

# Umzimkhulu CHC Case Studies Baseline Data Report: Part 1 – Health Indicators

---

## Executive Summary

The results from the base line survey provide a comparison between three of the ten villages in the Umzimkhulu Municipality which are currently part of the Community Health Club Programme. These case studies were conducted from November 2008 to February 2009 by Africa AHEAD, using the latest research tool, the Mobile Researcher platform. This tool enabled household surveys to be carried out using an ordinary cell phone that allowed for instant data capture and management. The three villages of Sidadeni (Ward 5), Engunjini (Ward 8) and Kwa Gijima (Ward 17) were purposefully selected to provide a cross section of living standards, social capital, location and size of community within the Municipality. A total of 311 households were interviewed and the results contained in this report were analyzed by the Research Coordinator for Africa AHEAD. The data shows a strong pattern of difference between the three villages with Kwa Gijima (near Umzimkhulu town) typically being above the sample average and Engunjini around the average, while Sidadeni is clearly the most challenged of the three areas. Culturally there is also diversity, with Kwa Gijima being 74% isiZulu speaking, Engunjini being 54% isiXhosa speaking, whilst 65% of Sidadeni residents speak isiBaka. Whilst demographically the sample of the three areas were similar with 81% of respondents being women and the average age being 42.5 years, marital status appears to be significantly different in Sidadeni where female headed families account for 87.5% of the female respondents. This is compared to Kwa Gijima and Engunjini where only 53.6% and 53.2%, respectively, were on their own (either single with or without children, widowed, or with spouse currently living elsewhere). Schooling patterns are also lower in Sidadeni with 12% having had absolutely no schooling, and reliant on informal information sources whereas in Kwa Gijima 50% had completed secondary schooling and obtain news from mainstream media sources.

Umzimkhulu is indeed an appropriate area for the CHC training as health knowledge, in general, is lacking. Although 52% could give the correct recipe for Sugar Salt Solution for treatment of dehydration and 33.4% of all households could correctly provide the five times to wash hands, 32% of all households knew of no way to prevent worm infections and knowledge of skin infections was also minimal. This lack of information provides an ideal ground for substantial improvement by the end of the 24 health promotion sessions.

Water supply and usage is also a challenge in these three communities: 45.9% of respondents could not correctly provide more than one source of safe drinking water, which is not surprising as 80% of all households still use an unprotected water source. Although 45% of households in Kwa Gijima access their drinking water from Jojo tanks serviced by municipal boozers, most respondents have to travel long distances to unprotected sources: on average, 33% of respondents estimated 1 - 2 hours roundtrip to collect drinking water. Despite the use of unprotected water sources, only 4% of households report treating their water. While 85% store their water in buckets and 39% use other plastic containers, of these, 56% of all respondents do not adequately cover their stored water with 47% of households in Sidadeni not covering their water. Whilst 86% of the households have their own latrine, 95% of these are home-made pit latrines and 93% are not properly sealed so as to trap flies. Furthermore, 51% of latrines were unclean, all of which contribute to the fecal-oral transmission of diarrhea by flies. This is confirmed by the 71% of kitchens that were observed to have constant flies, with a clear correlation between the cleanliness of kitchen surfaces, particularly in Sidadeni, where food is seldom covered from flies. Whilst hand washing is attempted by the pour-to-waste in 76% of households, only 21% in Kwa Gijima have soap as compared to only 1-2% in the other two areas, providing a clear focus for the programme. Waste disposal also provides an area for improvement as 54% of all households currently had rubbish nearby and faeces was evident within 5 paces of the home, particularly in Engunjini (23%). Not surprisingly over half of all respondents reported rodents as a problem. Thus it would seem there is an

opportunity for significant improvement of home hygiene in most areas and given the high rate of unprotected water supply, this is an ideal area to show how CHCs can pave the way for effective water and sanitation improvement.

## Background & Introduction

The baseline data collection for the Umzimkhulu CHC project was conducted from November 2008 to February 2009. This first phase of data collection focused on the Household Interview, which was conducted in 3 purposively selected communities participating in the CHC project in Umzimkhulu. The purpose of the Household Interview is to characterize the overall impact, at a household and communal level, of joining and participating in a Community Health Club. This tool will be utilized again 3 months after the completion of the health promotion phase in an effort to show the overall impacts of the CHC Approach in Umzimkhulu.

In addition, each household participating in this case study research was mapped using a handheld GPS unit so that all analyses presented herein can be analyzed spatially. This GIS data is currently being cleaned and prepared for analysis and will be presented in a revised version of this report as soon as the data is available.

This report serves to introduce the reader to the health measures captured using the Household Interview. Due to the large amount of data collected from each household, this report will be divided into two parts:

- Part 1 focuses on the available health indicators
- Part 2 focuses on social indicators.

## Method

The Household Interview provides an in-depth assessment of communities participating in the CHC Program before and after the project has been implemented. Two main methods were used: directly asked questions and enumerator observations. The Household Interview captures a variety of indicators, such as basic demographics, social capital measures, health knowledge and health practices. All data was collected by the nominated CHC Facilitator and Africa AHEAD's Project Officer, using the Mobile Researcher platform via cellular phone technology. Three villages from the ten wards were purposefully selected from the ten wards.

## Case Study Criteria & Communities

The three case study communities were selected based upon the following criteria:

1. Location within the Municipality (proximity to Umzimkhulu town as well as distribution within the entire Municipality)
2. Size of community
3. Perceived levels of Social Capital (based upon site visits and informal conversations)

The three communities selected for data collection are:

1. Sidadeni (Germiston) in Ward 5: data collected by trained CHC Facilitator
2. Engunjini in Ward 8: data collected by trained CHC Facilitator and Africa AHEAD Project Officer
3. Kwa Gijima in Ward 17: data collected by Africa AHEAD Project Officer

## Basic Demographics

In total, 311 households were interviewed from the three case study communities and the basic demographic information for each community is listed below in Table 1.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
<b>Sample</b>		107 (34.4)	99 (31.8)	105 (33.8)	311 (100)
<b>Gender</b>	<i>Male</i>	26 (24.3)	17 (17.2)	17 (16.2)	60 (19.3)
	<i>Female</i>	<b>81 (75.7)</b>	<b>82 (82.8)</b>	<b>88 (83.8)</b>	<b>251 (80.7)</b>
<b>Marital Status</b>	<i>Married, with spouse</i>	<b>37 (34.6)</b>	<b>34 (34.3)</b>	14 (13.3)	<b>85 (27.3)</b>
	<i>Married, without spouse</i>	11 (10.3)	20 (20.2)	25 (23.8)	56 (18.0)
	<i>Unmarried, with partner</i>	13 (12.1)	12 (12.1)	4 (3.8)	29 (9.3)
	<i>Divorced</i>	1 (0.9)	0 (0)	0 (0)	1 (0.3)
	<i>Single, without children</i>	11 (10.3)	7 (7.1)	16 (15.2)	34 (10.9)
	<i>Single parent</i>	15 (14.0)	10 (10.1)	18 (17.1)	43 (13.8)
	<i>Widowed</i>	19 (17.8)	16 (16.2)	<b>28 (26.7)</b>	63 (20.3)
<b>Education</b>	<i>None</i>	5 (4.7)	2 (2.0)	13 (12.4)	20 (6.4)
	<i>Primary</i>	<b>41 (38.3)</b>	24 (24.2)	<b>27 (25.7)</b>	<b>112 (36.0)</b>
	<i>Senior School</i>	<b>39 (36.4)</b>	<b>50 (50.5)</b>	<b>27 (25.7)</b>	<b>116 (37.3)</b>
	<i>Matric</i>	19 (17.8)	21 (21.2)	16 (15.2)	56 (18.0)
	<i>Diploma</i>	3 (2.8)	2 (2.0)	2 (1.9)	7 (2.3)
	<i>Degree</i>	0 (0)	0 (0)	0 (0)	0 (0)
<b>Mother Tongue</b>	<i>isiXhosa</i>	<b>58 (54.2)</b>	19 (19.2)	5 (4.8)	82 (26.4)
	<i>isiZulu</i>	34 (31.8)	<b>73 (73.7)</b>	32 (30.5)	<b>139 (44.7)</b>
	<i>isiSwati</i>	1 (0.9)	0 (0)	0 (0)	1 (0.3)
	<i>isiSesotho</i>	2 (1.9)	0 (0)	0 (0)	2 (0.6)
	<i>isiBaka</i>	12 (11.2)	7 (7.1)	<b>68 (64.8)</b>	87 (28.0)
<b>Age</b>	<i>Min</i>	14	16	18	14
	<i>Avg</i>	44	38	45.2	42.5
	<i>Max</i>	100	77	80	100
<b>Household Size</b>	<i>Min</i>	1	1	1	1
	<i>Avg</i>	4.8	5.4	5.9	5.4
	<i>Max</i>	18	13	16	18

**Table 1: Basic Demographics**

The sample is almost evenly divided between the three case study communities. The majority of respondents are female (80.7%) and have an average age of 42.5 years. While most respondents are married and live with their spouse (27.3%), the majority of respondents from Sidadeni are widowed (26.7%) or married and living without their spouse (23.8%). While levels of education are fairly consistent between the three communities, more respondents in Kwa Gijima have completed Senior School (50.5%) as compared to 36.4% and 25.7% for Engunjini and Sidadeni, respectively. In addition, 12.4% of respondents in Sidadeni have received no formal education at all. Regarding the respondent's mother tongue, the majority report that isiZulu is their first

language. However, at a community level there is interesting variation, with most households in Engunjini speaking isiXhosa (54.2%), most households in Kwa Gijima speaking isiZulu (73.7%) and most households in Sidadeni speaking isiBaca (64.8%). Finally, the average household size in all communities is 5.4 people per household, with a maximum of 18 people per household. Only Engunjini is below the case study average with 4.8 people per household.

## Health & Hygiene Indicators

### Water

Each household was asked about their primary source of drinking water, which is presented in Figure 1 below. In addition, each household was specifically asked about the sources of water they use for bathing, washing and cooking. However, there are no significant differences in responses for each of the different water uses so only that of the drinking water will be presented herein.

For the entire sample, the majority of households (80.4%) still use unprotected sources of water, which include streams, rivers, springs and wells. This is due to the fact that almost all households in Engunjini and Sidadeni obtain their water from unprotected sources (95.3% and 98.1%, respectively). However, in Kwa Gijima, there is a split between those households that use unprotected sources (45.5%) and JoJo Tanks serviced by the Municipality (45.5%). Only a small portion of all households utilize water from protected sources, almost all of which reside in Kwa Gijima. This is likely due to their proximity to Umzimkhulu town and the different services and resources that are available.

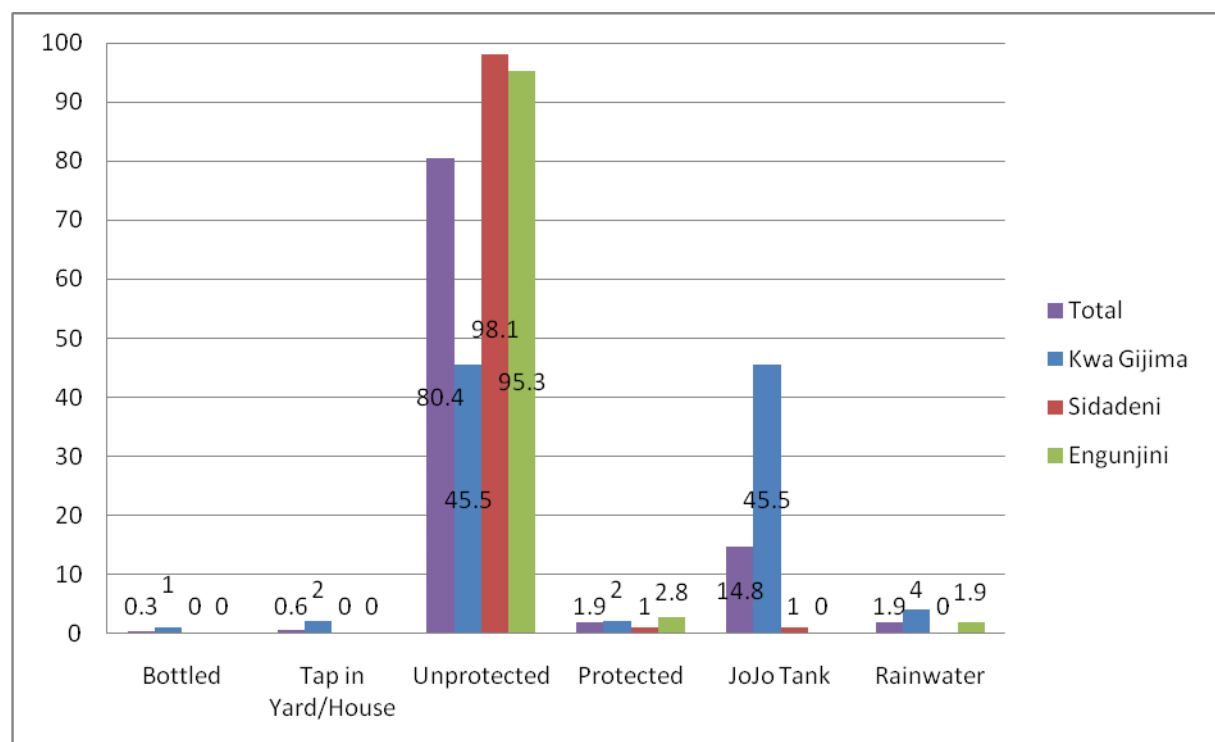


Figure 1: Drinking Water Sources

Related to the source of drinking water is the distance traveled to fetch water (Figure 2 below). The majority of respondents reported that they have to travel between 1 and 2 hours to obtain their drinking water (32.8%), which was followed closely by those reporting to have to travel between 11 and 30 minutes (29.9%).

Interestingly, when the distances are analyzed by each community, the residents of Sidadeni appear to travel the greatest distance to fetch their water, with 78.1% reporting a 1 – 2 hour round trip. In the remaining two communities, the majority of residents travel between 10 and 30 minutes (approximately 40% of households).

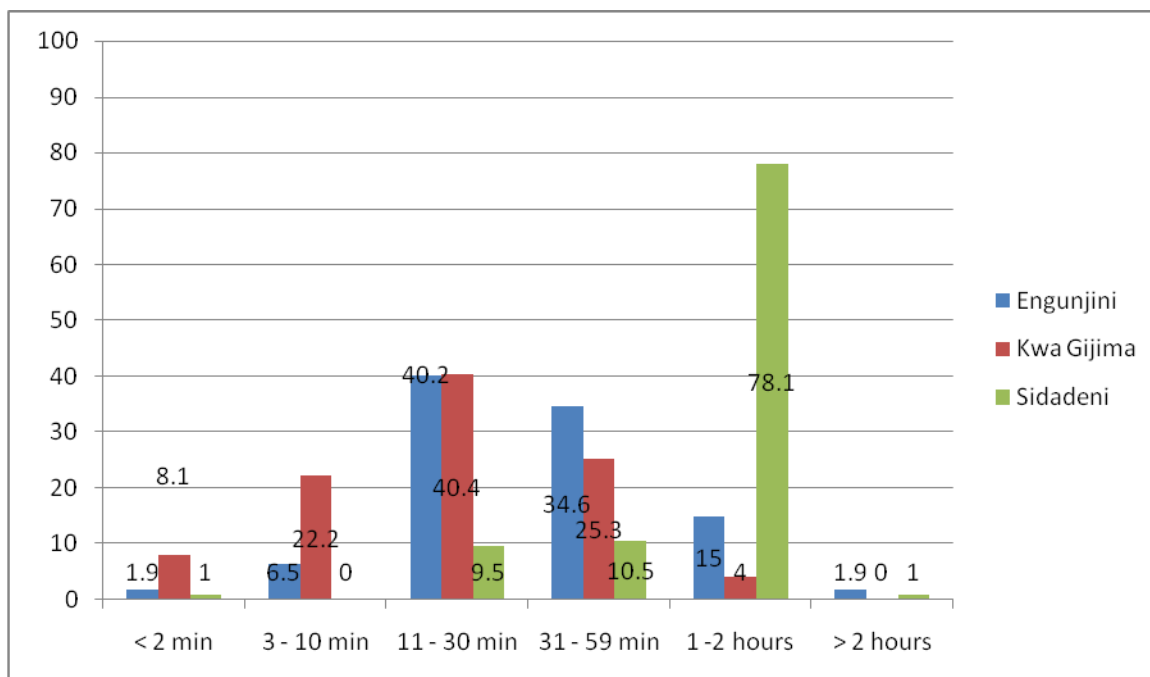


Figure 2: Distance to Drinking Water Sources

Despite the fact that most households utilize unprotected water sources, only 17.7% do anything to treat their drinking water. 67.3% of those that do treat their water utilize Jik/chlorine and 27.3% boil their water, with a small few filtering their water. Water treatment of course varies by community, with 34.3% of households in Kwa Gijima treating their water as compared to 15.9% and 3.8% treating their water in Engunjinini and Sidadeni, respectively. Of those treating their water in Kwa Gijima, 25.3% reported using Jik/bleach and 7.1% reported boiling their water.

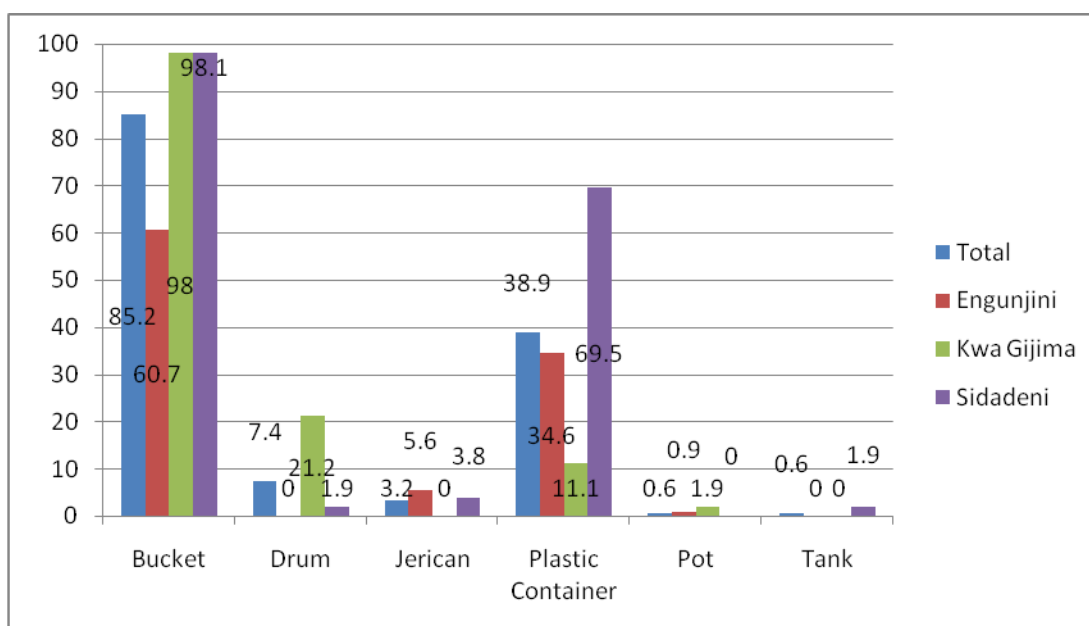


Figure 3: Observed Methods of Water Storage

The methods each household uses to store their drinking water were also observed and the findings are presented in Figure 3 above. Overall, the majority of households store their drinking water in buckets (85.2%) and plastic containers (38.9%). There is not much variation between each community, with most household utilizing buckets and other plastic containers. When examining whether these water containers are well sealed so as to avoid drinking water contamination, it was observed that 56.5% of all households do not adequately cover their drinking water. At the community level, 61.7%, 45.9% and 61.0% of households in Engunjini, Kwa Gijima and Sidadeni, respectively, do not adequately cover their drinking water. However, this dichotomous variable hides valuable information about water storage practices that is made clearer by Table 2 below. As shown in the table below, 32.7% of households in Engunjini and 27.3% of households in Kwa Gijima have attempted to cover their water, but have done so poorly. This shows that there is some understanding of the need to cover one's drinking water, but that the knowledge is incomplete. However, in Sidadeni, the majority of households (46.7%) simply do not cover their drinking water at all. There are improvements that can be made at the household level to protect drinking water from contamination.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Status of Water Cover	<b>Well Sealed</b>	<b>41 (38.3)</b>	<b>53 (53.5)</b>	41 (39.0)	<b>135 (43.4)</b>
	<b>Poorly Sealed</b>	35 (32.7)	27 (27.3)	15 (14.3)	77 (24.8)
	<b>No Seal</b>	31 (29.0)	18 (18.2)	<b>49 (46.7)</b>	98 (31.5)

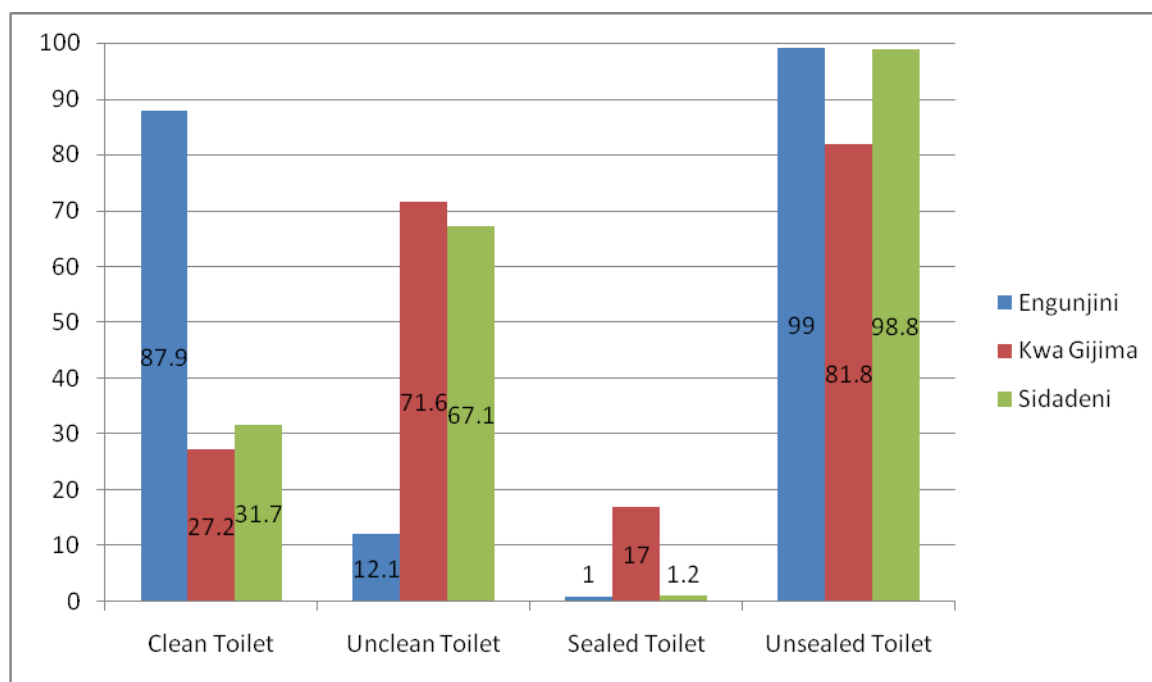
Table 2: Observed Drinking Water Cover

## Sanitation

86.5% of all households reported that they have access to a toilet. This does not vary much by community, with 92.5% reporting access to a toilet in Engunjini, 88.9% reporting access in Kwa Gijima and 78.1% reporting access in Sidadeni. Of those with access to a toilet, the majority have home-made VIP latrines (94.8%), while the remainder use prefabricated VIP latrines (5.2%). There is little variation between the three communities, with well over 90% of all households at each community utilizing home-made VIP latrines. In addition, 95.2% of all households with access to a toilet do not share that toilet with any other family, while 4.1% share their toilet between two families (*an estimated 11 people per toilet based upon average household size of 5.5 people/household*). Regarding the status of each household's latrine, all latrines are almost equally divided between clean (48.3%) and unclean (50.9%), but the majority of latrines, 93.3%, are not properly sealed as they are meant to be VIPs. However if VIPs do not function as fly traps because there is no gauze on the ventilation pipe, they become a hazard as they are then uncovered latrines that actually breed flies. Interestingly, there are differences between each community in regards to toilet cleanliness and how well sealed the toilets are, as shown by Figure 4 below.

In Engunjini, 87.9% of all toilets are reportedly free of rubbish, feces and urine in and around the toilet area, as compared to 71.6% and 67.1% of toilets that are reportedly unclean in Kwa Gijima and Sidadeni, respectively. On the other hand, only Kwa Gijima has a larger number of toilets that are reportedly well sealed and covered (17%). Finally, 89.1% of households in all communities appear to be free of observable open defecation within 5 paces of the house/yard, with only slight variation at a community level. While 95.2% of households in Sidadeni and 96.0% of households in Kwa Gijima reportedly have no open defecation within 5 paces of their household, only 76.6% of households in Engunjini were observed to be free of open defecation. This appears

to be a contradiction seeing as how Engunjini has the highest reported coverage of latrines. This can, however, be an indicator of infant and child care practices and knowledge of the dangers of children's feces.



**Figure 4: Observed Status of Household Latrines**

### Hand Washing Practices

Of the 311 households visited, only 79 (25.4%) were observed to have a dedicated hand washing facility on or near their latrine. At a community level, it appears that these facilities are only regularly found in Sidadeni, where 72.4% of households were observed to have a dedicated hand washing facility, as compared to 0% and 3% in Engunjini and Kwa Gijima.



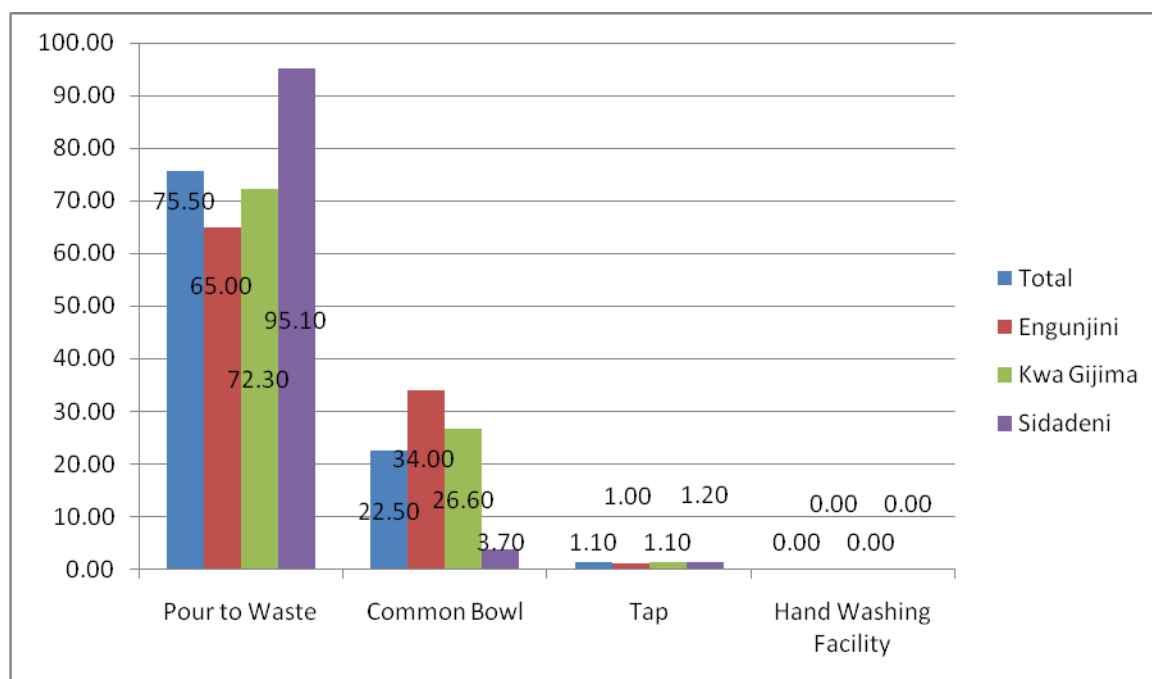


Figure 5: Method of Washing Hands

However, this data has to be reexamined and verified because when the enumerators were asked to describe the method by which they washed their hands at each household, not one reported the use of a hand washing facility, as shown in Figure 5 above. Instead, 75.5% of all households reportedly use the pour to waste method of hand washing. While the pour to waste method appears to be the most common method for households to wash hands within each of these communities, there are improvements that can be made in Engunjinini and Kwa Gijima where 34% and 25.8% of households, respectively, utilize the common bowl method of hand washing. Regarding the use of soap for hand washing, only 8.3% of all households made soap available for hand washing. Kwa Gijima was the only community where soap was regularly available, but only in 21.1% of households. Otherwise, 1% of households in Engunjinini and 2.5% of households in Sidadeni had soap for hand washing.

## Kitchens

98.4% of all households have their kitchen inside while 1.3% have kitchens outside. Each household's kitchen was observed to see how well ventilated it *can be*, based upon the number of windows that can open. Overall, 91.2% of kitchens in all communities were reported to be well ventilated, meaning that they had at least 2 windows and a door that could open, while 5.8% were poorly ventilated, meaning they had 1 window and a door that could open. Finally, only 2.9% had no ventilation apart from the door. There are no major differences between communities regarding the ventilation of their kitchens. However, this data needs to be confirmed as it is believed that the observations of this measurement were inconsistent.

Table 3 below presents the data on the cleanliness of the kitchen, which includes how clean the pots and dishes are in each household. As can be seen, 42.1% of all households reportedly have clean kitchen surfaces, a trend that is also seen in each of the individual communities. The only variation comes from Engunjinini where households are almost evenly split amongst the various levels of cleanliness. When looking at the cleanliness of the pots and dishes, the data is more evenly distributed between those that have very clean or shining pots (37.3%) and those that have some clean and some unclean (34.4%). Again, this is the same trend observed

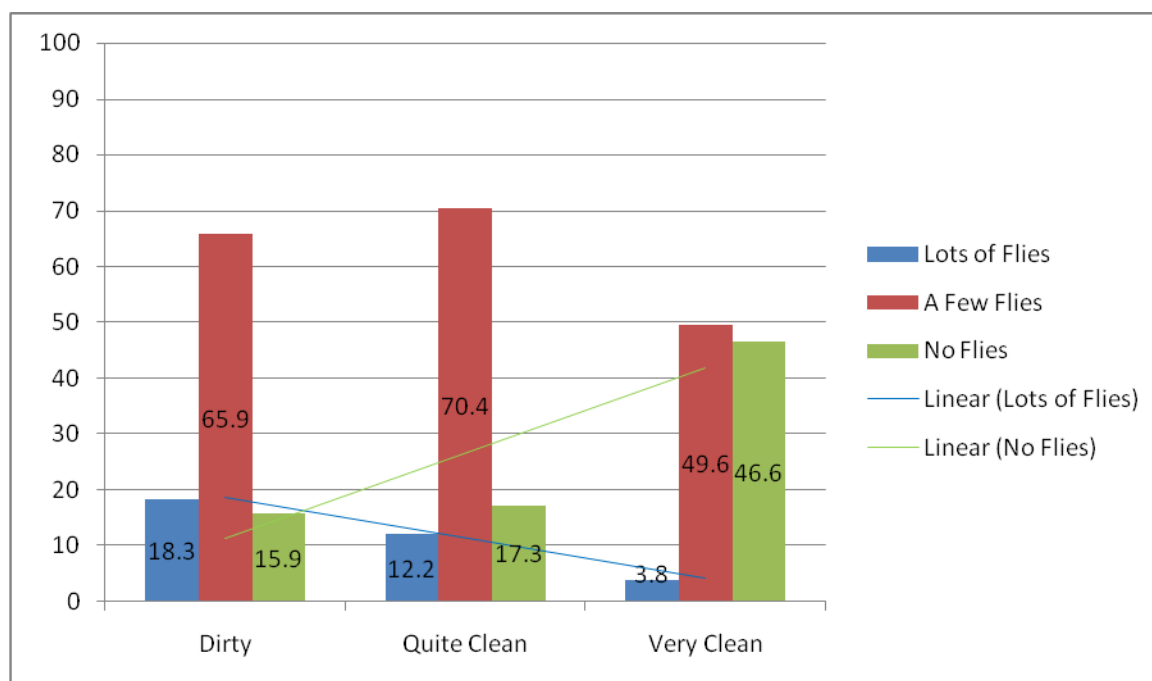
within each community. What is most interesting, that within each community, over 50% of all households reportedly have all of their pots and dishes clean.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Kitchen Cleanliness	<i>Dirty Surfaces</i>	<b>39 (36.4)</b>	24 (24.2)	19 (18.1)	82 (26.4)
	<i>Medium/Quite Clean</i>	29 (27.1)	30 (30.3)	39 (37.1)	98 (31.5)
	<i>Clean Surfaces</i>	<b>39 (36.4)</b>	<b>45 (45.5)</b>	<b>47 (44.8)</b>	<b>131 (42.1)</b>
Washed Dishes	<i>Very clean / Shining Pots</i>	37 (34.6)	28 (28.3)	<b>51 (48.6)</b>	<b>116 (37.3)</b>
	<i>All Washed (not shining)</i>	18 (16.8)	27 (27.3)	7 (6.7)	52 (16.7)
	<i>Some clean, some unclean</i>	<b>38 (35.5)</b>	<b>30 (30.3)</b>	39 (37.1)	107 (34.4)
	<i>All left unwashed</i>	14 (13.1)	14 (14.1)	8 (7.6)	36 (11.6)

**Table 3: Cleanliness of Kitchens**

Out of the 311 households visited, only 44 were observed to have leftover food visible in the kitchen. In general, 43.2% of those households reportedly had their leftover food properly covered/protected as compared to 18.2% that had some food protected and 38.6% that had no leftover food protected. Despite this small sample there are important differences between the three communities. The majority of households in both Engunjini (n = 10) and Kwa Gijima (n = 21) reportedly had all of their visible leftover food properly protected (60% and 52.4%, respectively), while 76.9% of households in Sidadeni (n = 13) did not have their visible leftover food properly protected.

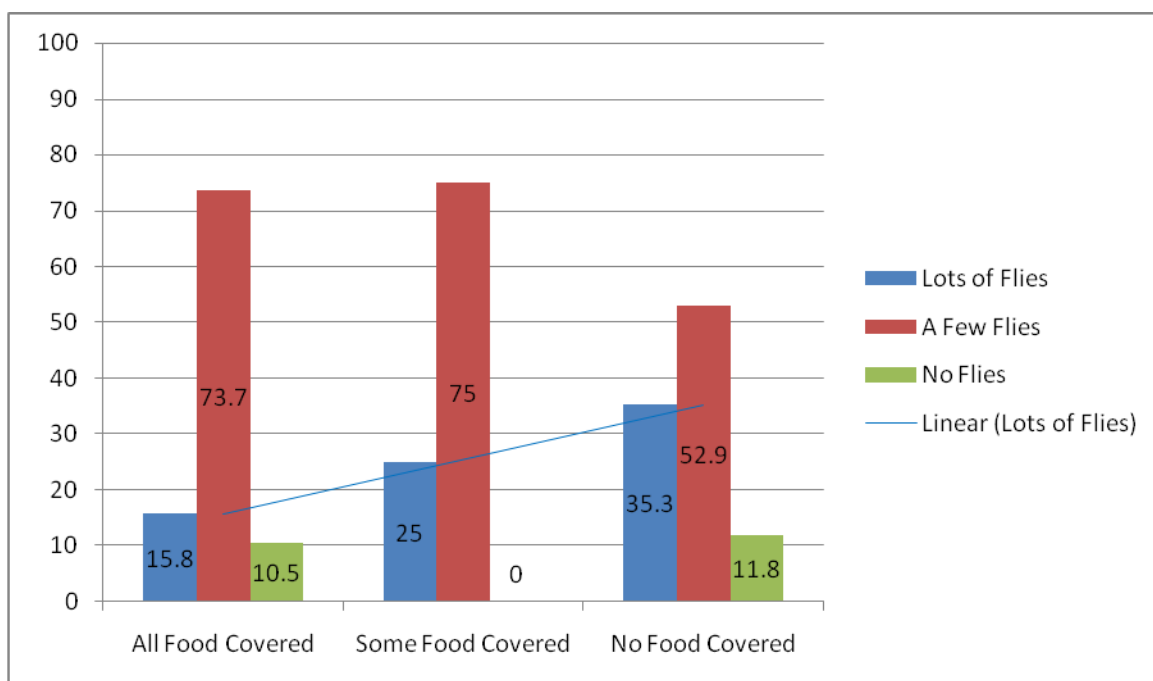
Regarding the presence of flies in the kitchen, 60.5% of all kitchens were observed to have a few flies visible during the interview, 29.3% of all kitchens had no flies and 10.3% had many flies (measured as a continuous buzzing). This same distribution appears for community, with the majority of households having only a few flies visible. While one would not expect differences between communities regarding the presence of flies, we would expect that other variables would influence the presence of flies; such as the cleanliness of the kitchen and the presence of covered/protected leftover food.



**Figure 6: Presence of Flies in Kitchen by Kitchen Cleanliness**

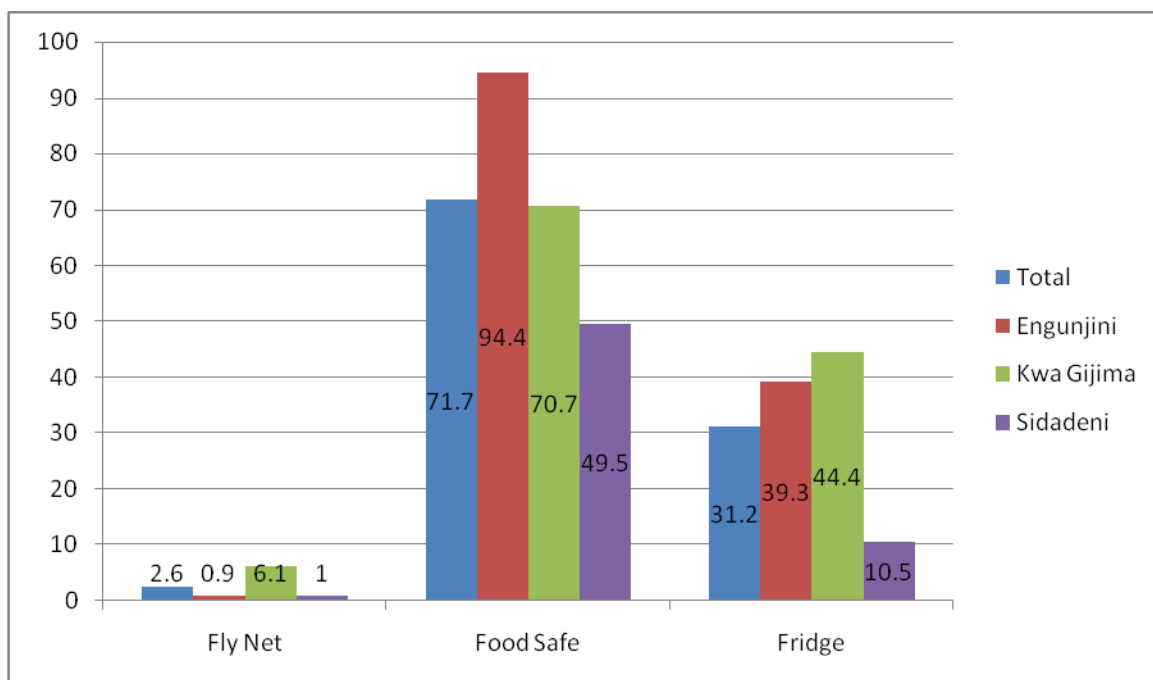
As can be seen in Figure 6 above, while the majority of households still reportedly have a few flies in their kitchens, regardless of the cleanliness of their kitchen, there is a clear trend between how clean a kitchen is and the number of flies present. First of all, as the cleanliness of a kitchen improves there is a clear reduction in reports of lots of flies, from 18.3%, to 12.2% to 3.8% of households with Lots of Flies. However, the stronger trend is between the observation of no flies and the cleanliness of a kitchen. Where kitchens are dirty, 15.9% of households reported no flies, which improved to 17.3% with quite clean kitchens and then jumped to 46.6% of very clean kitchens that reported no flies in the kitchen. This seems to indicate a positive correlation between the cleanliness of kitchens and the presence of no flies in a kitchen.

Another trend also exists between the number of flies in a kitchen and the presence of unprotected leftover food, as shown in Figure 7. In kitchens with all leftover food covered, 15.8% were observed to have a lot of flies, which increased to 25% with some food protected and 35.3% with no food protected. This again shows a possible positive correlation between more flies in a kitchen and the presence of unprotected food.



**Figure 7: Presence of Flies by Leftover Food Protection**

Observations were also conducted with an aim to assess the presence of three commonly available methods for protecting food from flies; fly nets, food safes/cupboards and refrigerators.



**Figure 8: Common Food Storage Methods**

As seen in Figure 8 above, the most commonly used method of food storage is the food safe or cupboard. Interestingly, very few households utilize fly nets, the cheapest and easiest method for protecting food from flies.

## Solid Waste

When each household was asked whether they thought that the disposal and management of rubbish is a problem in their community, 73.6% of all households responded that it is a big problem, while 17.4% reported that it is a bit of a problem and 9.0% reported that it's not at all a problem. In general, this distribution holds in each of the three communities, with the exception of Engunjini where just over half (50.5%) of households reported that rubbish is a big problem and 32.7% reported that rubbish is only a bit of a problem. Otherwise, over 80% of households in both Sidadeni and Kwa Gijima report that the disposal of rubbish is a big problem in their communities. Interestingly, according to the observations conducted at each household, 54.3% of all households were observed to have rubbish within 5 paces of their house/yard. Furthermore, 73.8% of households in Engunjini were observed to have rubbish within 5 paces of their house/yard, as compared to 41.4% and 46.7% in Kwa Gijima and Sidadeni, respectively. However, as shown in Figure 9, there appears to be disagreement between the presence of rubbish and household perceptions of rubbish disposal as a problem and the self-reported methods used by each household to dispose of rubbish.

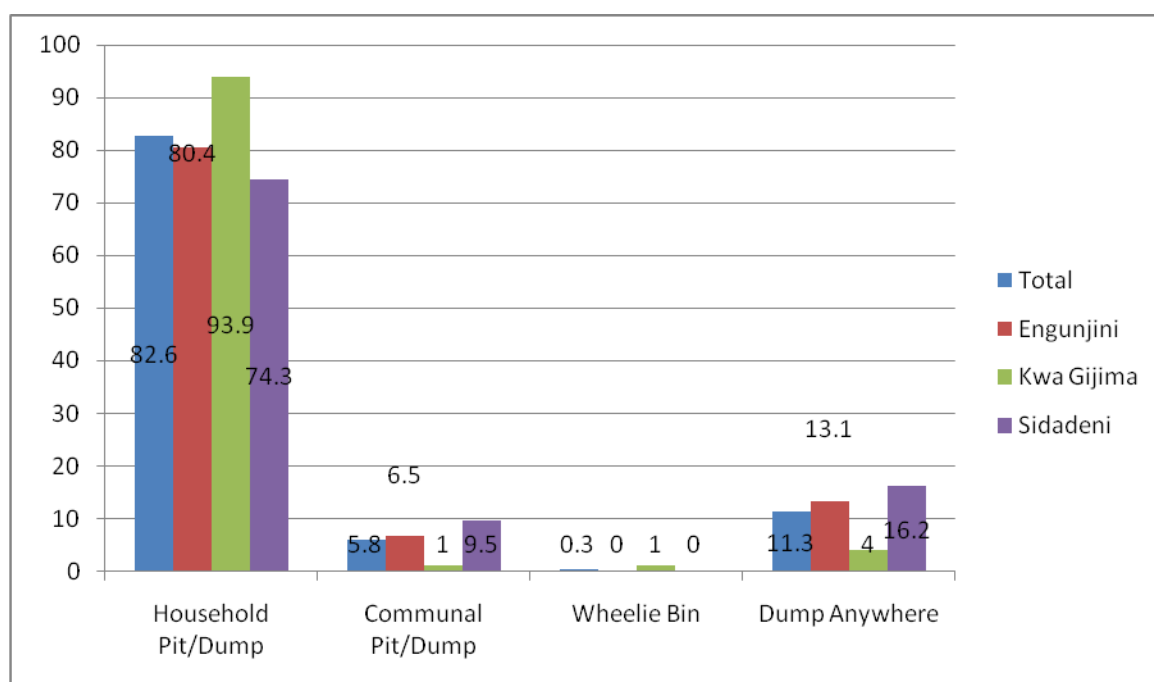


Figure 9: Methods of Household Rubbish Disposal

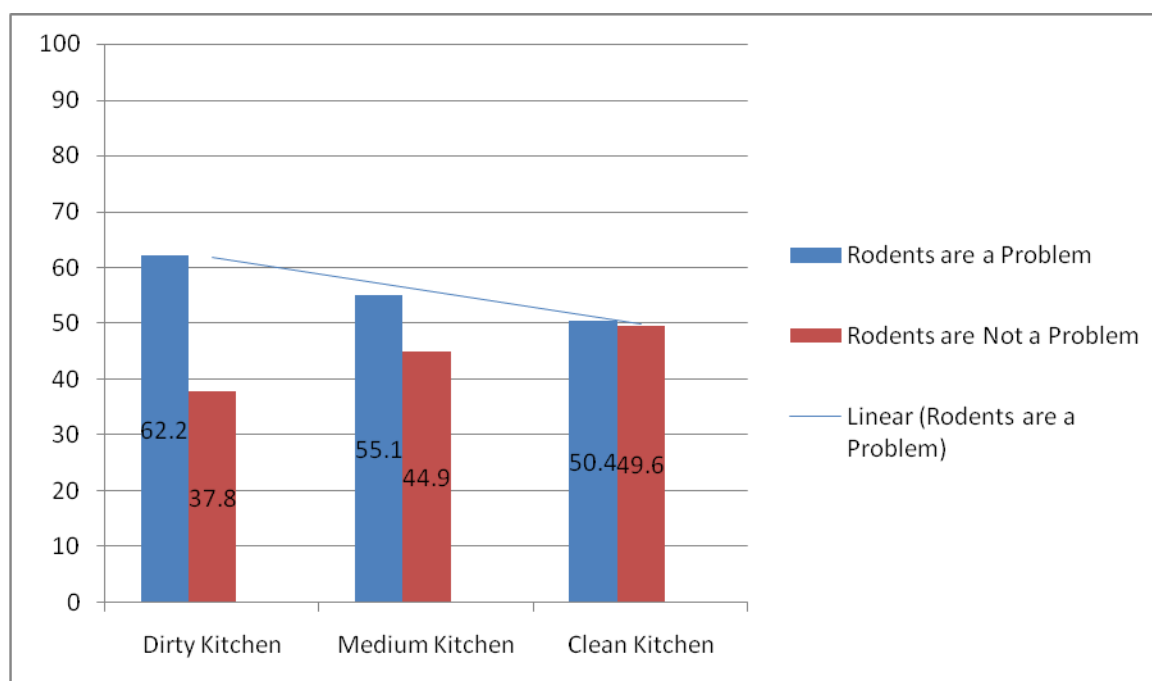
Overall, 82.6% of all households utilize household pits, dumps or drums to manage their rubbish, 11.3% dump their rubbish anywhere, 5.8% use communal dumps, and 0.3% use wheelie bins. While there is not much variation between the three communities, it is interesting to note that in Kwa Gijima, it appears that households make a greater effort to manage their rubbish, with only 4% of households reportedly dumping their rubbish anywhere. While this does not help to explain why rubbish was observed around the majority of households interviewed, household use of black refuse bags does. 69.8% of all households report that they do not use black refuse bags to manage their rubbish, while 29.6% report that they purchase the bags on their own. Again, Kwa Gijima sets itself apart, with 84.8% of households reporting that they provide their own black refuse bags, as compared to 5.6% and 1.9% of households that provide their own refuse bags in Engunjini and Sidadeni, respectively. This could again be a reflection of Kwa Gijima's proximity to town and access to additional solid waste management resources. Since many households in Engunjini and Sidadeni use home-made pits dug into the ground to manage their loose rubbish, it is very easy for livestock, wind and water runoff (to name a few culprits) to move the loose rubbish from the pit. And again, even if black bags are used

and merely placed in an unprotected household pit, livestock and household pets (dogs and cats) can still tear into the bags and scatter rubbish.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Rodents	<b>Big Problem</b>	<b>31 (64.6)</b>	<b>31 (60.8)</b>	<b>58 (80.6)</b>	<b>120 (70.2)</b>
	<b>A Bit of a Problem</b>	17 (35.4)	20 (39.2)	14 (19.4)	51 (29.8)

**Table 4: Perceived Severity of Rodent Problem**

Related to solid waste management are problems related to rodents. Generally, 55.0% of all households report that rodents are a problem in their house. While 51.5% of households in Kwa Gijima and 68.6% of households in Sidadeni report that rodents are a problem, only 44.9% of households in Engunjini report that rodents are a problem in their household. However, this simple yes/no analysis hides the perceived scope of the rodent problem. Table 4 shows how households that report rodents to be a problem perceive the size of their rodent problem. Of those households that reported that rodents as a problem, 70.2% report that it is a big problem, while 29.8% report that it is only a bit of a problem. While there is not much variation between communities, 80.6 % of households in Sidadeni perceive their rodent problem to be big, as compared to 60.8% in Kwa Gijima and 64.6% in Engunjini. Interestingly, it appears that household perceptions of their rodent problem are related to the cleanliness of each household's kitchen, as shown in Figure 10 below.



**Figure 10: Perceptions of Rodent Problem by Cleanliness of Kitchens**

Accordingly, it appears that as the cleanliness of a household's kitchen improves, self-report of rodents as a problem decreases. 62.2% of households observed to have dirty kitchens reported that rodents are a problem, which decreases to 55.1% when kitchens are observed to be slightly clean and 50.4% when kitchens are observed to be clean. This correlation did not appear for the other variables tested, which included the observations of rubbish within 5 paces of the house and protected food in the kitchen.

## Health Knowledge

Every household interviewed was asked a series of health-related knowledge questions. These included how to make Sugar-Salt Solution (SSS), 5 ways in which diarrhea is transmitted, 5 times when hands should be washed, 5 ways to prevent worms, 5 ways to prevent skin diseases, 5 times water can be contaminated and 5 sources of safe drinking water. Below is a discussion of these health knowledge questions.

### Sugar Salt Solution

Overall, 58.2% of all households gave the correct recipe for SSS. At the community level, 70.5% of households in Sidadeni and 65.7% of households in Kwa Gijima gave the correct recipe for SSS, as compared to 39.3% of households in Engunjini. However, this simple correct/incorrect assessment hides important information about *how* respondents answered this question. Table 5 shows the breakdown of responses for the 130 households that did *not* provide the correct answer.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Knowledge of SSS Recipe	<i>No Knowledge</i>	13 (20.0)	<b>20 (58.8)</b>	<b>25 (80.6)</b>	58 (44.6)
	<i>Incorrect Recipe</i>	<b>52 (80.0)</b>	14 (41.2)	6 (19.4)	<b>72 (55.4)</b>

Table 5: Breakdown of Incorrect Responses to SSS Knowledge Question

As can be seen, of the households that gave incorrect responses, the majority simply gave incorrect information (55.4%) as compared to 44.6% who had no knowledge of SSS. However, at a community level the differences are quite dramatic. 80% of households in Engunjini simply gave the incorrect recipe, compared to 19.4% of households in Sidadeni and 41.2% of households in Kwa Gijima that gave the incorrect recipe. Finally, while respondents in Sidadeni appear to have a greater knowledge of how SSS is made, 80.6% of those who gave incorrect information had no knowledge at all of how to make SSS. This indicates that there is little middle ground in Sidadeni, but rather respondents either know how to make SSS or have no knowledge at all. Clearly, there are significant improvements that can be made to this knowledge indicator.

### Health Knowledge Questions

For the remaining six knowledge questions, respondents were categorized into Poor Knowledge, Average/Moderate Knowledge and Good Knowledge based upon the number of correct responses they provided.

- Poor Knowledge: those respondents that provided none or only one correct response
- Average/Moderate Knowledge: respondents provided 2 – 3 correct responses
- Good Knowledge: respondents provided 4 – 5 correct responses

The summary data for each of these categories for each knowledge question is provided in Tables 6 – 8 below.

As is clearly presented in Table 6 above, respondents from Sidadeni, in general, have poorer health knowledge than their counterparts in Engunjini and Kwa Gijima, particularly on related to how diarrhea is caused (81.9%), how to prevent skin diseases (97.1%), and how to prevent worm infections (82.9%). This at first glance appears contradictory, particularly considering the fact that 70.5% of respondents from Sidadeni provided the correct recipe for SSS, which would indicate that they either have received sufficient health education around this issue in the past or that they suffer more from diarrhea than their counterparts and thus have had to put their

knowledge of treating dehydration with SSS more often. Regardless of the reason, this is a clear indication that the residents of Sidadeni will benefit greatly from the preventative health knowledge made available through membership in a CHC.

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Health Knowledge Questions	<i>Diarrhea Transmission</i>	36 (33.6)	21 (21.2)	<b>86 (81.9)</b>	143 (46.0)
	<i>When Wash Hands</i>	4 (3.7)	2 (2.0)	24 (22.9)	30 (9.6)
	<i>How Prevent Worms</i>	35 (32.7)	18 (18.2)	<b>102 (97.1)</b>	155 (49.8)
	<i>How Prevent Skin Diseases</i>	32 (29.9)	16 (16.2)	<b>87 (82.9)</b>	135 (43.4)
	<i>When Water is Contaminated</i>	46 (43.0)	12 (12.1)	45 (42.9)	103 (33.1)
	<i>Safe Water Sources</i>	<b>50 (46.7)</b>	14 (14.1)	<b>53 (50.5)</b>	117 (37.6)

Table 6: Poor Health Knowledge

Table 7 summarizes those respondents with Moderate/Average Health Knowledge. Clearly, Kwa Gijima stands out from the other communities as the majority of respondents in that community have Moderate Knowledge for all six questions. For the most part, this also holds for Engunjini, with the exception of the Hand Washing question where only 13.1% of respondents have moderate knowledge of when they should wash their hands. For respondents in Sidadeni, the only questions that they appear to have moderate knowledge of are when to wash their hands (77.1%), when water is contaminated (57.1%), and identification of safe water sources (49.5%).

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Health Knowledge Questions	<i>Diarrhea Transmission</i>	<b>59 (55.1)</b>	42 (42.4)	19 (18.1)	120 (38.6)
	<i>When Wash Hands</i>	14 (13.1)	42 (42.4)	<b>81 (77.1)</b>	137 (44.1)
	<i>How Prevent Worms</i>	<b>68 (63.6)</b>	46 (46.5)	3 (2.9)	117 (37.6)
	<i>How Prevent Skin Diseases</i>	<b>60 (56.1)</b>	43 (43.4)	16 (15.2)	119 (38.3)
	<i>When Water is Contaminated</i>	47 (43.9)	46 (46.5)	<b>60 (57.1)</b>	153 (49.2)
	<i>Safe Water Sources</i>	38 (35.5)	48 (48.5)	52 (49.5)	138 (44.4)

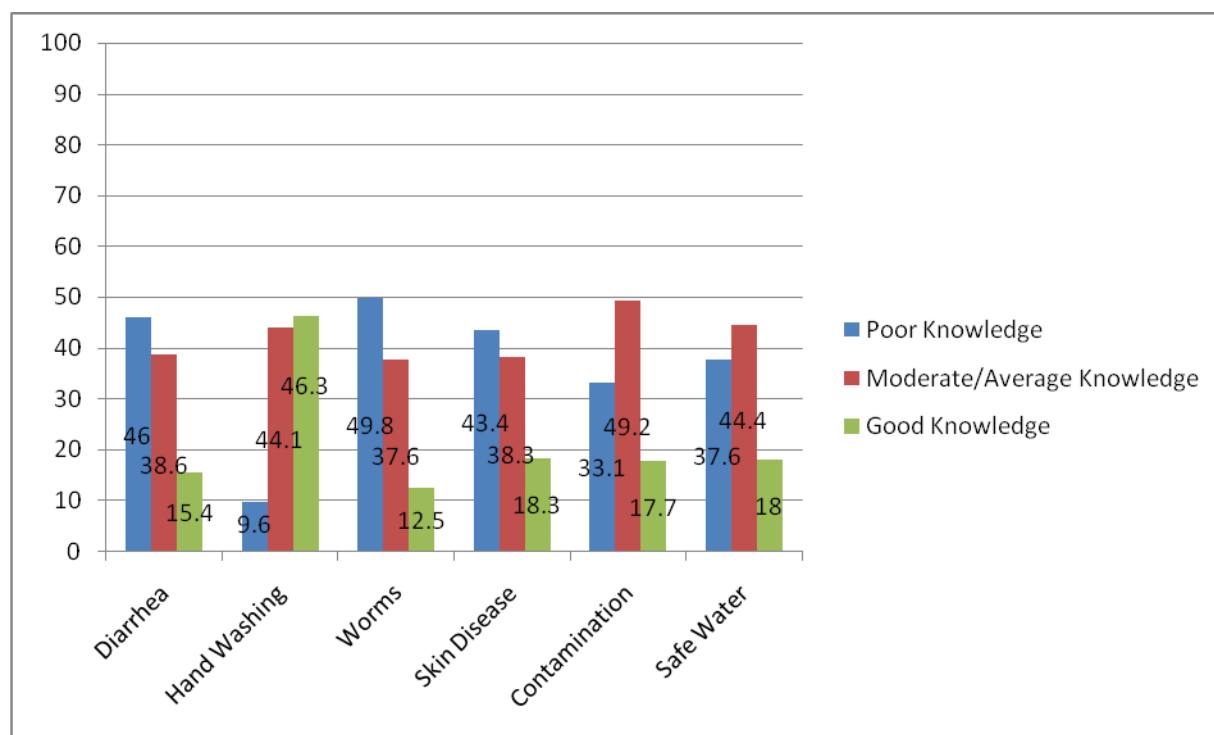
Table 7: Moderate or Average Health Knowledge

		Community			Total N (%)
		Engunjini N (%)	Kwa Gijima N (%)	Sidadeni N (%)	
Health Knowledge Questions	<i>Diarrhea Transmission</i>	12 (11.2)	36 (36.4)	0 (0)	48 (15.4)
	<i>When Wash Hands</i>	<b>89 (83.2)</b>	55 (42.4)	0 (0)	<b>144 (46.3)</b>
	<i>How Prevent Worms</i>	4 (3.7)	35 (35.4)	0 (0)	39 (12.5)
	<i>How Prevent Skin Diseases</i>	15 (14.0)	40 (40.4)	2 (1.9)	57 (18.3)
	<i>When Water is Contaminated</i>	14 (13.1)	41 (41.4)	0 (0)	55 (17.7)
	<i>Safe Water Sources</i>	19 (17.8)	37 (37.4)	0 (0)	56 (18.0)

Table 8: Good Health Knowledge



Finally, Table 8 presents those respondents with Good Health Knowledge. As is expected, no respondent in Sidadeni can be categorized as having Good Knowledge, with the exception of two people who have good knowledge of how to prevent skin diseases (1.9%). What is clear is that a good portion of respondents in Kwa Gijima can be characterized as having Good Knowledge with no fewer than 35% of respondents providing 4-5 correct responses for each of the six health questions. Finally, 83.2% of respondents in Engunjini can be characterized as having Good Knowledge of the 5 times they should wash their hands.



**Figure 11: Overall Health Knowledge**

Figure 11 above is an overview of all six health knowledge questions, categorized by the three levels of knowledge for all 311 respondents. As this graph shows, the majority of respondents in all three communities have poor knowledge of how diarrhea is transmitted (46%), how to prevent worms (49.8%) and how to prevent skin diseases (43.4%), indicating that these are areas for significant improvement. However, most people appear to know 5 times their water can be contaminated (49.2%) and can identify 5 safe water sources (44.4%). Finally, the only question where the majority of respondents have good knowledge is when to wash their hands (46.3%). In summary, this data all points to significant improvements that can be made in the preventive health knowledge of households participating in the CHC project.

### Knowledge Summary

In general, there is great variation between communities regarding their health related knowledge, with households in Kwa Gijima apparently having greater overall knowledge as compared to households in Sidadeni and Engunjini. This is reflected by the average correct responses provided by each community. In total, six health knowledge questions were asked, each with a possible 5 correct responses. Therefore, the total number of correct responses is 30. The average number of correct responses for all three communities is provided in Table 6.

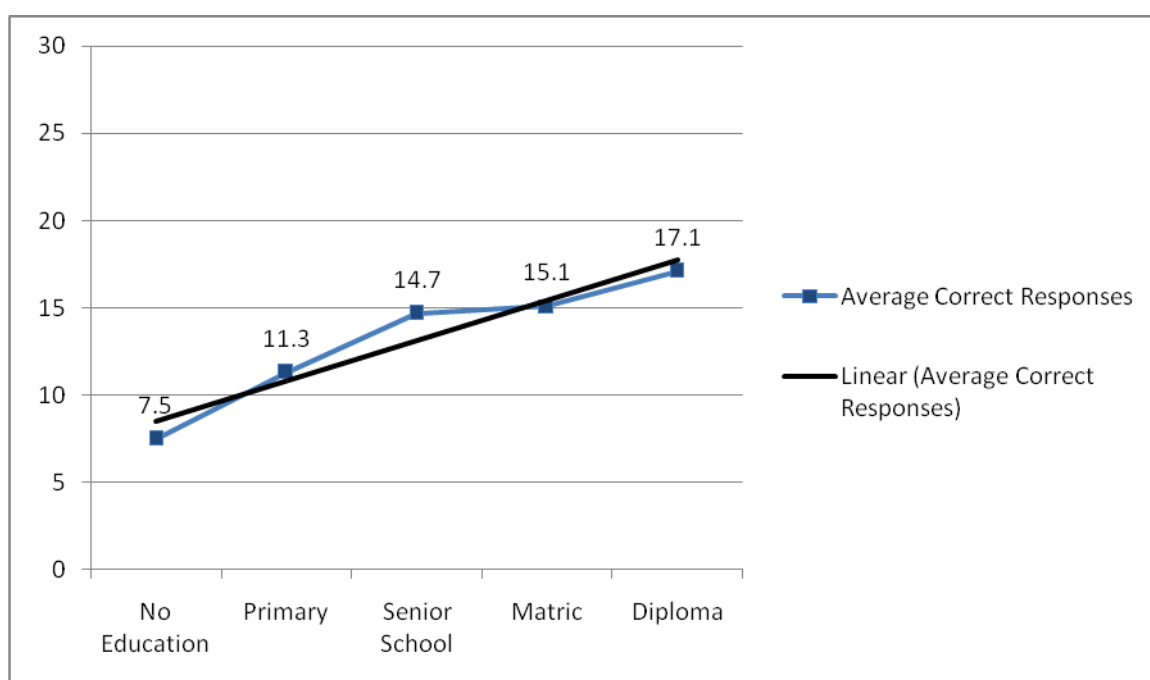
	Community			Total
	Engunjini	Kwa Gijima	Sidadeni	

<b>Average Correct Responses</b>	13.7	18.7	7.4	13.2
----------------------------------	------	------	-----	------

**Table 9: Average Correct Responses by Community**

Based upon this information, it is clear that households in Kwa Gijima generally have more knowledge than households in Engunjinini and Sidadeni, where respondents provided an average of 18.7 correct responses. Respondents in Engunjinini are just above the sample average with an average of 13.7 correct responses provided, while respondents in Sidadeni are well below average with only 7.4 correct responses provided.

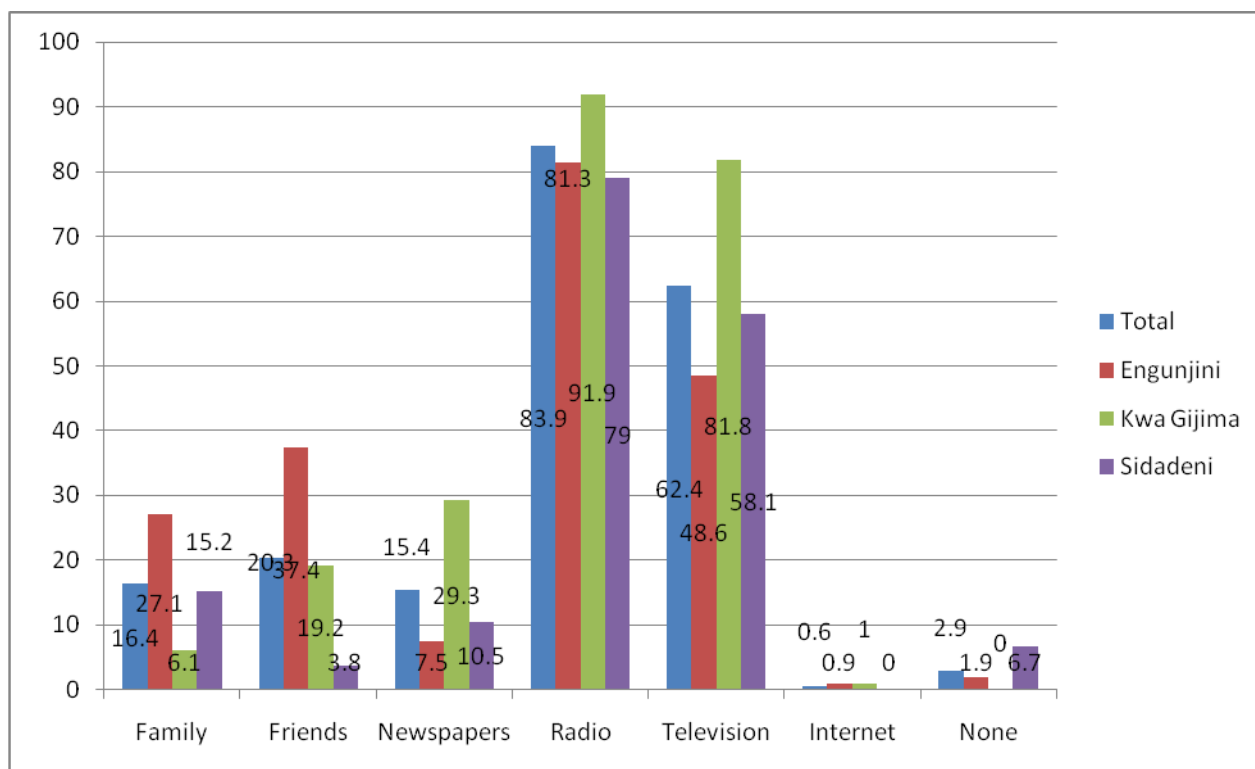
While there are a number of reasons for these differences in health knowledge to exist, educational levels and news sources were analyzed herein in an effort to provide an explanation. Overall, more respondents in Kwa Gijima appear to have completed Senior School (50.5%) as compared to Engunjinini (36.4%) and Sidadeni (25.7%) and more respondents in Sidadeni had no education at all (12.4%) as compared to the other communities. This correlation between education and health knowledge is confirmed when the average correct responses for each individual respondent is analyzed according to achieved educational levels, as presented in Figure 12 below.

**Figure 12: Average Correct Responses by Education**

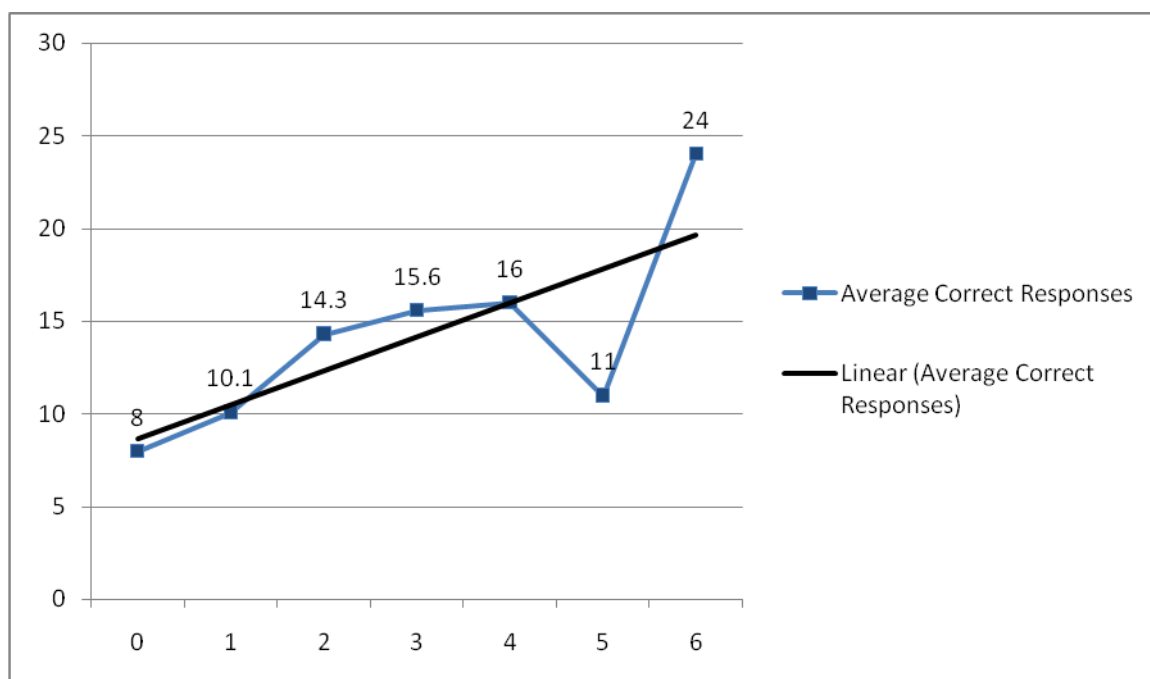
As a respondents formal education increases, the number of correct responses provided increases from 7.5 correct responses for those without any formal education to 17.1 correct responses for those who have completed their diploma. In addition, the trend is as expected and holds fairly constant, showing a positive correlation between education and average correct responses provided.

The other potential reason for these differences in knowledge is the difference in exposure to different news sources (as shown in Figure 17 below) between the three communities. In general, more households in Kwa Gijima report using mainstream sources of news and information such as newspapers (29.3%), radio (91.9%) and television (81.8%) than households in either of the other communities. On the other hand, households in Engunjinini, for example, utilize informal sources of news and information, such as family (27.1%) and friends (37.4%) more than households in the other communities. Any information provided by informal sources of

information may be incorrect or incomplete, thereby influencing the average correct responses provided in that community.



**Figure 13: Frequency of Information/News Sources**



**Figure 14 Average Correct Responses by Number of News Sources Utilized**

When analyzed together, there also appears to be a correlation between the number of news sources utilized by a respondents and the number of correct responses provided, as shown in Figure 14 above. Respondents that do not obtain news from any sources provided 8 correct responses, while respondents that report

utilizing 6 news sources provided up to 24 correct responses. However, this correlation does not appear to be perfect as respondents who report using 5 news sources provided fewer correct responses, on average, than those who report using between 3 and 4 news sources. This imperfect trend can be partially explained by the small sample that reported using 5 or 6 news sources ( $n = 3$ ) and therefore needs to be tested for other associations, such as that between education and the number of news sources utilized. Regardless of the reasons, this data shows that the majority of households in these three case study communities stand to gain a lot of preventative health knowledge by participating in the CHC project in Umzimkhulu.

### Fruit Trees & Gardens

At each household, observations of backyard gardens were done to assess the presence of fruit trees and the variety of produce grown. In general, 65.3% of all households were observed to have at least one fruit tree in their yard. Interestingly, there is substantial variation of this indicator between communities. For example, 86% of all households in Engunjini were observed to have at least one fruit tree as compared to 60.6% of households in Kwa Gijima and 48.6% of households in Sidadeni.

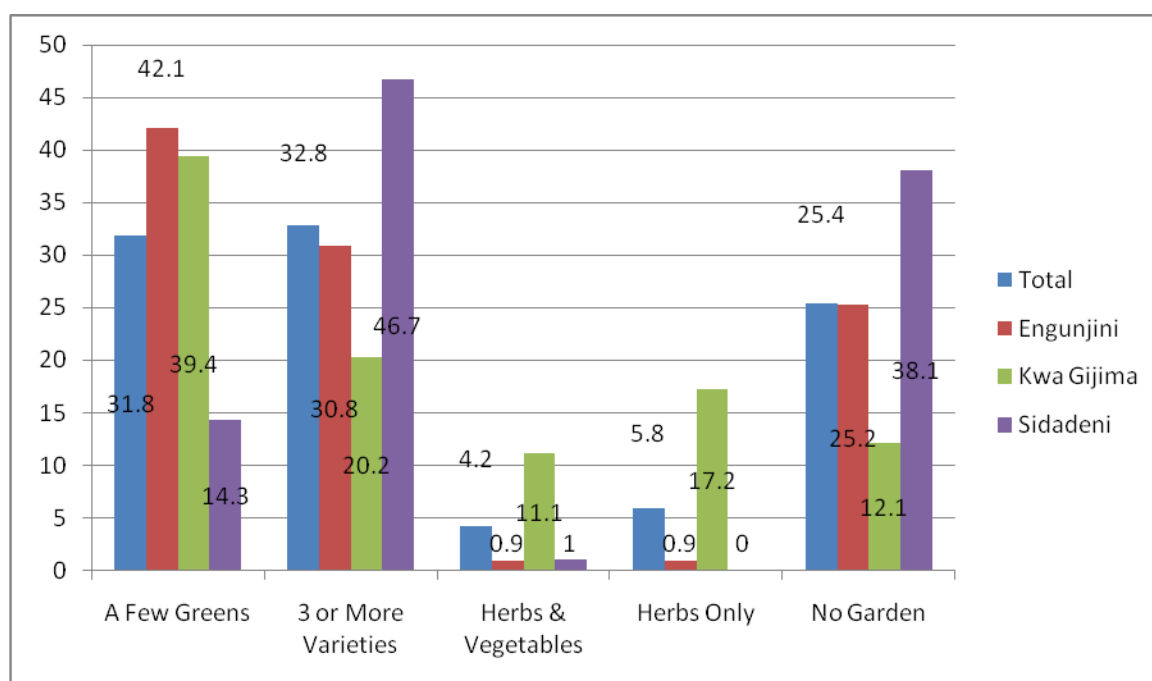


Figure 15: Types of Gardens

Figure 18 above summarizes the information about household gardens. Overall, it appears that most households have either 3 or more varieties of produce (32.8%) or just a few greens (31.8%) growing in their gardens. However, 25.4% of all households have no garden at all. This is due to the fact that in Sidadeni, 38.1% of households do not have a garden at all. This is balanced out by the fact that 46.7% of households in Sidadeni grow three or more varieties of produce in their gardens, a much higher proportion than any of the other two communities. Interestingly, in the area where one would think there would be fewer gardens because of its proximity to town, Kwa Gijima, there appears to be a greater distribution of the types of produce grown, including herbs (17.2%). This again could be due to the access that households in Kwa Gijima have to different information sources due to their higher education levels, access to town and technical support and to a ready market.

## Conclusion

This base line survey has been done to provide some guidelines as to the most pressing gaps in health knowledge that can be filled and hygiene behavior that can be changed by the Community Health Clubs. Based upon the results of this report, and given that the three selected villages are representatives of the whole of Umzimkhulu, it would appear that the CHC Approach can make significant differences in the lives of the participating communities. The three selected villages represent a high, medium and lower living standard and it is reasonable to assume that the rest of the district will fall somewhere in between. It would also appear that the topics to be done in health promotion sessions are indeed appropriate for the target communities, and that the training can proceed without alteration to the training materials. If the 24 health sessions are completed as planned we can expect that there will be significant improvement in health knowledge and behavior, and would predict an average of between 20-30% change in most hygiene behaviours. The training intends to focus on water usage and storage, safe disposal of human faeces and solid waste, as well as diseases that can be prevented by poor hygiene such as diarrhoea, scabies, ringworm, and intestinal worms. This report highlights that there is indeed room for improvement in all these areas. 80% of the household still use unprotected water, and 51% have dirty latrines, 60% had a fly problem in kitchens of with only 43% of those with left over food making any to protect food from flies. 55% of households reported rats were a problem and with 74% reporting a rubbish problem and with 54% of households having solid waste within close proximity, these are areas that can be improved significantly. Handwashing probably provides the best opportunity to impact on the prevalence of diarrhea as only 8% households use soap regularly. As regards levels of health knowledge there is little doubt that the programme will register a significant rise in good health knowledge from the average of 18.6% for the six topics which were asked. It is also clear that the district of Umzimkhulu is an ideal area for a pilot project as the level of safe water supply, sanitation and general hygiene is decidedly low as compared to more developed areas in Kwa Zulu Natal. This low base line will enable a clear measurement of impact using the proxy indicators that have been carefully linked to the training and the recommended practices which are expected to be put into place within the next six months. Given the current low provision of safe water supply and adequate sanitation, this base line report should be circulated to service providers of water and sanitation to alert the relevant authorities that within a few months there will be a sudden demand as a result of this training programme, and that planning to deal with this demand should be already in place to ensure a seamless transition from demand creation to improved living conditions in Umzimkhulu.