick. Notwithstanding, still, the saved days represent Ushs 2,480,000 (€1,102) gained at the local unskilled labor rate.⁵

Finally, in terms of direct financial cost savings the finding indicates that generally because of the longer number of average days lost and higher prevalence of other types of sicknesses (HIV/AIDS inclusive), more money was spent on treatment as compared to the baseline situation. However, by controlling for other sicknesses which do not originate from unsafe water and sanitation, the comparison between the baseline and end-of-project time revealed that 54% (Ushs 1,598, 935) of the total expenditure variance was saved.

However, malaria has remained persistent in the area. Equally, cases of other types of sicknesses like diabetes, tooth, ear, and eye pains, pressure, and HIV/AIDS also increased. This finding however needs to be seen with caution because first, cases of other types of sicknesses remain largely outside the unsafe water and sanitation related diseases and thus require more of curative than preventive health such as this project would provide. Secondly, malarial prevalence needs a long-term prevention approach given that the affected persons continue to harbor the parasites in their blood.

⁵ Conversion is at € 1 = Ushs 2250.

4.0 LESSONS LEARNT

4.1 Operational experiences

In order to come up with vital lessons for replication, during the review meeting and also in the household survey, questions related to the implementation strategies and processes were asked: what worked well (success) and did not work well (challenges). While the former provides a basis for what should be consolidated and carried forward in other similar intervention, the latter sets a basis for what needs to be handled with caution. These are presented in table 7 hereunder.

Table 7: Success stories and challenges met

What worked well	What did not work well
<ul style="list-style-type: none"> • Starting the project with a community baseline to know what the situation was and why? • Putting the community in the lead to analyze their conditions, set targets, identify local actors • Training local actors (change agents) and facilitating them to spearhead the process • Involving different stakeholders in what they can do best like LCs in mobilization and courts • Providing expensive facilities that the community alone could not afford • Demonstrating to the community on the why and how of safe practices • Educating the community collectively and individually • Setting a local bye-law by local standards and ensuring that it is legal and enforceable by local actors • Forming and training facility management committees to ensure local ownership and continued use • Holding periodic reviews helped in making all front line actors active and cohesive given that the goal remained the cardinal drive. 	<ul style="list-style-type: none"> • Illiteracy of facility management committee meant poor record keeping and weak accountability. • Sabotage by landlords and fishermen in providing and using safe sanitation and hygiene facilities • Poor coordination between LCs, facility management committees, and VHT to ensure joint mobilization, accounting, and enforcement • Inadequate facility (mosquito nets and latrines) support to the vulnerable groups like the elderly and PLWA who are unable to afford on their own such facilities • The phasing of education and enforcement which met with many floating population left unaware of safe water and sanitation needs and hence non-compliance. • Failure to specifically target the children right from the start left many unaware and not practicing safe personal hygiene. • LCs have inadequate knowledge of bye-law enforcement especially given that they are used to simple courts • The few number of VHCs and their immobility limit effective coverage in all the villages for a consistent uptake process

4.2 What we have learnt

From the above, the following lessons can be taken for replications:

- Dei's environmental health problems, like in other fishing villages, are due to lack of correct and adequate knowledge on safe water and sanitation chain management.
- Effective safe sanitation chain management is better handled beyond the personal and home setting but also by integrating institutional players like the LCs and Beach management committee. Such inter-institutional participation is the basis for ensuring that lead actors effectively do what they preach.
- Improving community sanitation status requires the provision of both health enhancing facilities like safe water points and public toilet facilities together with education to facilitate positive KAP.
- Community sanitation education is better internalized and adopted when built on local conditions; provided by a multi-channel approach and better handled when the locals manage themselves with external agencies only providing a catalytic role.
- Without targeting vulnerable groups like children, PLWA, and the elderly effective sanitation coverage can not be achieved.
- Effective bye-laws are those set by the community. This is because it is set after the community has internalized its limitations. The enforcements then get integrated into the existing systems contrary to the existing government law that is seen as imposed let alone lacking enforceability. However, to operationalize such bye-law, it is important to demand for exemplary leadership in order to wean leaders' compromised actions against bye-law defaulters.
- Clean environment contributes to everyone's health and has benefits right from the individual through the household up to the community level. This gain occurs in a social change process that takes time. Thus, a long-term intervention (1-2 years) is desirable.
- Poverty forces people to have less time for their safe sanitation. Among fishing communities with limited livelihood diversification and inadequate returns to fishing and its related activities almost all adults clamor all day long to make ends meet. This results into poor personal and home hygiene.
- Sustainability of intervention promotion is best anchored on creating local structures which are mandated by local bye-laws enforced together with local leaders.

5.0 CONCLUSIONS

5.1 The evaluation positioning

The Dei Safe Water and Sanitation Project (DSWSP) implemented by AFARD with funding support from Development Cooperation Ireland (DCI) through the Embassy of Ireland in Uganda, Maria Stroot Fonds and Cordaid was designed to bridge the link between safe water and sanitation and hygiene practices. The project aimed at promoting positive changes in the health condition of the community as a result of improved knowledge, attitudes, and practices in environmental health (sanitation). Thus, the project impact envisaged changes in the health condition of the people of Dei through the reduction of prevalent unsafe water and sanitation chain related diseases so as to further reduce lost days to illness and health cost. With reduced predisposition to morbidity was also noted expected change in social cohesion.

The objective of this study was, therefore, to assess the extent to which such envisaged changes occurred in order to gain learning points for future replication. To accomplish this objective, a household questionnaire that captured both household and individual household members' related information was administered in 241 households. A final review meeting was also conducted. Equally, direct observation and documentary reviews were the other complementary data collection methods used.

Findings on project related changes

In terms of gains in the health conditions, it is evident that the Dei Safe Water and Sanitation Project yielded good positive gains for the fishing community. While overall 11% of the population was saved from falling sick, the year 2006 was the first ever when Dei fishing village came out as the '*island without cholera*' given that there was no cholera outbreak. As an unintended impact, there was a change in the health seeking behavior as is exemplified by the increase (33%) in the utilization of hospital and a health unit in the area. Further, 20% of the baseline days were saved as few people fell sick implying almost Ushs 2,480,000 (€1,102) gained at the local unskilled labor rate. Equally, in terms of cost savings the finding indicates that by controlling for other sicknesses, 54% (Ushs 1,598, 935) of the total expenditure variance between the baseline and end-of-project time was saved.

Further, the analysis of water access and handling revealed that the project (i) increased access to safe water both for drinking and domestic use; (ii) reduced the distance to and time for accessing safe water; and (iii) improved on water handling practices.

Finally, the simple sanitation and hygiene index revealed that the project made a remarkable change in safe sanitation and hygiene practices among the people of Dei fishing community. The overall sanitation index increased by 0.2 scores and particularly in home hygiene and vector control practices.

Lessons learnt

Building on the above achievements made and what worked well (success) and did not work well (challenges), it is evident that replication should be built upon:

- Effective community participation right from design, implementation, and review. This should target women and men as well as the vulnerable groups like children, PLWA, and the elderly. Local institutions should equally be engaged.
- A mix of facility supply and 'best practice' compliance demand should be pursued based on exemplary leadership and local standards and should use local change agents who should bridge the knowledge gap before tasking the community with standards' enforcement.
- A multi-actor approach using multi-communication channel based on local realities should be pursued so that the knowledge gap upon which better attitudes and practices is built bridged.

In all, despite the persistence of malaria, longer time for accessing safe drinking water, and limited improvement in personal hygiene, the Dei Safe Water and Sanitation Project was a success. It responded to the needs of the community, met all its deliverable outputs and outcomes, and has set in place sustainability structures. Its replication is therefore a feasible investment in the lives of the people and is a move towards achieving the Millennium Development Goal (goal 6 & 7).

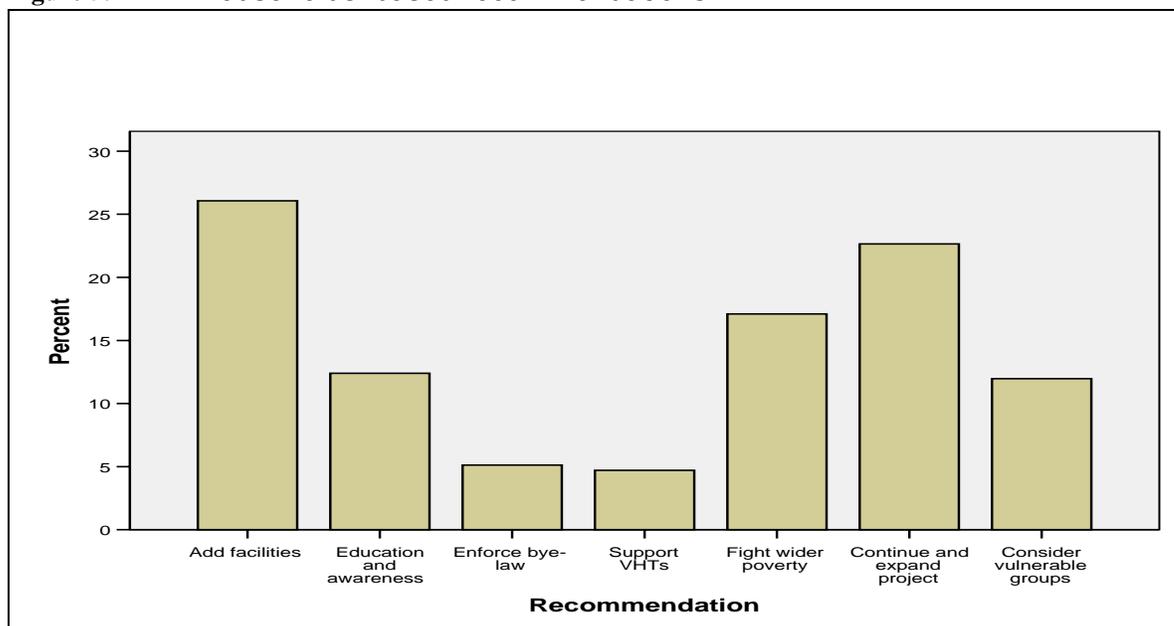
5.2 The way forward

From the aforegone, two ways forward for entrenching the current project in order to make Dei fishing village clean and healthy and for replication are important. These are presented below

a) Entrenching the project

The study reveals that there is yet unfinished work in Dei. Malaria prevalence, time for queuing for water for drinking, and poor personal hygiene have all not yet been concurred. This means that there is still outstanding business for AFARD either directly or indirectly to ensure that the project design vision 'Building a Healthy Dei Community' is achieved. The households indicated below what should be done in order to realize this vision. As figure 5 shows, there is need for the project to continue in order that it to provides more safe facilities and expand into other fishing villages.

Figure 5: Households' based recommendations



b) Replication approach

For AFARD to produce more results from its next 5-year strategic plan, the following provides a prudent approach to safe water and sanitation promotion.

Table 8: Key issues for consideration

Project design and start-up	<ul style="list-style-type: none"> • See WATSAN as a poverty issue not only restricted to health <i>per se</i>. • Ensure a participatory approach in issue definition and way forward identification. Herein entrench community shared vision as a drive for a desire for change. • Develop a holistic targeting approach not only for homes and family heads but with vulnerable categories like children, PLWA, and the elderly inclusive. • Engage with landlords, beach management, boat owners, managers of public facilities like markets, and local councils to ensure that floating population are catered for. • Ensure exemplary leadership is built among all frontline change agents.
Project management	<ul style="list-style-type: none"> • Establish and strengthen local frontline team as change agents. • Provide a purely catalytic role giving ownership to local frontline team. • Start from where the community is and advance into what they need but do not know how to achieve. Education should focus on these in order to snowball strengths and avert weaknesses. • Ensure a mix of supply of facilities that the community can not afford and demand for own provision of what they can do on their own. • Adopt a multi-faceted information, education and communication

	<p>strategy. This should be adapted to specific social categories as their practices for change are different.</p>
Performance tracking	<ul style="list-style-type: none"> • Set a clear baseline that is both qualitative and quantitative. This should derive from the baseline study and strategy design meetings. • Establish a Village WATSAN Record Book which is used for periodic visits. • Maintain clear records of activities. • Conduct multi-stakeholder periodic reviews covering the entire facets of the project. • Integrate review issues in routine planning for value-addition.
Gender question	<ul style="list-style-type: none"> • Ensure that community diagnostic analysis is done by gender • Establish committees with gender equity • Target services delivery basing on gender needs and effects • Ensure in reporting both gender echo their voices
Sustainability issues	<ul style="list-style-type: none"> • During start-up, promote local ownership so that 'our' project desire takes over from AFARD's project • Set local change agents and build their capacity for continuity. The skills should be focused at their roles and responsibilities but flexibly expanded to accommodate the adaptive management approach. • Restrict excessive motivation in order for 'voluntary participation' to anchor right from the start rather than during exit time • Ensure every public facility has a management committee. Their management capacity is built. • Promote transparency and accountability so that stakeholders appreciate and receive 'value-for-money and value-for-efforts. • Promote inter-institutional coordination right from the start so that every actors effectively handle their bordered-tasks
Community policing	<ul style="list-style-type: none"> • Start by making the community aware that their health is a community responsibility that is only implemented at household and individual levels. • Start the process after a few rounds of community education and awareness creation events so that the good and bad practices can be easily identified and priorities. • Allow the community to set their standards basing on immediate but lasting effect rules. This should allow for periodic incremental reviews and amendments. • Ensure the standards come into a bye-law which is consistent with the mother law and is approved by the relevant local council organs • Popularize the bye-law to avoid the seen as unfair and not free formal courts notion that 'ignorance is no defence'. • Maintain firmness in bye-law enforcement after the grace period has elapsed.

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ANNEXES

Annex 1: The study population

Indicators	Baseline	End-of-project	Variance
Total number of households	250	242	8
Total population	1,253	1,148	105
Females (%)	55	51	4
Mean household size	5	5	0
Population composition			
* Children (0-14 years)	47.1	46.9	0.2
* Adult (15-50 years)	46.8	45.8	1.0
* Old (>50 years)	6.1	7.3	1.2
Population distribution			
* Dei A	19	17.3	1.7
* Dei B	24.8	28.7	-3.9
* Dei C	19.4	14.2	5.2
* Dei Central	15.8	20.9	-5.1
* Dei Village	21.1	18.9	2.2
Education level			
* None	52.9	39.5	13.4
* Functional Adult Literacy	1.2	2.3	-1.1
* Primary	42.9	53	-10.1
* Secondary	2.8	4.9	-2.1
* Post secondary	0.2	0.4	-0.2
Residence			0
* Permanent	83.2	79.9	3.3
* Temporary	12.8	19	-6.2
* Seasonal	4	1.1	2.9
			0
Marital status (married)	32.7	35.4	-2.7
Fishing as an economic activity	39	20.8	18.2

Annex 2: Safe sanitation practice and hygiene performance

	Baseline	End of Project	Variance
Have smart hair	0.8	0.9	0.1
Brush teeth once a day	0.9	0.9	0.0
Have clean nails	1	1	0.0
Bath once a day	0.8	1	0.2
Have skin disease	0.9	0.6	-0.3
Have clean cloth	0.8	0.8	0.0
Personal hygiene	0.9	0.9	0.0
Have a kitchen	0.2	0.5	0.3
Have a bath shelter	0.4	0.8	0.4
Have utensil drying rack	0.7	0.8	0.1
Have cloth line	0.5	0.8	0.3
Have soak pit	0.5	0.5	0.0
Have garbage pit	0.5	0.6	0.1
Have pit latrine	0.6	0.8	0.2
Have hand washing facility	0.3	0.5	0.2
Home Hygiene	0.5	0.7	0.2
Use safe drinking water	0.8	1	0.2
Cover water storage facility	0.2	0.7	0.5
Use 2 cups for drinking water	0.6	0.7	0.1
Have separate sleeping room	0.5	0.8	0.3
Sleeps on a Kitanda	0.8	0.6	-0.2
Cover latrine pit	0.4	0.5	0.1
Sleeps under a mosquito net	0.4	0.7	0.3
Serves food individually	0.0	0.4	0.4
Vector control practices	0.5	0.7	0.2
Overall index	0.6	0.8	0.2