

UNIVERSITY OF MINNESOTA



The Whole Village Project

**Village Reports for Mandi, Gidas, Boay, Mwada,
Sangaiwe, and Vilima Vitatu in Babati District**

August 2010

**Revised June 2011 with Addendum
for Sangaiwe and Vilima Vitatu**

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ACRONYMS

COSTECH	Tanzania Commission for Science and Technology
FGD	Focus Group Discussion
HH	Household(s)
IYCF	Infant and Young Child Feeding
KAP	Knowledge, Attitude and Practices
NGO	Non-Governmental Organization
NIMR	National Institute of Medical Research
SFTZ	Savannas Forever Tanzania
STD	Sexually Transmitted Disease
TAWIRI	Tanzanian Wildlife Research Institute
TDHS	Tanzania Demographic and Health Survey
TFR	Total Fertility Rate
THIS	Tanzania HIV Indicator Survey
TSH	Tanzania Shillings
UMN	University of Minnesota
USAID	U.S. Agency for International Development
WHO	World Health Organization
WVP	Whole Village Project

NOTE: THE VILLAGES OF SANGAIWE AND VILIMA VITATU WERE SURVEYED IN MAY/APRIL 2011, ONE YEAR FOLLOWING THE SURVEYING OF THE OTHER VILLAGES IN BABATI DISTRICT. SURVEY RESULTS FROM SANGAIWE AND VILIMA VITATU WERE NOT AVIALBLE AT THE TIME THIS REPORT WAS WRITTEN. A BRIEF SUMMARY OF RESULTS FROM SANGAIWE AND VILIMA VITATU CAN BE FOUND IN APPENDIX C.

1 INTRODUCTION

The purpose of this report is to present district officials and local leaders with multi-sectoral data across several villages in this district. We hope these data may be useful in seeing the strengths and weaknesses of different sectors and the variation across villages. These data may be useful in prioritizing future development projects. The villages represented here were selected by our donors for their project purposes and therefore they cannot be seen as representatives of the district. The data however, illustrate the diversity of economic and social development activities occurring across villages in the district.

The Whole Village Project (WVP) is collecting and analyzing comprehensive data at village level over an extended period of time. A collaborative project between Savannas Forever Tanzania (SFTZ), a Tanzanian NGO, and the University of Minnesota, USA, the Whole Village Project has a **vision** to work with people in rural Tanzanian villages to acquire and use knowledge for improving long-term health and well-being while sustaining natural resources. To achieve this goal, quantitative and qualitative data are systematically collected in villages across northern Tanzania by the Savannas Forever team in partnership with staff from the National Institutes of Medical Research (NIMR) and the Tanzanian Wildlife Research Institute (TAWIRI). The data are sent to the University of Minnesota for analysis and then returned to Tanzania. The SFTZ team returns to each village to present the data to villagers for their own use and decision-making. WVP intends to return to each village every two to three years in order to assess the sustainability of development projects over time and identify best practices.

In this report, we present a summary of data collected within a single district. Village-level surveys were conducted in Babati District in Mandi, Gidas, Boay, and Mwada from November to December, 2009.

2 METHODOLOGY

The Whole Village Project's survey tools and methodology has been reviewed and approved by multiple Tanzanian research authorities (COSTECH, NIMR and TAWIRI) and the University of Minnesota institutional review board for the ethical conduct of human subjects research. Further, permissions are sought by the respective regional, district and village leadership before beginning data collection.

Village selection is based on the funding agency priorities and permission of government leaders. After permissions are received the Savannas Forever Tanzania (SFTZ) staff arrange dates for data collection with district officials and village leaders. A Tanzanian survey team of 6-7 personnel work in each village for 5-6 days. The team begins with a sensitization session with leaders and community members to introduce the project and staff. Village leaders provide a roster list of heads of households and the research team uses a computer generated randomization program to select 65-70 households from this list. A standardized quantitative survey is conducted in each selected household.

Data collection tools include both quantitative and qualitative instruments. All interviews and focus groups are conducted in Kiswahili whenever possible. If respondents are not fluent in Kiswahili, a bi-lingual villager is identified by the leadership to translate from the local language to Kiswahili. The core household survey asks questions about livelihood, earnings, educational status of all household members, assets, health and natural resource use. From the household members, two brief individual level surveys are conducted: (1) an HIV/AIDS knowledge, attitude and practice (KAP) survey and (2) an anthropometric assessment of children under-five and nutrition questions. For the KAP survey, up to 4 adults (15 years or older) within the household are asked to complete the survey. All interviews are conducted in a private space where no one else may listen. All children in the household under five are weighed and measured and the primary caretaker is asked to answer the accompanying survey.

In order to obtain more contextual data about each village, a number of focus group and key informant interview tools are used. Focus groups are conducted with men and women, village

leaders, and a special group of agriculturalists and livestock holders. Village leaders invite villagers to participate and try to obtain diversity of representation by sub-village, age and gender. The research team also conducts an institutional assessment of village organizations with a mixed group of 10-15 villagers to identify the different NGOs, religious organizations, and government services working in the village and their respective strengths, weaknesses and contributions to the community. In addition, key informant interviews are conducted with school headmasters and clinic officers. A detailed list of survey instruments and focus group guides can be found in Appendix A.

3 KEY FINDINGS

The research captured a broad range of information about myriad aspects of four villages in Babati District. Overarching district strengths, gaps, and opportunities were pulled from the abundance of data collected and analyzed and are presented below. Detailed results and discussion are presented in Section 4.

3.1 District Strengths

Civic engagement, specifically as measured through participation in village assemblies, is relatively high with almost 55-75% of household survey respondents in this district participating in village assemblies in the last 12 months. Three of the four villages surveyed had three village assemblies, while Gidas had four. Further, there were 5-8 village committees in each of the villages; committees on water, land, hazards and AIDS were the most common.

Among the four villages surveyed, Mandi, Gidas, Boay, and Mwada, there was a high percent of households with latrines with the exception of Mandi. Access to latrines and appropriate waste disposal reduce opportunities for communicable disease transmission and water borne diseases. In Gidas, Boay, and Mwada, over 93% of respondents have a pit latrine, which is higher than most of other districts. In stark contrast, only 27% of households in Mandi have a latrine.

General AIDS knowledge is relatively good in Babati district with the exception of Mandi. The average AIDS knowledge scores ranged from 4.2 to 4.4 among males and 3.6 to 4.0 among females (on a scale of 6), which is higher than most of other districts. The high average AIDS knowledge scores in Babati district are largely due to the low percentage of respondents with no HIV prevention knowledge (0-2 points). Also, both the average scores of men and women are higher than most of other districts surveyed by the WVP.

A relatively high percentage (10-14%) of households earned more than 500,000 Tsh from farming, compared to an average of six percent in Longido and Monduli districts. This is consistent with the fact that the vast majority of households (around 90%) cultivate crops as their main occupation. Also, a higher proportion (69-97%) of households own land compared to other districts. The percentage of households that cultivate crops of any kind is 75-99%.

3.2 District Gaps

Although the primary school completion rate is slightly higher in Babati district than other districts, the quality of the education is in question. The low teacher to student ratio ranging from 1:42 to 1:86 and classroom to student ratio as low as 1:102 (Mandi) is problematic. Students suffer from a learning environment in which too many students are crowded into too few classrooms and taught by too few teachers. In addition, as high as 100% of students (Gidas) attend school without eating food or having tea only. Only Mwada provides any school meals, consisting of porridge for breakfast, and maize and beans for lunch.

Access to quality health services is also limited in the district. According to men, women, and village leaders in focus group discussions, health and health care rank among the top two problems facing their villages. Most of respondents in this district felt that the treatment at local dispensaries is not helpful; still 14%, 8% and 8% of respondents in Boay, Mandi, and Mwada use traditional medicinal plants often or very often. In addition, only Gidas and Mwada offer maternal and child health services.

Any level of acute malnourishment among children under five must be considered a gap. Nearly 1 in 13 children under five in Mwada are acutely malnourished. In Mandi, no child had had beef for the last 24 hours; only 11% of children had legumes; 1.6% had bananas. The main source of food is ugali, which itself cannot meet the nutrition needs of children under five. Milk is the main source of protein; on average 34-68% of children had milk during the last 24 hours.

Malaria is the most prevalent disease affecting households, especially children under five. Over 90% of households in Gidas, Boay, and Mwada and almost 80% in Mandi had children under five who have suffered from fever. Despite malaria being cited a major concern by all focus group participants, less than one-fourth of households in all villages except Mwada own an insecticide-treated mosquito net to prevent malaria. In Mwada, where about half of households own at least

one insecticide-treated mosquito net, the incidence of fever among children under five is still too high at 94%.

Farming, as the main source of income, is vulnerable to the problem of soil erosion. In three of the four villages surveyed, over 75% of households considered soil erosion to be a serious problem, which is harmful to the sustainability and reliability of farming. Further, in three of the four villages, fewer than 25% of households irrigate their plots.

Newcastle Disease is the number one cause of chicken mortality in Tanzania. Vaccination rates against Newcastle Disease are low in Babati District. As few as 16% (Boay) of households owning chickens vaccinate those chickens against Newcastle Disease. The highest vaccination rate (27% in Mwada) is still low given the severe consequences of infection with Newcastle Disease.

3.3 Opportunities

Although agriculture is the main occupation among 90% of households surveyed in Babati District, income from livestock sales and products is also significant. In Mandi, where 93.2% of households consider farming as their main occupation, for an average family 45% of the total income comes from livestock sales and products, which is more than farming. This disconnection between main occupation and main income source may be related to the nature of the farming—small-scale, subsistence agriculture. In order to increase household income, district leaders have an opportunity to design strategies for matching the primary occupation with primary income source either by expanding opportunities for sales of agricultural produce or scaling up of pastoralism.

Farmers in all four villages were visited by an agricultural extension worker in the past year. These agricultural extension workers typically trained a small group of local farmers in agricultural best practices and established model farms (growing maize, sunflowers, etc.) as demonstration plots. The trained farmers are expected to transfer knowledge and skills learned to their own farms. Given that the most common complaints of farmers was lack of knowledge of improved farming techniques and other measures, there appears to be an opportunity to further spread agricultural knowledge from model farmers to others and improve the productivity of farming. The district should monitor the impact of the work done by agricultural extension workers.

Increasing livestock vaccination rates will reduce the rate of cattle and goats lost to disease, which is still relatively high. In addition, although many households have heard of Newcastle disease, only

a small proportion of chickens are vaccinated. Therefore, villages have an opportunity to reallocate resources to increase livestock vaccination rates, which is effective in reducing livestock lost to diseases.

Households with kitchen gardens tend to have less serious food insecurity problems. Specifically, villages with higher coverage of kitchen gardens tend to have a lower percentage of households that went to bed hungry, ate limited variety of food, and fewer underweight children. However, kitchen garden training remains very limited in Babati district. Village leaders have the opportunity to convey knowledge about kitchen gardens as a means to alleviate food insecurity.

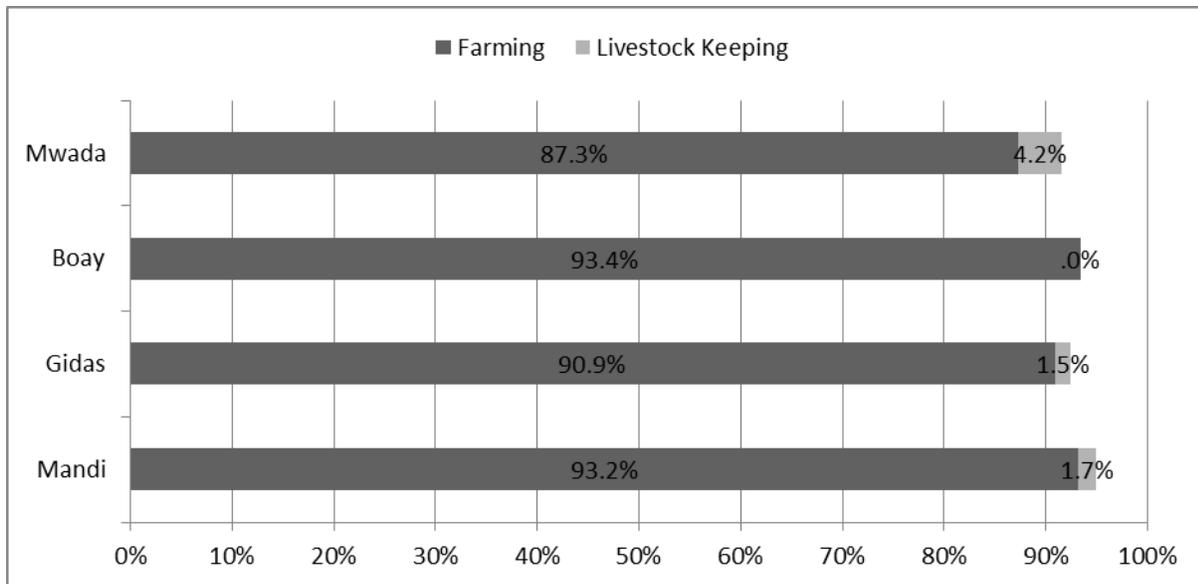
District leadership also has an opportunity to further protect the children in the district from vaccine-preventable disease. A high percentage of children under five in Babati District are vaccinated against tuberculosis (BCG), DPT, polio, and measles, as recommended by the World Health Organization (WHO). However, vaccination coverage is not universal. Given the already high level of vaccination, the district has an opportunity to reach universal coverage against vaccine-preventable disease given the proper allocation of resources.

4 RESULTS AND DISCUSSION

4.1 Household Livelihood and Assets

Nearly 90% or more of household heads surveyed in Babati District (Mwada, Boay, Gidas and Mandi) report farming as their main occupation (see Figure 1).

Figure 1. Main Occupation of Household Head



Livestock keeping as a primary occupation is rare although most households own some form of livestock such as cows, goats or chickens.

There are few female headed households in the villages surveyed. The largest percentage of female headed households is in Boay where 25% of households surveyed were headed by a woman. Female-headed households represent 10% of households surveyed in Mandi and Gidas, and 18% in Mwada.

Income from farming is the most common source of income for households in Mwada, Gidas and Boay although in Mandi, income from livestock sales (42%) is a little more than farming (40%). In Boay and Gidas, income from farming accounts for more than half of total income. Also in Boay and Gidas, 11.8% and 13.6% of households earned over Tsh 500,000 in the last 12 months from farming. Sixty-four percent of households in Mandi earn income from livestock sales; 20% of the households earned over Tsh 300,000 from livestock sales in the last 12 months. Neither the sale of livestock products, natural resources nor remittances is a primary or significant source of income for households in any village surveyed.

The impact of unemployment was explored qualitatively in each village assessed. According to men responding, unemployment negatively impacts individual families and the community at-large. Unemployment can lead to alcoholism and prostitution. In addition, families whose members are

unemployed struggle to buy food. At a community level, male focus group participants indicated that higher rates of unemployment increases theft, robbery, trickster behavior, and poverty.

Focus group discussion (FGDs) facilitated with men, women, and village leaders investigated activities that could improve the livelihoods of village members. The highest ranked recommendation by participant type by village is listed in Table 1. Improved farming techniques were mentioned most often by men and village leaders. Women highlighted alternative income generating activities such as sewing, vegetable gardens or access to micro-credit.

Table 1. Village Recommended Activities to Improve Local Livelihoods

Village	Male	Female	Village Leader
Mandi	Irrigation agriculture	Vegetable farming	Subsistence farming
Gidas	Farm input program	Borehole	Subsistence farming
Boay	Vegetable farming	Sewing machine	Cash crop cultivation/small scale cultivation
Mwada	Best agricultural practices	Microfinance	Cash crops

Asset ownership is a proxy indicator of a household's socioeconomic status. When households were asked about ownership of durable goods such as cell phones, radios or bicycles, the most common item owned were radios and bicycles. However, the disparity of the proportion of households that own radios and bicycles is large: Boay has the highest percentage that own radios, which is 59.2%, while the lowest, Mandi is only 39.7%; bicycle ownership also ranges from 37.9% (Mandi) to 69.0% (Mwada). The percentage of households owning cell phones is even lower, ranging from 29.3% (Mandi) to 47% (Gidas).

A majority of houses surveyed in Babati District were built with natural materials, such as mud walls, earth/clay floors, and grass or palm thatch roofing. Boay has a greater percentage of households with burnt bricks walls (74%) and corrugated iron sheeting roofs (68%) than any other village surveyed in Babati District. Cement block walls are very uncommon in these villages: only 2-8% of households were using cement block walls. Corrugated iron sheeting roofs are relatively common. From 45% (Mandi) to 68% (Boay) of households in these four villages have corrugated iron sheeting roofs.

4.2 Civic Engagement

Household level civic engagement was measured by the household survey respondent's membership in village government or committee, participation in village assemblies, and asking a village leader for assistance.

Fifteen percent of respondents in Mandi are members of either village government or a village committee, which requires the highest level of personal investment of time and resources. This is in contrast to Gidas where about 5% of respondents are. As expected, civic participation among household survey respondents in all villages is highest in that activity that requires the least personal investment: participation in village assemblies, the percentage of which exceeds 56% in all four villages and was as high as 75% in Mwada (see Table 2).

Table 2. Civic Participation by Village by Percentage of Respondents

	Mandi	Gidas	Boay	Mwada
Village government or committee member	13.6%	4.5%	6.7%	9.9%
Participated in village assembly (last 12 mo)	69.5%	59.1%	56.0%	74.6%
Asked village leader for assistance (last 12 mo)	30.5%	9.1%	14.7%	21.1%

Opportunities for civic participation at village level were assessed by number and type of village assemblies held in the last 12 months. Mwada convened the greatest number of village assemblies in the last 12 months: eight, while Boay held six. Mandi and Gidas were the ones that held the least: five.

4.3 Village Institutions

Table 3 presents a picture of the institutional analysis conducted in each village surveyed in Babati District. These village assets are categorized as village-run, a village committee or group, or operated by a third party. The "sector" column indicates the primary project areas in which the institution operates.

Table 3. Institutional Resources by Village

Institution	Mandi	Gidas	Boay	Mwada	Sector
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Institution	Mandi	Gidas	Boay	Mwada	Sector
Village-run					
Education	x	x	x	x	education
Health Service	x	x		x	health
Religious Institution (church, mosque, etc.)	x	x	x	x	Faith-based, social welfare
Bank	-	-	-	-	Financial
Veterinary Services	x				health, wildlife/conservation
Village Council /Government	x	x	x	x	politics/government
Sub-total village-run	5	4	3	4	
Village committee/group					
Environment/Natural Resources Cmte			x	x	energy/environment, farming/agriculture
Education Committee			x	x	education
Water Committee	x	x	x	x	water/civil service
Ag & Livestock Cmte	x				farming/agriculture
Elder's Cmte	x				human development, social welfare
Land Cmte		x	x	x	environment, farming/agriculture, wildlife/conservation
Hazards/Disaster Cmte	x	x	x	x	aid/development, social welfare
Farmers Coop/Ag Assn				x	farming/agriculture
Health, HIV/AIDS Cmte	x	x	x	x	health, HIV/AIDS
Forest Cmte		x			energy/environment, wildlife/conservation
Sub-total village committee/group	5	5	6	7	
Third-party operated					
Hunting/ Photographic/ Safari/ Tourism				x	business development, environment, wildlife/conservation
ADP (Area Development Program/World Vision)		x			aid/development
ADRA (Adventist Relief Development Agency)				x	aid/development
AfNet (Africa Network Evangelism Taskforce)			x		social welfare
AWF (African Wildlife Foundation)				x	wildlife/conservation
BAHEWASA		x	x		
COEL	x				
DMDD	x			x	
Faida Mali	x				
Farm Africa	x	x	x	x	farming/agriculture
JUHIBU				x	
Kibo				x	
LAMP				x	

Institution	Mandi	Gidas	Boay	Mwada	Sector
LISO	x				
ORIDOY				x	
PADEP (Participative Agriculture Development & Empowerment Program)	x			x	farming/agriculture
SACCOS (Savings & Credit Coop. Society)	x	x	x	x	financial/socioeconomic
SIDA				x	
TANAPA (Tanzania National Parks Association)				x	wildlife/conservation
TASAF				x	social welfare
VICOBA (Village community bank)		x			financial/socioeconomic
World Bank				x	financial/socioeconomic
World Vision			x	x	social welfare
<i>Sub-total third-party</i>	7	5	5	16	
<i>TOTAL Institutions</i>	17	14	14	27	

The tally of total institutions in each village is listed in the last row of Table 3, and sub-totals by type of institution is listed within the table immediately following each sub-section. Although these tallies only give a glimpse of the types of services available in each village, they do indicate the relative level of activity by type of service providers and sector. All four villages have at least 14 total institutions providing a range of services, but Mwada stood out with 27 institutions, 14 of these being NGOs. This is related to the three protected areas that Mwada has: Oridoyi, Mlima Besi, and Msitu wa Madevu. Governmental and non-governmental organizations working in the Protected Areas assisted Mwada by building a clinic, primary and secondary school, village office and provided stones and roofing grass, and wood and timber for building and pasture. Boay has the fewest village-run institutions (3), Mandi and Gidas have the fewest village committees/groups (5), and Gidas and Boay have the fewest third-party institutions (5).

Given the high percentage of NGOs and third party institutions working in Mwada, one would expect consistently more positive outcomes in areas such as income, education or food security. In fact, it has similar income and education characteristics as compared to Boay and Gidas, and had a higher rate of underweight children under-five. The greatest area of significant difference compared to the other villages was a smaller family size.

4.4 Education

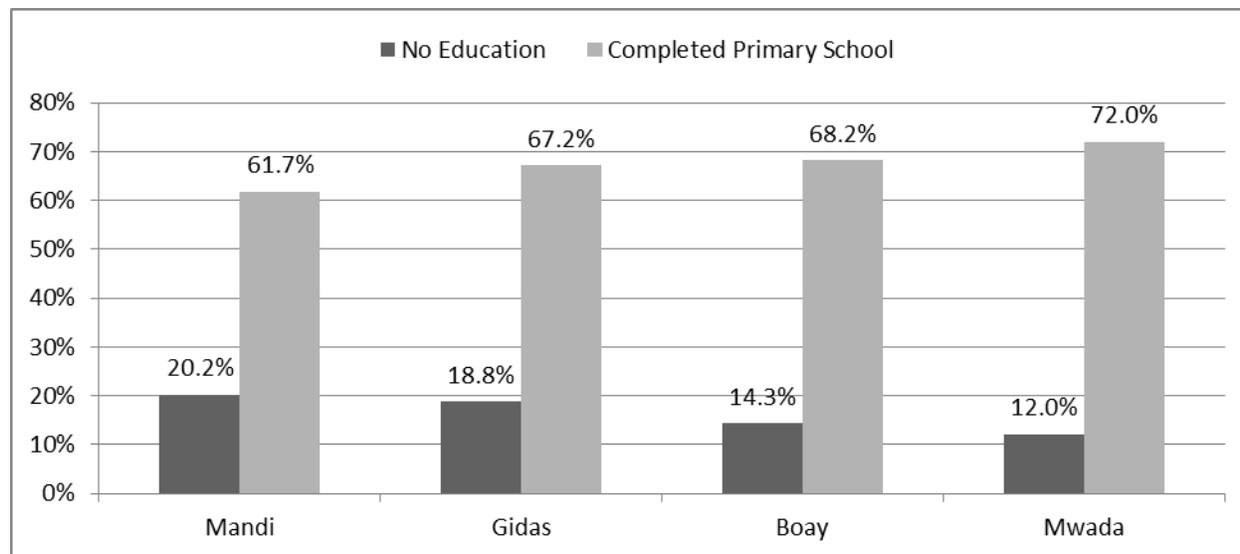
4.4.1 Household-Head Education

In all four villages surveyed, Mandi, Gidas, Boay, and Mwada, the percentage of household heads that completed primary school is around 50%; Mandi is the lowest (46%), while Gidas and Mwada have the highest proportion (62%). Also, Mandi has the highest percentage of household heads with no education or below primary school, which is close to 40%, while in Mwada it is only 16%. Only one household head (Gidas) surveyed in the district had completed secondary school. When disaggregated by sex, primary school completion by household head is lower for female heads of household than male. At 12.5% Gidas has the lowest percentage of female household heads that have completed primary school although the percent adult women who have completed primary school is 63 percent, equivalent to Mandi's and lower than the 70% and 72% rates in Boay and Mwada respectively.

4.4.2 Primary School Completion

Figure 1 presents data on primary school completion among adults (age 15 and over) in households surveyed in Babati District.

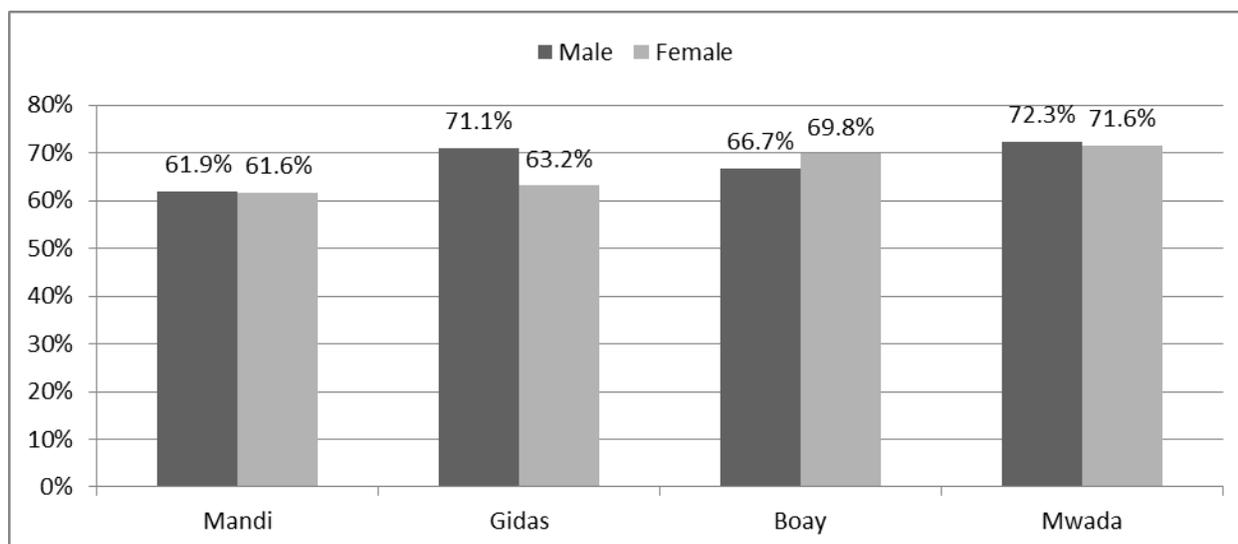
Figure 1. Percent Adults with No Education versus Completed Primary School



12% to 20% of the adults in these four villages have had no education; primary school completion rates are in the range of 61%-72%. Mwada has the highest primary school completion rate and lowest no education rate, while Mandi is the opposite.

As shown in Figure 2, primary school completion is less likely among females than males, except in Boay. Mwada has the highest primary school completion rates by both males and females (and Mandi the lowest) among all villages surveyed in Babati District.

Figure 2. Adult Primary School Completion Rates, Disaggregated by Sex



Gidas has the highest percentage of adults with at least some secondary education, but this is still low at only 1 in 5 adults; in the other three villages 11%-14% adults have some secondary schooling. Also, Gidas is the only village which has one adult surveyed having completed secondary school.

4.4.3 Access to Primary Education

Each village surveyed in Babati District has one primary school and all but Boay also have a secondary school. Access to primary education is not only measured by presence of a primary school, but also by resources – teachers, classrooms, textbooks – available at that primary school. Data presented in Table 4 were compiled from questionnaires completed during interviews with school headmasters.

Table 4. Primary School Environment

Village / School	Students Enrolled	Teacher to Student Ratio	Classroom to Student Ratio	Textbook to Student Ratio	% Teachers completed Form IV
Mandi	613	1 : 61	1 : 102	1 : 20	90%
Gidas	415	1 : 42	1 : 42	1 : 10	70.0%
Boay	486	1 : 81	1 : 70	1 : 3	100%
Mwada	856	1 : 86	1 : 95	1 : 3	100%

A shortage of classrooms/studying facilities and teachers and staff/student housing are noted by school headmasters and male and female focus group discussion participants as the greatest weaknesses of the primary schools in their villages. As supported by the data presented in Table 4, in general, the primary schools in Babati District have poor teacher-to-student ratios (especially in Boay and Mwada, the teacher-student ratio is over 1:80), classroom-to-student ratios (especially in Mandi, 102 students need to use one classroom), and textbook-to-student ratios. The disparity in textbook to student ratios is most striking, particularly in Mandi where 20 students share one textbook; in Boay and Mwada, the ratio decreases to 1:3.

Another measure of access is regular school attendance. Girls are less likely than boys to regularly attend school in Gidas; girls in Mwada and Mandi are more likely than boys to regularly attend. Data on attendance is not available for the Boay primary schools.

Access to a quality primary school education is further affected by the physical condition of the learning child. Children who attend school hungry are less likely to be able to learn. Three of the four primary schools surveyed in Babati District have a majority of students coming to school hungry (see Table 5). Of these five schools, only one (Mwada) provides any sort of food to students that could offset this hunger.

Table 5. Percent of Students Attending Primary School Hungry

Village	% Students Attending School Without Eating Food or Having Tea Only	School Meals Provided
Mandi	11%	no
Gidas	100%	no
Boay	60%	no
Mwada	90%	porridge for breakfast, makande (maize and beans) for lunch at no cost

4.5 Health

4.5.1 Access to Health Services

Access to health services is central to the delivery of prevention and care services and health outcomes. Here we consider service availability and service quality as a measure of “access.” Service availability can include distance or time required to reach the facility (or trained health providers), hours of operation, appropriate personnel on-staff, and necessary equipment to run laboratory tests; service quality may address proper staff training and appropriate treatment (and availability of commodities) according to established guidelines.

Qualitative information on the problems facing villages in Babati District were collected through focus group discussions with men and women, as well as with village leaders. In each village assessed, respondents ranked “problems with health and health care” in the top three problems facing the village (see Table 6). The lower the ranking, the greater the problem is considered by the respondents (i.e. a problem ranked “1” is a greater concern than one ranked “3”).

Table 6. Problems with Health and Health Care, Problem Ranking by Village

Village	Men	Women	Village Leader	Average Rank
Mandi	1	2	2	1.7
Gidas	1	2	2	1.7
Boay	1	1	2	1.3
Mwada	-	2	-	2.0

As presented in Table 6, the average respondent ranking (see last column “average rank”) places health and health care as the first to second most pressing problem in all four villages assessed in Babati District. Notably, women in Boay and men in Mandi, Gidas, and Boay each consider health and health care as the top concern in their villages.

Three of the four villages (Mandi, Gidas, and Mwada) have a government dispensary. Each dispensary is staffed by one assistant medical officer; Mandi has one medical officer; and Mwada has two nurses. Further, Mwada and Gidas have one refrigerator each. Only Mwada and Gidas offer maternal and child health services.

Household surveys indicate that the vast majority of households in this district seek treatment for ill children under-five from an established health facility: over 95% of households surveyed in Mandi, Gidas, Boay, and Mwada take their children to a dispensary or hospital when sick. Although such quantitative data for adults are not currently available, qualitative data collected through focus group discussions (FGDs) with men and women indicate that adults in Gidas and Boay tend to also seek treatment from a health facility (health clinic or hospital), rather than from a traditional healer or not seeking any treatment at all. However, in Mandi and Mwada, a traditional healer still seems to be a major source of care.

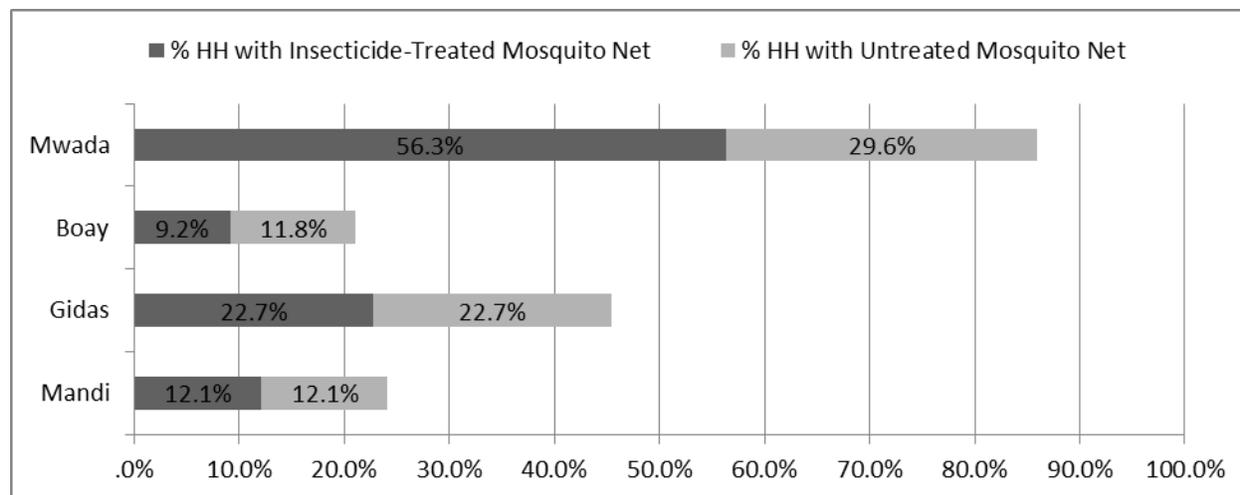
Nevertheless, FGD participants did not rate the quality of services available favorably. Although people in Boay and Gidas generally seek treatment from a health facility instead of traditional healer, the majority of them felt that treatment received was “not helpful at all”; while the rest thought it was “somewhat helpful”. Furthermore, almost all participants in Mandi thought the treatment was “not helpful at all”, while half of the participants in Mwada thought this way.

The household surveys collected information on traditional medicinal use, which allowed for a tabulation of frequency of traditional medicinal plant use by anyone in the household over the last 12 months. One and a half percent (Gidas) to 14.5% (Boay) of people surveyed had used a traditional medicinal plant “often” or “very often” in the past 12 months, which was relatively low. The use of traditional medicinal plants tabulated quantitatively is consistent with qualitative data collected through the FGDs, which indicates that only two respondents in Gidas seek multiple treatments from different sources while the rest of them got it from a clinic or dispensary. Also, all the respondents that seek the treatment from traditional healer/herbalist came from Boay. In addition, the majority of men seek treatment from a clinic/dispensary, while most women tend to get multiple treatments from different sources.

4.5.2 Malaria and Other Illnesses

Figure 3 presents data by village on percentage of households owning a mosquito net that has ever been treated with an insecticide and percentage of households owning an untreated mosquito net.

Figure 3. Households with Mosquito Nets, Treated and Untreated



Household mosquito net coverage is not universal in Babati District with ownership of any mosquito net being lowest in Boay and Mandi (see Figure 3). As expected, in each village surveyed, coverage with insecticide-treated mosquito nets is lower than total coverage with any mosquito net

(untreated + insecticide-treated). For example, in Boay, coverage drops to 1 in 11 households (compared to 1 in 5) when considering only those mosquito nets ever treated with an insecticide. As demonstrated by Figure 3, the proportion of insecticide-treated nets is greater than that of untreated nets of total nets owned in Mwada; lower in Boay; and the same in Gidas and Mandi.

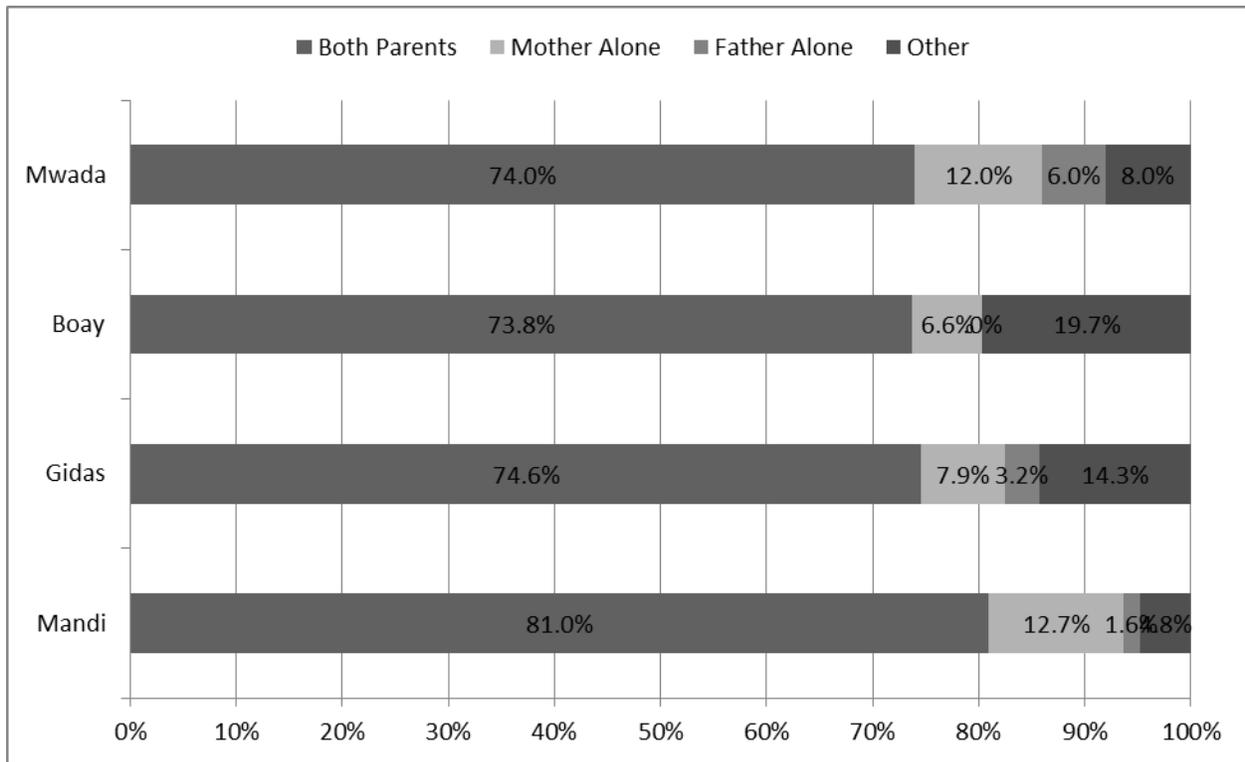
Data on disease, illness, and death were only collected from the Gidas dispensaries; no record on the same could be found in the Mandi, Boay, and Mwada dispensaries. Qualitatively, malaria was the most frequently identified health problem by participants in male and female focus group discussions (FGDs); malaria was identified on average 5.25 times per village FGD. Other health problems or diseases frequently mentioned included: pneumonia, typhoid, diarrhea, sexually transmitted diseases, and tuberculosis. The Health Officer in Gidas noted that the most common causes of illness in the village over the past 12 months included a lot of mosquitoes during the rainy season, not boiling drinking water, and a poor diet.

4.5.3 Under-Five Health Status

The health status of children under five can be correlated to the presence or absence of biological parents, especially the biological mother.

84-95% of mothers of children under 5 surveyed in Babati district are alive and in the household (25 mothers out of 237 are alive but not living in the household). In fact, only one mother of children under five surveyed has died. A larger number of households (5) had lost the natural father, although the percentage of households with the father still alive remains high at 97-100%. Figure 4 indicates that childcare is mostly shared between the mother and father. It is rare for the father to be the primary caretaker of the children; the father was the primary caretaker in only six households surveyed in Babati District.

Figure 4. Primary Caretaker of Children Under-Five

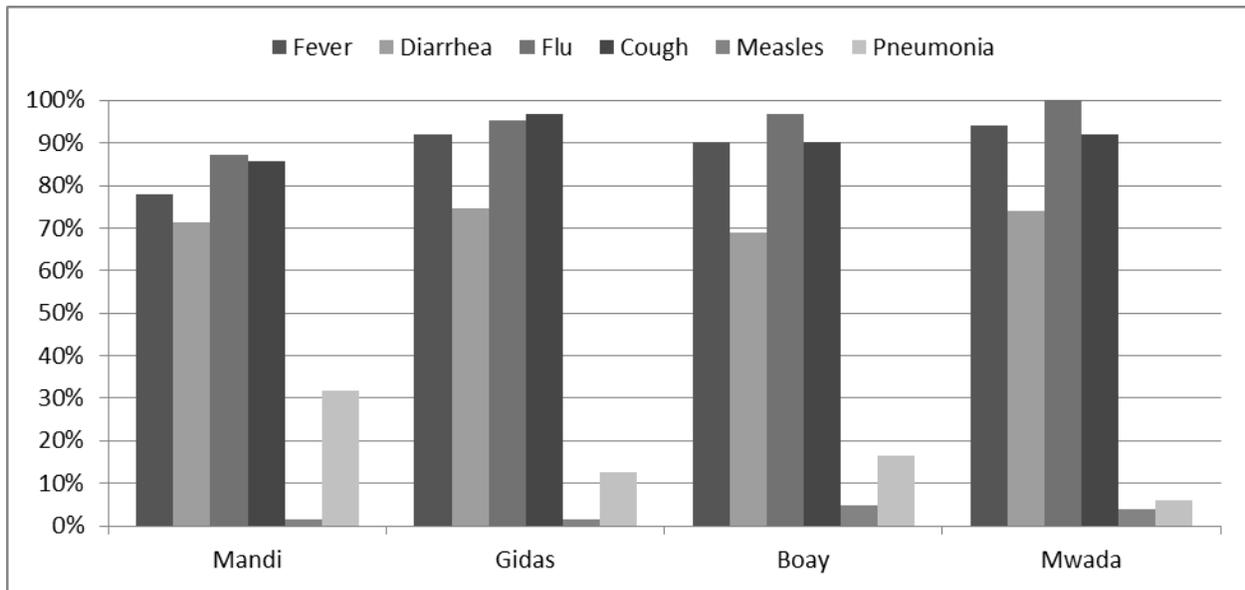


In households surveyed where the primary caretaker is someone other than the mother and/or father, the primary caretaker tends to be a grandparent.

In three out of the four villages surveyed, approximately one-quarter of children under five are considered frequently sick and 50-70% of children under five were sick sometime in the four weeks preceding the survey. In the five villages in the last two years, seven (7) households have lost a child under five years with the most deaths occurring in Mandi (3 households).

Figure 5 gives a picture of the disease burden for children under five in Babati District.

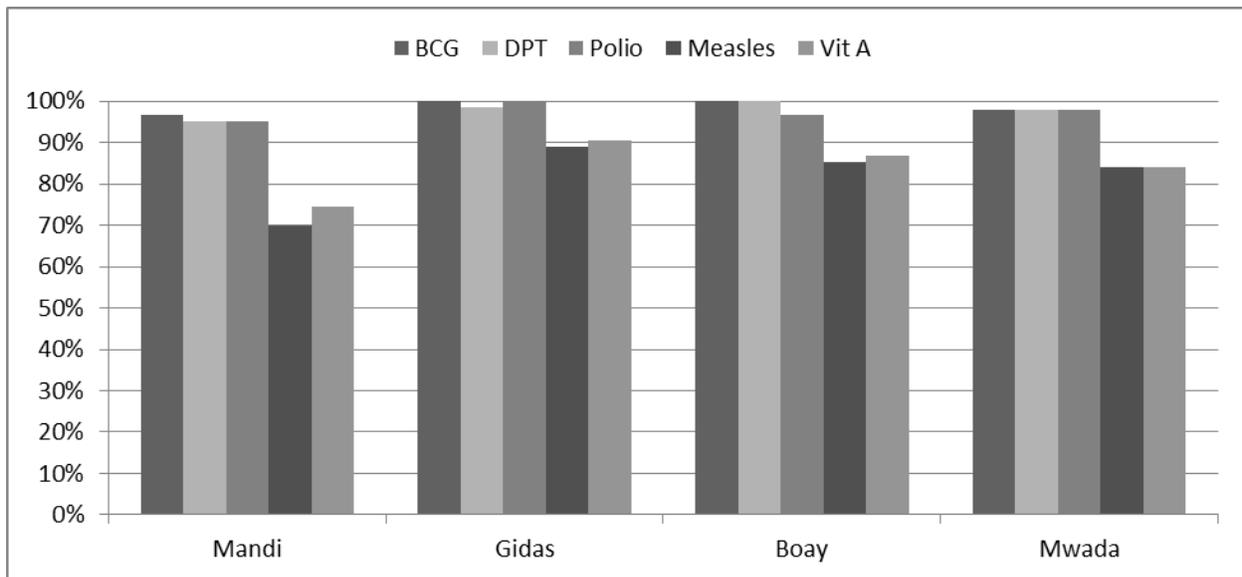
Figure 5. Percent Children Under-5 Who Have Ever Had a Disease



The most common illnesses among children under five are fever, flu, and cough; over 90% of the children have had these diseases in each village (except Mandi). Diarrhea is very common, too; around 70% of kids have suffered from diarrhea. The incidence of measles in children under five is very low among these four villages; the highest incidence of measles was only 5%, while the incidence of pneumonia was more troublesome ranging from 5 to over 30%.

According to World Health Organization (WHO) guidelines, children are considered fully vaccinated when they have received a vaccination against tuberculosis (BCG), three doses each of the DPT and polio vaccines, and a measles vaccination by the age of 12 months. Figure 6 lists the percentage of children under five who have been vaccinated by village; data were also collected on percentage of children under five who had received a vitamin A supplement.

Figure 6. Percent Children Under-5 Vaccinated

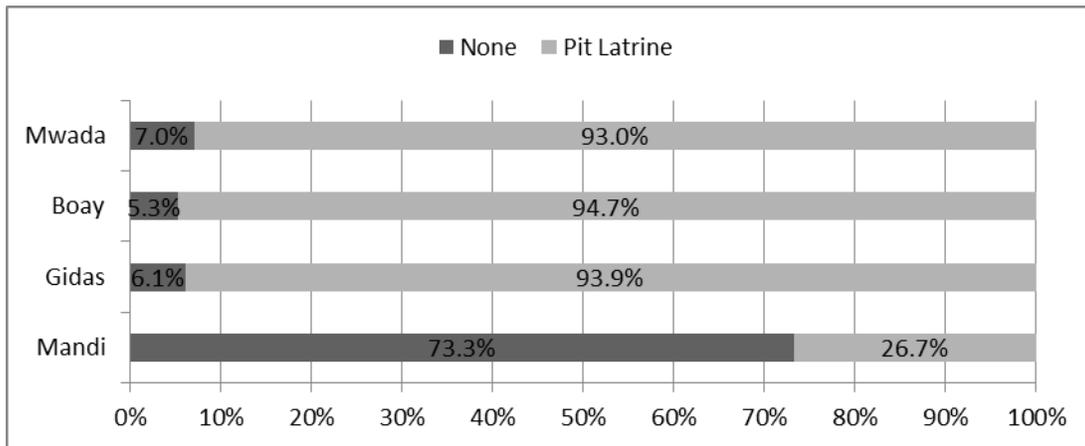


Over 90% of children under-five in Babati district have received a DPT, BCG, or polio vaccine. Among all recommended vaccines, measles vaccination rates (70-89%) are the lowest within each village surveyed, Mandi standing out with the lowest rates for measles vaccinations and Vitamin A supplements. The data shown in Figure 6 do not take into account age at vaccination or number of doses, so a determination of whether or not children are fully vaccinated is not possible.

4.5.4 Environmental Health

Many infectious diseases, especially diarrheal diseases, can be a result of poor hygiene and contaminated water and food sources. The percentage of households that do not use any type of toilet is as low as 5-7% in this district except Mandi, where the majority of households did not use any type of toilet (see Figure 7).

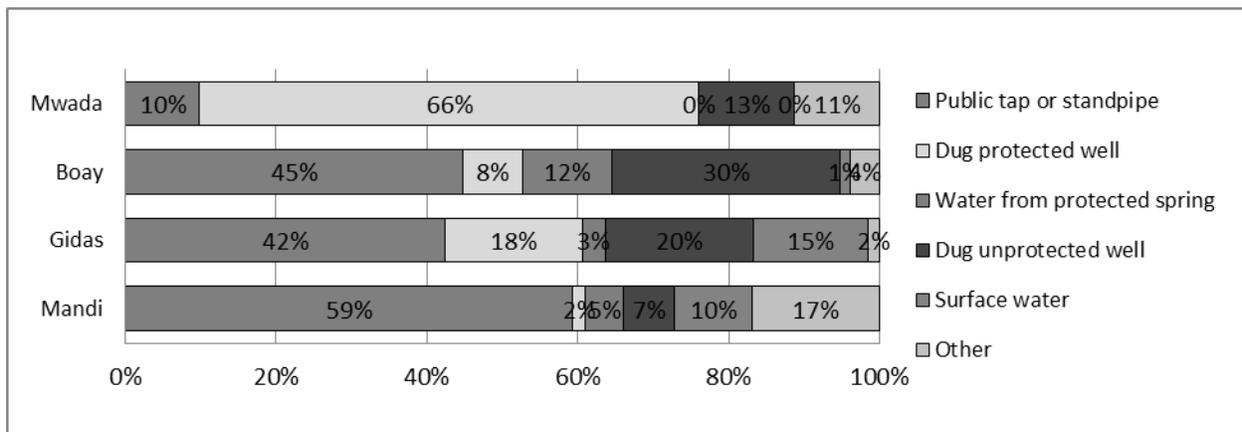
Figure 7. Type of Toilet Used by Most Household Members



Qualitative data indicate that the primary modes of refuse disposal in Babati District villages are to bury or burn refuse on a household compound.

65-86% of household have access to protected drinking water in Babati district. Gidas and Boay (65%) are the lowest, while Mwada (86%) has the highest proportion of respondents with protected water sources. Sources of both protected and unprotected drinking water vary among villages. Except in Mwada, public tap or standpipe accounts for over 40% of sources of drinking water. However, in Mwada, only 10% of drinking water comes from public tap/standpipe; the main source is a dug protected well (66%). A dug unprotected well—a source of unprotected drinking water—accounts for 30% in Boay but only 7% in Mandi.

Figure 8. Primary Sources of Drinking Water



However, since a major part of the drinking water is not protected, most households treat the water prior to drinking. In Mandi, which is the lowest, 49% of households treat the unprotected water,

while in Boay and Gidas, the proportion is over 75%. Further, boiling is the most common method for making water potable among those households that do something to their water prior to drinking.

Table 7 shows the average amount of time households from each village spend collecting water. The total water collection time encompasses the time it takes a household member to get to the water source, collect the water, and return home.

In addition to significant time required to collect water, access to drinking water is further limited by long distances. Gidas residents have the furthest distance to travel to access drinking water (almost 4 kilometers) and Mwada residents have the longest time to travel (61 minutes); Mandi residents have the shortest distance (0.3 kilometer) and least time (approximately 32 minutes) to access water.

Table 7. Average Time to Collect Water

Village	Minutes to Collect
Mandi	31.8
Gidas	56.9
Boay	34.4
Mwada	61.0

Cooking fuel type and primary cooking location affect respiratory health, primarily of women and children. In addition, accidents around fires lead to more burns for women and children. The majority of households in all villages cook with wood (92-97%) over an open fire (92-97%).

4.5.5 HIV/AIDS

In addition to the household survey, up to four adults were interviewed in each household on their Knowledge, Attitude and Practice (KAP) regarding HIV/AIDS. This section focuses exclusively on correct knowledge of HIV prevention data as collected through these KAP surveys. A more detailed report that includes additional data and analysis on HIV/AIDS knowledge, attitudes, and practices is available from Savannas Forever Tanzania (refer to Acknowledgements section for contact information).

This discussion on HIV knowledge examines the differences in knowledge level between men and women. Therefore, a comment on the survey sample is necessary, specifically that the male sub-

sample is unlikely to be representative of all adult males in the village surveyed. In aggregate, there is a wide divergence in response rates between eligible males and females. (Eligibility is defined as anyone 15 years or older living in the household.) The main reason for this variance in response rate is that men were less likely to be present when the KAP survey was conducted. In Babati district, Mwada has the highest percentage of male respondents (45%), while the lowest Boay is 36%. Therefore, the non-representativeness of the male sub-sample should be kept in mind when interpreting sex differences.

Table 8. Sample Size of KAP Survey, by Sex

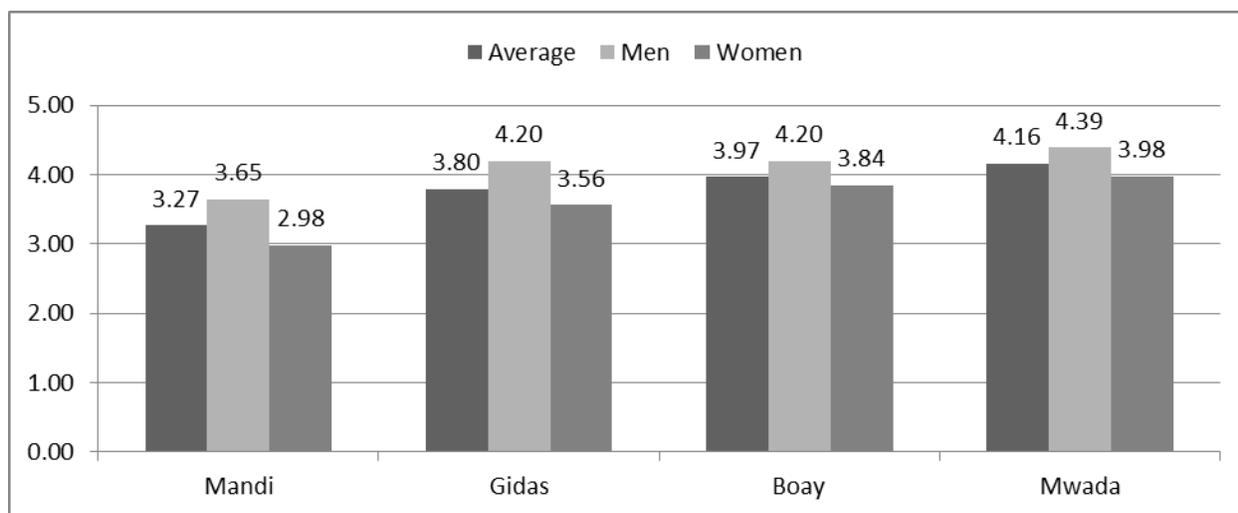
	Sample size		
	Male (%)	Female (%)	Total
Mandi	44 (43%)	59 (57%)	103
Gidas	44 (37%)	75 (63%)	119
Boay	44 (36%)	79 (64%)	123
Mwada	50 (45%)	61 (55%)	111

To assess an individual's correct knowledge of HIV/AIDS, the KAP survey asks six questions:

1. Can people reduce their chances of getting the HIV/AIDS virus by having just one sex partner who has no other partners?
2. Can people get the HIV/AIDS virus from mosquito bites?
3. Can people reduce their chances of getting HIV/AIDS by using a condom every time they have sex?
4. Can people get the HIV/AIDS virus by sharing food with a person who has HIV/AIDS?
5. Is it possible for a healthy looking person to have HIV/AIDS?
6. Can HIV/AIDS be transmitted from mother to child?

Correct responses to the six questions are added together to compute a composite HIV/AIDS knowledge score, which can range from 0 (no correct answers) to 6 (all correct answers). Village and sex differences in average HIV/AIDS knowledge scores are summarized in Figure 9.

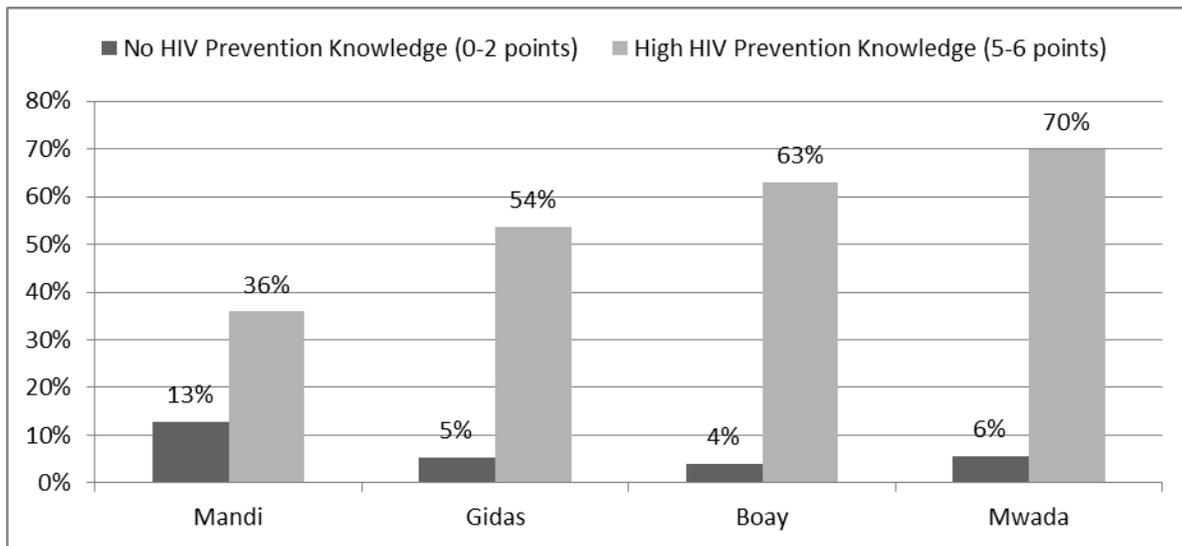
Figure 9. Village HIV/AIDS Knowledge Scores, Disaggregated by Sex



Mwada has the highest average HIV/AIDS knowledge score (average 4.16) as both its men (4.39) and women (3.98) scored the highest among villages surveyed. The village with the lowest average knowledge score (3.27) was Mandi whose men (3.65) and women (2.98) both scored the lowest of any village surveyed. In all villages surveyed, the women’s average knowledge score is lower than the men’s.

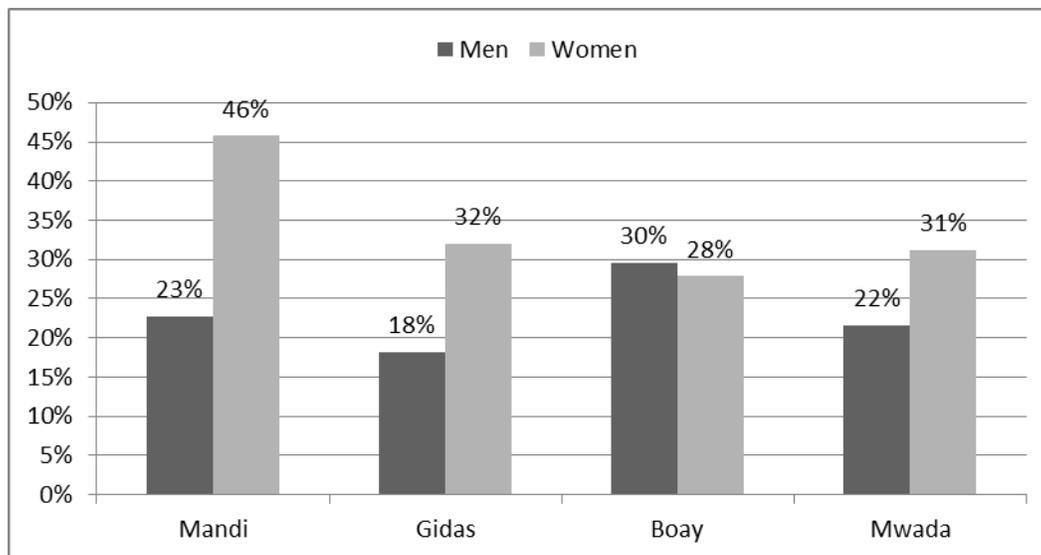
The skip pattern of the KAP questionnaire means that individuals who say they have not heard of HIV/AIDS do not answer any of the six questions, and individuals who say they do not know of any ways to prevent HIV infection do not answer the first four questions, which concern prevention. Since the responses that trigger these skip patterns imply lack of knowledge, skipped questions earn zero points. Therefore, those who say they have not heard of HIV/AIDS get a score of zero, while those who have heard of HIV/AIDS but report no knowledge of prevention measures receive a score between 0 and 2 based on their answers to questions numbers 5 and 6. As shown in Figure 10, 70% of eligible adults in Mwada, which is the highest, have high knowledge of HIV and its prevention. Also, both Gidas and Boay have over half of eligible adults scoring 5-6 points on the HIV knowledge assessment. The greatest percentage of adults with no HIV prevention knowledge is in Mandi where 1 in 8 adults (13%) know no correct method of preventing HIV.

Figure 10. Percent Eligible Adults with No versus High HIV Prevention Knowledge



As shown in Figure 10, in all villages surveyed except Boay, there are a greater percentage of women with no knowledge of HIV prevention methods as compared to men in that village. In Boay, the percentage of women with low scores is slightly lower than men.

Figure 11. Eligible Adults with No HIV Prevention Knowledge, Disaggregated by Sex



There appears to be a tendency among women in some villages to deny knowledge about HIV/AIDS prevention, possibly because they do not feel comfortable discussing it. It is impossible to know how much of the sex differences reported in Figures 10 and 11 result from this phenomenon versus actual lack of knowledge. Since the questions about prevention strategies are skipped if the

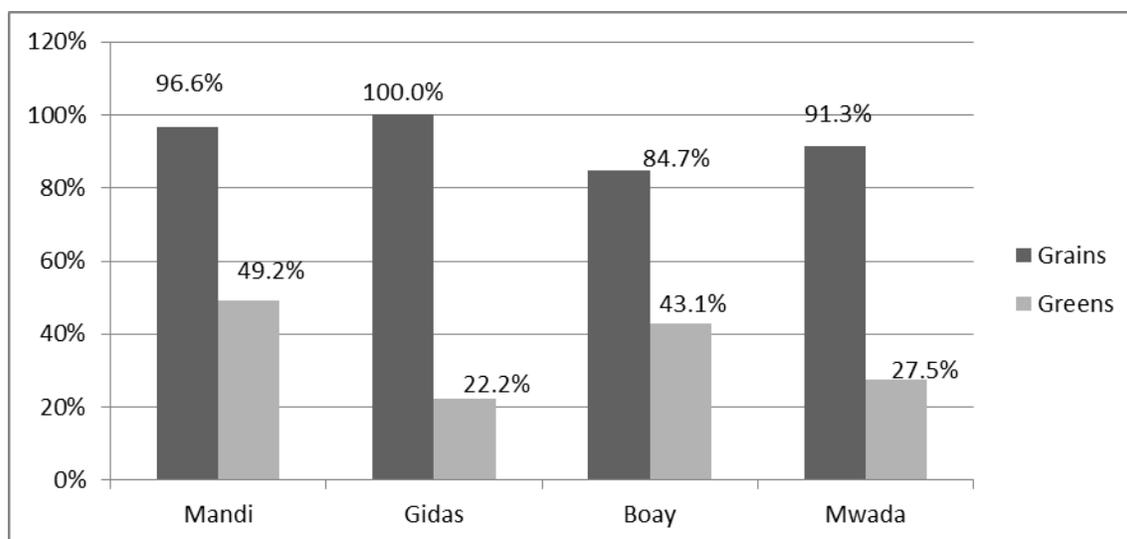
respondent says s/he does not know if there are any ways to prevent HIV infection, such denial would artificially lower the overall knowledge scores of women.

4.6 Nutrition and Food Security

4.6.1 Household Nutrition

Diversity of daily diets and consistent intake of recommended vitamins and nutrients is limited. A majority of households surveyed in all villages regularly eat grains (see Figure 12). Green vegetables are the most common secondary food to grains. In Mandi, approximately 50% of households eat greens daily. However, the lowest, Gidas, only 22% of households do that.

Figure 12. Households Eating Grains & Green Vegetables All (or More) of Last 7 Days



In general, households surveyed were least likely to have eaten root vegetables or dairy on any day in the last seven. Other rarely consumed foods include red vegetables (e.g. pumpkin, carrots, etc), mango and papaya, and fats. Protein is not consumed very regularly; households consuming a meat or eggs on 1-2 days of the last seven ranged from 25.4% (Gidas) to 49.2% (Mandi), compared to 36.5-48.6% consuming a legume with the same frequency.

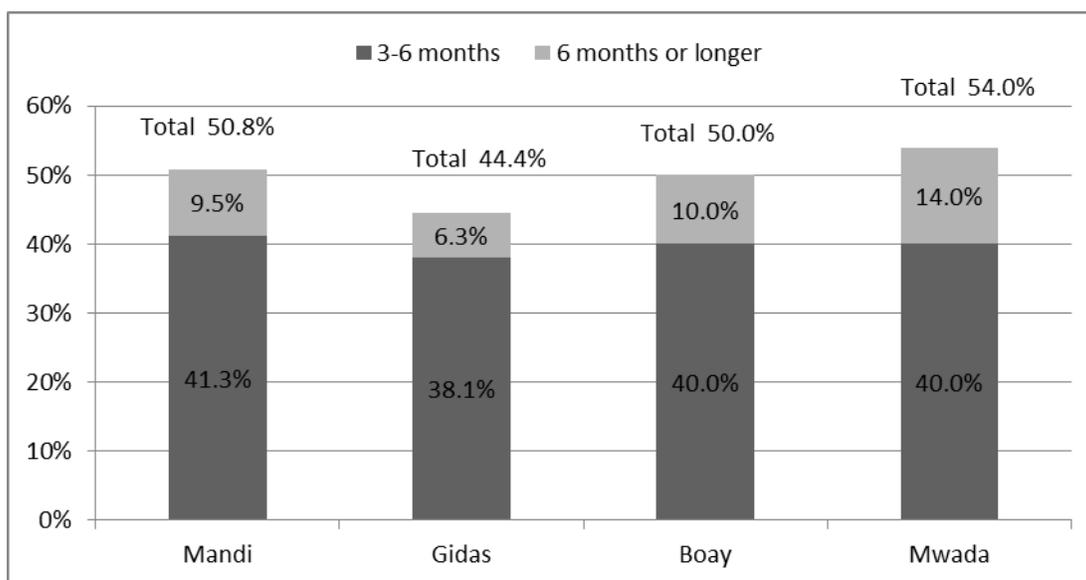
4.6.2 Infant and Young Child Feeding

Optimal infant and young child (age 6-23 months) feeding practices (IYCF) include: early initiation of breastfeeding, exclusive breastfeeding during the first 6 months, continued breastfeeding for up to two years and beyond, timely introduction of complementary feeding at 6 months, frequency of feeding solid/semisolid foods, and the diversity of food groups fed to children 6-23 months. Nearly

100% of children were breastfed (or still breastfeeding) in the villages surveyed, the only exception being one child in Boay. Figure 13 presents only that data which are applicable to the IYCF practice of exclusive breastfeeding for the first six months. Although the data do not allow for a determination of the percentage of babies exclusively breastfed according to the recommendation, it does indicate the approximate percentage (refer to totals in Figure 13) of babies who are breastfed exclusively according to the IYCF guidelines.

Over half of children weaned at the time of the survey were exclusively breastfed for approximately 6 months in three of the villages surveyed. The only village where less than half of the children were exclusively breastfed for the recommended 6 months was Gidas, where the proportion was 44.4%.

Figure 13. Total Percent Children Exclusively Breastfed for IYCF Recommended Time

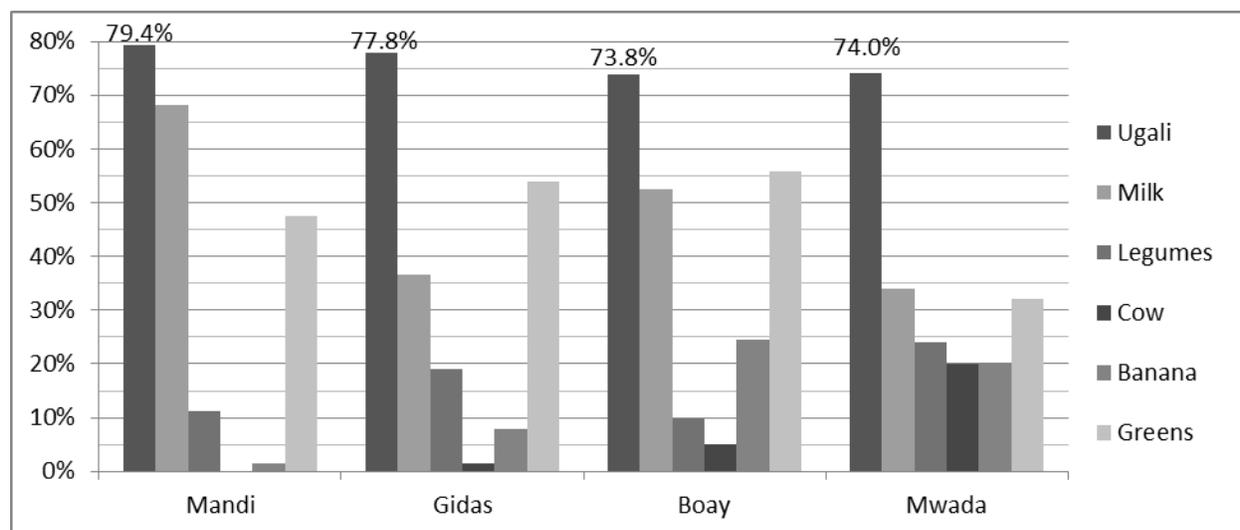


Among children that had been weaned at the time of the survey, the most common age of weaning was 24-35 and 24-35 months.

4.6.3 Under-Five Nutrition

The most commonly eaten foods by children under five in the last 24 hours in households surveyed are listed in Figure 14. (Percentages labeled in Figure 14 indicate the most commonly eaten food by children under five in that village.)

Figure 14. Percent Children Under-5 Eating Food Item in Last 24 Hours

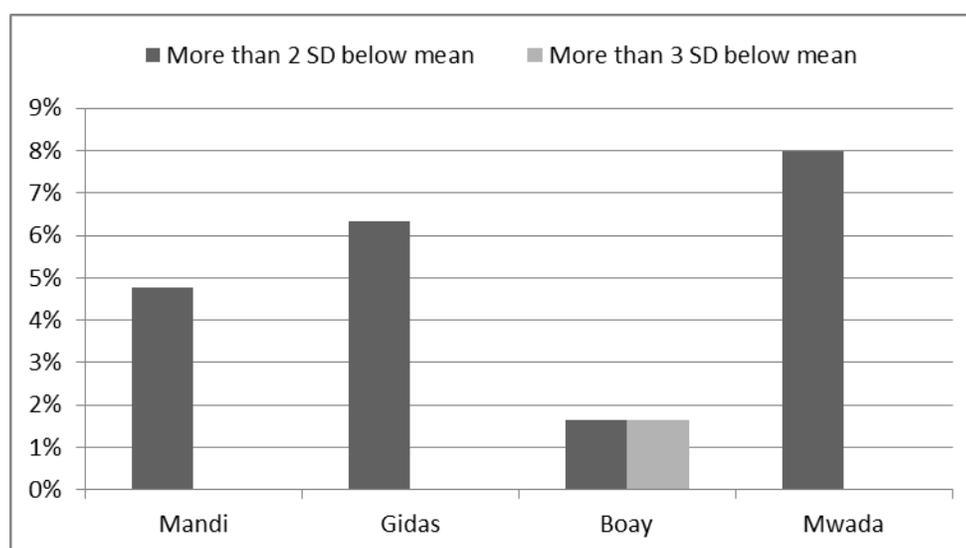


Ugali was the most commonly consumed food by children under five in the last 24 hours in all villages, ranging from 73 to 80 percent. Milk and green vegetables were the second most commonly consumed foods. Although milk consumption was the highest in Mandi, consumption of legumes was very low; also the consumption of any type of meat or fruit was extremely low. Protein sources except milk were very limited. Gidas and Mandi had the lowest consumption of fruit: only 5 children had banana and one had other fruits in the past 24 hours in Gidas; one child had banana and two had other fruits in Mandi. In general, consumption patterns shown in Figure 14 indicate that children in Babati District have limited variety in their daily diet.

Children under five are mostly likely to get protein from a non-meat source, specifically milk or legumes. Similarly, greens were the most commonly eaten vegetable and bananas the most commonly eaten fruit. According to Figure 14, then, a greater percentage of children in all villages surveyed consumed a vegetable than a fruit in the 24 hours preceding the survey.

The weight-for-height z-score describes current nutritional status and is based on a child’s height and weight compared to international averages established by the World Health Organization (WHO). Children whose Z-scores are below two standard deviations (-2 SD) from the norm are considered moderately underweight, and those below three standard deviations (-3 SD) are considered severely underweight. . According to the data collected in the survey of children under five (see Figure 15), nearly 1 in 13 children under five in Mwada are moderately underweight. No severely underweight children were identified in Mandi, Gidas, or Mwada, but 1.6% of children under five in Boay were measured as severely underweight.

Figure 15. Percent Children Under-5 Underweight



4.6.4 Food Security

Of the four villages surveyed in Babati District, households in Mandi and Gidas are the most food secure. 15.3% and 9.5% of households in Mandi and Gidas, respectively, had had periods of no food in the house in the previous month because of lack of resources to get food compared to 22% in Boay and 28% in Mwada. In addition, both Mandi and Gidas reported worrying less about food, going to bed hungry, or going one day and night without food in the four weeks preceding the household survey. Table 9 shows that Mwada is the most relatively food insecure among the villages surveyed in Babati District.

Table 9. Percent of Households that Experienced a Food Insecurity in Last 4 Weeks

	Mandi	Gidas	Boay	Mwada
Worried not enough food	50.8%	42.9%	61.1%	73.5%
Ate fewer meals	35.6%	47.6%	33.3%	54.4%
No food in house	15.3%	9.5%	22.2%	27.9%
Went to sleep hungry	10.2%	9.5%	12.5%	19.1%
One day and night without food	3.4%	1.6%	4.2%	11.8%

4.6.5 Kitchen Gardens

Very few households surveyed have received training on kitchen gardens (from 1.6% in Gidas to 13.9% in Boay), which correlates to a low percentage of households currently growing a kitchen garden: 23.6% in Boay, 18.6% in Mandi, and only 1-6% in other two villages.

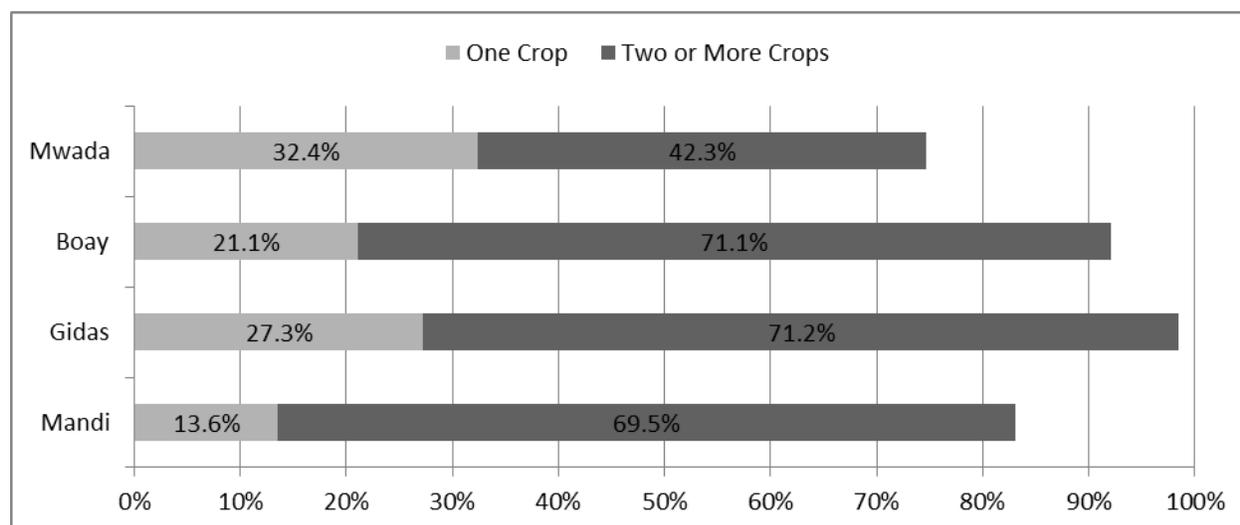
4.7 Agriculture

Farmers in Babati District are predominantly small-scale, subsistence farmers. The mean (average) number of acres under cultivation by household in each village surveyed is: Mandi 3.6 acres, Gidas 4.6 acres, Boay 2.6 acres and Mwada 4.9 acres. Gidas and Mwada have the largest percentage (24% and 20%, respectively) of households cultivating five acres or more; no other village surveyed has greater than 7% of households cultivating as much. Mwada has the lowest percentage (69%) of households owning any agricultural land, while the proportions in the other three villages are in the range of 95-97%. Also, Mwada has the highest proportion of households renting land, which is approximately 45%.

Maize is the most commonly grown crop among households cultivating land in each village surveyed. Beans, onions, simsim and cotton are also commonly grown in Gidas, Mandi, and Mwada, respectively. In addition, bananas are equally as common of a crop in Boay. Other crops include sunflowers, sorghum, and green vegetables.

Gidas has the greatest percentage of households cultivating any kind of crop although even Mwada, which has the lowest crop cultivation rate, still has 74.7% of households surveyed cultivating any crops. Most households cultivate two or more crops (see Figure 16).

Figure 16. Percent Households Cultivating by Number of Crops Cultivated



Jatropha is a fast growing, long-lived, drought-hardy shrub which produces berries that can be used to produce biofuel, oil for soap and other products, and as a hedge to keep out grazing animals.

Jatropha plantings promote soil conservation, prevent gully formation, and help reclaim degraded land. Although a high percentage of households have heard of jatropha (44-62%) in surveyed villages, only 10-25% have ever grown jatropha. Current jatropha cultivation is very limited: only 11.4% and 2.9% (only one household) of households surveyed in Boay and Gidas respectively are harvesting jatropha.

Focus group discussions (FGDs) were facilitated with top farmers (typically 4-6 farmers per village), as defined by village leaders, and agricultural extension officers (if applicable) to further assess the agricultural environment in each village. Qualitative data collected and analyzed from these FGDs are presented in Table 10.

Table 10. Qualitative Data on District Agricultural Environment

Village	% HH that Irrigate Plot	% HH using Fertilizer		% HH with Soil Erosion as Serious Problem
		Inorganic	Organic	
Mandi	25%	5%	30%	80%
Gidas	0%	0%	95%	80%
Boay	60%	1%	99%	75%
Mwada	10%	0%	0%	na

Use of inorganic fertilizers was low to non-existent in two of the four villages and organic fertilizer use was over 95% in Gidas and Boay, 30% in Mandi, and non-existent in Mwada. Soil erosion was identified as a “very serious” problem in three of the four villages.

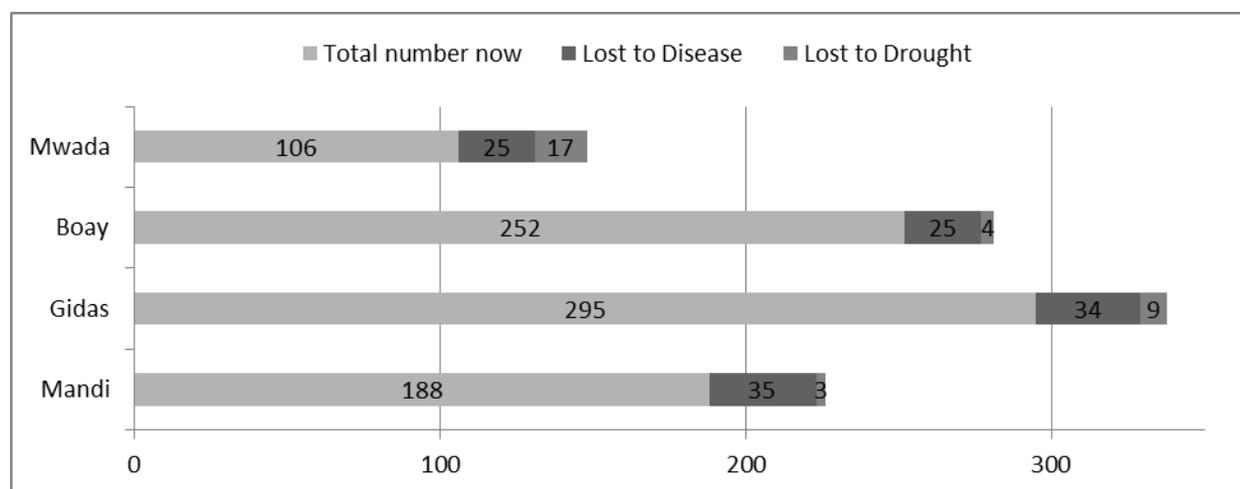
According to the FGD participants, major reasons for crop loss before harvest included floods, droughts, insects, destructive animals (wildlife), theft, failure to weed at the right time and apply pesticides, destructive rainfall, and lack of labor; major reasons for crop loss after harvest included decay/rot, theft, and pests (e.g. rats).

Farmers in all four villages were visited by an agricultural extension worker from the government in the past year. These agricultural extension workers typically trained a small group of local farmers in agricultural best practices and established model farms (growing maize, sunflowers, etc.) as demonstration plots. The trained farmers were then expected to transfer knowledge and skills learned to their own farms.

4.8 Livestock

Figure 17 presents data on cattle ownership in Babati District, and the gross numbers of cattle lost to disease and drought. Gidas has the largest number of cattle owned now and also total number before loss; it lost 34 cattle to disease and 9 to drought. Mwada has the lowest number of cattle owned now. Mwada also suffered the highest percentage of cattle lost to both disease (17%) and drought (11%). In addition, Boay lost the lowest proportion of cattle to disease (9%) and drought (1%). More cattle were lost to disease than drought; for example, Mandi lost 35 cattle to disease but only 3 to drought.

Figure 17. Cattle Owned, Lost to Disease and Drought



Livestock owners who participated in village-level FGDs indicated poor vaccination rates overall. In Gidas and Boay, 50% and 90% of cows are vaccinated, while no goats are; in Mwada and Mandi, no livestock had been vaccinated in the past year. (Quantitative data are not available to corroborate this qualitative assessment.) Given the higher number of livestock lost to disease, these low vaccination rates are problematic.

Household survey data indicate that no households in Mandi own chickens, approximately 70% in Mwada do, and over 80% in Boay and Gidas. Newcastle Disease is the number one cause of chicken mortality in Tanzania. Among chicken-owning households, Mwada has the highest vaccination rate, but it is still relatively low with less than 30% of households vaccinating their chickens; in Gidas, 22.4% of households vaccinated their chicken, and only 16.4% in Boay.

Only Mandi has veterinary services.

4.9 Human-Wildlife Conflict

Qualitative data on human-wildlife conflict were collected through FGDs with men and women, and key informant interviews with village leaders. Crop destruction by wild animals is the most common form of human-wildlife conflict according to men, women, and village leaders. Other conflicts mentioned include: wild animals injuring or killing people and livestock. Villager leaders feel this conflict stems from the close proximity of the farmland to the protected areas and the reduction of shrubs and forests.

According to household survey data, a majority of households never ate bush-meat in the last 12 months. Among the five villages, Mwada is the only one where over 10% of households ate bush-meat rarely (12.7%); but no household ate bushmeat often or very often. Only one household surveyed in Babati District ate bush-meat often (Gidas) in the last 12 months, and one very often (Boay). Although bush-meat consumption by villagers is rare, village leaders stated that poaching by outsiders in Mwada happens “very often.”

5 CONCLUSIONS

5.1 Recommendations

It is notable that despite the relative geographic proximity of these villages in a single district that there is significant variation in livestock loss, wildlife conflict, presence of NGOs and food security. Issues of quality health care access, quality of education and access to clean water are common for most of them. Villages also experience different levels of external assistance from government, NGOs and other private sector organizations.

Specific recommendations we leave to district and village leaders and other local government authorities who understand the local context and can better apply these results. Our general recommendations include the following:

- District leaders share these results with other appropriate leaders and use these data to inform the design of future interventions at the village and district level
- Strengthen infrastructure, particularly schools, electricity, transportation, quality of roads, access to markets, access to credit, and cell phone access.

- Seek opportunities to expand preventive health services as they are cheaper than curative health (examples: use of mosquito bednets, appropriate disposal of refuse; regular use of soap; training households in point-of-use treatment for water before drinking (chlorine, solar fixes, etc.).
- Repeat basic malaria prevention issues: address standing water issues, killing mosquito larvae, plus low cost - consistent bednet use and regular insecticide dipping
- Before expanding the number of schools, work to improve the quality of education now being offered at each village school.
- Address livestock health issues including expansion of community animal health workers and identify barriers to consistent vaccination of livestock (cows, goats and chickens in particular)
- Agriculture – work with agricultural extension agents to have ‘model’ plots on school or church property to demonstrate best practices; develop networks to access improved seeds and quality agricultural inputs
- Natural resource management – issues of deforestation, poor soil quality, poor/no irrigation techniques, destruction of natural spring areas are widespread – develop community-led land use plans for reforestation and water resource protection; invite developers of alternative biofuel alternatives and train locals in use, develop rainwater catchments such as sand dams, etc.
- Land ownership is often a barrier to expansion of agricultural production; address this issue as appropriate.
- Civic engagement – how active are villagers in solving their own problems and developing their own resource networks? What are the opportunities to increase village participation in problem-solving and solution making?
- Wildlife conflict – is there a conservation forum that exists locally to deal with common issues of villagers, wildlife, tourism and hunting and their sometimes conflicting agendas?

5.2 Next Steps

The data and analysis presented in this report will be compiled with similar data gathered and analyzed from other districts participating in the Whole Village Project (WVP). WVP will eventually conduct a big picture analysis of all compiled data to achieve its long-term project objectives, which are to:

- Identify interdisciplinary strategies that improve public health, nutrition, education, conservation and food security to help alleviate poverty and sustain natural resources, villages and wildlife in rural Tanzania;
- Establish a long-term monitoring and evaluation system to measure the effectiveness of foreign assistance programs and aid over 10-20 years in purposefully selected rural villages using validated survey methodologies;
- Provide data in a meaningful way for village self-empowerment and capacity building that leads to greater civic engagement and community capacity; and to
- Create a model for translational research and application in multiple settings.

WVP intends to return to each village surveyed in Babati District in 2-3 years to re-assess the current status of each village. In the immediate future, the Savannas Forever Tanzania (SFTZ) team will return to each village to present the data collected and to discuss the results and conclusions of this report. Data and reports will also be shared with government officials and policy makers in Tanzania, and non-governmental and local government partners working on the ground in the villages surveyed.

5.3 How You Can Help

The purpose of this report is to provide data to district and local leaders in order to inform your decision-making for future social and economic development activities. Please communicate with the Whole Village Project staff and leaders to discuss the usefulness of these data, whether or not there are other indicators that would be useful to you, and if we have missed anything in our assessment and analysis of your village and/or district.

APPENDIX A – SURVEY INSTRUMENTS

Household level:

- Household survey
- Food security, nutrition and jatropha

Individual surveys:

- HIV/AIDS knowledge, attitude and practice
- Under-five child anthropometric measures and health

Focus group and key informant interview questionnaires:

- Village Resources
- Agriculture & livestock focus group
- Village leadership
- Village institutional analysis
- Women's focus group
- Men's focus group
- Headmaster questionnaire
- Health Officer questionnaire

APPENDIX B – TABLE OF SELECTED INDICATORS BY VILLAGE

		Babati District					
		Mandi	Gidas	Boay	Mwada	Sangaiwe	Vilima Vitatu
THE HOUSEHOLD AND HOUSING							
	Number of households surveyed	59	66	76	71	60	60
	Average household size	6.2	6.1	5.5	4.6	4.8	5.7
	% households in polygamous marriage (more than 1 wife)	17%	14%	17%	11%	5%	7%
	% of households headed by women	10%	11%	25%	18%	26%	20%
	% of hhs headed by single women (never married, divorced, widowed)	5%	5%	13%	13%	13%	17%
	% of households with a corrugated roof	45%	55%	68%	48%	37%	48%
	% of households using a toilet	27%	94%	95%	93%	88%	80%
	Avg time (minutes) required to collect water	31.8	56.9	34.4	61.0	88.1	86.3
	% households use firewood as primary energy source for cooking	95%	97%	95%	92%	100%	88%
EDUCATION							
	% of all adults without education	20%	19%	14%	12%	13%	12%
	% of household heads completed primary school	46%	62%	54%	62%	47%	73%
	% of adult men completed primary school	62%	71%	67%	72%	59%	74%
	% of adult women completed primary school	62%	63%	70%	72%	63%	69%
	Average primary school teacher to student ratio	1 : 61	1 : 42	1 : 81	1 : 86	1:48	1:50/1:30
	Average primary school textbook to student ratio	1 : 20	1 : 10	1 : 3	1 : 3	1:3	1:6/1:14
	Average secondary school teacher to student ratio	1:45	1:42	N/A	1:36	N/A	N/A
	Average # of years teachers stay at primary school	6.0	N/A	5.0	3.0	3.0	7.0/3.0
	Average # of years teachers stay at secondary school	3.0	4.0	N/A	2.0	N/A	N/A
	Ratio of female to male gross enrollment rates (primary school)	1.2	1.0	0.8	1.0	0.8	1.3/1.2
	Ratio of female to male gross enrollment rates (secondary school)	1.2	1.0	N/A	1.2	N/A	N/A
HEALTH							
	% of households with at least one mosquito net	24%	45%	21%	86%	88%	90%
	% of households that use traditional medicine often or very often	8%	2%	14%	8%	N/A	N/A
	% of households with access to protected drinking water	76%	65%	65%	86%	47%	32%
	% of households that take measures to make the water safe	49%	77%	76%	61%	70%	55%
	# of hospital/dispensary/clinic in the village	1	1	0	1	1	1
CHILDREN UNDER 5							
	% of infants exclusively breast fed through 6 months of age	10%	6%	10%	14%	26%	8%
	Average age in months at introduction of complementary feeding	16.6	14.6	13.5	12.5	21.4	19.8
	% of children who are treated in hospital/dispensary when ill	95%	97%	97%	100%	N/A	N/A
	% of children whose birth mother is still alive and inside the hh	95%	87%	84%	90%	N/A	N/A

	Babati District						
	Mandi	Gidas	Boay	Mwada	Sangaiwe	Vilima Vitatu	
% of children moderately to severely underweight	5%	6%	3%	8%	2%	0%	
% of children who are vaccinated for BCG	97%	100%	100%	98%	93%	96%	
% of children who are vaccinated for polio	95%	100%	97%	98%	93%	96%	
% of children who are vaccinated for DPT	95%	98%	100%	98%	91%	94%	
% of children who are vaccinated for measles	70%	89%	85%	84%	74%	68%	
% of children received Vitamin A supplement	75%	90%	87%	84%	72%	70%	
% children with fever	78%	92%	90%	94%	44%	49%	
AIDS KNOWLEDGE							
% of men with high AIDS knowledge score (5-6 points)	16%	32%	34%	43%	56%	69%	
% of women with high AIDS knowledge score (5-6 points)	17%	24%	23%	34%	59%	66%	
% of women who know that a person can protect themselves from HIV	67%	75%	78%	77%	80%	89%	
% of men who know that a person can protect themselves from HIV	89%	86%	89%	86%	89%	96%	
% of men who have talked with their wife/primary partner about ways to prevent AIDS	70%	80%	75%	84%	51%	63%	
% of women who have talked with their husband/primary partner about ways to prevent HIV/ AIDS	57%	58%	70%	66%	42%	42%	
FOOD SECURITY AND NUTRITION							
% of households worried about food in the past 4 weeks	51%	43%	61%	74%	68%	48%	
% of households ate limited variety of food in the past 4 weeks	85%	90%	67%	85%	70%	82%	
% of hhs went one day and night with no food in the past 4 weeks	3%	2%	4%	12%	7%	7%	
% of households that are currently growing kitchen garden	19%	2%	24%	6%	N/A	N/A	
Avg # of days/times hhs ate meat protein in past week	1.6	2.6	2.2	1.9	2.0	3.7	
Avg # of days/times hhs ate legumes in past week	1.3	1.9	1.3	1.8	1.5	1.4	
Avg # of days/times in last week hh ate foods with Vitamin A	7.1	8.0	8.0	7.0	1.0	3.0	
# of different types of food eaten in last week OR NUTRITION DIET DIVERSITY SCORE	4.6	4.8	5.8	4.7	5.5	6.5	
Food Security Index	3.2	3.5	3.5	4.3	3.4	3.2	
ECONOMIC ACTIVITY, AGRICULTURE AND INCOME							
% households own any agricultural land	97%	97%	95%	69%	92%	80%	
Average acres cultivated per household	3.6	4.6	2.6	4.9	3.9	5.1	
Average # of cattle owned per household	3.2	4.5	3.3	1.5	12.7*	17.4*	
Average # of goats/sheep owned per household	7.3	7.7	3.4	6.8	26.6*	25.2*	
Average # of chickens owned per household	5.2	6.4	5.2	4.4	5.2*	5.3*	
% of hhs whose chicken are vaccinated for newcastle disease	15%	21%	15%	25%	8%	7%	
% of cattle lost to disease in the past 12 months	15%	10%	9%	17%	11%	7%	

		Babati District					
		Mandi	Gidas	Boay	Mwada	Sangaiwe	Vilima Vitatu
% of cattle lost to drought in the past 12 months		1%	3%	1%	11%	3%	5%
% of cattle lost to wildlife in the past 12 months		0%	0%	0%	1%	0%	1%
% of chickens lost to disease in the past 12 months		13%	14%	17%	17%	49%	42%
% of chickens lost to drought in the past 12 months		1%	0%	1%	4%	0%	0%
% of chickens lost to wildlife in the past 12 months		1%	1%	2%	4%	16%	16%
% of goats/sheep lost to disease in the past 12 months		33%	35%	35%	51%	5%	8%
% of goats/sheep lost to drought in the past 12 months		0%	0%	1%	0%	4%	7%
% of goats/sheep lost to wildlife in the past 12 months		17%	29%	27%	13%	1%	2%
% of household heads with the main occupation of farming		93%	91%	93%	87%	90%	77%
% of hh heads with the main occupation of livestock keeping		2%	2%	0%	4%	2%	7%
% HHs that report loss of crops due to wildlife destruction		24%	63%	43%	74%	N/A	N/A
% of HHs that irrigate the plots in village (from focus group data)		25%	0%	60%	10%	N/A	10%
% households with bicycle		38%	55%	43%	69%	70%	70%
% households with radio		40%	56%	59%	56%	50%	78%
% households with cell phone		29%	47%	42%	34%	55%	72%
CIVIC ENGAGEMENT AND INSTITUTIONS							
% of hhs that participated in village assembly in past 12 mo		69%	59%	56%	75%	8%	15%
% of hhs in village gov't or committee in past 12 mo		14%	5%	7%	10%	N/A	N/A
% of hhs that asked village leaders for assistance in past 12 mo		31%	9%	15%	21%	63%	78%
Distance to major weekly market		Not known	23 km	10 km	12 km	None	13km
# of village committees/groups		5	5	6	7	1	1
# of NGOs		7	5	5	14	8	8
# of credit, banking services or VICOBA		1	2	1	1	1	0
DEMOGRAPHICS							
Religion (% Christian; % Muslim; % Traditional)		99%; 2%; 0	74%; 18%;6%	47%; 49%;4%	73%; 25%;1%	72%;13%;2%	62%;28%;0%
Dependency Ratio (# of child (0-14 years) and aged (65+) population per 100 intermediate age (15-64 years)		1.15	1.31	1.11	1.06	1.05	0.94
Sex Ratio (# of males per 100 females)		96	108	96	121	97	99

*Average Number of livestock owned among households who own livestock

APPENDIX C – SANGAIWE AND VILIMA VITATU

Sangaiwe and Vilima Vitatu are primarily farming villages where the majority of the population is Christian and of diverse ethnicity. Vilima Vitatu has a significant Muslim population (28%). As compared with the other four villages in Babati District, Sangaiwe and Vilima Vitatu have equally low rates of adult levels of education, high rates of bicycle and mosquito net ownership, low participation in village assemblies, high rates of households that had request help from village leaders, slightly higher AIDS knowledge and prevention scores, though lower percentages of people who had talked to their partner about ways to prevent HIV/AIDS.

Vilima Vitatu has the highest number of household heads having completed primary school (73%). Compared with the other villages in Babati District, Sangaiwe and Vilima Vitatu have the lowest rates of polygamy while also having the highest percentages of female-headed households (with the exception of Boay (25%), which has a higher rate than Vilima Vitatu (20%)).

Food security and nutrition in Sangaiwe and Vilima Vitatu were consistent with findings in the other four villages as were cattle and goat losses due to drought and disease. However, percentages of chickens lost to disease were significantly higher in Sangaiwe and Vilima Vitatu with approximately 50% of chickens lost.

Access to clean drinking water is a major issue in Sangaiwe and Vilima Vitatu where less than 50% of households report access to protected drinking water. In Sangaiwe, 70% of households take measures to make the water safe while only 55% of households in Vilima Vitatu report taking similar measures. In both villages, one hour and twenty minutes is spent collecting water.