

UNIVERSITY OF MINNESOTA



The Whole Village Project

Village Reports for Mnenia, Filimo, and Kelema
Kuu in Kondoa District

November 2010



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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

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 Kondoa District in Mnenia, Filimo and Kelema Kuu from October 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 60-75 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) a 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 three villages in Kondo 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

There are a number of NGOs and institutions that provide useful services to the residents of Kondo District. Five organizations provide education and training on HIV/AIDS and other organizations support agricultural development and access to new crops such as jatropha. While not all NGOs are receiving high ratings from residents, most organizations have been able to provide helpful services, technologies and supplies to at least a portion of the villages.

Most children under five years old are found to be adequately nourished throughout the district. Although sustenance for young children primarily centers on ugali and milk, there appears to be sufficient food, indicated by the average height-for-weight z scores. Moreover, vaccination rates for children under five are high in all three villages for BCG, polio, and DPT. Mnenia, consistently ranked the lowest in vaccination rates, had still been able to vaccinate almost 90% of all young children for the diseases.

Other health factors such as mosquito net ownership, though slightly varied, were found to be relatively good in the district. The majority of households (approximately 80% for the district) owned mosquito nets and over half of all households owned nets treated with insecticide. Such high proportion of mosquito net ownership further prevents the spread of illness and disease.

3.2 District Gaps

Access to water was problem more particular to Kelema Kuu and Filimo. Mnenia stood as the exception as there were two sources of clean water, including a public tap that were available to all residents all year. In the case of Kelema and Filimo, the shortage of water was a commonly cited problem. Filimo relies on an “unreliable” water machine, often forcing residents to obtain water from ponds or other villages. People from Kelema also noted that they must often use pond water as well. Due to drought and a seeming lack of water services and infrastructure, primary sources of water are found to be available only 6 months of the year.

Livestock losses, particularly chickens, were high throughout the district. Nearly 50% of chickens in Kondoa district were lost to disease. Cows and goats, although to a much lesser degree were also lost to disease. Kelema was the only village that administered a significant amount of vaccines to cows and goats, both at 90% of the herd. Yet, it also lost the highest proportion of both animals.

Education services tended to be lacking in Kondoa district. Only 52% of adults in Kelema and 56% in Filimo completed primary school. Mnenia stood out with higher primary school completion rates for adults at 73%. For the entire district, there are 3 primary schools and 1 secondary school with widespread shortage of teachers and facilities. These shortages are indicated through qualitative survey responses and high teacher to student and classroom to student ratios, as high as 1:60 and 1:77 respectively.

There were a large number of households that noted significant and unexpected losses in terms of income and assets. Almost three-quarters to four-fifths of respondents declared a loss of one or both income and assets, particularly crops due to weather. It was also found that less than half of children under five years old are taken care of by both parents in Filimo (49%) and Mnenia (43%). Losses in income and assets appear to have been steep in the last year.

3.3 Opportunities

Within the strengths and weaknesses, there are a number of opportunities that district and village leaders can undertake. The already high percentage of mosquito net coverage has established conditions that can make 100% coverage possible. Moreover, the villages can move toward significantly increasing the number of nets treated with insecticide.

High HIV/AIDS knowledge scores throughout the district indicate that the large number of organizations that provide education and training on HIV awareness and prevention can have a positive influence. The current figures for HIV testing and awareness could be enhanced in the future to lead to more complete awareness and training.

Despite inadequacies in educational facilities, improving education is generally a high priority in Kondoa district. In Filimo, they have worked to address part of the problem by commencing construction on a new educational building though it has not yet been completed. The high

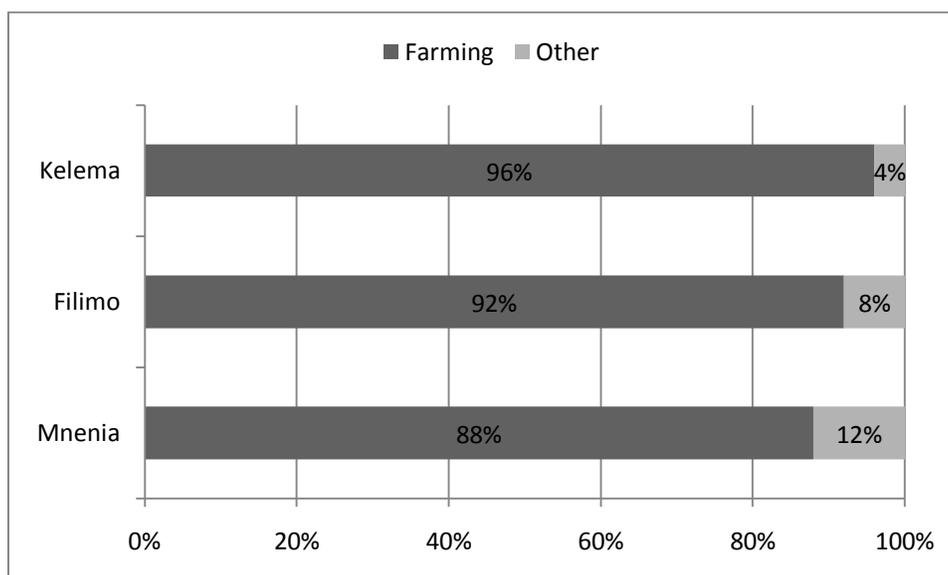
prevalence of NGOs in Kondoa district does not include many organizations that focus on education. More organizations that focus on educational development may be able to enhance the educational environment in the district.

4 RESULTS AND DISCUSSION

4.1 Household Livelihood and Assets

The overall picture of livelihoods and assets in Kondoa District is derived from quantitative and qualitative data from survey participants (households, focus groups and village leaders). Farming constitutes the vast majority of livelihood activities among household heads in all three villages of Filimo (92%), Kelema Kuu (96%) and Mnesia (88%) as shown in Figure 1.

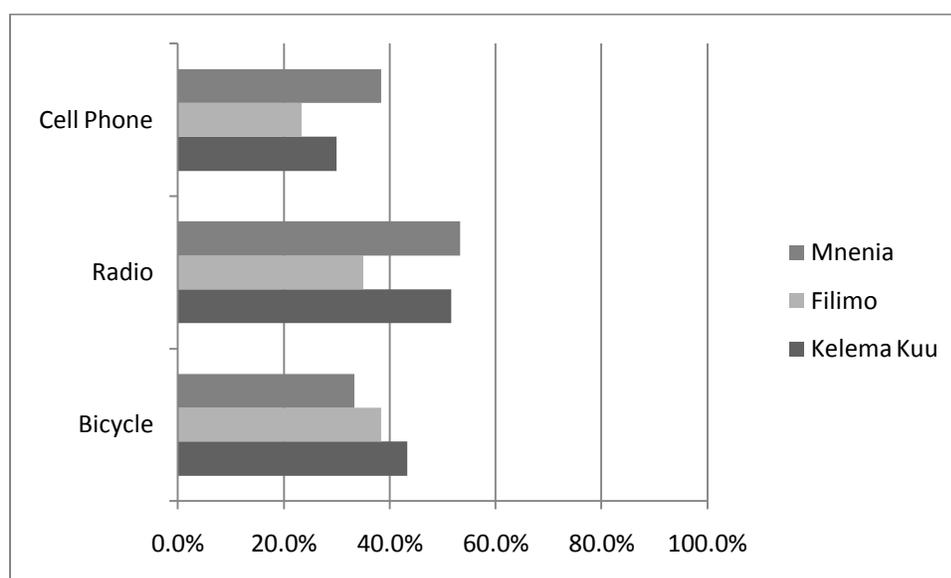
Figure 1. Main Occupation of Household Head



Very few other occupations, such as casual labor, small and large business, and professional, are listed as a main occupation by household heads.

Nearly one quarter of households are headed by women in the surveyed villages in Kondoa District. Filimo has the highest percentage of female headed households at 28%. Comparatively, Kelema and Mnesia have lower proportions of female headed households at 23% and 22% respectively.

Figure 2. Average Household Ownership of Durable Goods by Village



The number of durable goods, or assets, is used as a proxy indicator of a household's socioeconomic status. Of the goods mentioned in the survey, including radios, bicycles and cell phones, radios are generally the most common item to own among the three villages. Over half of respondents own a radio in Kelema (52%) and Mnenia (53%). The most common item in Filimo is bicycles with 38% of households owning at least one. Asset ownership, in terms of aggregate frequency is equal between Kelema and Mnenia, although Mnenia respondents have more cell phones (38%) and Kelema respondents have more bicycles (43%). Filimo has the lowest total number of assets.

Income, in the form of cash or goods, is most commonly generated through agricultural production. Village leaders from Filimo, Kelema and Mnenia listed crop production and sales to be the primary source of income. This is reflected by the percentage of households that sell cash crops in Filimo (95%), Kelema (100%), and Mnenia (90%). Other sources of cash include livestock sales, alcohol sales, small business and firewood.

Although similar crops are grown and sold among the surveyed villages, there are large variations in the prices of certain crops. For example, a sack of Pigeon peas sold for 100,000 TSH in Mnenia compared to 40,000 TSH in Filimo. However, Mnenia is the only village that transports crops to an outside village while crops in Filimo and Kelema are sold to their respective local populations or middlemen within the village.

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.

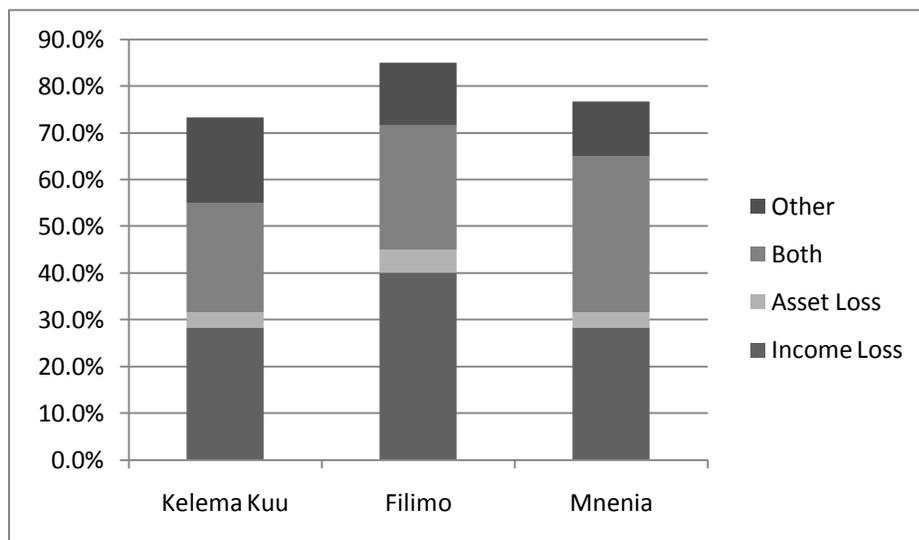
Village Recommended Activities to Improve Local Livelihoods

Village	Male	Female	Village Leader
Filimo	Microfinance	Microfinance	Cash Crops
Kelema	Microfinance	Beekeeping	Cash Crops
Mnenia	Microfinance	Poultry	Cash Crops

Across the board, the male focus groups in all three villages recommended obtaining access to credit through microfinance. Village leaders in the villages focused on selling cash crops. The women’s focus groups varied to include alternative income generating activities such as beekeeping and working with poultry, although microfinance was also listed by the Filimo women’s focus group.

In a given year, a household may experience unanticipated crises such as the death of a family member, the loss of a job or the loss of crops or livestock. Some families or households are able to cope with these losses better than others. Data from Figure 3 indicates that households in Kondoa district were dealing with significant unexpected losses.

Figure 3. Unexpected Loss of Income or Assets by Village



Most households reported an unexpected loss of income, assets, or both in Kelema (77%), Filimo (87%) and Mnenia (73%). The higher incidents of losses in Filimo can be partly attributed to more losses of income at 40% of households compared to Kelema and Mnenia, both at 28%. Loss of both income and assets had affected one-quarter to one-third of households, with Mnenia reporting the most loss of both. Increased food prices accounted for a significant portion of losses (59%) in Kelema. 47% of Mnenia respondents stated that both crop loss and food price increases had led to significant loss. In Filimo, crop loss due to weather was very common and widespread throughout the village as 86% reported “substantial loss of crops due to weather.”

4.2 Village Institutions

Table 2 provides a summary of the institutional analysis conducted in Kondoa district. Village institutions and services are categorized according to the following types: village-run, village committee or group, and operated by third party. The sector column indicates the type of service or resource that the institution provides. The sector of an institution provides a general description of services provided; however, such descriptions are not exhaustive nor do organizations necessarily provide the same services to different villages.

Institutional Resources by Village

Institution	Filimo	Kelema	Mnenia	Sector
Village-Run				
Community Health Worker			x	Health
Community Animal Health Worker		x	x	Animal Health
Education	x	x	x	Education
Health Service			x	Health
Religious Institution (church, mosque, etc.)	x	x	x	Faith-based
Veterinary Services		x	x	Animal Health
Village Council /Government	x	x	x	Politics/Government
Sub-total village-run	3	5	7	
Village Committee /Group				
Environment/Natural Resources Committee	x	x	x	Environment, Farming/Agriculture

Institution	Filimo	Kelema	Mnenia	Sector
Education Committee			x	Education
Water Committee	x	x	x	Water, Farming, Agriculture
Land Committee	x		x	Environment, Farming/Agriculture, Financial/ Socioeconomic, Legal/Law Enforcement, Politics/Government
Hazards/Disaster Committee	x	x	x	Aid/Development, Social Welfare
Security Committee	x	x	x	Legal/Law Enforcement, Social Welfare
Community Development/ Planning/ Financial Committee	x	x	x	Business Development, Financial/ Socioeconomic, Politics/Government, Social Welfare
Health, HIV/AIDS Committee			x	Health, HIV/AIDS
Social Services/ Social Welfare Committte	x	x		Social Welfare
Sub-total village committee/group	7	6	8	
Third-Party Operated				
AfriCare	x	x	x	Food/Hunger, Health, HIV/AIDS, Education, Water/Civil Service
AWF	x		x	Wildlife/Conservation
CARE			x	Financial/ Socioeconomic, Education, Health, HIV/AIDS, Water/Civil Service
CBHI			x	Health, HIV/AIDS
CDO-Masochi		x		
Faida Mali	x		x	Farming/Agriculture, Business Development
JANI (GPTL)		x	x	Farming/Agriculture
JPTL	x			Farming/Agriculture, Business Development
Kichecko		x		
Mkumumi	x			Energy/Environment, Wildlife/Conservation
SACCOS			x	Financial/ Socioeconomic
SFTZ		x		HIV/AIDS, Research, Natural Resource, Wildlife/Conservation
TANAPA	x		x	Wildlife/Conservation
TASAF		x		Social Welfare
TUNAJALI			x	Health, HIV/AIDS
World Bank		x		Financial/Socioeconomic
World Food Program		x		Food/Hunger
Sub-total third party	6	8	9	
	16	19	24	

Overall, Mnenia has the highest number of institutions at 24 followed by 19 in Kelema and 16 in Filimo. Third-party operated institutions are the most prevalent in the surveyed villages. AfriCare is the only organization that has a presence in all three villages. In all three categories, Mnenia has the most institutions and services available.

Education is commonly viewed as a necessity for future development by respondents. However, many questioned the quality of education provided as well as the infrastructure and number of teachers. Households in Kelema stated that there is a “critical shortage” of classrooms and staff houses. Teachers are also in low supply in Kelema and Filimo. NGOs operating in the villages received mixed reviews. Some, such as GPTL and World Bank were credited with providing education and seeds for jatropha, education on terracing, and promising money for wells. Common concerns included insufficient access to services. For example, only people from one sub-village were provided support from TANAPA and HIV/AIDS education from Africare was limited in scope and reach. In some cases, NGOs that provided monetary support but lack of follow up was consistently noted. Overall, NGOs did provide a number of services such as agricultural and health training and education, distributing bicycles, and building new school facilities.

4.3 Education

4.3.1 Household-Head Education

Among household heads in Filimo, Kelema and Mnenia there are varying proportions of primary school completions. Mnenia had the highest rate at 66.1% while Filimo had 45% and Kelema had the lowest at 35.7%. Kelema also had the highest number of household heads with no education at 39.3% compared to Filimo (36.7%) and Mnenia (25.4%). Mnenia was the only village that had some household heads that attended secondary school (5.1%), though none had completed their secondary education. Other types of education, such as adult or vocational education, were similarly low. Kelema had 1 household head with adult education; Filimo had 1 adult education and 1 vocational education completion; and Mnenia had 2 adult education completions.

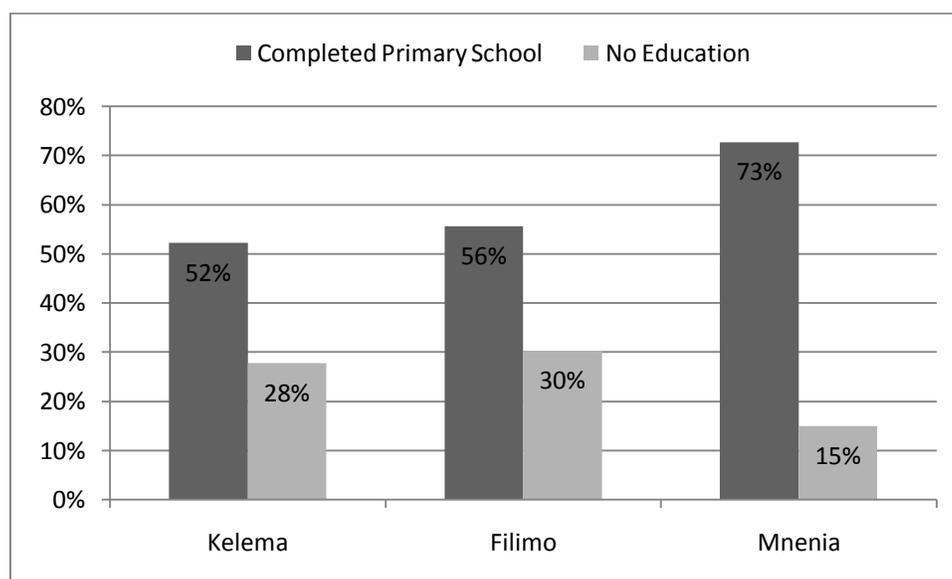
There was a sharp education contrast between male and female household heads. In Mnenia, 82.6% of male household heads completed primary school while only 1 female household head (7.7%) did the same. In Filimo and Kelema, there were also large disparities, albeit lower. Among male household heads, 41.9% in Kelema and 51.2% in Filimo completed primary school. 15.4% of

female household heads in Kelema and 29.4% in Filimo completed at least primary school. Female household heads did not engage in any other type of education activities in the three villages.

4.3.2 Primary School Completion

Figure 4 presents data for primary education completion rates among adults (15 years and older) in households in Filimo, Kelema, and Mnesia.

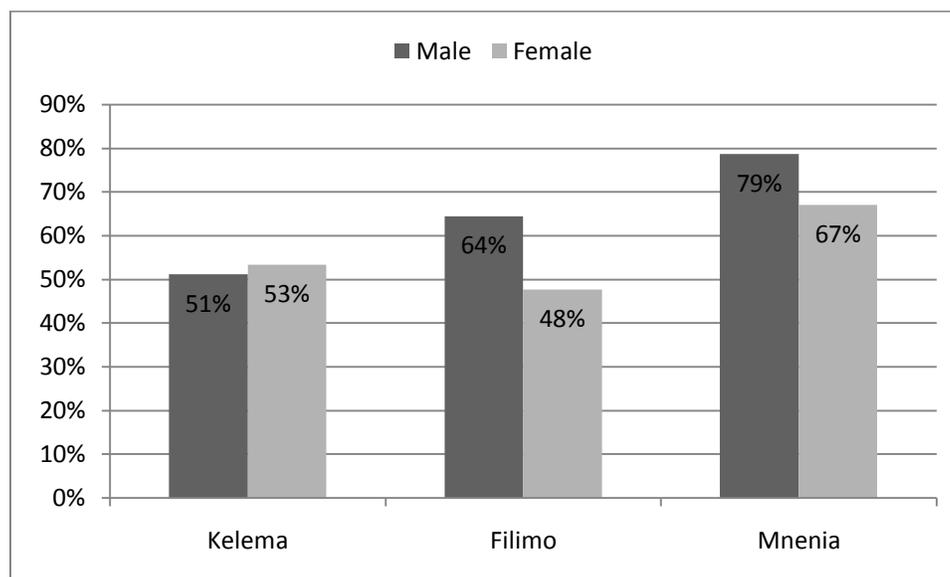
Figure 4. Percent Adults with No Education versus Completed Primary School



Primary education completion and no education rates in Kelema and Filimo were fairly comparable. Slightly over half of adults in Filimo (56%) and Kelema (52%) had completed primary school while 30% of adults in Filimo and 28% of adults in Kelema had no education. Mnesia had both the highest rate of primary school completion among adults with 73%. Moreover, Mnesia also had the lowest no education rate at 15%.

Figure 5 presents the data regarding primary school completion rates by gender in Filimo, Kelema, and Mnesia.

Figure 5. Adult Primary School Completion Rates, Disaggregated by Sex



In Filimo and Mnenia, a higher percentage of adults who finished at least primary school were male. In contrast, a higher percentage of female adults in Kelema completed primary school as primary education was more evenly distributed by gender. However, Mnenia still had the highest total percentage of female adults at 67% with at least a primary school education. Kelema and Filimo had significantly lower percentages of primary education completion rates among females at 53% and 48% respectively.

4.3.3 Access to Primary Education

Table 3 provides a general overview of school conditions for students in Filimo, Kelema, and Mnenia. In the following table, only Kelema has a secondary school.

Primary School Environment

Village/School	Students Enrolled	Teacher to Student Ratio	Classroom to Student Ratio	Textbook to Student Ratio	% Teachers completed Form IV
Filimo	391	N/A	1:78	1:3	60%
Kelema	476	1:60	1:68	1:4	100%
Mnenia	768	1:55	1:77	1:3	79%

Among primary schools, Kelema and Mnenia had similar teacher to student ratios from 1:55 to 1:60. The number of teachers in Filimo was unavailable. Classroom sizes tended to be large in all

three villages' primary schools. Kelema had the lowest classroom to student ratio of 1:68 and Mnenia and Filimo were nearly identical at 1:77 and 1:78 respectively. The textbook to student ratio was 1:3 in Filimo and Mnenia and 1:4 in Kelema primary school. The primary school in Kelema was the only school in which all teachers completed Form IV compared to 60% in Filimo and 79% in Mnenia.

The secondary school in Kelema saw significantly lower teacher to student (1:38) and classroom to student (1:19) ratios. Like the primary school, all Kelema secondary school teachers completed Form IV and 25% of teachers held a diploma. However, the textbook to student ratio was 1:5 and regular attendance was also much lower at 60% than that of the primary school of which there was a 90% regular attendance rate.

The majority of students have little nutrition prior to or during school, as evidenced by Table 4.

Percent of Students Attending Primary School Hungry

Village	% Students Attending School Without Eating Food or Having Tea Only	School Meals Provided
Filimo	95%	No
Kelema	85%	Breakfast of porridge; lunch of ugali/stiff porridge with beans/peas; both at no cost
Mnenia	70%	No

For the percentage of students without food or drinking only tea before school, Filimo had the highest at 95% of students. Kelema also had a large number of students without food before school; but the students were provided both breakfast (porridge) and lunch (ugali or stiff porridge with beans or peas). Of primary school students in Mnenia, 70% did not have food or drank only tea. Neither school in Filimo or Mnenia provided any meals.

4.4 Health

4.4.1 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.

Through focus group discussions with men, women and village leaders, qualitative information regarding problems the village faced was collected. Participants were asked to rank problems (1 being the highest priority) in order of concern. Health care came up as a number one concern in all three villages.

Of the participants, only Mnenia has a dispensary within the villages while residents of Filimo and Kelema must travel to nearby villages for medical supplies. The Mnenia dispensary is staffed by one Medical Officer (MO) and one Nurse Assistant. Most people treat health issues at the nearest clinic/dispensary/hospital, although some occasionally visit a traditional healer.

4.4.2 Malaria and Other Illnesses

Through focus group discussions with men, women and village leaders, and clinic staff we asked each group what the primary health problems are in their village for men, women and children. Table 5 summarizes the most common illnesses that afflict each population group.

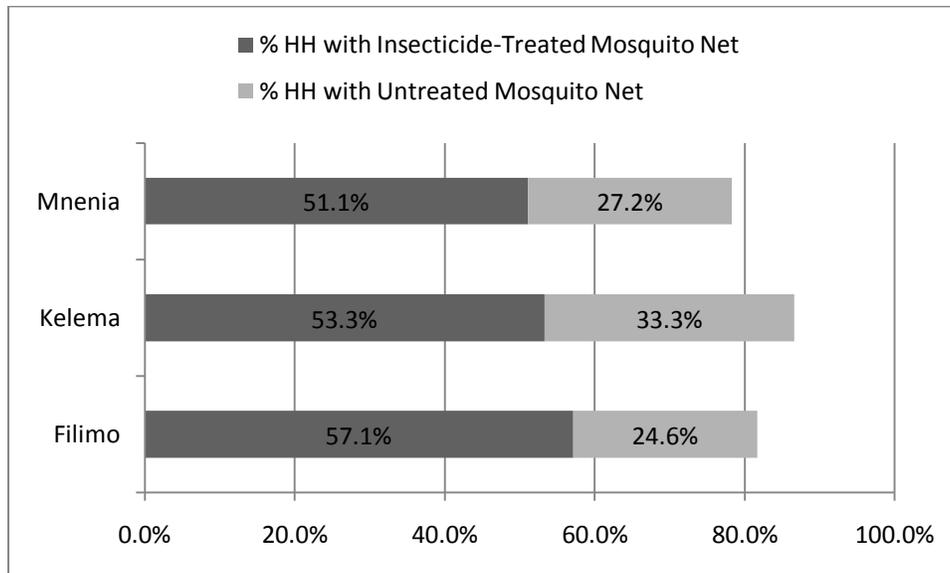
Common Illnesses by Population Group and by Village

Village	Men	Women	Children
Kelema Kuu	Malaria STD's Hernia Gall bladder infection Chest disease	Malaria Pneumonia STD's Antenatal problems Typhoid	Malaria Pneumonia Diarrhea Skin infection
Filimo	Malaria Urinary infection Hernia	Malaria Diarrhea Joint pain Uterine cancer Antenatal problems	Malaria Diarrhea Pneumonia Polio Measles
Mnenia	Malaria Typhoid Worms Hernia Urinary blockage	Malaria Typhoid Leg pain Uterine cancer AIDS	Malaria Typhoid Worms Skin infection Diarrhea

Given the prevalence of malaria, we ask each household head if they own at least one mosquito bed net, and if so, if it has been treated with insecticide repellent. Figure 6 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 6. Households with Mosquito Nets, Treated and Untreated



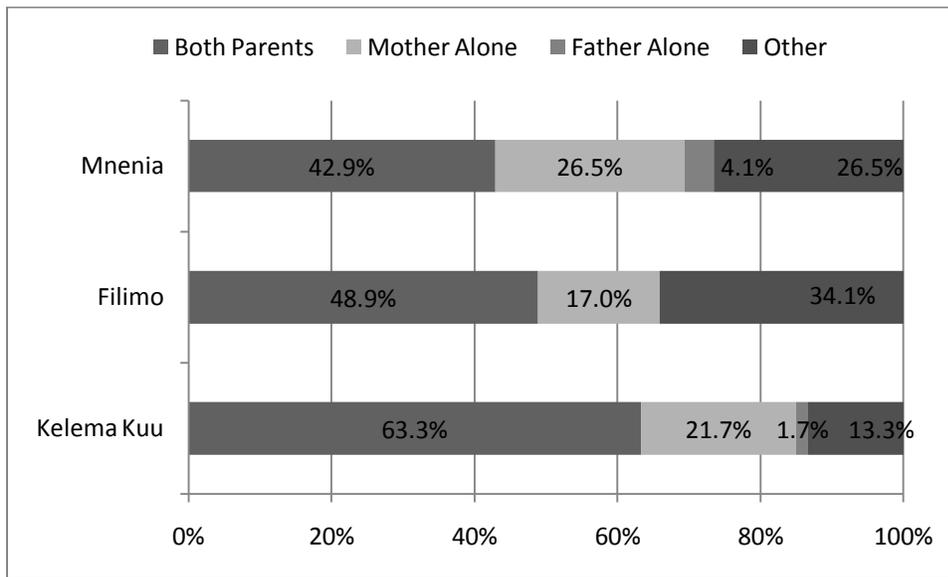
Overall, most households in Kondoa District own mosquito nets, ranging from 78% in Mnenia to 87% in Kelema. Moreover, it was found that most mosquito nets have been treated with insecticide, accounting for over half in all three villages. While Kelema had the highest percentage of untreated nets at 33%, the data indicates that treated mosquito net ownership is fairly uniform in the district.

4.4.3 Under-Five Health Status

The health status of children under five is critical to their future physical, mental and emotional quality of life as well as expected mortality. In order to assess the quality of children's health at this age we inquire about primary caretakers, exclusive breastfeeding as an infant, primary food eaten, vaccines, and experience with disease. In addition, the field team weighs and measures the height of each child to determine how close they are to a normal growth curve given their age. (We use World Health Organization age, height and weight measure standards.)

The health status of children under five can be correlated to the presence or absence of biological parents, especially the biological mother. Figure 7 shows that while most children in Kelema Kuu are cared for by both parents, the majority of children were cared for by either one parent or other.

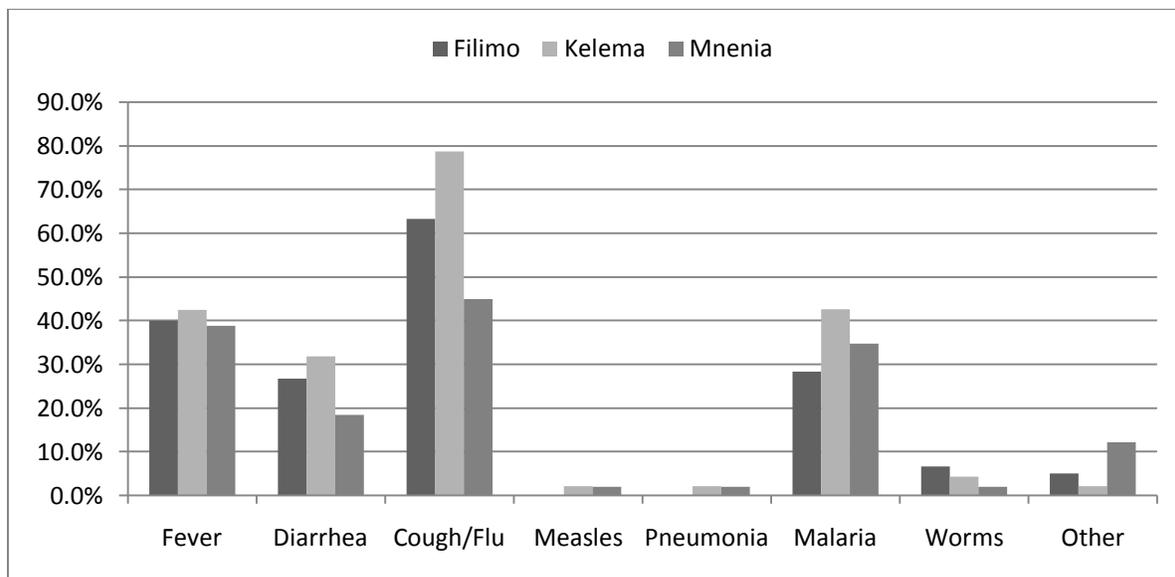
Figure 7. Primary Caretaker of Children Under-Five



Primary caretaker characteristics in Kelema Kuu contrasts sharply with that of Mnenia and Filimo. 63% of households report that both parents are present in Kelema while Filimo at 49% and Mnenia at 43% lagged far behind. Filimo households in particular rely heavily on other caretakers, such as grandparents, accounting for one-third of primary caretakers. Fathers alone are very rarely the primary caretaker, reaching a high of 4.1% in Mnenia.

Figure 8 provides a picture of the disease burden for children under five in Kondo District.

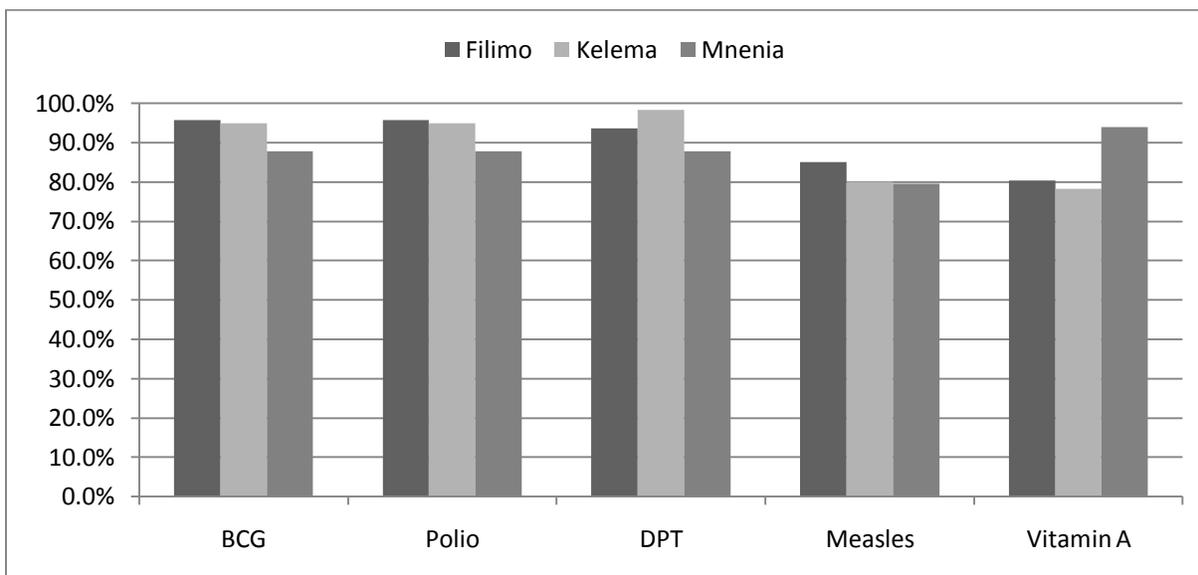
Figure 8. Percent Children Under-5 Who Have Ever Had a Disease



The most commonly reported diseases are cough and flu, fever, malaria, and diarrhea. Over half of all households in Kelema (63%) and Filimo (79%) responded that young children have suffered from a cough or flu. Young children in Mnenia tend to have lower levels of affliction in all the most prevalent diseases while Kelema showed the highest levels. Reports of other diseases (measles, pneumonia, worms) were very low throughout the district.

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 9 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 9. Percent Children Under-5 Vaccinated and Vitamin A Supplement



Vaccination rates are very high throughout the district. Vaccination rates for BCG and polio range from 88% to 95% among the surveyed villages. Young children in Mnenia consistently fall on the lower end of vaccination rates but are generally well vaccinated. Children under five in Kelema are almost completely inoculated against DPT as 98% received a vaccination at some point.

Vaccination against measles is less prevalent (between 80 to 85%). However, the vast majority of young children are provided some protection against the disease. Intakes of vitamin A supplements are also relatively low in Filimo and Kelema, though they have been available to most children.

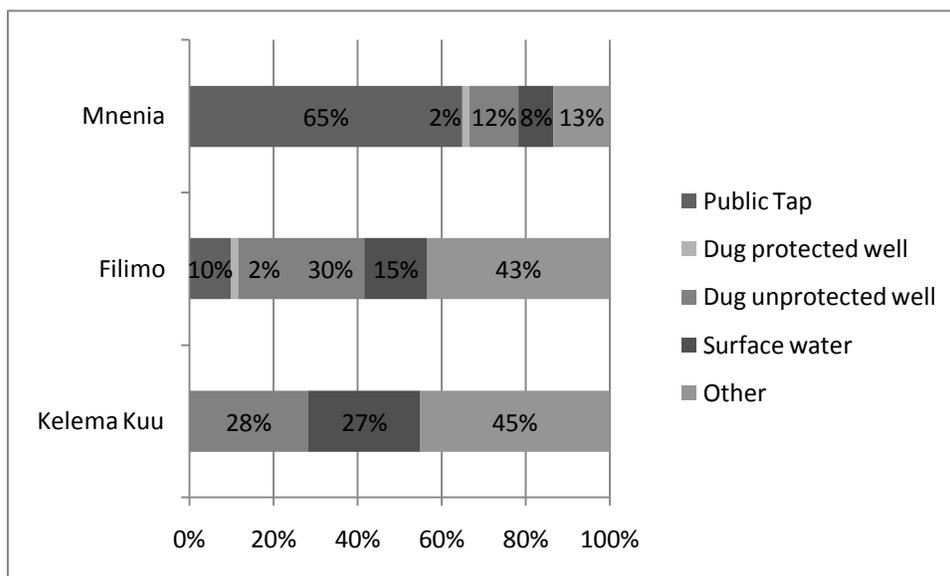
Mnenia stands out as vitamin A supplements are more common than any vaccination with 94% of children under five having access. It should be noted that the data shown in Figure 9 do not take

into account age at vaccination or number of doses, so a determination of whether or not children are fully vaccinated is not possible.

4.4.4 Environmental Health

Many infectious diseases, especially diarrheal diseases, can be a result of poor hygiene and contaminated water and food sources. Figure 10 summarizes quantitative data for sources of drinking water in Kondoa District.

Figure 10. Primary Sources of Drinking Water



Sources of drinking water varied sharply among the villages. Mnenia households had significantly higher access to protected water sources. 65% of respondents reported a public tap for their water source compared to 10% of those in Filimo and 0% in Kelema. Unprotected wells and surface water constituted the primary water source for households in Kelema (55%) and Filimo (45%). The data indicates that while access to clean water is limited in the three villages, the problem is particularly acute in Filimo and Kelema.

Calculating the average time to collect water included the time spent to get to a water source and returning home. The relatively widespread availability of public tap water in Mnenia likely contributes to the reduced average time. Table 6 provides a summary of average time to collect water.

Average Time to Collect Water

Village	Minutes to Collect
Kelema Kuu	38.0
Filimo	44.7
Mnenia	24.7

Mnenia had the lowest average time required to collect water at 24.7 minutes compared to Kelema (38 minutes) and Filimo (44.7 minutes). Not surprisingly, the distance between households and water sources in Mnenia was the lowest at .1 to .5 km. Generally, residents of Filimo and Kelema travel approximately 1 km to water sources. In Filimo, all households have access to a clean source of water from a seasonal river for 6 months and while most can access a borehole for 6 months, also a clean source. Similarly, all households in Kelema can obtain water from a clean seasonal river for 6 months. There is also a shallow well, accessible for 5 months but the water was described as muddy. In Mnenia, water access is high every year. The water pipeline and its clean water is accessible to all for 12 months as well as a nearby spring, though only few households were listed as having access. A borehole is also available to some households for 12 months but the water quality was described as salty.

4.4.5 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).

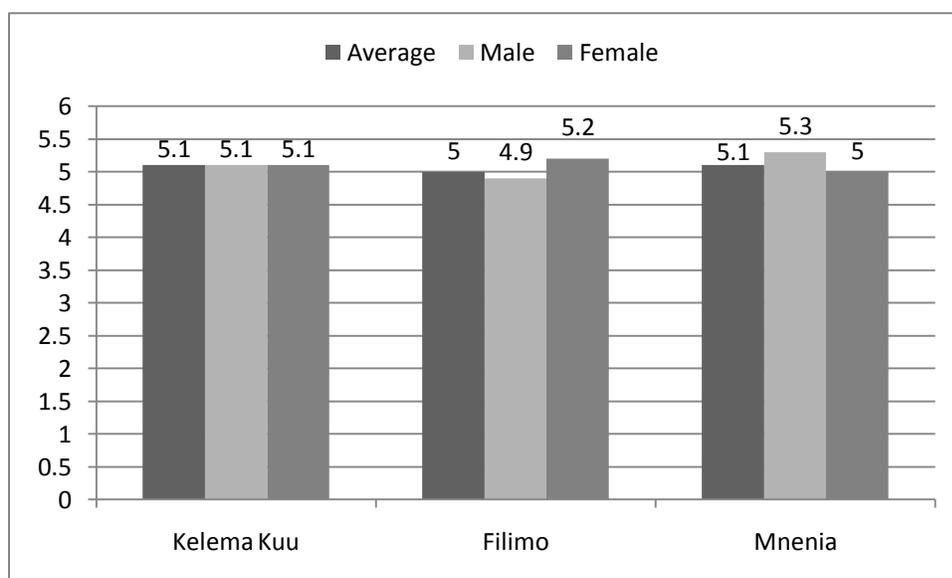
This discussion on HIV knowledge examines the differences in knowledge level between men and women. Therefore, a comment on the survey sample is necessary, specifically that the male sub-sample is unlikely to be representative of all adult males in the village surveyed. In aggregate, there is a wide 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.

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 11.

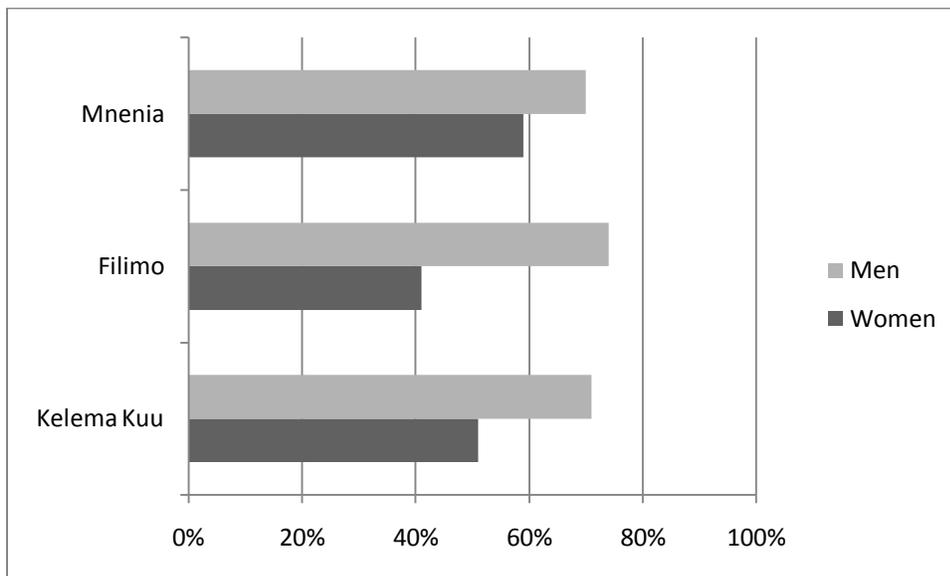
Figure 11. Village HIV/AIDS Knowledge Scores, Disaggregated by Sex



The average HIV/AIDS knowledge scores were high in Kondoa district. Kelema Kuu and Mnesia both had the highest average scores of 5.1 and Filimo had the lowest at 5. There was not a significant variation in scores when disaggregated by gender. The scores were the same for men and women in Kelema. Women tended to score higher in Filimo whereas men generally scored higher in Mnesia. The high scores may be partly attributed to the relatively high presence of NGOs that provide education on HIV/AIDS as each village has at least two such organizations.

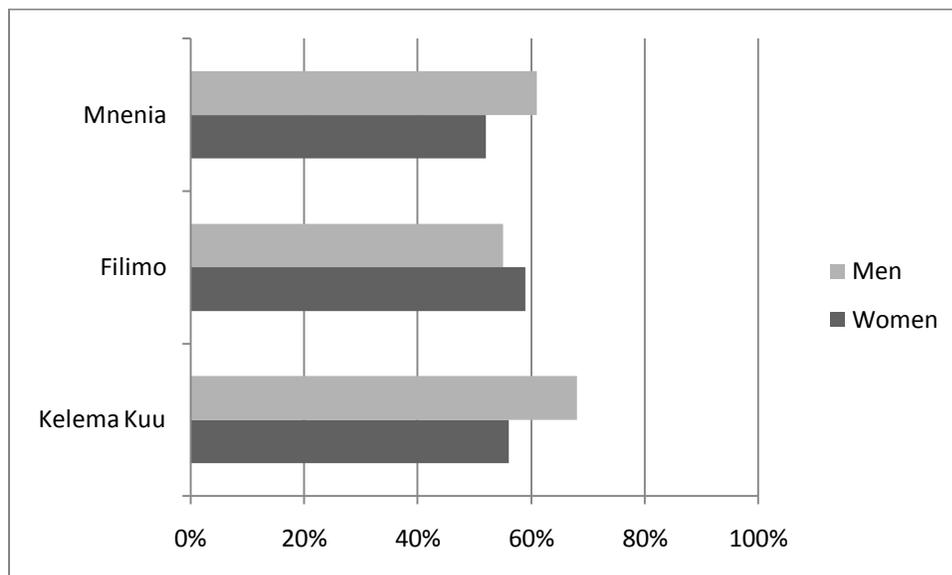
In individual interviews, men and women are asked if they have talked with their primary partner about HIV (see Figure 12). There is a marked difference between genders with regards to talking to their partner. Between 70 to 74% of men stated that they spoke to their partner about HIV/AIDS while it was less likely for women to do the same in Mnesia (59%), Kelema (51%) and Filimo (41%). These differences may in part be explained by gender role differences in which women do not feel it is appropriate to publicly (in an interview) admit to these conversations or they feel it is not appropriate to raise them with their partner. Men may also be over-reporting because they feel it is the socially correct response.

Figure 12. Percent Men and Women Who Have Talked to their Partner about HIV



Respondents were also asked if they had ever been tested for HIV (see Figure 13). Within any sub-sample, men in Kelema were most likely to have been tested for HIV at 68% while women in Mnesia were least likely at 52%.

Figure 13. Percent Men and Women Who Have Ever Tested for HIV



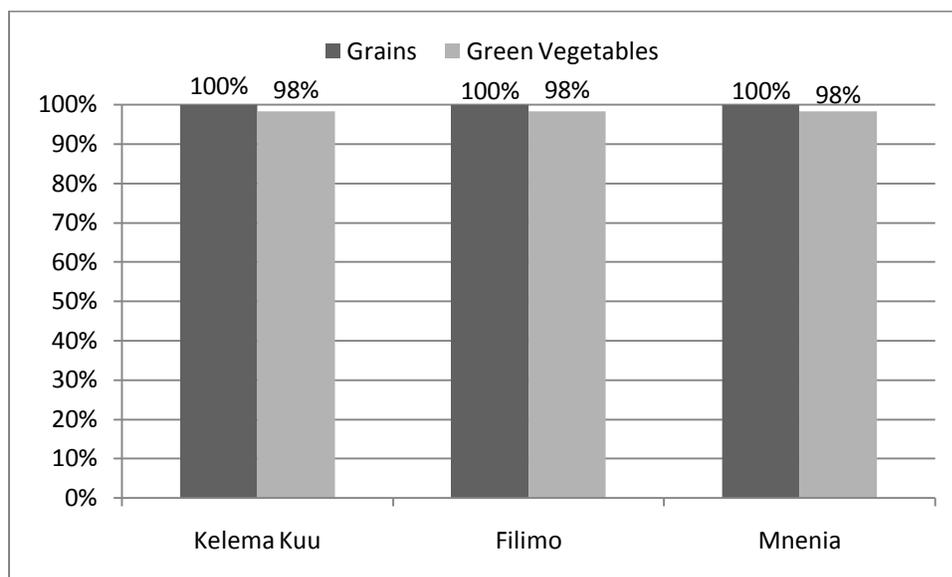
While there were variations in gender for HIV testing, proportions were fairly similar. Men were tested more often than women in Mnesia and Kelema while women were more likely in Filimo. Among all villages, over half of all respondents from each sub-sample had tested for HIV. The combination of high knowledge scores and testing are encouraging indicators for positive impacts of additional education and training.

4.5 Nutrition and Food Security

4.5.1 Household Nutrition

Diversity in daily diets is fairly high in Kondoa District. Figure 14 graphs the percentage of households that have consumed grains and green vegetables in the last 7 days.

Figure 14. Households Eating Grains & Green Vegetables All (or More) of Last 7 Days



All households eat grains and 98% of all households eat green vegetables every week. Despite the high proportion of grains and green vegetables consumption, the vast majority of respondents stated that they had eaten limited food within the last week. 97% in Filimo and 75% in Kelema and Mnesia reported limited diversity and intakes. Relatively few households had gone one day and night without food in the last week. Kelema had the highest proportion of no food at 17% compared to Filimo at 3% and Mnesia at 0%. While most households have access to food, albeit in limited amounts, there is a great deal of stress with regards to food security. Approximately 70% in Kelema and Mnesia and 52% in Filimo noted that they were worried about food in the last week.

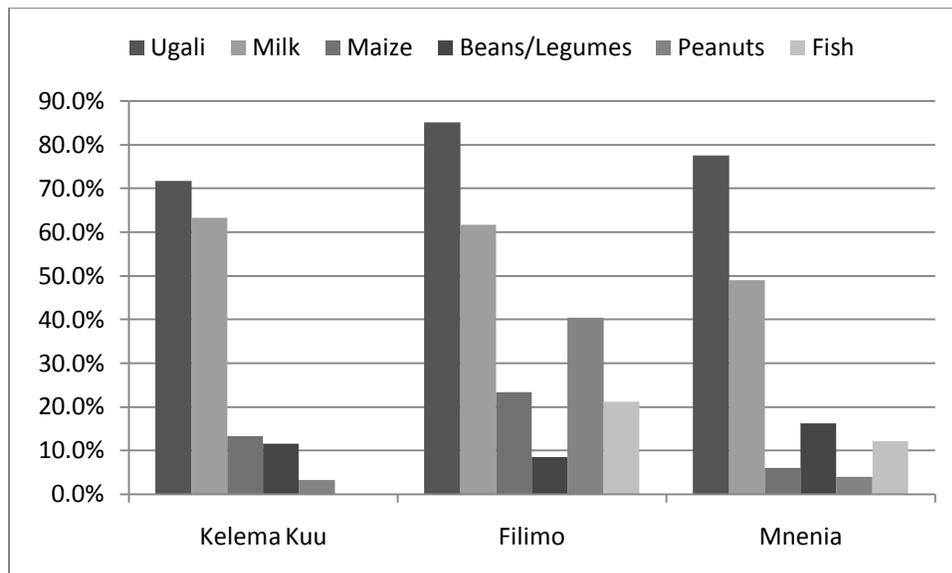
4.5.2 Infant and Young Child Feeding

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. On average, young children in Mnesia began eating solid foods at 6 months which is aligned with recommended practices. Children under five in Kelema and Filimo are introduced to solid food much earlier on average at 4.4 months and 3.7 months respectively. There was some uniformity in the average age that a child stopped breastfeeding among the villages. Mnesia children stop the earliest at 20.97 compared to kelema (21.66 months) and Filimo (21.79 months).

4.5.3 Under-Five Nutrition

The most commonly eaten foods by children under five in the last 24 hours in households surveyed are listed in Figure 15.

Figure 15. Percent Children Under-5 Eating Food Item in Last 24 Hours



Throughout Kondoa District, Ugali is the most common food for young children followed by milk. 72 to 85% of young children have eaten Ugali and over half of children, except in Mnenia have drunk milk in the last 24 hours. Other food types tend to be less accessible. While 40% of young children in Filimo have eaten peanuts, no other food type has been consumed by more than one-quarter of children in any of the villages. Maize, beans and fish were not commonly cited foods for children under five years.

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. Generally, most children are well or adequately nourished. There were no cases of severely underweight children and few observations of moderately underweight children. Among those moderately underweight, Mnenia had the highest proportion at 6% whereas Kelema and Filimo both had 2% of children who were moderately underweight.

4.5.4 Food Security

A series of nine questions are used to create a food security scale. Sample questions include, have you gone a day and night without food in the past month; or have you had to eat a limited number of foods in the previous week or reduced how much you eat. The higher the food security score, the greater the average food insecurity experienced. Food security is an issue for the surveyed villages that was fairly uniform. Kelema had the highest food security score (or the highest insecurity) at 4.0, followed by Mnenia 3.9 and Filimo 3.6. Table 7 displays the percent of households that experienced a form of food insecurity.

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

	Kelema Kuu	Filimo	Mnenia
Worried not enough food	70.0%	51.7%	70.7%
Ate fewer meals	53.3%	33.3%	55.2%
No food in house	38.3%	16.7%	39.7%
Went to sleep hungry	33.3%	8.3%	25.9%
One day and night without food	16.7%	3.3%	0.0%

Worry about sufficient food was a constant theme throughout the villages, particularly in Kelema and Mnenia. While over half in all villages worried to some degree, households in Kelema and Mnenia were more likely to compensate with eating fewer meals than in Filimo. Moreover, it was more likely that there was no food in the house in Kelema and Mnenia than in Filimo. Filimo consistently ranked the lowest in food insecurity indicators. Kelema households, with the highest food security score, were significantly more likely to endure one full day and night without any food and many experienced going to bed hungry.

4.5.5 Kitchen Gardens

Kitchen gardens can be a small but efficient means of assuring some household access to easy to grow basic crops such as greens or tomatoes that can be an excellent source of food security even in times of drought. A small but notable proportion of households currently grow kitchen gardens in Kondo District. 28% in Filimo, 29% in Mnenia and 8% in Kelema reported kitchen garden ownership. There tends to be a gap between kitchen garden growth and training in Mnenia and Kelema. Of households, only one (or 2%) received kitchen garden training in Kelema and 9% in Mnenia. Filimo households, which had the highest proportion of kitchen garden ownership, received far more training at 33%.

4.6 Agriculture

There was little average gap between acres of land owned or rented and acres cultivated, with Kelema being the only village which had a disparity (see table 8).

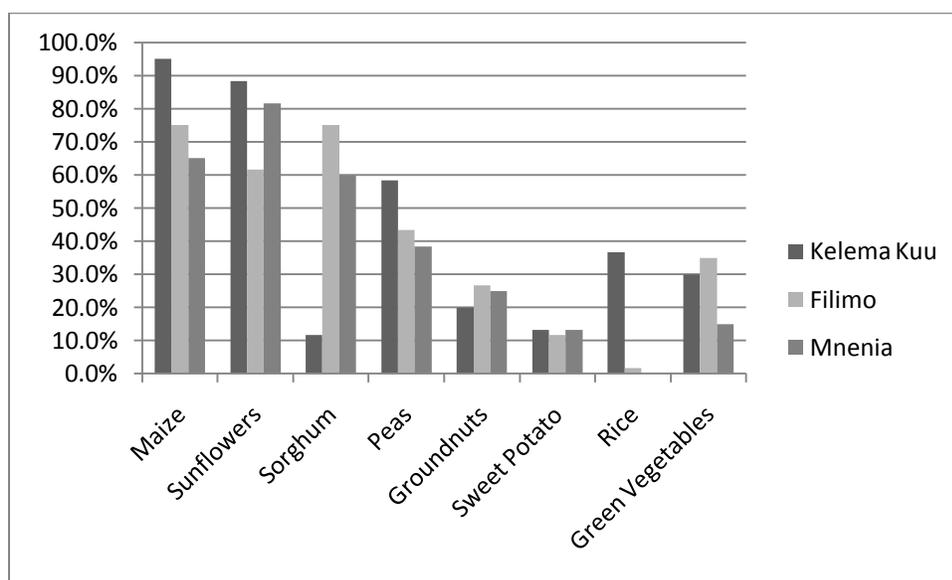
Average Acres Owned and Cultivated by Village

	Average Acres Owned or Rented	Average Acres Cultivated
Kelema Kuu	6.1	5.0
Filimo	4.5	4.5
Mnenia	4.0	4.0

Kelema cultivated the most acres at 5, followed by Filimo 4.5 and Mnenia 4. Such figures appear inconsistent with the discussion on food security in which Kelema had the most insecurity, despite having the most acres cultivated.

A variety of crops are grown for both subsistence and cash crop production. Figure 16 highlights the mostly commonly grown crops and the average percent of households growing each crop per village.

Figure 16. Percent Households Cultivating by Number of Crops Cultivated



Maize, sunflowers and peas are the most consistently grown crops in Kondoa district. While sorghum is also common in Filimo and Mnenia, approximately 10% of farmers grew in Kelema.

Other crops such as sweet potatoes, rice and green vegetables account for a significant portion of crops grown but far less in proportion to the most common crops.

Sunflowers are the most widely sold cash crop as evidenced by the data presented in Table 9. Unlike most other crops, the vast majority of all sunflowers are grown with the intent of selling. In qualitative surveys, almost all households report selling cash crops in Mnenia (90%), Filimo (95%) and Kelema (100%). On average, farmers generate 14,000 to 15,000 TSH per sack of sunflowers. For Mnenia and Filimo, pigeon peas are the second most common cash crop.

Average Household Units of Crops Harvested, Sold and Percent Sold by Village

	Maize			Sunflowers			Peas		
	Avg. # Units Harvested	Avg. # Units Sold	% Sold	Avg. # Units Harvested	Avg. # Units Sold	% Sold	Avg. # Units Harvested	Avg. # Units Sold	% Sold
Kelema Kuu	6.2	1	16.1%	36.4	31.3	86.0%	2.3	0.8	34.8%
Filimo	3.1	0.02	0.6%	14.2	10.1	71.1%	1.8	0.8	44.4%
Mnenia	2.6	0.03	1.2%	24.7	16.4	66.4%	2.7	1.6	59.3%

Agricultural focus group data revealed that crops are stored for future consumption and sales, citing protection against “future hardship” and “avoiding hunger.” Among the villages, it was reported that no crops were left over from previous harvests. Moreover, substantial crop loss due to weather had affected many farmers, particularly in Filimo in which adverse weather conditions accounted for losses of up to 88.5% of total losses. High proportion of crop sales and 100% consumption of harvests may be indicative of major agricultural issues confronting the villages.

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.

Qualitative Data on District Agricultural Environment

	% HH that Irrigate Plot	% HH using Fertilizer		% HH with Soil Erosion as Serious Problem
		Inorganic	Organic	
Kelema Kuu	0%	N/A	50%	0%

Filimo	0%	0%	10%	50%
Mnenia	20%	20%	60%	80%

Soil erosion was determined to be a “very serious” problem in Filimo and Mnenia while it was considered to be a “not serious” problem in Kelema. Techniques such as making maji, planting sisal and bamboo trees around the farm, and terracing are being applied in Filimo and Mnenia. Only Mnenia farmers, and to a limited degree, irrigated farmland. Those who did irrigate were also those who used inorganic fertilizer. Approximately half of farmers in Kelema and Mnenia used organic fertilizers compared to Filimo at 10% of farmers. Farmers in Filimo stated that very few are able to use any type of fertilizer due to the high cost of inorganic fertilizer and the lack of tools to transport organic fertilizer to farms, generally at a significant distance from households.

4.7 Livestock

Livestock ownership is an important source of supplemental income and food security. The majority of households own some type of livestock. Table 11 below illustrates the average household livestock ownership.

Table 11 . Mean Number of Livestock Owned per Household by Village

	Cattle	Goats/Sheep	Chickens
Kelema Kuu	3.1	4.1	2.8
Filimo	2.0	2.8	3.1
Mnenia	1.2	1.8	2.3

Kelema Kuu households generally have the most livestock, particularly goats and cattle, compared to Filimo and Mnenia. However, Figure 13 shows that livestock losses are considerable among the villages.

Table 12. Livestock Lost to Disease, Drought, Theft and Wildlife

Village	Livestock	% lost to disease	% lost to drought	% lost to theft	% lost to wild animals
Kelema	Cows	24.4%	1.8%	5.7%	0.0%
	Goats	18.5%	0.0%	2.5%	2.7%
	Chickens	48.2%	0.0%	0.5%	5.8%
Filimo	Cows	5.9%	2.0%	0.0%	0.0%
	Goats	12.7%	0.0%	0.0%	3.2%
	Chickens	45.2%	0.0%	0.4%	9.9%
Mnenia	Cows	18.1%	0.0%	0.0%	0.0%

	Goats	9.2%	0.0%	2.6%	1.0%
	Chickens	53.6%	0.0%	0.8%	4.6%

Disease is the largest threat to livestock compared to drought, theft and wild animals. Anaplasmosis, anthrax, and foot and mouth disease are the most concerning livestock diseases in Kelema. Yet, despite high vaccination rates (90% of cows and 90% of goats), Kelema lost more of both than either Filimo or Mnenia. Other diseases such as East Coast Fever, upele, worms and diarrhea are notable concerns in Filimo and Mnenia. However, very few vaccinations have been administered. 6% of cows and 3% of goats in Filimo have received any vaccinations and there are no reports of vaccinations in Mnenia.

Newcastle disease is the number one cause of chicken mortality in Tanzania. One-quarter of chickens in Mnenia received vaccinations compared to 10% in Kelema and 9% in Filimo. Almost half of all chickens in Kondoa district are lost to disease, indicating the need for increased vaccinations. Currently, there are no animal health workers present in the surveyed villages.

4.8 Human-Wildlife Conflict

There is little evidence of any human-wildlife conflict in Kondoa district. Approximately 5 to 10% of chickens and 3% or less of goats are lost to wildlife. There are no reports of any cows being lost to wild animals. Crop destruction by wildlife does not constitute a major threat to livelihoods. Focus group respondents in Kelema noted that they do watch over crops to protect them from wild animals.

Bushmeat consumption is generally low. Households in Mnenia were more likely to consume bushmeat as 20% of respondents reported eating between one to three times in the last week. Comparatively, 3% in Kelema and 2% in Filimo have consumed some bushmeat in the last week. Poaching by outsiders was not a problem in any of the three villages.

5 CONCLUSIONS

5.1 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 Monduli 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.

5.2 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

		Mnenia	Filimo	Kelema Kuu
THE HOUSEHOLD AND HOUSING				
	Number of households surveyed	60	60	60
	Average household size	4.97	5.37	5.39
	% households in polygamous marriage (more than 1 wife)	8.3	16.7	16.7
	% of households headed by women	22%	28%	22%
	% of households with modern roof	88%	83%	50%
	% of households using a toilet	2%	0%	0%
	% households connected to electricity grid	3	0	0
	Avg time (minutes) required to collect water	24.68	44.69	37.96
	% households use firewood as primary energy source for cooking	95%	98%	98%
EDUCATION				
	% of all adults without education	30%	28%	15%
	% of household heads completed primary school	45%	36%	66%
	% of adult men completed primary school	63%	51%	79%
	% of adult women completed primary school	47%	53%	67%
	Average primary school teacher to student ratio	1:55	n/a	1:60
	Average primary school textbook to student ratio	1:3	1:3	1:4
	Average secondary school teacher to student ratio	n/a	n/a	1:38
	Average # of years teachers stay at primary school	14	3	8
	Average # of years teachers stay at secondary school	n/a	n/a	4
HEALTH				
	% of households with at least one mosquito net	78%	82%	87%
	% of households that use traditional medicine often or very often	n/a	n/a	n/a
	% of households with access to protected drinking water	67%	12%	0%
	% of households that take measures to make the water safe	78%	48%	37%
	# of hospital/dispensary/clinic in the village			
CHILDREN UNDER 5				
	% of infants exclusively breast fed through 6 months of age	20%	19%	22%
	Average age (months) at introduction of complementary feeding	6 mo	3.7 mo	4.4 mo
	% of children whose birth mother is still alive and inside the hh	80%	87%	85%
	% of children moderately to severely underweight	17%	14%	10%

		Mnenia	Filimo	Kelema Kuu
	% of children who are vaccinated for BCG	88%	96%	95%
	% of children who are vaccinated for polio	88%	96%	95%
	% of children who are vaccinated for DPT	88%	94%	98%
	% of children who are vaccinated for measles	80%	85%	80%
	% of children received Vitamin A supplement	94%	80%	78%
	% children with fever reported in past 3 months	39%	43%	40%
AIDS KNOWLEDGE				
	% of men with high AIDS knowledge score (5-6 points)	77%	74%	88%
	% of women with high AIDS knowledge score (5-6 points)	81%	95%	91%
	% of women who know that a person can protect themselves from HIV	98%	98%	98%
	% of men who know that a person can protect themselves from HIV	100%	100%	96%
	Perception of risk of mother-to-child transmission of HIV	98%	92%	90%
	% of men who have talked with their wife/primary partner about ways to prevent AIDS	82%	82%	87%
	% of women who have talked with their husband/primary partner about ways to prevent HIV/ AIDS	89%	63%	72%
	% of men ever tested for HIV	60.6	55.3	67.9
	% of women ever tested for HIV	51.9	59.3	55.7
FOOD SECURITY AND NUTRITION				
	% of households worried about food in the past 4 weeks	71%	52%	70%
	% of households ate limited variety of food in the past 4 weeks	74%	97%	75%
	% of hhs went one day and night with no food in the past 4 weeks	0%	3%	17%
	% of households that are currently growing kitchen garden	22%	22%	7%
	Avg # of days/times hhs ate meat protein in past week	2.4	1.5	1.3
	Avg # of days/times hhs ate legumes in past week	3.1	3.0	1.6
	Avg # of days/times in last week hh ate foods with Vitamin A	2.7	2.2	1.4
	# of different types of food eaten in last week	7.1	6.5	5.9
	Food Security Index	3.9	3.5	4.1
ECONOMIC ACTIVITY, AGRICULTURE AND INCOME				
	% households own any agricultural land	88%	97%	92%
	Average acres cultivated per household	4.0	4.5	5.0
	Average # of cattle owned per household	1.2	2.0	3.1
	Average # of goats/sheep owned per household	1.8	2.8	4.1

	Mnenia	Filimo	Kelema Kuu
Average # of chickens owned per household	2.3	3.1	2.8
% of hhs whose chicken are vaccinated for newcastle disease	34%	26%	10%
% of cattle lost to disease in the past 12 months	18%	6%	24%
% of cattle lost to drought in the past 12 months	0%	2%	2%
% of cattle lost to wildlife in the past 12 months	0%	0%	0%
% of chickens lost to disease in the past 12 months	54%	45%	48%
% of chickens lost to drought in the past 12 months	0%	0%	0%
% of chickens lost to wildlife in the past 12 months	5%	10%	6%
% of goats/sheep lost to disease in the past 12 months	10%	13%	19%
% of goats/sheep lost to drought in the past 12 months	0%	0%	0%
% of goats/sheep lost to wildlife in the past 12 months	1%	3%	3%
% of household heads with the main occupation of farming	88%	92%	96%
% of hh heads with the main occupation of livestock keeping	0%	0%	0%
% HHs that report loss of crops due to wildlife destruction	n/a	n/a	n/a
% households with bicycle	33%	38%	43%
% households with radio	53%	35%	52%
% households with cell phone	38%	23%	30%
LOCAL INSTITUTIONS			
# of village committees/groups	14	8	9
# of NGOs	5	6	8
# of credit, banking services or VICOBA	0	0	1
UNEXPECTED TRAUMA OR LOSS			
% of HH which had at least one major unexpected shock or trauma in past 12 mo (ex. Death, loss of job, crop failure)	87%	77%	78%
% of HH with major trauma that lost income and assets	27%	23%	33%
% of most frequent trauma/loss and type within village	Loss of crops due to weather	Rise in food prices	Loss of crops due to weather; food prices
DEMOGRAPHICS			
Religion (% Christian; %Muslim; % Traditional)	98% Muslim	97% Muslim	98% Muslim
Dependency Ratio	128	129	121
Child-Woman Ratio	0.48	0.46	0.47
Sex Ratio	0.88	1.2	1