



Building A Healthy Dei Community



Safe water and sanitation Status in Dei Fishing Village Nebbi District, Uganda A Baseline Assessment Report

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(AFARD)

August 2006

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With Funding from:

Development Cooperation Ireland

P.O. Box 7791, Kampala Uganda

August 2006

Foreword

On her maiden visit to Dei fishing village the Resident District Commissioner, Nebbi district, Mrs. Betty Adima remarked: ‘I have been made to know that Dei though in Uganda is in reality perceived as if it is part of the Democratic Republic of Congo. This is because of its being far from the centre of power where resource allocation is shared to Dei’s disadvantages. Indeed, I feel concerned that this village continues to receive minimal support from government that should have been its best services deliverer ...’ This comment typifies what the people of Dei feel about their citizenship entitlements in Nebbi district local government; something exemplified by the few government programmes in their area.

Another aspect that warrants attention is that cholera outbreak is a bi-annual event in this village. Yet, interventions are by far ad hoc and managed in ‘disaster management style’ with a focus on short term rather than a long-term prevention measures.

As such, Dei community suffers health insecurity. The cyclic after effects are that the entire livelihood system is weakened as labor force productivity is reduced at an increasing health cost. Such a scenario has trapped the community in a situation of resentment to government policies however good they may be.

This study was, therefore, conducted to set a benchmark on ‘what sanitation status’ Dei community is in. From the study it can then be seen that despite a generally improving health status of Nebbi district, Dei is an isolated case where ‘people’s knowledge, attitudes, and practices’ continues to embed them in risky environmental health that could otherwise be improved by them. Hence, Dei Safe Water and Sanitation Project (DSWSP) is a timely intervention aimed at facilitating the community to police their own health after learning from local government intervention gaps.

In this way, we shall jointly widen the entitlement base of Dei community to ably move towards the vision of a “prosperous, healthy, and informed people” of West Nile region.

Rev. Fr. Ocamgiu Geoffrey
Chairman Board of Directors
AFARD

Acknowledgement

We are grateful to all the people who have contributed towards the successful completion of this study. First and foremost is the Lakeshore AIDS Initiative Project funded by the Development Cooperation Ireland (DCI) in Uganda that provided the foundation from which the community ably identified, after a long period of neglect by government, the need for a healthy Dei starting with the Water and Sanitation Project. It is from this need that the funding support of DCI, Mariastroot Fonds, and Cordaid were sought.

Secondly, the people of Dei who accepted to share with us all their lives by way of answering questions that touch their personal lives. Special mention is made of Miss Owila Grace and Mr. Openjcan Martin who crisscrossed the five villages of Dei administering the questionnaires among their fellow village mates.

Last but not least, we appreciate the support we got from fellow staff of AFARD not only in developing the questionnaires but also in the subsequent activities related to field supervision, data collation and analysis let alone the many discussions on the draft reports.

We strongly believe that the efforts we, and others not mentioned here, have jointly invested herein, will bear fruits of building a 'Healthy Dei Community.'

Wilfred Cwinyai
Ag. Programme Officer
AFARD

Executive Summary

The purpose

The Dei Safe Water and Sanitation Project (DSWSP) is a one year project to be implemented by the Agency For accelerated Regional Development (AFARD). The project aims at positive changes in the knowledge, attitudes, and practices in environmental health (sanitation) so that there is improved health status evident in part from positive benefits such as savings on health costs, more time for gainful activities, and a cleaner environment. Since there was no reliable data upon which progress and eventually evaluation would be based, a baseline study was inevitable. This study objective was to assess the knowledge, attitude and practices related to: (i) access to, and utilization of safe water; (ii) waste disposal practices; and (iii) (disease) vector control practices.

Methods

To accomplish this objective, a household and individual questionnaire was administered in 250 randomly selected households. Complementary data collection methods were direct observation, focus group discussions, documentary reviews, and photography (digital still and video photos).

Findings

From the data it was evident that:

- Finding 1:** Water from existing boreholes was so salty that about 30% of the population used water from the lake and streams considered easily accessible (in time factor) and suitable for cooking and washing.
- Finding 2:** There was generally limited awareness about the dangers of using unsafe water. Only a few people were aware of the implications of using lake water and insisted on borehole water or boiling lake water before drinking.
- Finding 3.** The water chain was not safe therefore 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 drinking by all.

- Finding 4:** While 66% of households in Dei had pit latrines, 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 as they had uncovered holes and lacked anal cleaning facilities. This situation was worsened by the fact that faeces of children was considered harmless hence thrown at the edge of the compound.
- Finding 5:** Garbage pits for solid waste and soak pits for liquid waste disposals were used by a small minority, 30% and 50% respectively. When garbage pits filled up, they grew into mounds. Soak pits were only constructed in bath shelters.
- Finding 6:** Vector control practices were poor with, for instance, only 26% of the people sleeping under mosquito nets.
- Finding 7:** The immediate consequence of the above situation was that 38% of the population fell sick largely from malaria, gastro-intestinal tract infections (GIT) and respiratory tract infection in the one month preceding the study. The costs associated with this was an average of 5 days lost to sickness; about Ushs 1.6 million was spent on treatment mainly in drug shops, and the community expressed loss of esteem.

Recommendations

To positively change the sanitation status in Dei fishing village requires:

- (i) The provision of safe water points and public toilet facilities.
- (ii) However, the community should take responsibility for the sustenance of the structures put in place for that purpose.
- (iii) Using the local community efforts to build a healthy Dei community. This should start with (a) a general sanitation education to all categories of people in the area; (b) setting a Healthy Dei Community' standard – local byelaw; and finally, (c) enforcing this byelaw on all households.

It is in this way that the community will not only know the value of safe sanitation but will feel compelled to adopt positive attitudes and practices to ensuring that they live in a healthy environment. By so doing, they will reduce the otherwise high health burden they are facing.

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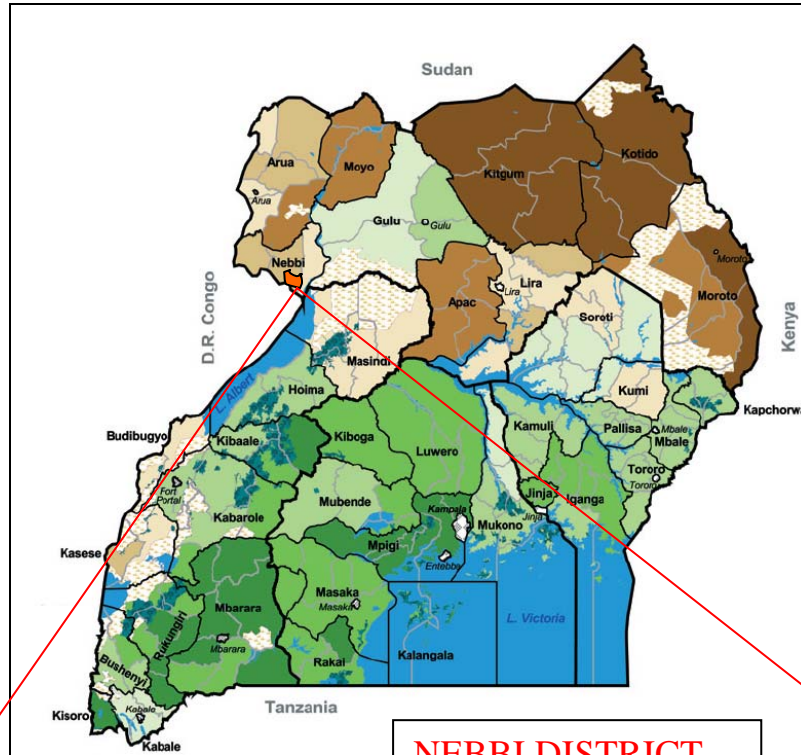
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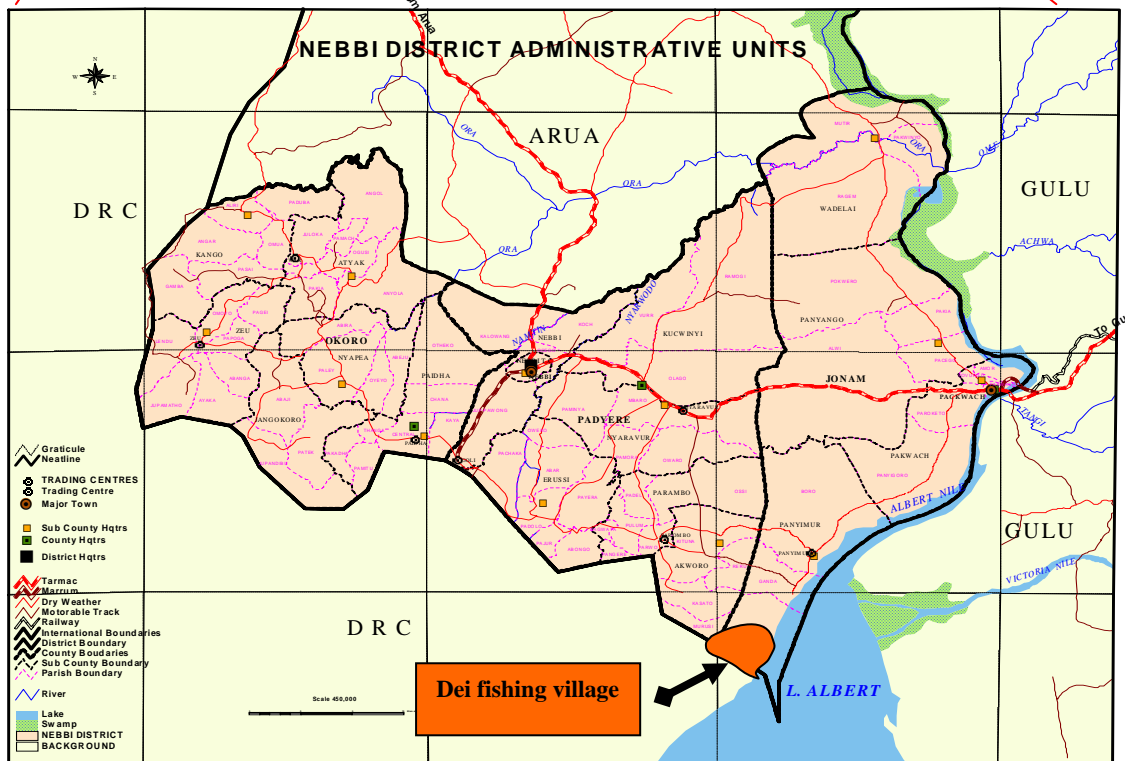
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UGANDA



NEBBI DISTRICT



1.0 INTRODUCTION

Environmental health is an area of concern in rural development. Safe sanitation is, therefore, legally recognized as a **must** for all the people of Uganda by the 1995 Constitution (Chapter 3 Article 17 (j)); the Local Governments Act 1997 (Part IV, article 7(a), 14 (a & b); the Public Health Act, 1997); and the Kampala Declaration on sanitation (1998). The GoU has, through the ministry of health, local health sub districts, and NGOs/FBOs, enacted a sanitation statute that promotes the safe water chain.

The Agency for Accelerated Regional Development (AFARD) with the support of Development Cooperation Ireland (DCI) in Uganda initiated Dei Safe Water and Sanitation Project (DSWSP) in 2006. While the project looks at facilitating a process of building a 'Healthy Dei Community' through improving environmental health, it became inevitable for the project to chart a path within which it would remain accountable for its input-impact chain. It is this outlook that was the basis for this baseline study. In this section, therefore, the background information about Dei fishing village and this study is provided.

1.1 About Dei fishing village

Dei fishing village is located on L. Albert in Panyimur sub county, Nebbi district. It has 5 villages and a projected population of about 4500 people (56% females). The average household size is 6.5 people with female-headed households comprising 80% at the landing centre and about 30% in the other four villages. The main source of livelihood is fishing among men and fish mongering (known as *speed*) among women. Petty trade is common among all households. Farming is only practiced by the indigenous who have small plots of land (less than 1 acre) at the foot of the rift valley. Settlement is densely concentrated along the lakeshore.

Over the years, local government's health related interventions in Dei has been negligible. There was only one safe water source that was too inadequate for the population of the area. A health post exists but does not have a preventive health outreach programme leave alone being poorly equipped. Health education is only thought of for the purpose of enforcing safe sanitation at the times of cholera outbreak and is basically limited to food hygiene. No wonder, health workers are generally perceived as civil servants who come to shut down eating joints and banish sales of cold food. This has made the people resistant to the important preventive health messages the health workers bring to them.

Vital consequences of the scenario described above are that water-borne and water vectored maladies are prevalent in Dei fishing village. Cholera is a bi-annual epidemic and many people die from it. Even the locals know that their

health is unsafe. Attempts by the local councils to address the situation have not yielded positive results because the mind set of the people is untargeted for change. People are ambushed with sanitation regulation that they are not made to understand. Even the enforcers of those regulations simply make 'impromptu visits' to few homes leaving out many homestead uncovered. Dei Safe Water and Sanitation Project was designed to address exactly this gap.

1.2 The Project

Dei Safe Water and Sanitation Project (DSWSP) is to be implemented by AFARD with funding from Development Cooperation Ireland (DCI) through the Embassy of Ireland in Uganda, Mariastroot Fonds and Cordaid. It evolved from the Lakeshore HIV/AIDS Project (LAIP) where the people, especially those living with HIV/AIDS, reiterated the fact that a healthy life is more than just the prevention of HIV infection. Rather, positive living also entails having less disease burden. This last aspect was important because as members of Post Test Club their meager resources were being depleted to support fellow members' access to medical care (beyond accessing ARVs 69Km away). It was also about this time that cholera broke out too in the area with some deaths. Thus when a DCI monitoring and supervision team visited Dei, the situation was presented to them and the result was this project.

This project intends to build a healthy Dei Community by positively changing health related knowledge, attitude and practices of the community in order to reduce the incidences of preventable diseases. By so doing, the community is envisaged to enjoy positive benefits such as savings on health costs, more time for gainful activities and a cleaner environment. Thus the intervention includes the provision of water and sanitation education to the entire 4,500 people of Dei village, constructing one bore hole and two shallow wells, constructing a latrine for public use and distributing mosquito nets will be provided to people living with AIDS who have publicly declared their status as a priority. A Water and Sanitation Committee will be trained to perform two roles: Community education and the sustainable management of the water sources and public toilets. This training is necessary because while the construction of safe water point remains desirable, emphasis in this intervention is placed on home and personal hygiene using exemplary leadership and community policing approach as a core entry point. The Participatory Health And Sanitation Transformation (PHAST) and Applied Health Education And Development (AHEAD) models for sanitation and hygiene transformation remains a vital approach for this project¹.

¹ PHAST/AHEAD is an innovative approach to causing attitudinal and behavioral change at the community level. By using visual aid with a storyline on sanitation and hygiene 'best' practices; the village change agents will institute Community Health Clubs (CHCs) as health promotion vehicles for dissemination, monitoring of hygiene and sanitation outputs and significant changes in the sanitation and hygiene behavior.

2.0 THE BASELINE STUDY

Although DSWSP evolved out of local needs of the community, it lacked a comprehensive baseline with which it could be tracked and evaluated. Beyond monitoring and evaluation such a baseline would also present to the beneficiary community, by use of PHAST/AHEAD, where their sanitation status is. Similarly, information would help to identify the core entry points for the project so that intervention is built on their existing knowledge – indigenous, modern and adapted – about their health. This realization was found important because community knowledge informs their attitudes and practices towards a given perceived secure healthy living. It is the inadequacies or misconceptions about such knowledge, attitudes and practices (KAP) that are likely to put the health status of the people in jeopardy, hence should be changed. It was, therefore, found important from the onset that for DSWSP to improve people's health it should start from where they are, and build on their KAP for a positive change.

2.1 Objective of the study

The broad aim of this survey was to gain an understanding of the existing KAP in relations to safe water, sanitation and hygiene practices in Dei fishing villages. Such an insight is to set a basis for (i) establishing clear baseline information to be used for designing a participatory impact monitoring (PIM) tool with the community; and (ii) identifying clear intervention strategies that suit the gaps and strengths so identified.

Thus, the study specifically set to assess safe water and sanitation chain practices by exploring: (i) access to and utilization of safe water; (ii) waste (excreta, solid and liquid) disposal practices; and (iii) vector control practices. These parameters are where safe hygiene – personal and environmental – revolves. Unpackaging these facets of safe sanitation would, therefore, increase the understanding of how disease vectors spread from faeces through flies, fluids, fingers, field/floors, into foods/water where they are passed on to the people (new host).²

2.2 Methodology

To collect data in regards to the above three facets of safe sanitation the following methods were used.

- **Household survey** was conducted using open ended questions administered by trained enumerators after a pre-testing done together with the District Health Educator. Respondents were drawn from 250 randomly selected households in the five local council one (usually known as LC 1)

² See Water and Sanitation Collaboration Council and WHO (2005). Sanitation and Hygiene Promotion: Programming Guidelines. Geneva.

of Dei fishing village. However, in addition to the household heads, other members of households also responded to individual level questions designed for them such that in total 1,253 people responded to the questionnaires.

- **Focus group discussions** were held with various social groups on water, sanitation and hygiene practices including fishermen (*lithers*) who do not belong to households, and institutional managers of schools, the fish landing site, the market, religious prayer points and business operators in the trading centre.
- **Direct observations** of facilities and practices at various points were conducted. This was complemented with a video shooting of key selected aspects of safe water, waste, and vector management.
- **Community meetings** were held to provide a feedback on the findings for further analysis, reflection and plausible intervention analysis.

3.0 STUDY FINDINGS

Below is the analysis of study findings in relation to the three facets of safe sanitation, namely: safe water usage; disposal of excreta, solid and liquid waste, and vector control.

3.1 Common water access and utilization practices

3.1.1 Main and alternative source of water

While majority of the households used the only borehole (76.4%) for drinking with the lake (23.6%) as the alternative source, for all other uses (cooking, bathing and washing utensils and laundry) almost all households used water from the lake and the stream as an alternative.

Table 1: Water source and utilization

Water use	Main water source	Alternative source
Drinking	Borehole and shallow wells	Lake
Cooking	Lake	Unprotected shallow wells
Bathing	Lake	Stream
Washing	Lake	Stream

Source: Survey data

However, of the 23.6% that drank unsafe water, the biggest proportion came from Dei C village (10%) followed by Dei (6.4%) then Dei B (4.8%) primarily because none of the previous boreholes were located in these areas.

Table 2: Source of water for drinking by village

Villages	Main drinking water source		Total
	Safe	Unsafe	
Dei A	93.9%	6.1%	100.0%
Dei B	78.6%	21.4%	100.0%
Dei C	51.0%	49.0%	100.0%
Dei Central	92.9%	7.1%	100.0%
Dei Village	69.2%	30.8%	100.0%
Total	76.4%	23.6%	100.0%

Source: Survey data

3.1.2 Water access and consumption level

Although both safe and unsafe water points were in use, the level of access and quantity consumed was below the accepted SPHERE's standard.³ It is evident

³ *Safe water* means water from boreholes or shallow wells while *unsafe water* means water from the lake, streams and rivers.

from footnote 3 and the table below that Dei community had fallen short of all the SPHERE parameters.

The time taken to fetch water, determined by the distance to the source and the waiting time at the collection point, made it rather hard to access safe water point. While the distance to the lake and borehole was almost the same for all villages, about half a kilometer on average, a family had to invest 120 minutes in collecting borehole water yet it took only 80 minutes going to the alternative source, the lake. The difference of 40 minutes was due to the waiting time at the borehole.

Table 3: Distace to water collection points and time taken

Water use	Average Distance to main source (Km)	Distance to alternative source (in Km)	Time taken to fetch for daily consumption (in minutes)
Drinking	0.5	0.4	120
Cooking	0.4	0.5	80
Bathing	0.4	0.4	80
Washing utensils	0.4	0.4	40

Source: Survey data

In this way, there was three categories of water users:

- A few people who were aware of the implications of using lake water and insisted on borehole water at least for drinking and boiling water from the lake before drinking
- A sizeable number who were aware of the dangers but were resigned to the consequences and would panic into boiling water for drinking only when cholera struck or on rare occasions when a dead body was recovered from the lake.
- A similar proportion who were not aware of the dangers at all, believed that death originates from God, and after all, they were alive even when drinking lake water.

It was pointed in a FGD that the overwhelming use of unsafe water sources, justified by comments like 'even before the advent of boreholes, the locals have ever been using the same lake water', were due to:

- The limited number of safe water points in the area. Besides, the only shallow well is the most saltiest and the only borehole in the area

SPHERE safe water standard

Indicators	SPHERE standard	Dei status	
		Safe point	Unsafe point
Average water use (liters)	15	1.4	2.5
Maximum distance to water point (km)	0.05	0.5	0.4
Queuing time (Mins)	≤15	62	27

frequently breakdown and takes too long to repair given that no community finance management system is well established.

- The too long (time) and far (distance) to access safe water point given that many women sent children as young as eight to the borehole or lake to fetch water. Moreover the lake water was ever in abundance. One needed to simply immerse the jerrycan in the lake to fill and thereby obviating the need to dispense



Figure 1: Washing and bathing in L. Albert

- energy pumping a borehole and within 30 minutes one was back home.
- The excessive saltiness of borehole water that alter its quality and taste hence making it not preferred for use like cooking food, especially beans. And, the whitish deposit of borehole that remain on the skin after bathing is believed by many people to have a “cancerous” effect on their intestines.

3.1.3 Water handling

The processing and storage of water is important if it must be safe. In Dei, drinking water was invariably stored in earthenware water pots while for all other uses the water was stored in jerry cans. The porous pot surface allows for cooling through evaporation. Observations showed that the jerry cans used for fetching water were, more often than not, dirty both inside and outside. It was also common for people to cover the opening of the jerry cans using the index finger regardless of whether the finger was clean or not. A few people who used basins for fetching water also put leaves, mostly without washing it first, in the water to prevent it from splashing out when transporting water home. Moreover, the pots in which the water is finally stored are rarely washed. All these avenues make even safe water unsafe.

Table 4: Water storage practices

Water use	Storage facility	Water processed before use
Drinking	Pot	No
Cooking	Jerry cans	No
Bathing	Jerry cans	No
Washing utensils	Jerry cans	No

Source: Household observation

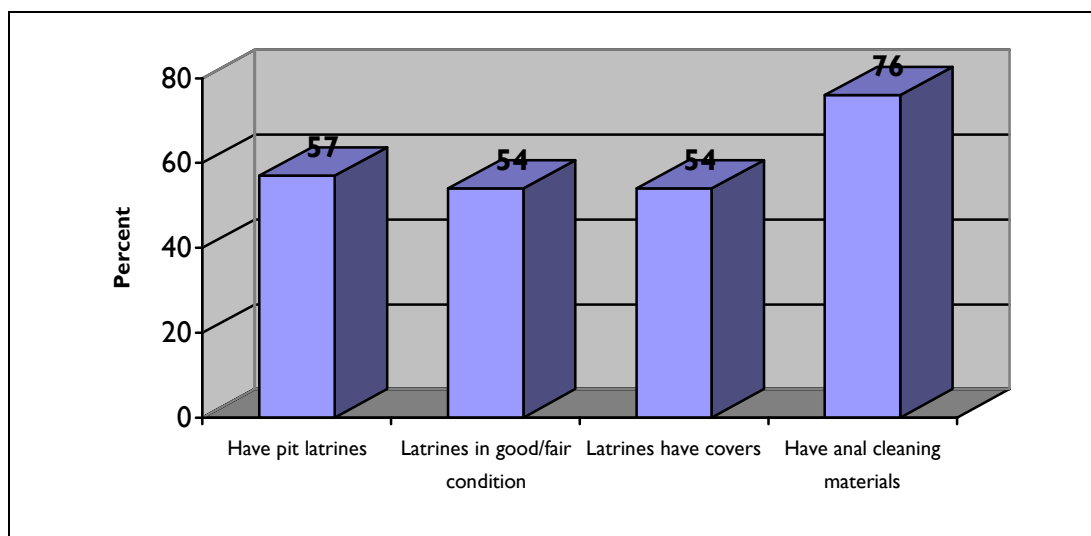
3.2 Waste disposal practices

3.2.1 Excreta disposal

3.2.1.1 Latrine coverage and their conditions by village

The only safe way used to dispose off faeces is in pit latrines. But for the latrines to ensure health safety of the people they must be well covered from flies. The figure below presents information about latrine use in Dei. While 66% of households in Dei used pit latrines, the remaining 34% either used shared latrines with neighbors (12%) or simply visited the bushes (22%). It was reported during the FGD that the only public latrine in the market was subjected to a user fee of Ushs 200 per week and this hampered regular usage especially when money was scarce. As such, the women's FGD pointed that, 'majority of the people without latrines have resorted to breaking the doors of Dei primary school latrines given that accessing the only bush in the village is becoming increasingly difficult'.

Figure 2 Latrines in Dei and their conditions



Source: Survey data

It should also be noted that Dei receives an average of 1,000 visitors who throng the lakeside every day to trade or buy fish. It was, therefore, not surprising to observe that most of the latrines that were along public routes were locked. However, locking the latrines had a negative side effect since during night hours those who do not have latrines deposit faeces near the locked latrines, in the backyards of other people, or in the nearby bushes. This poses a danger to everybody in the village including those who have latrines.

3.2.1.2 The condition of the latrines

The study also reveals that:

- Of the available latrines, only 55% were in good or fair condition.
- Besides, 76% of respondents claimed that their latrines had paper materials for anal cleaning. However, direct observations found only a few did have the materials. The objects used for anal cleaning was fresh leaves although the FGD indicated that the common practice was also to pick pieces of compacted soil or stones as one nears the latrine.
- Many latrines (64%) were without door shutters and a few had pieces of sack were used as shutters thus affecting their usage as privacy was limited.
- While 54% of the latrines had covers, direct observation found that most of the covers were not being used to cover the holes, in which case adults blamed the children for such omission.

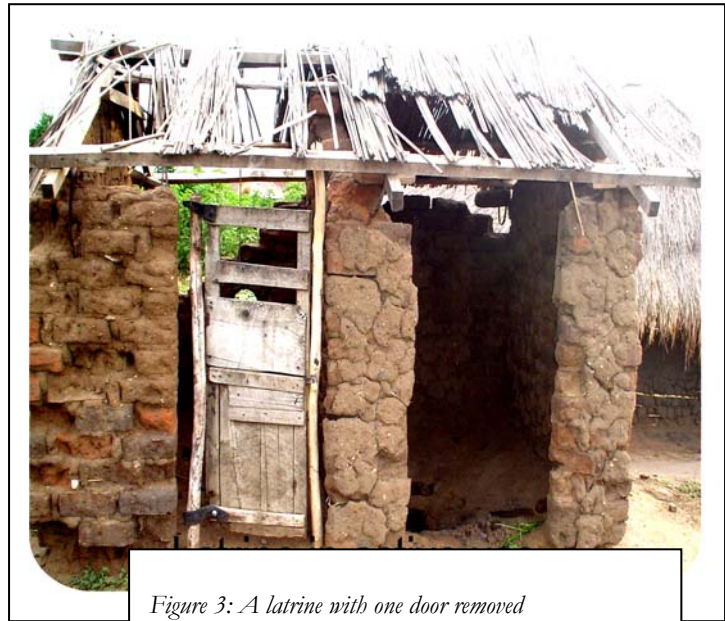


Figure 3: A latrine with one door removed

3.2.2 Solid waste disposal

The case for solid waste was also similar to excreta disposal given that:

- Just half (52%) of the households had garbage pits.
- Only 30% used these pits as disposal sites for their garbage.
- Only 25% of the pits were in good condition.
- It was also common for women to throw feces from children into the open on the premise that “children’s feces are harmless”.

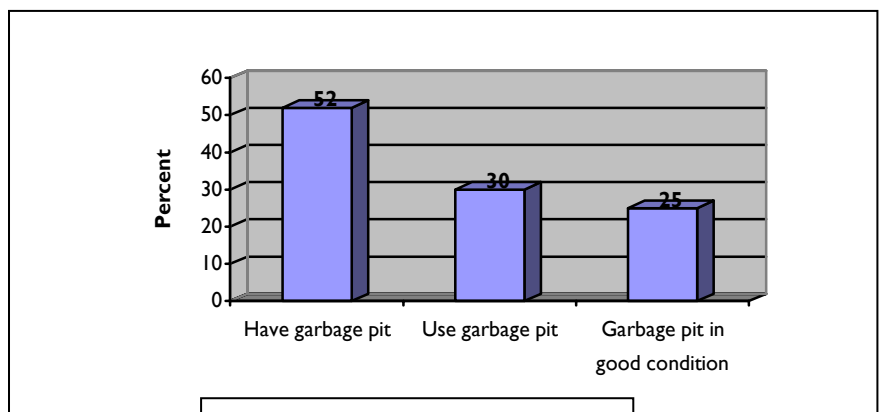


Figure 4: Solid waste disposal facilities at households

Direct observation revealed that many households dug such pits but when they were full new pits were not dug. As a result, in every home there was an ever growing mound of rubbish heap spilling right back into the compound. Yet, without any attempt to either burn or convert them for other uses the rubbish heaps had become feeding grounds for rodents, cockroaches, and flies and therefore a threat to health.

3.2.3 Liquid waste disposal

Safe disposal of liquid waste was an area that was greatly ignored as a young lady asked, 'why bother about dirty water that can just be poured away, anywhere?'. It was found that:

- Only 50% of the households had constructed soak pits.
- Only 25% of the soak pits were in good condition.
- Direct observation revealed that soak pits were mainly used where bathrooms were within houses.
- All other liquid wastes were poured in or at the edges of the compound.

Asked why they did not have soak pits near their drying racks and bathing shelter, the primary reason given during the FGD was that there was no need to worry about dirty water given that when it was poured it will dry off. While the discussion that ensued tried to point at the direct relationship between dirty water and (blue) houseflies crowding near homes, a majority of the women especially seemed not to know of any bad effects therefrom.

3.3 Vector control practices

So far we have tackled the key elements of the survey. However there are many other aspects highlighted in the figure below that complement these key elements in a significant manner. These elements include:

- the state of the household the person lives in;
- the hygiene of the person; and
- the way the person utilizes the sanitary facilities in the home.



Figure 5 A typical bath shelter

Home hygiene

A majority of the people in Dei live in temporary houses (94.4%). These houses are made of grass thatched roofs (94.4%), mud walls (94.8%), and earthen floor (94.8%). However, only 16% had kitchens separate from their main houses hence it was common for women to cook under verandahs or makeshift shades that in times of rain forced them to cook in the (small) main houses.

In summary, the data presented in the tables below clearly shows areas of hygiene where the community of Dei was weakest and where they were doing well.

Table 5: Presence of basic hygiene facilities and their conditions

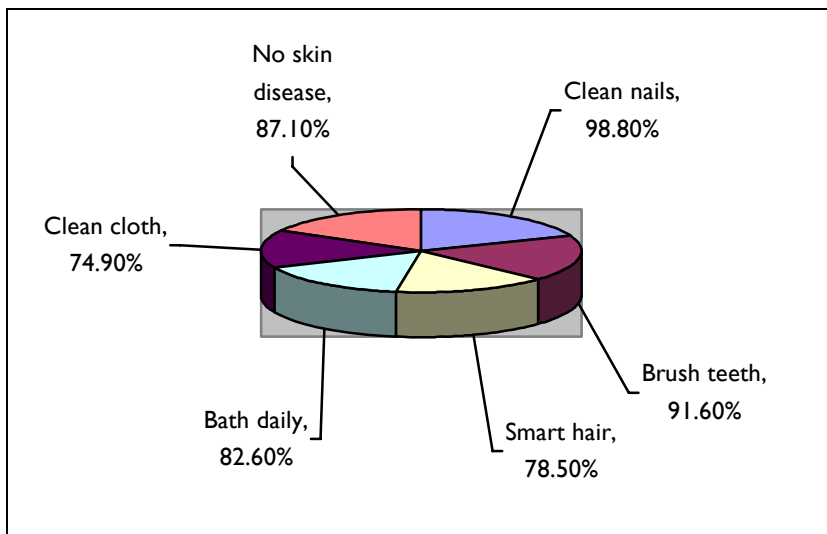
Have facility	Yes (%)	Good condition (%)
• Kitchen	16.4	42.5
• Bath shelter	43.0	39.1
• Drying rack	66.4	33.3
• Cloth line	52.5	44.1
• Soak pit	49.8	27.8
• Garbage pit	51.9	25.4
• Separate room for sleeping	52.0	30.1
• 'Kitanda' for sleeping	77.3	44.1
• Latrine	57.7	25.1
• Hand-washing facility	28.8	47.5

Source: Survey data

Personal hygiene

Despite the poor housing status described above, most of the people were maintaining good personal hygiene right from their hair to their toes (see figure 7). However, the situation was different for children who were most of the time left on their own as their parents were busy trying to make a living. A male FGD disclosed that, "as the women leave homes very early to go to the lakeside to buy fish for on-selling and in the process they take long to return since they will be processing fish and are always in a hurry to cook food and go back to the lakeshore, the children are left unattended to. As a result, most of the children are dirty".

Figure 6: Percent of people practicing safe personal hygiene



Source: Survey data

General hygiene practices

Besides the condition of children, personal hygiene practices outside the body were poor. For instance:

- Although hand washing with detergent before eating was high (79.0%), the same practice after defecating (44.0%) and before cooking (43.2%) were low.
- While 77% slept on beds, only 25.2% slept under mosquito nets.
- Uncooked food was largely left uncovered (96.8%).
- 44% of the households had only one cup for drawing water from the main pot yet they also used the same cup for drinking. Even for the rest who claimed to have separate cups for drawing and drinking water, these cups were always mixed up and flies had ready access to them given that they are uncovered.
- From observation it could be seen that drying racks for utensils were also used for drying fish yet fish attracted flies from all the uncovered latrines and faeces deposited in the open.



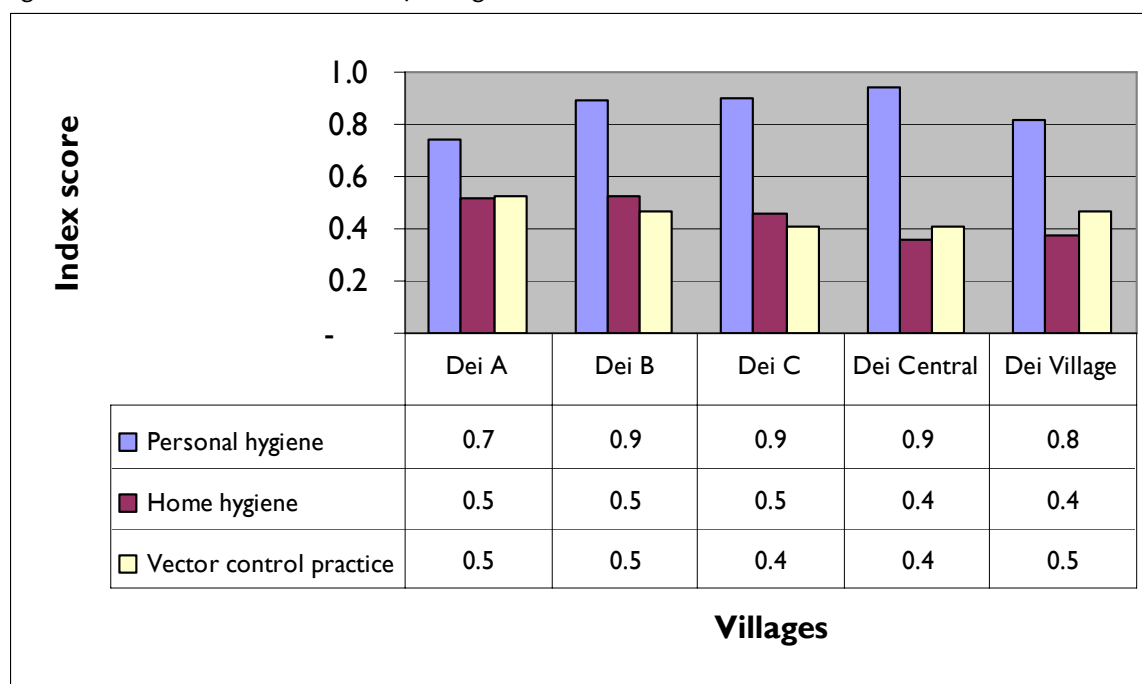
Figure 7: A multi-purpose drying rack

4.0 IMPLICATIONS OF FINDINGS ON COMMUNITY STATE OF HEALTH

4.1 Introduction

From the above findings, it is evident that the sanitation status using a simple sanitation index (where 1 is very good and 0 is very bad as shown in annex 2 and figure 8 below), generally is average (at 0.6 score) with personal hygiene better practiced (0.9 score) in all the villages compared to home hygiene (0.5 score) worse off in Dei central and Dei village and vector control practices (0.5 score) worse off in Dei C and Dei central. These situations have a bearing on the general health of the people. An analysis of the effects is presented below.

Figure 8: Sanitation index by village⁴



Source: Survey data

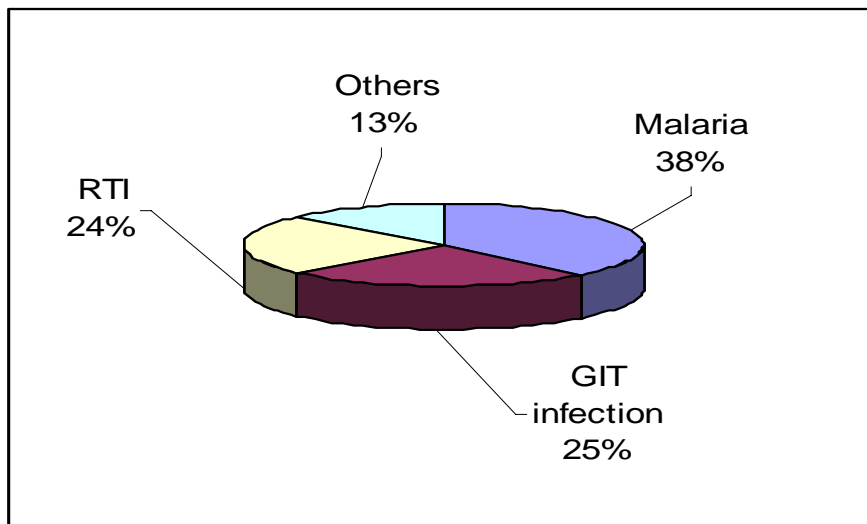
⁴ The index is developed from a weight of 1 for those having and 0 for those not having a facility. The overall observed total is then summed and divided by the expected total and thus the higher the value (i.e., being closer to 1) the safer the sanitary condition.

4.2 Chances of falling sick

4.2.1 Health status

The households were asked whether or not any member fell sick in the month that preceded the survey; and if so, what kind of sickness they suffered from. Overall, 38% of the 1,253 respondents responded to have fallen sick. Malaria topped the list of ailments followed by Gastro-intestinal Infections (GIT) and Respiratory Tract Infection (RTI)(see figure 9). Cholera too was mentioned by 3 respondents. A visit to the nearby health unit however revealed that 3 people actually died of cholera in the month of the survey. The ailments under *others* (13%) included asthma, eye/ear infections, skin diseases, blood pressure, fever of unknown origin, diabetes and toothache.

Figure 9: Disease prevalence in Dei



Source: Survey data

4.2.2 Duration of sickness

For those who fell sick, the average duration of sickness was 5 weeks. However, many people (73.9%) lasted between 3-7 days mainly with malaria and respiratory track infections (see table 7).

Table 6: Duration of sickness by type of sickness

Type of sickness	Duration of sickness			Total
	Up to 2 days	3-7 days	More than a week	
Gastrointestinal infection	6.0%	17.6%	1.5%	25.2%
Malaria	6.5%	28.0%	3.7%	38.1%
Respiratory track infection	2.6%	20.2%	0.9%	23.7%
Others	4.7%	7.7%	0.6%	13.1%
Total	19.8%	73.5%	6.7%	100.0%

Chi=0.001* at p<0.5%

Source: Survey data

4.2.3 Health services outlet

As a response to sickness, people normally sought for treatment at drug shops (locally claimed as clinics) (98.3%) since 'services at the existing health unit is extremely poor and Angal hospital is 40 Km away' a key informant interview reminded us. None went to the health unit within the fishing village vicinity in spite of the fact that 1% got home treatment while the rest 0.7% went to that far away hospital, Angal. The hospital was reported in the FGD to be used as an absolute last resort. This was because, as the FGDs and key informant interviews revealed, the biting poverty makes most people unable to even think of hospital services let alone resorting to traditional herbs.

4.2.4 Health cost

Although an average daily income was estimated by the FGD at about Ushs 5,000, within the month that preceded the survey alone, Ushs 1,670,600 was spent on medical costs indicating a per capita cost of Ushs 3,488 for the 479 people who fell sick. Respondents spent up to Ushs 40,000 on treatment alone. As table 8 shows, the highest expenses were in the Ushs 1,001-5,000 largely on treating malaria and gastrointestinal infections.

Table 7: Cost of treatment by type of sickness

Type of sickness	Cost of treatment (in Ushs)				Total
	1-1,000	1,001-5,000	5,001-10,000	Over 10,000	
Gastrointestinal infection	4.8%	14.5%	4.3%	1.4%	25.0%
Malaria	5.7%	27.5%	4.3%	1.1%	38.6%
Respiratory track infection	5.2%	16.4%	1.8%	.7%	24.1%
Others	1.8%	7.3%	1.8%	1.4%	12.3%
Total	17.5%	65.7%	12.3%	4.5%	100.0%

Chi=.068 at p<0.5%

Source: Survey data

4.2.5 Linkage between sanitation and sickness

While the analysis under 4.2.1-4.2.4 simply provides a picture of health status, it simply does not provide a link between the KAP variables studied and such health status. To clearly explore this link, a risk factor analysis was conducted (see table 9) using odd ratio method for those who fell sick in the month preceding the survey and their households' selected sanitation facilities. The finding shows that there was a strong relationship between the poor sanitation status and falling sick. Except for those with a separate room for sleeping, kitchen, and hand-washing facility, on the basis of all the other facilities, the people were largely exposed to disease pathogens due to lacking these facilities. It can thus be said that the high disease burden (days lost, cash spent on medication, the loss of esteem as was expressed by the FGD) in Dei community is closely attributable to poor sanitation.

Table 8: Risk factor of falling sick by presence of basic sanitation facilities

Have facility	Value	OR
• Kitchen	0.715	0.322 - 1.589
• Bath shelter	1.719*	0.981 - 3.013
• Drying rack	2.158*	1.130 - 4.119
• Soak pit	2.439*	1.361 - 4.370
• Garbage pit	3.221*	1.756 - 5.908
• Separate room for sleeping	0.579	0.330 - 1.015
• 'Kitanda' for sleeping	3.169*	1.357 - 7.401
• Latrine	1.694*	0.940 - 3.054
• Hand-washing facility	1.436	0.756 - 2.695

Odd ratio computed at 95% confidence interval.

Asterisk shows a strong relationship of falling sick with the absence of facilities.

Source: Survey data

5.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

After looking at the overall picture of Dei sanitation status, this last part of the study report focuses at presenting a summary of the findings and recommendation for Dei Safe Water and Sanitation Project to achieve its goal of facilitating the process of building a 'Healthy Dei Community'.

5.1 Summary of findings

From the data it was evident that:

- Finding 1:** Water from existing boreholes was so salty that 23.6% of the population used water from the lake and streams considered easily accessible (in time factor) and suitable for cooking and washing.
- Finding 2:** There was generally a low awareness about the dangers of using unsafe water. Only a few people were aware of the implications of using lake water and insisted on borehole water or boiling lake water before drinking.
- Finding 3:** The water chain was not safe therefore 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 drinking by all.
- Finding 4:** While 66% of households in Dei used pit latrines, 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 as they had uncovered holes and lacked anal cleaning facilities. This was worsen by the fact that feaces of children was considered harmless hence thrown at the edge of the compound.
- Finding 5:** Garbage pits (30%) for solid waste and soak pits (50%) for liquid waste disposal were used by a few households. When garbage pits filled up, they grew into mounds. Soak pits were only used in bath shelters.
- Finding 6:** Only 26% slept under mosquito nets making the rest susceptible to malarial infection.
- Finding 7:** Personal and home hygiene practices were wanting as can be seen below.

Areas of poor hygiene performance	Areas of fair performance	Areas of good performance
<ul style="list-style-type: none"> • Process water before drinking (2%) • Keep covered cooked food (2%) • Families eat from their own plate (4%) • Have a separate kitchen (16%) • Washing hands after latrine visit (44%) • Sleep under mosquito nets (26%) • Have bathrooms (43%) 	<ul style="list-style-type: none"> • Have cloth line (53%) • Separate cups for drawing and drinking water (56%) • Have drying racks (66%) • Have separate sleeping houses (52%) 	<ul style="list-style-type: none"> • Brush teeth at least once a day (91.6%) • Have smart hair (79%) • Bath at least once a day (83%) • Have no skin disease (87%) • Have clean nails (99%) • Wash hands with soap before eating (79%) • Sleep on beds (77%) • Store cooked food covered (100%)

Finding 8: The immediate consequence of the above situation was the high prevalence of common diseases related to poor sanitation and unclean water. 38% of the population fell sick from malaria, gastro-intestinal tract infections (GIT) and respiratory tract infections. The costs associated with this were an average of 5 days lost to sickness; about Ushs 1.6 million spent on treatment mainly in drug shops, and the community expressed loss of esteem. Yet, most of these diseases are preventable.

5.2 Recommendations

To positively change the sanitation status in Dei fishing village, as was discussed in a community feedback meeting, requires a synergetic approach of both supply and demand. First, there is a need to provide safe water points in order to increase access (by reducing especially time spent fetching water). Doing so, however, requires that (i) access differences between the villages is taken into consideration with priority given to villages that do not have any safe water point as yet; and (ii) locating the safe water points where fresh, and not salty, water can be tapped so that the myths about salty water is reduced.

Similarly, there is need for a public toilet facility specifically at the landing site where most of the people spend their day engaged in various fishing activities. However, these facilities should be made to be sustained by the community so that cases of frequent breakdowns are avoided.

Second, the community should be prepared to a stage where they can demand from each household adherence to a basic healthy Dei community standard. To do this, there is a need that:

- General safe sanitation awareness is conducted in all the villages involving all categories (women, men, children, and leaders) of people. An approach that facilitates illiterate adult education would be most appropriate and should emphasize what is in Dei and its consequences in terms of health and their entire livelihood. In this way, people will know that most of the diseases they suffer emanate from their own inability to prevent them, hence a positive change in both their knowledge and attitudes towards safe sanitation.
- After the general education, Dei community should be envision into looking at a common status of a 'Health Dei community'. This participatory approach should set a basic health, Dei standard – a local byelaw that everyone knows of and agrees to.
- To ably merge the success of awareness and the byelaw, a local team of health volunteers should be established in order to undertake a home-to-home enforcement of the bye-law. This community policing approach will provide limited space for household and their members to dodge ensuring that they conform to the standards set for the community.

5.3 Conclusion

Dei fishing village has a weak sanitation status with better personal hygiene compared to home hygiene and vector control practices. The people have a limited knowledge of the risks of unsafe sanitation and have ingrown myths to support their unsafe practices. As such, they suffer from diseases that are largely preventable.

The prevention effort should however be community wide involving all strata of society, men, women, children, and leaders. It should focus at creating awareness for a positive behavior change. However, for it to be compulsory, given that unsafe health practices predisposes the entire community to negative health consequences, a community byelaw that is known and agreed upon (for onward enforcement) is desirable.

Annex 1: The study population

The study covered a total of 250 households, randomly sampled from the five Local Councils that compose Dei fishing village. These households had the following demographic characteristics:

- They had a total of 1,253 people composed of 55% females and 45% males.
- The household sizes were largely composed of 2-4 persons (61.5%) and 5-9 persons (32.5%) although the average household size was 5 people..
- The population (69.2%) was mainly of adult age category (15-50 years) compared to 14.7% and 16.1% the aged (over 50 years) and children (up to 15 years) respectively.
- One in every 10 households is hosting an orphan.
- Majority (59.0%) were living as singles compared to those who were married (32.7%).
- Yet, many were engaged in farming (57.5%) and fishing/fish mongering (39.0%) as their primary activities.
- By residence, the people are distributed as Dei B (25%), Dei Village (21%), Dei A (19%), Dei C (19%) and Dei Central (16%). Yet, Dei Village and Dei Central have the highest proportion of temporary residents mainly Democratic Republic of Congo (DRC) (see table 1 below).
- But their formal educational status was very low. About 53% had no education and only 3% could competently read and write given that primary education (attained by 42.9%) now has quality problems (see table 2).⁵

Table 9: Population by village, gender and residency

Village (LC)	Population in %			Residency			
	males	females	Total	Permanent	Temporary	Seasonal	Total
Dei A	9.7	9.3	19.0	15.4	2.2	1.4	19.0
Dei B	10.4	14.4	24.8	23.0	0.8	1.1	24.9
Dei C	9.8	9.6	19.4	18.4	0.9	1.1	19.3
Dei Central	6.5	9.3	15.8	12.1	3.2	0.5	15.8
Dei Village	8.9	12.1	21.1	14.3	5.7	1.0	21.0
Total	45.3	54.7	100	83.2	12.8	4.0	100.0

Table 10: Education level by village

Village	Education %					Total
	None	FAL	Primary	Secondary	Post secondary	
Dei A	8.9	0.2	8.9	0.7	0.2	18.9
Dei B	11.5	0	12.5	1.0	0	24.9
Dei C	11.1	0	8.1	0.2	0	19.4
Dei Central	7.9	0.6	6.8	0.5	0	15.8
Dei Village	13.6	0.3	6.6	0.5	0	21.0
Total	52.9	1.2	42.9	2.8	0.2	100.0

⁵ Universal Primary Education is known for overcrowded classes, lack of scholastic materials and since no child repeats a class whatever marks s/he attains, quality is sacrificed for quantity.

Annex 2: Summary of sanitation index data

	Dei A			Dei B			Dei C			Dei Central			Dei village			Dei fishing village		
Personal hygiene	Observed	Expected	Index	Observed	Expected	Index	Observed	Expected	Index	Observed	Expected	Index	Observed	Expected	Index	Observed	Expected	Index
Have smart hair	33.0	49.0	0.7	36.0	54.0	0.7	35.0	50.0	0.7	40.0	42.0	1.0	49.0	51.0	1.0	193.0	246.0	0.8
Brush teeth once a day	46.0	49.0	0.9	53.0	54.0	1.0	47.0	50.0	0.9	39.0	42.0	0.9	44.0	51.0	0.9	229.0	246.0	0.9
Have clean nails	45.0	49.0	0.9	52.0	54.0	1.0	50.0	50.0	1.0	42.0	42.0	1.0	48.0	51.0	0.9	237.0	246.0	1.0
Bath once a day	34.0	49.0	0.7	54.0	54.0	1.0	50.0	50.0	1.0	42.0	42.0	1.0	24.0	51.0	0.5	204.0	246.0	0.8
Have no skin disease	41.0	49.0	0.8	46.0	54.0	0.9	49.0	50.0	1.0	38.0	42.0	0.9	42.0	51.0	0.8	216.0	246.0	0.9
Have clean cloth	19.0	49.0	0.4	49.0	54.0	0.9	39.0	50.0	0.8	36.0	42.0	0.9	42.0	51.0	0.8	185.0	246.0	0.8
	218.0	294.0	0.7	290.0	324.0	0.9	270.0	300.0	0.9	237.0	252.0	0.9	249.0	306.0	0.8	1,264.0	1,476.0	0.9
Home hygiene																		
Have kitchen	9.0	49.0	0.2	10.0	54.0	0.2	14.0	50.0	0.3	6.0	42.0	0.1	1.0	51.0	0.0	40.0	246.0	0.2
Have bathroom shelter	21.0	49.0	0.4	25.0	54.0	0.5	23.0	50.0	0.5	19.0	42.0	0.5	17.0	51.0	0.3	105.0	246.0	0.4
Have utensil drying rack	39.0	49.0	0.8	43.0	54.0	0.8	26.0	50.0	0.5	26.0	42.0	0.6	28.0	51.0	0.5	162.0	246.0	0.7
Have clothline	26.0	49.0	0.5	31.0	54.0	0.6	31.0	50.0	0.6	14.0	42.0	0.3	26.0	51.0	0.5	128.0	246.0	0.5
Have soakpit	35.0	49.0	0.7	27.0	54.0	0.5	19.0	50.0	0.4	16.0	42.0	0.4	24.0	51.0	0.5	121.0	246.0	0.5
Have garbage pit	28.0	49.0	0.6	44.0	54.0	0.8	36.0	50.0	0.7	10.0	42.0	0.2	8.0	51.0	0.2	126.0	246.0	0.5
Have pit latrine	29.0	49.0	0.6	31.0	54.0	0.6	28.0	50.0	0.6	18.0	42.0	0.4	33.0	51.0	0.6	139.0	246.0	0.6
Have hand washing facility	16.0	49.0	0.3	15.0	54.0	0.3	8.0	51.0	0.2	12.0	43.0	0.3	15.0	52.0	0.3	66.0	249.0	0.3
	203.0	392.0	0.5	226.0	432.0	0.5	185.0	401.0	0.5	121.0	337.0	0.4	152.0	409.0	0.4	887.0	1,971.0	0.5
Vector control practice																		
Use safe drinking water source	46.0	49.0	0.9	43.0	54.0	0.8	26.0	50.0	0.5	37.0	42.0	0.9	35.0	51.0	0.7	187.0	246.0	0.8
Cover water storage facility	12.0	49.0	0.2	15.0	54.0	0.3	4.0	50.0	0.1	5.0	42.0	0.1	5.0	51.0	0.1	41.0	246.0	0.2
Use 2 cups for drinking water	31.0	49.0	0.6	33.0	54.0	0.6	26.0	50.0	0.5	15.0	42.0	0.4	32.0	51.0	0.6	137.0	246.0	0.6
Have separate sleeping room	23.0	49.0	0.5	19.0	54.0	0.4	32.0	50.0	0.6	23.0	42.0	0.5	32.0	51.0	0.6	129.0	246.0	0.5
Sleeps on a Kitanda	42.0	49.0	0.9	43.0	54.0	0.8	37.0	50.0	0.7	22.0	42.0	0.5	43.0	51.0	0.8	187.0	246.0	0.8
Cover latrine pits	25.0	49.0	0.5	23.0	54.0	0.4	12.0	50.0	0.2	17.0	42.0	0.4	28.0	51.0	0.5	105.0	246.0	0.4
Sleeps under a mosquito net	24.0	49.0	0.5	25.0	54.0	0.5	28.0	50.0	0.6	17.0	42.0	0.4	16.0	51.0	0.3	110.0	246.0	0.4
Serves food individually	2.0	49.0	0.0	-	54.0	-	-	50.0	-	-	42.0	-	1.0	51.0	0.0	3.0	246.0	0.0
	205.0	392.0	0.5	201.0	432.0	0.5	165.0	400.0	0.4	136.0	336.0	0.4	192.0	408.0	0.5	899.0	1,968.0	0.5
Overall Index	626.0	1,078.0	0.6	717.0	1,188.0	0.6	620.0	1,101.0	0.6	494.0	925.0	0.5	593.0	1,123.0	0.5	3,050.0	5,415.0	0.6

Annex 3: DSWSP Intervention Strategy

Goal	BUILDING A HEALTHY DEI COMMUNITY				
Objectives	1. Access to safe water point increased to 650 households in 2006. ⁶ 2. Home and personal hygiene improved among 4,500 people of Dei in 2006.				
Focus	Safe water supplies; Sanitation and Hygiene Promotion in Dei Fish Village				
Domain	Water supplies	Excreta disposal	Solid and liquid waste management	Vector control	Community participation
Key components	Provision of safe water points	Disposal points		Safe home environment and personal hygiene practices	Engaging local institutions as agents for education and standard enforcement
Target groups	Primary = Fisher communities Secondary = Local institutions: Beach, Church, Mosque, Market, School managements Tertiary = LGs, DDHS, Community services				
Action points	Externally supply to meet local demand	- Locally stimulate demand to create local supplies - Set locally acceptable standards			Build a team of local actors
Operationalization	<ul style="list-style-type: none"> Community mobilization to establish current practices (Village inventory) and design an incremental participatory approach. Create awareness for positive change using a multi-communication channel backed by local cadres (personnel and clubs). Agree on basic acceptable standards and penalties = <i>A Good and Healthy Home and Neighborhood in Dei</i> = to handle non-compliance. Enforce compliance through ongoing behavior change communication, competition, penalizing defaulters, regular reviews. 				
Access and utilization indicators	<ul style="list-style-type: none"> <i>% of households using safe water chains (safe source, safe processing methods, and safe handling methods)</i> <i>Distance to safe water point</i> <i>Waiting time at safe water point</i> <i>Sanitation index</i> <i>Proportion of pop engaged as change agents</i> 				

⁶ This estimate is based on access level of 1 borehole serving 200 households and a shallow well serving 150 households. We propose to drill 1 borehole that will serve 1,200 people and protect 3 shallow wells that will serve 1,800 people.