UNIVERSITY OF MINNESOTA

The Whole Village Project

Village Reports for Kabasa, Nyatwali, and Serengeti in Bunda District

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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 across three villages: Kabasa, Nyatwali, and Serengeti villages, Bunda District during the month of October 2010.

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 from three villages in Bunda District: Kabasa, Nyatwali, and Serengeti. 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 common strengths observed between the three villages. In particular, there is nearly total mosquito net ownership, high rates of child vaccinations for BCG, DPT and polio, widespread latrine usage, and a moderately high HIV knowledge score.

In Serengeti, 90% of households own at least one net and 95% in Nyatwali. Despite this strength, only 63% of nets in Kabasa and Serengeti had recently had their nets dipped in insecticide treatment. In Serengeti, however, 78% of households had their mosquito nets dipped. Given the high rates of malaria in the area increasing bed net coverage to 100% and regular dipping of nets should be encouraged.

Infant and young child vaccination rates for BCG, DPT and polio were over 95% in both villages. However, vaccination rates for measles drop to an average of 70%; given the virulence of this disease, clinic officers and health committee members should identify strategies to meet the gaps in measles vaccination. Although approximately 63% of infants and children took Vitamin A supplements, again the community should strive for 100% coverage given the low Vitamin A intake in local diets and the significant impact that Vitamin A deficiency has on child development.

Among the three villages surveyed, there were a high percentage of households with latrines. Access to latrines and appropriate waste disposal reduce opportunities for communicable disease transmission and water borne diseases. Over 85% of respondents in Kabasa, Nyatwali, and Serengeti have a pit latrine, which is on average with most other districts.

General AIDS knowledge is relatively high among the three villages surveyed in Bunda District. The average AIDS knowledge scores ranged from 5.2 to 5.4 among males and 5.1 to 5.3 among females (on a scale of 6). The scores for both males and females are higher than most districts. The high AIDS knowledge scores in Bunda district are to some degree the result of the low percentage of respondents with no HIV prevention knowledge (0-2 points). Respondents reporting no HIV/AIDS prevention knowledge were low. In Nyatwali, all respondents had some HIV prevention knowledge. Again, although there is an overall strength

here, all three communities should strive to increase HIV knowledge in order to better protect themselves and their families.

3.2   District Gaps

The level of one's education is often a predictor of other quality of life factors such economic productivity, food security, and overall health. In both villages, the quality of schools is a concern and the significantly lower percent of girls attending secondary school. Girls' education often is a predictor of family health in future; further Tanzania has set increasing girls participation rate in secondary school as a Millennium Development Goal. Other quality factors include a low teacher to student ratio, poor student exam results, and the limited food available at school. Only the primary schools in Kabasa provide school meals, consisting of tea and porridge. Children are the future. However, if they are not able to access quality education their chances for improved quality of life as adults are greatly reduced.

Access to quality health services is also limited in the district. Dispensaries are found in two of the three villages: Kabasa and Serengeti. Most respondents in this district felt the treatment at local dispensaries was not helpful. According to men's and women's focus group discussions, malaria is the number one problem followed by typhoid, reproductive and sexual health. For children, the main issues in addition to malaria are diarrhea, typhoid, bilharzia, and kwashiorkor (a disease of malnutrition). In addition, maternal and child health services are offered only in Serengeti.

Any level of acute malnourishment among children under-five must be considered a gap. Nearly 6% of children under-five in Kabasa and Serengeti and 16% in Nyatwali are underweight for their age. Kabasa, Nyatwali, and Serengeti report stunting in approximately 33% of children under-five. In all three villages, the main source of food for children under-five is ugali, which itself cannot meet a child's nutrition needs. There was also a significant lack of green vegetables and fruit in the diet of children and the limited intake of the nutrients these foods offer affect child development.

Farming, as the main source of income, is vulnerable to the problem of soil erosion which is harmful to the sustainability and reliability of farming. Though there is little use of either organic or inorganic fertilizers, there extensive intercropping and terracing practiced to control erosion. Both Kabasa and Nyatwali indicated that they had had not received visits from agricultural extension officers in the past year.

Newcastle Disease is the number one cause of chicken mortality in Tanzania. Vaccination rates against Newcastle Disease are low in Bunda District. The highest rate of the three villages, only 10% of households owning chickens in Kabasa vaccinate those chickens against Newcastle Disease. The highest vaccination

rate is staggeringly low given the severe consequences of infection with Newcastle Disease. Household surveys revealed that 30% to 43% of chickens had been lost to disease in the past year in these villages.

3.3   Opportunities

None of the three villages report having a secondary school. Education committees have an opportunity to work with district leaders to identify opportunities for developing solutions and improving the quality of schools in the district overall. The formation of education committees in any or all of these three villages could produce improvements in the education available in Bunda district. As education creates a foundation for overall family health and economic opportunities, prioritizing education is critical for the future development of this district.

Farmers in Kabasa and Nyatwali reported that did not receive a visit by an agricultural extension worker in the past year. Serengeti received a visit from an agricultural extension worker associated with a NGO. These agricultural extension workers typically train 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, though this pattern was not demonstrated in Serengeti. 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 the villages surveyed in Bunda 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 Bunda 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

Approximately 86% of household heads surveyed in Kabasa and Serengeti report farming as their main occupation (see Figure 1). The remaining primary occupations of household heads include professionals and small business owners. In Nyatwali, however, the primary occupations reported are small and large businesses as well as an unspecified occupation. Although not listed as a main occupation, a number of households own livestock in the form of cattle, goats and sheep, and chickens.

Figure 1.   Main Occupation of Household Head
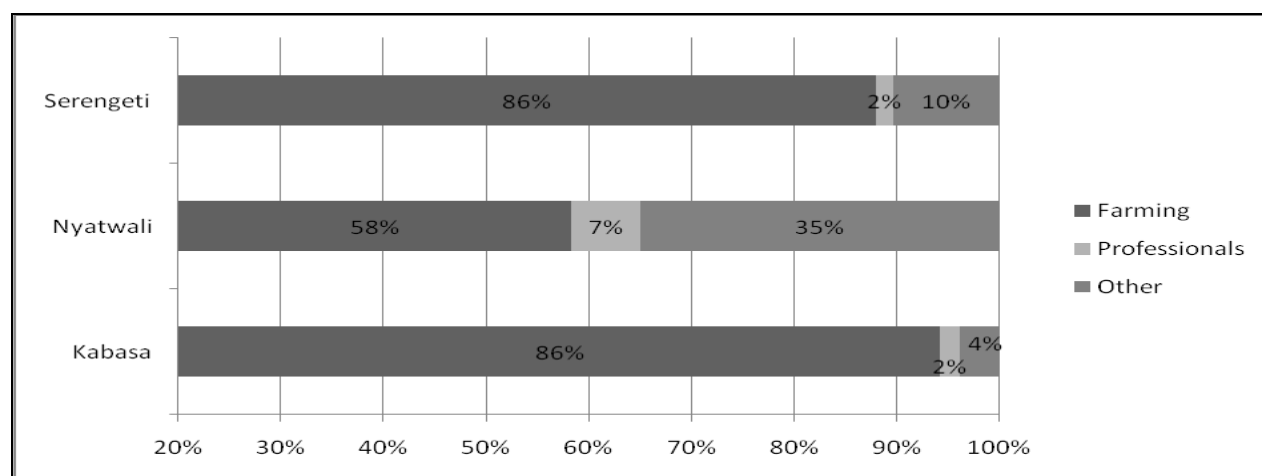
More households are headed by a man than a woman in all villages surveyed. The average percentage of households headed by women in the villages of Kabasa and Nyatwali is 30% and in Serengeti 27%. These averages are high, nearly double that of the villages surveyed in Kwimba District for example. Examining these female headed households further, approximately two-thirds of households are headed by single women. The remaining third, 24% in Kabasa, 33% in Nyatwali, and 38% in Serengeti, are in polygamous marriages.

Income, in the form of cash or goods, is most commonly generated through agricultural production. Village leaders in Kabasa, Nyatwali, and Serengeti listed crop production and sales to be the primary source of income. Livestock, small businesses, and alcohol sales are additional sources of income in Kabasa and Serengeti. In Nyatwali, fishing, alcohol, and medicinal plants are non-agricultural income generators.

Focus group discussions (FGDs) facilitated with men and women investigated activities that could improve the livelihoods of village members. The highest ranked recommendation by participant type by village is listed in Table 1.

Table 1. Village Recommended Activities to Improve Local Livelihoods

Village	Men	Women
Kabasa	Borehole Microfinance Poultry	Borehole Microfinance Vegetable Farming
Nyatwali	Microfinance Vegetable Farming Borehole	Microfinance Vegetable Farming Sewing Machines
Serengeti	Vegetable Farming Fishing Market for produce	Sewing Machines Beekeeping Borehole

The recommended activities did not vary significantly between gender focus groups. Other recommendations included alternative income generating activities such as the cultivation of trees for wood, plaiting kanga, fish farming, and pig husbandry. Village leaders focused on selling cash crops and livestock production.

Asset ownership, a proxy indicator of a household's socioeconomic status, was polled (Figure 2). When households were asked about ownership of durable goods such as mobile phones, radios or bicycles, the most common item owned in Kabasa was a bicycle (62%) followed by a radio (60%). In Nyatwali, a radio (67%) is the most common item followed by a mobile phone (58%). Serengeti reported bicycle ownership (72%) as the most commonly owned item followed by radios (67%).

Figure 2.   Asset Ownership
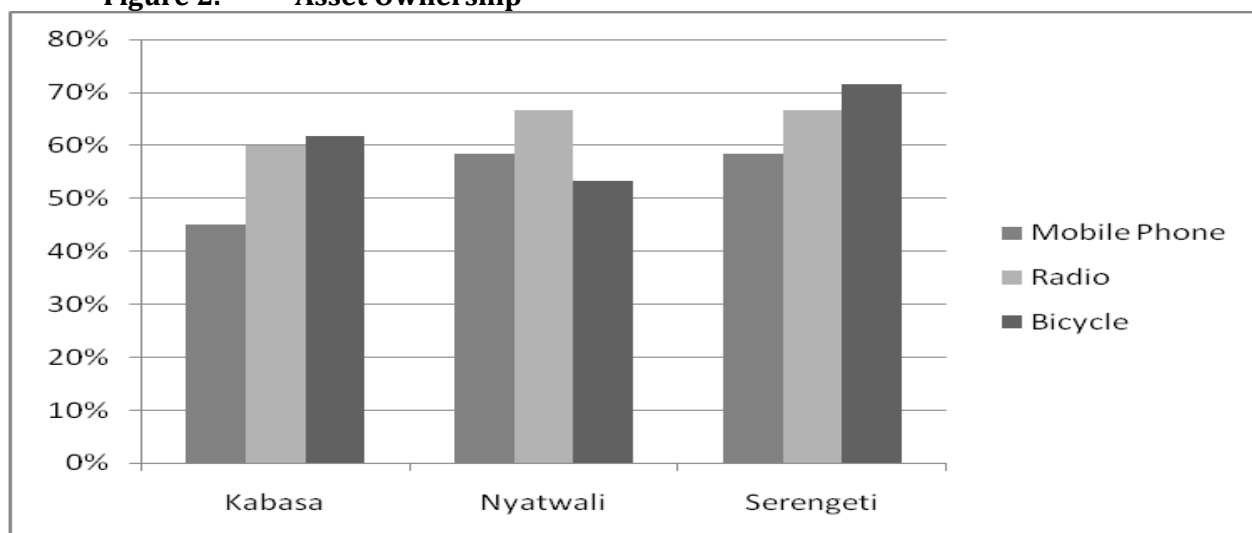
The WVP has also created a "wealth index" based on 30 household assets including items such as roof type and radio ownership but excluding livestock. There was limited variation in scores across the three villages: 3.7 for Kabasa, 3.8 for Nyatwali, and 3.5 for Serengeti. Across the 45 villages surveyed by WVP to date, these villages fall into the middle third of villages for overall assets.

The vast majority of houses surveyed in Bunda District were built with natural materials, with walls made of mud and baked bricks and floors made of earth or clay. Of the houses surveyed in Bunda District, the majority were built with corrugated metal roofs (average of 62%) while the remaining were constructed with natural materials, such as mud/straw/poles and grass/palm thatch.

4.2   Unexpected Loss of Income or Assets

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.

When we asked households in Kabasa, Nyatwali, and Serengeti about unanticipated income or asset losses it became apparent that the villages as a whole were coping with significant economic losses this year due to poor crop production and the high price of foods.

93% of households in Kabasa and 88% of households in Serengeti reported unexpected loss in the past year. While the figures were slightly lower in Nyatwali (80%), well over 1 in 4 households reported unexpected loss.

The most reported unexpected losses in each of the three villages surveyed were substantial loss of crops due to weather.

Figure 3.   Impact of Unexpected Loss
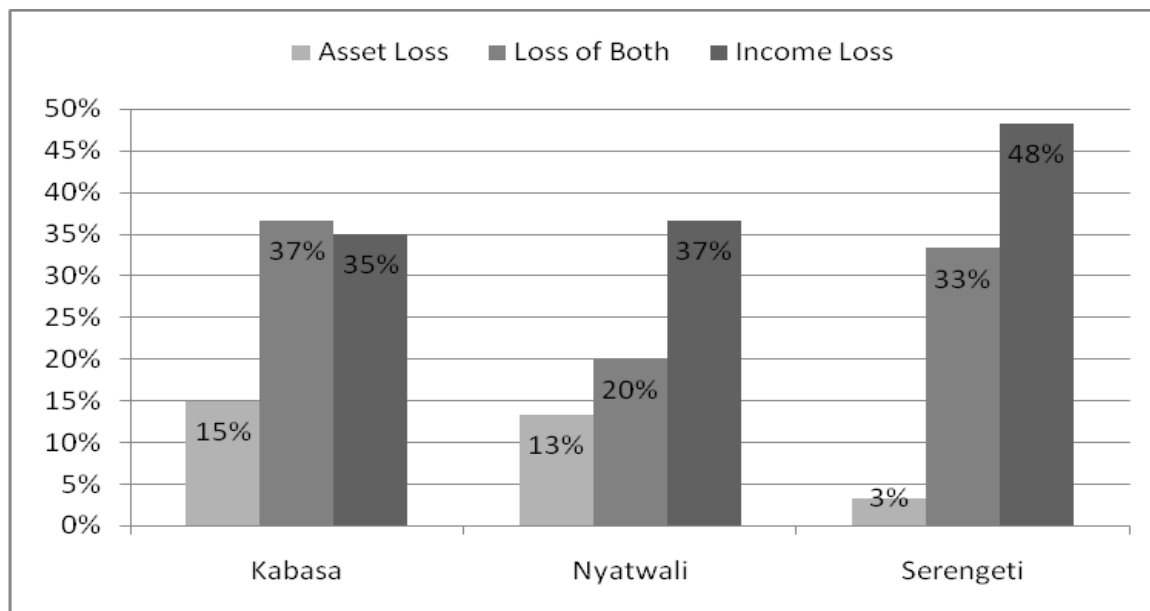
As demonstrated in Figure 3, unexpected losses result in a significant setback to stability within both households and the villages themselves. Approximately thirty-five percent of respondents in Kabasa and Serengeti reported both income and asset loss; the percentage of both income and asset loss was the lowest in Nyatwali. Income loss was greater than asset loss in all three of the villages surveyed.

4.3   Village Institutions and Civic Engagement

Table 2 presents a picture of the institutional analysis conducted in the villages surveyed in Bunda 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.

The tally of total institutions in each village is listed in the last row of Table 2, and sub-totals by type of institution is listed within the table immediately following each sub-section. Although these tallies do not give a picture of the types of services available in each village, they do indicate the relative level of activity by type of service providers.

Table 2. Institutional Resources by Village

Institution	Kabasa	Nyatwali	Serengeti	Sector
Village-Run				
Community Health Worker	x	--	--	Health
Education	x	x	X	Education
Health Service	x	--	--	Health
Religious Institution (church, mosque, etc.)	x	x	X	Aid/Development, Food/Hunger, Human Development, Social Welfare
Veterinary Services	--	--	--	Health, Wildlife/Conservation
Village Council/ Government	x	x	X	Politics/Government
Village Market	--	x	--	Business Development
Community/Publicly Owned Water	x	x	--	Water
Sub-total Village-Run	**6**	**5**	**3**	
Village Committee/Group				
Agricultural & Livestock Committee	--	--	--	Farming/Agriculture
Farmers Coop/ Agriculture Association	x	--	X	Farming/Agriculture
Security Committee	x	x	--	Legal/Law Enforcement
Community Development/ Planning/ Financial Committee	--	x	X	Financial/Socioeconomic
Sub-total Village Committee/Group	**2**	**2**	**2**	
Third-Party Operated				
FAO	--	--	x	Aid/Developmental
MSHP	--	--	x	Farming/Agriculture
OLAM	x	--	--	Farming/Agriculture
PACT	--	x	--	Aid/Developmental
SACCOS	x	x	x	Financial/Socioeconomic
SCC-VI	--	x	--	Aid/Developmental
SNC	x	--	--	Farming/Agriculture
SIDA	--	x	x	Aid/Development
SunguSungu	x	--	--	Legal/Law Enforcement
TANAPA	--	x	--	Wildlife/Conservation
TASAF	--	x	--	Social Welfare
UNDP	--	--	x	Aid/Development
VICOBA	--	x	x	Financial/Socioeconomic
Sub-total Third Party	**4**	**7**	**6**	
Total	**12**	**14**	**11**	

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. Nyatwali has nearly twice as many third-party run institutions as Kabasa. Serengeti has two village-run institutions to every one institution in Kabasa. A large focus of many of the village run organizations and committees are on agriculture and health

issues and improving access to credit. In focus groups, villagers were asked to provide an assessment in the form of a percentage of some of the major institutions in their village. Nyatwali is generally favorable about its village run institutions and committees with the exception of the village government and the schools. Kabasa and Serengeti are more critical of their local institutions and committees; although villagers in focus groups acknowledged that the village government, schools and dispensaries each were making some positive contributions, they also named an equal number of weaknesses.

Nyatwali reported the largest presence of third-party operated institutions (NGOs, multi-lateral institutions and private businesses), seven in total, followed by Serengeti and Kabasa. Services were focused in the area of farming and agriculture, development, environmental conservation and support to orphans or other children in difficult circumstances. In general, scores for third-party institutions working in these three communities varied widely from highly favorable to critical. Most of the criticism in all cases was because NGOs had only reached a few people or had not fulfilled all the services that were expected.

Household level civic engagement was measured by the household survey respondent's membership in a village government or committee, participation in village assemblies, and asking a village leader for assistance. Only 1 in 5 respondents in Nyatwali, the village with the highest percentage of the three villages, are members of either a village government or a village committee, which requires the highest level of personal investment of time and resources (see Table 3).

Table 3. Civic Participation by Village by Percentage of Respondents

	Kabasa	Nyatwali	Serengeti
Village government or committee member	13%	20%	18%
Participated in village assembly (last 12 mo)	17%	17%	12%
Asked village leader for assistance (last 12 mo)	80%	87%	83%

Overall civic participation in village assemblies held in the past 12 months was very poor in each of the villages surveyed of only 12% to 17% although there were multiple opportunities. Despite lack of participation in village assemblies, most households (80-87%) felt comfortable asking village leaders for assistance.

4.4   Education

4.1.1   Household-Head Education

Among household heads in Kabasa, Nyatwali, and Serengeti proportions of primary school completions are modest with 50-60% primary school completion rates. Nyatwali had the highest rate at 58% while Kabasa had the lowest at 49%. Kabasa had the highest number of household heads with no education at 23%

compared to Nyatwali at 13%. Nyatwali had 6 household heads that attended secondary school (10%), though none had completed their secondary education. Serengeti had one household head that attended some secondary school and Kabasa had none. Other types of education, such as adult or vocational education, were low.

Female headed households in these three villages had significantly less education than male-headed households. Primary school completion rates are on average approximately 25% higher for male than female household heads. Female completion rates varied from 31% in Serengeti to 44% in Nyatwali. Male completion rates were significantly higher at 55% in Kabasa and 65% in Nyatwali. Percentage variants must take the smaller number of female respondents into account.

4.1.2 Primary School Completion

We also assessed the primary school completion rate for all adults (age 15 and over) and saw slightly higher rates of primary school completion as compared to household heads (see Figure 4).

Figure 4.   Percent Adults Completed Primary School versus No Education
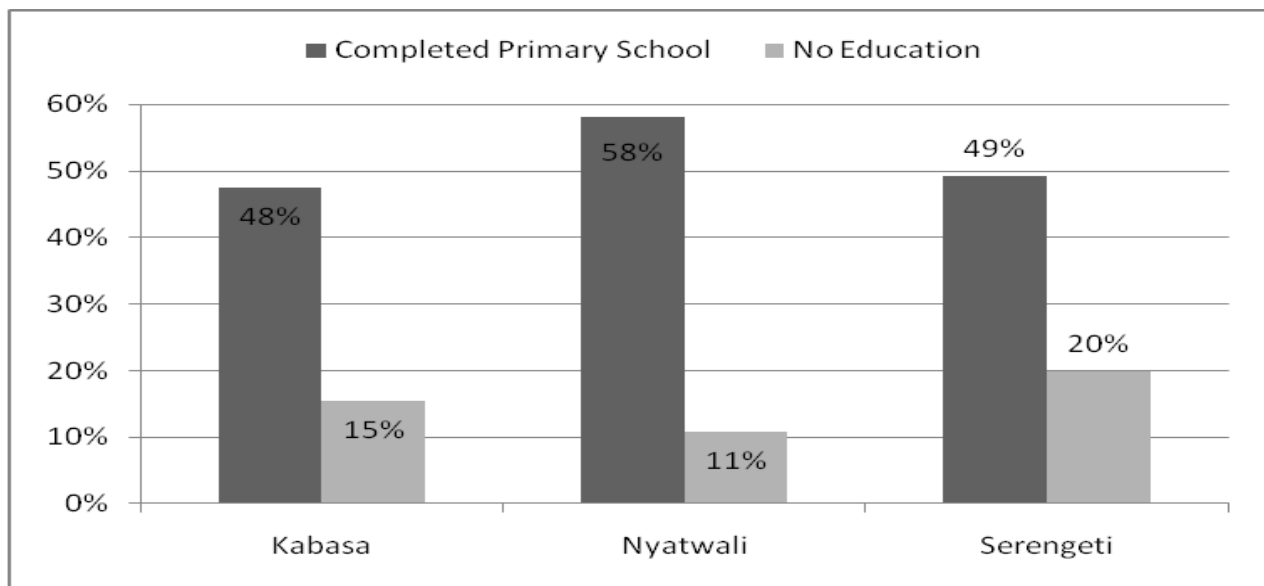
Approximately 15% of the adults in Kabasa, Nyatwali, and Serengeti have no education. As shown in Figure 5, primary school completion rates between women and men do not present a statistically significant difference. Nyatwali has the highest completion rates of the three villages and equal rates for men and women.

Figure 5.   Adult Primary School Completion Rates, Disaggregated by Sex
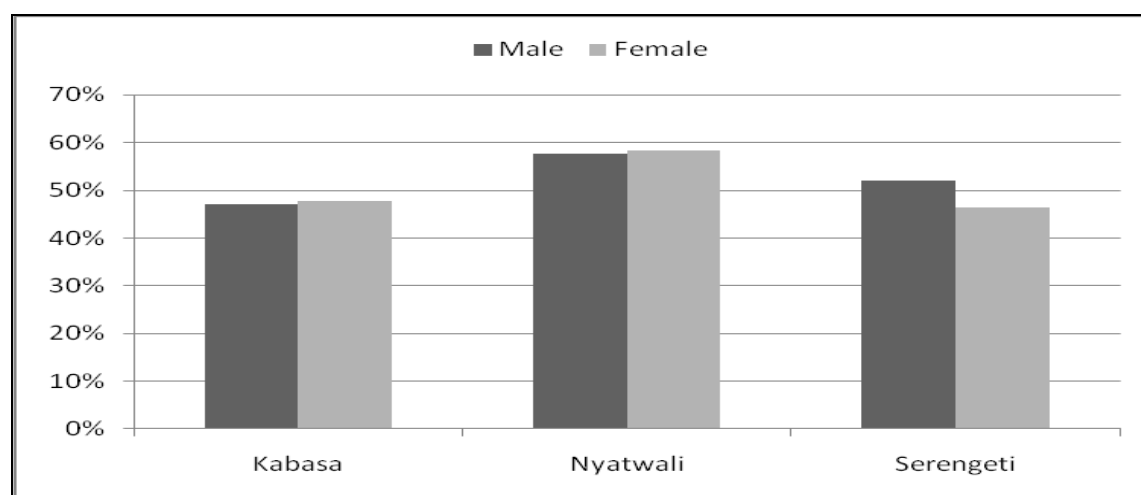
Kabasa and Nyatwali at 15% have the highest percentages of adults with at least some secondary education. Kabasa reports two adults surveyed, both male, having completed secondary school.

4.1.3   Access to Primary Education

All three villages surveyed in Bunda District have at least one primary school though Kabasa has three primary schools. None of the villages 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 3 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		
Kabasa *Kabasa A, Kabasa B, Nyamilama*	340	439	325	1:38	1:49	1:41	1:85	1:88	1:41	1:4	1:7	1:5	9%	6%	8%
Nyatwali	562			1:47			1:68			1:3			12%		
Serengeti	142			1:36			1:36			1:20			3%		

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 3, in general, the primary schools in Bunda District have poor teacher-to-student ratios (Kabasa B Primary teacher-student ratio is 1:49), classroom-to-student ratios (Kabasa B Primary, 88 students need to use one classroom), and textbook-to-student ratios. In the institutional focus group in Kabasa, parents remarked that they were unhappy with inadequate teacher housing, lack of teachers, the shortage of desks, poor academics, and

poor buildings. In Serengeti and Nyatwali, issues were similar with a lack of female teachers noted in Nyatwali. It is not surprising that the quality of teachers are in question when so few have completed Form IV themselves; they are likely under-trained and lack sufficient education themselves to be teaching.

Another measure of access is regular school attendance. Attendance rates in the primary schools are as follows: Kabasa (74%), Nyatwali (83%) and Serengeti (84%). Attendance is nearly equal between boys and girls in these cases.

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. All of the primary schools in the villages surveyed have a vast majority of students coming to school hungry (see Table 5). The three primary schools in Kabasa are reported as serving tea and porridge to students. A challenge noted by a headmaster in Kabasa included low attendance at Nyamilama Primary during the rainy season due to distance. An achievement also in Kabasa was the government provided maize for porridge. In Serengeti, crops are grown at the school for student's meals though no meals were provided for students according to the headmaster.

Table 5. Percent of Students Attending Primary School Hungry

Village/ School	% Students Attending School Without Eating Food or Having Tea Only			School Meals Provided		
Kabasa *Kabasa A, Kabasa B, Nyamilama*	70%	100%	80%	Tea and porridge	Tea and porridge	Tea and porridge
Nyatwali	90%			None		
Serengeti	100%			None		

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 Bunda District was collected through focus group discussions with men and women. In the three villages assessed, respondents ranked malaria as the number one health issue facing men, women, and children (see Table 6). Other issues for adults included typhoid, reproductive and sexual health and infectious diseases. For children, diarrhea, typhoid, bilharzia, and kwashiorkor (a disease of malnutrition) were also mentioned by parents as diseases of primary concern.

Table 6. Top Ranked Health Issues for Men, Women, and Children

Village	Men's Health	Women's Health	Children's Health
Kabasa	1. Tuberculosis 2. Malaria 3. Diabetes	1. Malaria 2. Typhoid 3. Reproductive/ Sexual Health	1. Malaria 2. Convulsions 3. Kwashiorkor
Nyatwali	1. Malaria 2. Sexually Transmitted Diseases 3. Bilharzia	1. Malaria 2. Amoeba 3. Typhoid	1. Malaria 2. Typhoid 3. Diarrhea
Serengeti	1. Malaria 2. Diabetes 3. Typhoid	1. Malaria 2. Stomach Pains 3. Typhoid	1. Malaria 2. Bilharzia 3. Diarrhea

In Bunda District, both Kabasa and Serengeti were fortunate to have a government dispensary although some services and drugs or equipment are lacking. Nyatwali reported having no health services. The dispensary in Serengeti is staffed by one assistant medical officer, two nurse assistants and has a refrigerator. Additionally, the Serengeti dispensary offers maternal/child health and family planning services. There is no record of staffing, if a refrigerator exists, or if reproductive and child health services are provided at the dispensary in Kabasa. In focus groups, villagers complained that they lacked transport to take critically ill patients to a hospital, and that they had insufficient medicines, too few staff and no laboratory equipment.

Household surveys indicate that the majority of households in this district seek treatment for ill children under-five from an established health facility. In Kabasa, however, for problems such as convulsions, treatment is sought from a traditional healer and is reported as very helpful.

4.5.2   Malaria and Other Illnesses

Given the prevalence of malaria, all households are asked if they own at least one mosquito net and if it has been treated with insecticide. Figure 6 presents data by village on percentage of households owning a mosquito net insecticide treatment. Overall, the three villages have high rates of mosquito net ownership with Nyatwali having the highest at 95%. The highest rates of treated mosquito nets however were found in Serengeti (78%). The Tanzanian Ministry of Health provided training in Serengeti on the use of

insecticide treated nets for children under-5 and pregnant women and distributed nets; this likely explains their higher rates of insecticide treatment. If consistent mosquito net use is practiced by household members, they should begin to see their malaria rates decrease as well.

Figure 6.   Households with Mosquito Nets, Treated and Untreated
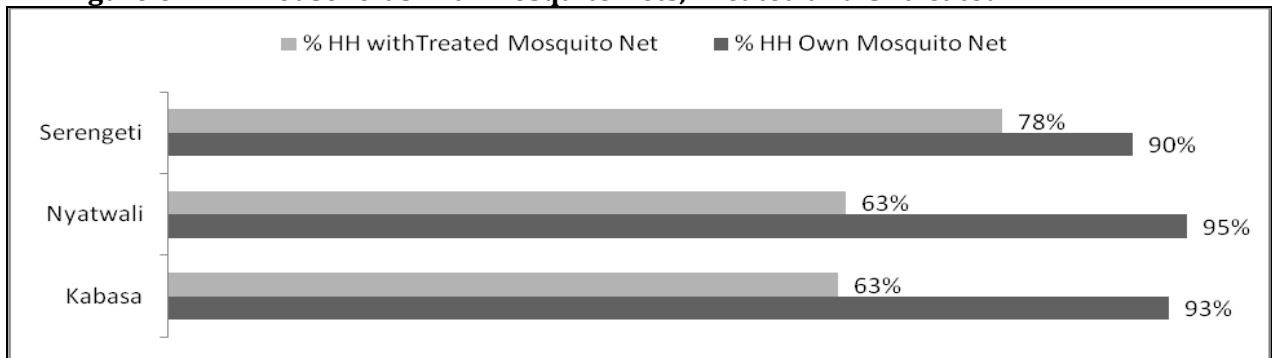
Although malaria was the most frequently identified health problem by participants in male and female focus group discussions (FGDs) other health problems were also mentioned as concerns. The Health Officer in Serengeti noted the most common symptoms treated in the village over the past 12 months for adults were high fever, coughing, and pneumonia. The health officer also expressed concern over the lack of safe water, laboratory testing equipment for diagnosing symptoms (e.g., malaria or worms) and lack of medicine.

4.5.3   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 children to determine how close they are to a normal growth curve and if they are over or undernourished.

The morbidity and mortality of children under-five years can be correlated to the presence or absence of biological parents, especially the biological mother. The vast majority of mothers of children under-5 are alive and living in the household, the highest rate is 91% in Kabasa and the lowest 87% in Serengeti. For fathers in Kabasa, half are alive and in the household while 45% are alive and outside the household. Two mothers and three fathers in Kabasa had died. Two fathers had died in Serengeti. In roughly 37% of households, the father is alive but lives outside the household. This figure is significantly higher than villages surveyed in other districts. Figure 7 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 one household surveyed in Bunda District.

Figure 7.   Primary Caretaker of Children Under-Five

Legend: ■ Both Parents   ■ Mother Alone   ■ Other   ■ Father Alone

Serengeti: 62% | 21% | 15% | 3%
Nyatwali: 71% | 14% | 16%
Kabasa: 55% | 29% | 16%
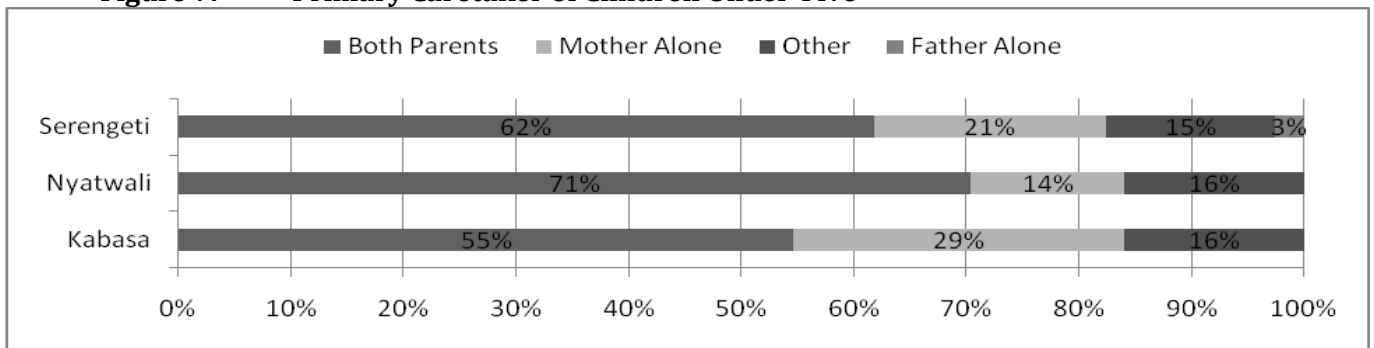
In households surveyed where the primary caretaker is someone other than the mother and/or father, the primary caretaker tends to be a grandparent.

In the villages surveyed, approximately 20% of children under-five are considered frequently sick. Five households in Kabasa and one child in Nyatwali and Serengeti have lost a child less than five years old in the last 2 years.

Figure 8.   Percent Children Under-5 Who Have Had a Disease in the Past 3 Months
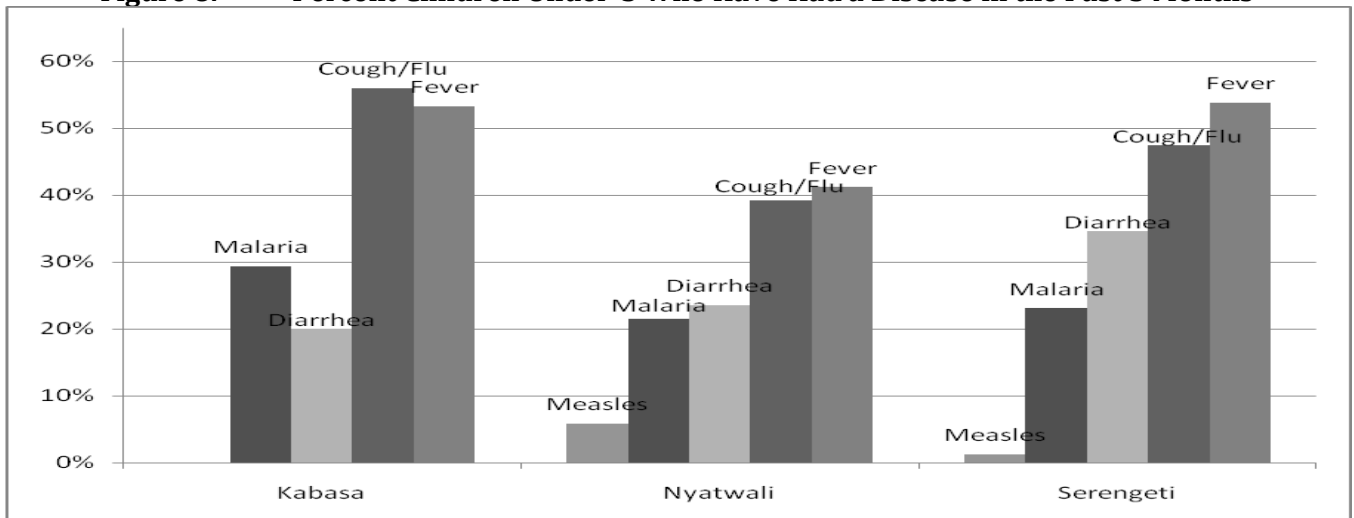
Figure 8 gives a picture of the disease burden for children under-five in these villages in the past three months with Kabasa and Serengeti showing an equal disease burden overall at 32% and higher than Nyatwali at 26%. The most commonly reported illness in the past three months was a fever followed closely by a cough/flu. On average, about 48% of children under-five in the three villages had suffered from fever and cough/flu in the past three months. Malaria was slightly less prevalent than diarrhea. The incidence of pneumonia, worms, and measles in children under-five is very low among these villages. Serengeti and Nyatwali had on average about 10% of children under-five suffering from a long-term illness while Kabasa reported 4%.

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 shows 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
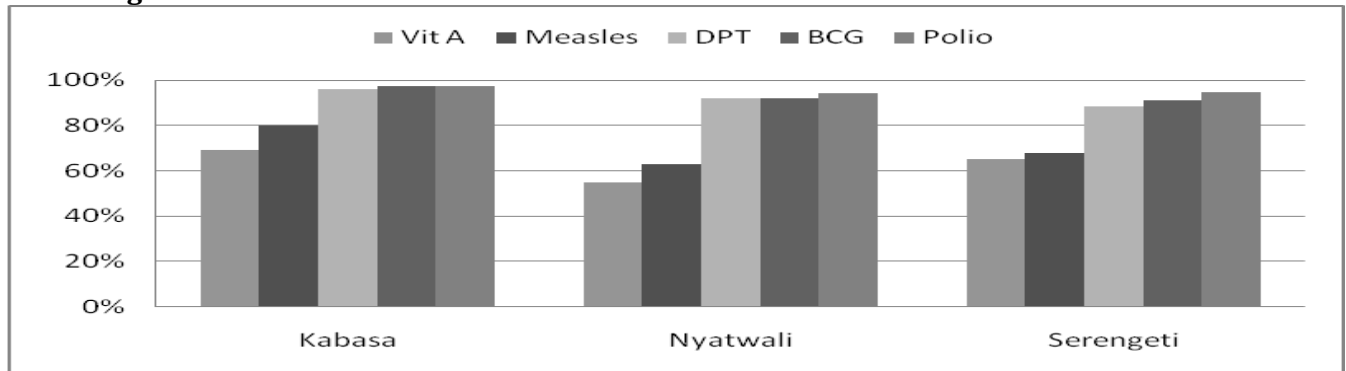
Over 90% of children under-five in Bunda district have received a DPT, BCG, or polio vaccine (exception of the DPT vaccinate in Nyatwali at 88%). Among all recommended vaccines, measles vaccination rates (63-80%) are the lowest within each village surveyed, Nyatwali with the lowest rates for measles vaccinations and Vitamin A supplements. 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.

4.5.4   Environmental Health

Many infectious diseases, especially diarrheal diseases, can be a result of poor hygiene and contaminated water and food sources. All three villages have relatively high rates of 85% to 88% latrine coverage which is very positive.

Qualitative data indicates the primary modes of refuse disposal in Bunda District villages are to bury and burn refuse on a household compound.

The vast majority of surveyed households do not have access to protected drinking water in the villages surveyed in Bunda district. Of respondents with protected water sources, Kabasa (52%) ranked significantly higher than Nyatwali (32%) and Serengeti (13%). As shown in Figure 10, sources of protected drinking water were generally public taps, standpipes, or protected wells. In Nyatwali and Serengeti, surface water (unprotected) represents nearly more than 60% of water sources. Access to a protected water source is lowest in Serengeti (13% of respondents) and highest in Kabasa (53% of respondents).

Figure 10.   Primary Sources of Drinking Water: Protected versus Unprotected
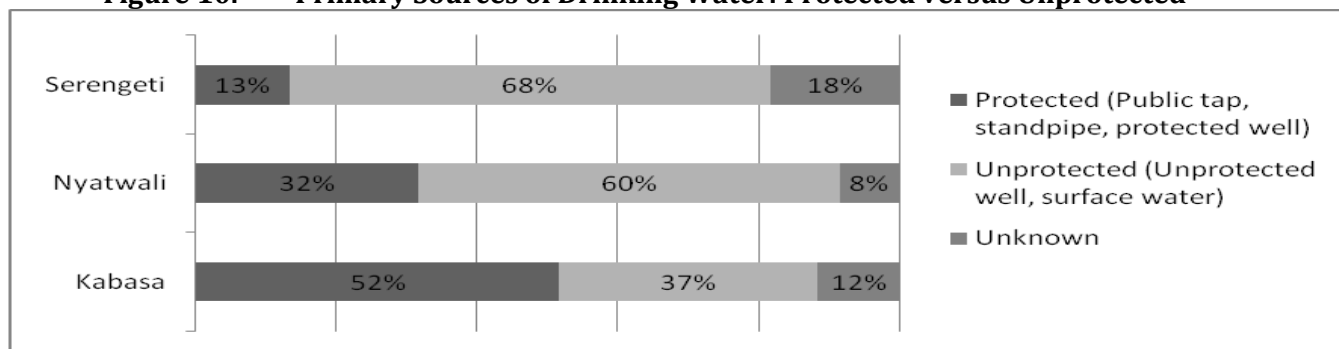
Given that the majority of households are drinking unprotected water, treating the water through boiling, a filter, bleach tablets or other means is important to protect the health of all family members. Households using some form of water purification are greatest in Nyatwali (88%) and lowest in Kabasa (68%).

The average amount of time households from each village spend collecting water varies significantly. 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. Kabasa and Serengeti residents have the farthest distance to travel to access drinking water and the longest time to travel; Nyatwali residents have the shortest distance and thus spend less time collecting water.

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 Kabasa cook with wood (95%). Households in Nyatwali use straw, shrubbery and grass (63%) in addition to wood (33%). However, households in Serengeti use almost exclusively straw, shrubbery and grass (92%).

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. As shown in Table 7, a higher percentage of women than men participated in the survey with 62% women

in Nyatwali, 63% in Serengeti, and 67% in Kabasa. Eligibility was 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.

Table. 7. Sample Size of KAP Survey, by Sex

	Sample size		
	Male (%)	**Female (%)**	**Total**
Kabasa	38	78	116
Nyatwali	33	54	87
Serengeti	42	70	112

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
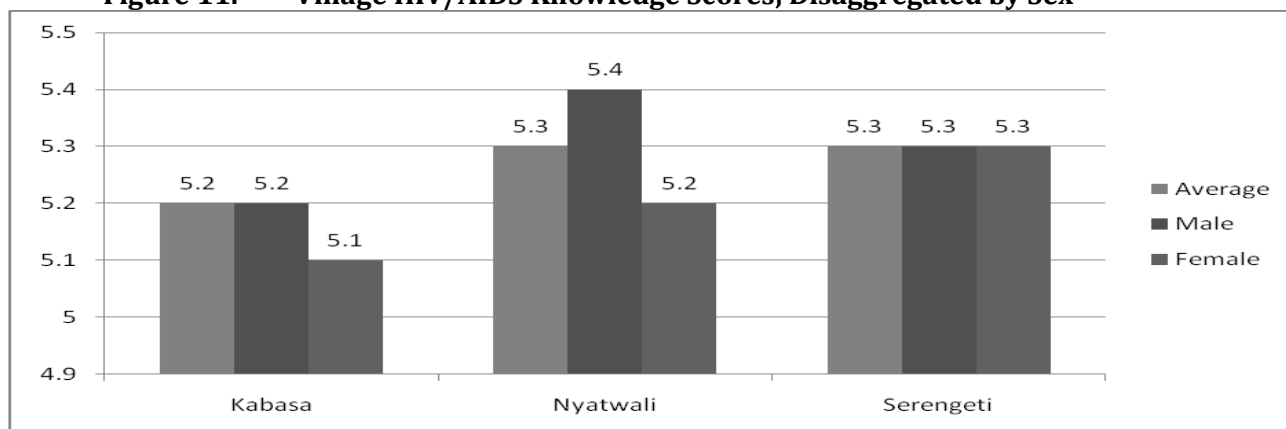
Kabasa has a slightly lower average HIV/AIDS knowledge score (average 5.2) than Nyatwali and Serengeti (5.3) although this difference is not statistically significant. The men's and women's scores are close in

each of the three villages and in fact identical in Serengeti. Men's scores are slightly higher in Kabasa and Nyatwali.

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 12, 65% of eligible adults in Nyatwali, which is the highest, have high knowledge of HIV and its prevention. Kabasa and Serengeti have about 58% of eligible adults scoring 5-6 points on the HIV knowledge assessment. The greatest percentages of adults with no HIV prevention knowledge are in Kabasa and Serengeti where approximately 1 in 10 adults (9%) know no correct method of preventing HIV.

Figure 12.   Percent Eligible Adults with No versus High HIV Prevention Knowledge
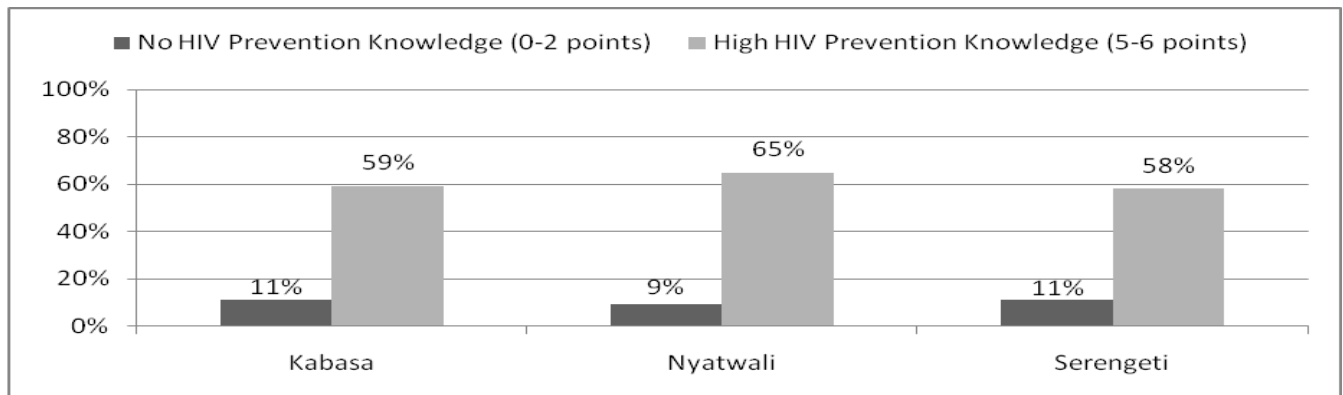
As shown in Figure 13, there are very low percentages of men and women in the villages with no knowledge of HIV prevention methods.

Figure 13.   Eligible Adults with No HIV Prevention Knowledge, Disaggregated by Sex
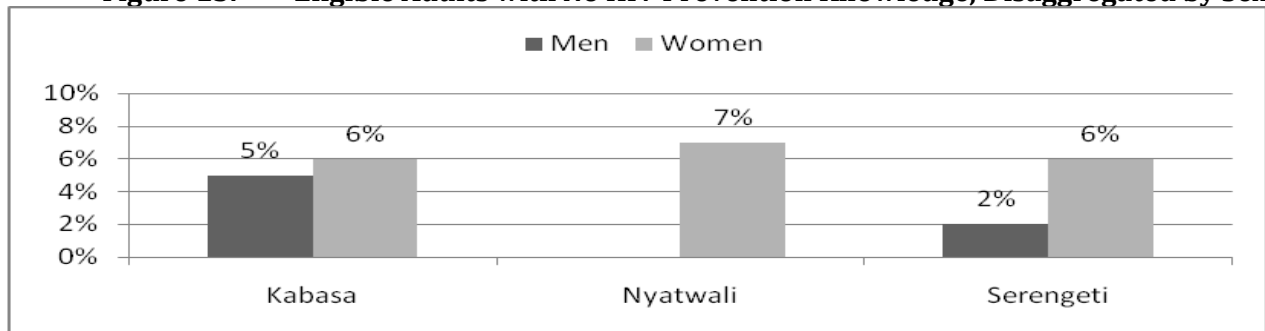
We also ask men and women if they have ever been tested for HIV. In Nyatwali and Serengeti, more females than males had been tested for HIV. In Kabasa, however, percentages of females (58%) tested were lower than percentages of males (63%) in the same village and significantly lower than the other two villages. By numbers alone, nearly twice as many women as men in each of the three villages had ever been tested for HIV/AIDS (In Kabasa, 45 females and 25 males).

4.6   Nutrition and Food Security

4.5.6   Household Nutrition

Diversity of daily diets and consistent intake of recommended vitamins and nutrients is limited.   On average, household ate a variety of 5.9 (Serengeti) to 6.7 (Nyatwali) types of different foods in a week with a range from 2 to 12. In Nyatwali and Serengeti, households eat more grains than in Kabasa and slightly more meat in Nyatwali than the other two villages but otherwise appear to have similar diets when comparing consumption of meat protein, grains, fish and Vitamin A nutrient foods as shown in Figure 14.

Figure 14.   Average Number of Different Foods Consumed in the Last 7 Days
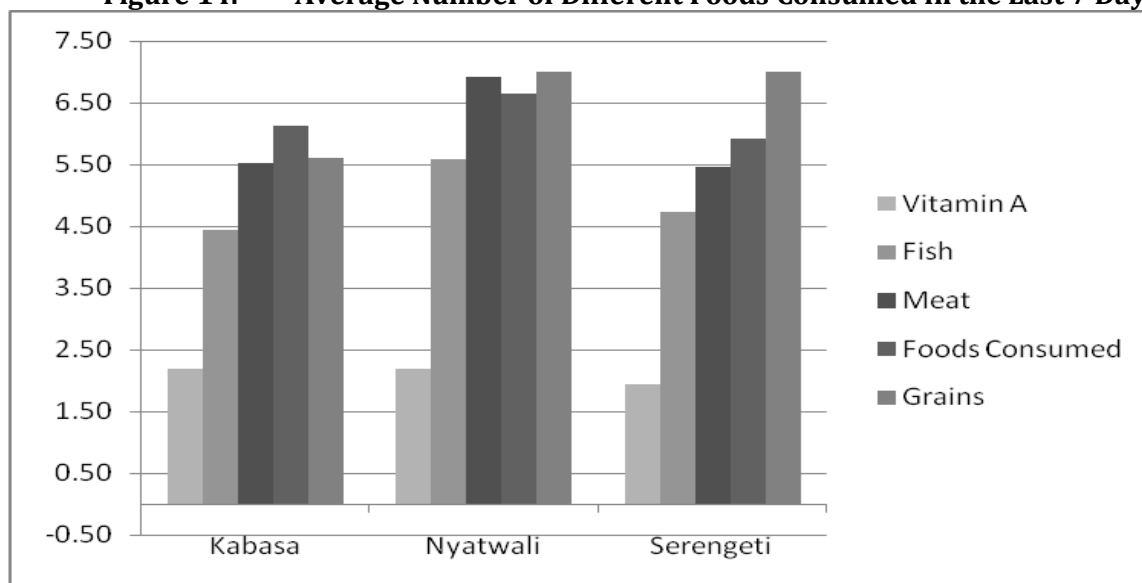
4.5.7   Infant and Young Child Feeding

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. Although the majority of babies and children were breastfeed, only 11% of babies in Kabasa, 15% in Nyatwali, and 16% in Serengeti were exclusively breastfed during their first 6 months of life.   Among children that had been weaned at the time of the survey, the most common age of weaning was 18-20 months.

4.5.8 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. Percentages labeled in Figure 15 indicate the most commonly eaten food by children under-five in that village.

Figure 15. Percent Children Under-5 Eating Food Item in Last 24 Hours
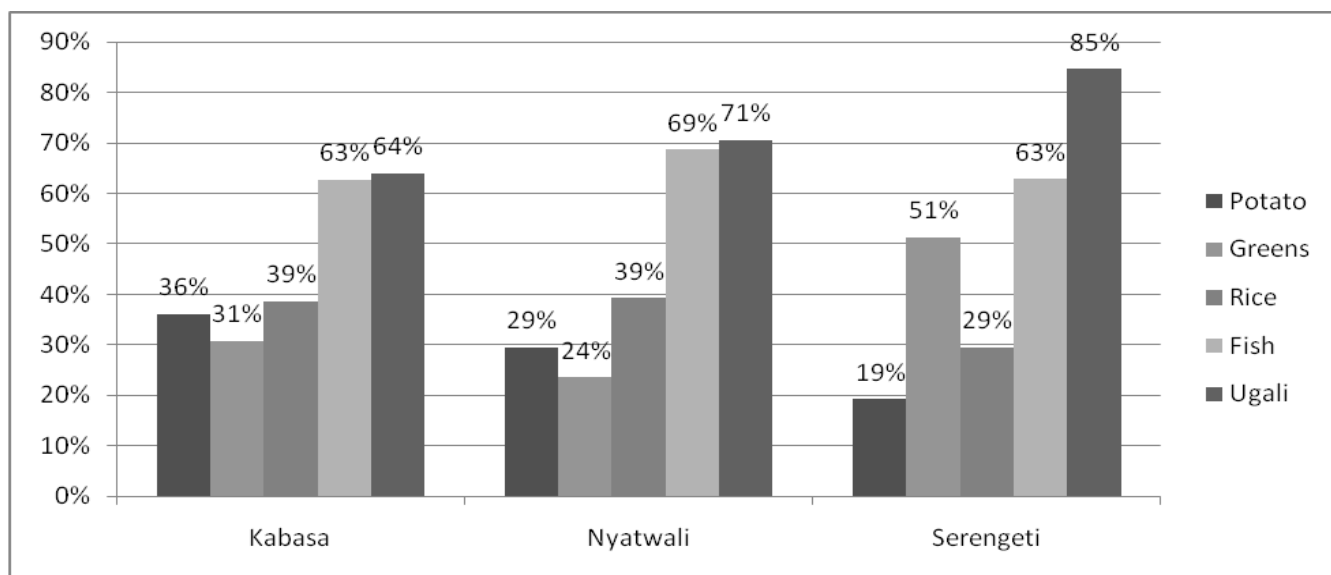
Ugali was the most commonly consumed food by children under-five in the last 24 hours in both villages, at 73%. Fish was a close second at an average of 65% of children under-5 eating fish in the last 24 hours. Consumption patterns varied between the three villages. Nyatwali had the lowest consumption of greens though it ranked the highest in consumption of peanuts, goat and cow meat, and bananas. Tomato consumption was consistently at 30% for the three villages. Fruit consumption varied with bananas and papayas as the most frequently eaten fruit. In general, consumption patterns shown in Figure 14 indicate that children in Bunda District have limited variety in their daily diet.

The World Health Organization (WHO) established a standardized set of measures for expected child weight and height measurements given a child's age producing what is called a z-score statistic. The three under-5 anthropometric measures include: length/height for age z-score (measures stunting), weight for length/height z-score (measures under nutrition and wasting), and weight for age z-score (measures if weight is appropriate for age). The z-score is displayed across standard deviations (SD). Any SD that is -2 or below is considered to be moderately to severely below the norm. According to the data collected in the survey of children under-five (see Figure 16), approximately 6% of children in Kabasa and Serengeti and 16% in Nyatwali are underweight for their age. Stunting occurs with greatest frequency in Kabasa (38%)

followed by Nyatwali (31%), and Serengeti (30%). Although these are high figures, according to UNDP it is not unusual for up to 40% of children under-five in Tanzania to be well below their expected height for age. It does point to a problem of under nutrition however.

Figure 16.   Percent Children Under-5 Malnourished
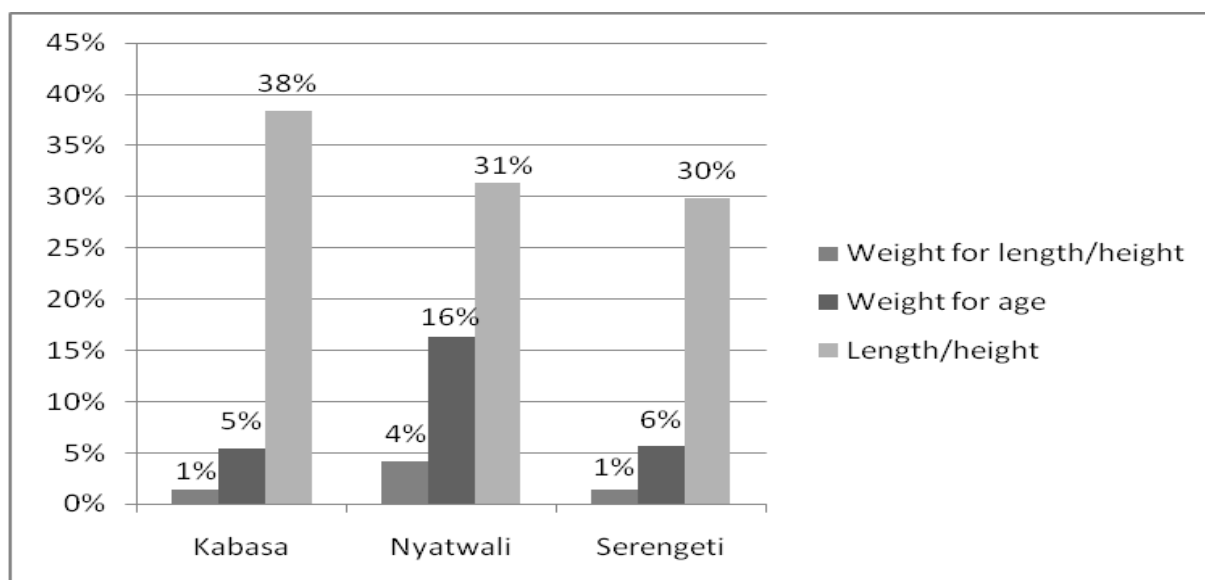
4.5.9   Food Security

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. Of the three villages surveyed in Bunda District, households in Nyatwali were the most food secure with a mean index score of 3.7 compared to 4.7 in Serengeti and 4.8 in Kabasa.

Consistent with this finding, one can see in Table 8 that households in Kabasa and Serengeti worried about food more often than those in Nyatwali.

Table 8.   Percent of Households that Experienced a Food Insecurity in Last 4 Weeks

	Kabasa	Nyatwali	Serengeti
Worried not enough food	58%	52%	70%
Ate fewer meals	25%	32%	48%
No food	25%	32%	48%
Went to sleep hungry	40%	27%	42%
One day and night without food	10%	10%	15%
Average food insecurity index	4.8	3.7	4.7

4.5.10 Kitchen Gardens

Kitchen gardens are one means that households can help protect themselves from periods of food insecurity when there is general high crop or livestock loss. Very few households surveyed in Kabasa and Nyatwali had received training on kitchen gardens, only three people in Kabasa and 6 in Nyatwali. In Serengeti however, 35% of those surveyed received kitchen garden training. These numbers correlate to low numbers of households from our sample currently growing kitchen gardens in Kabasa (6 people) and Nyatwali (7 people). In Serengeti, however, 24 respondents are recorded as growing kitchen gardens (40%). The fact that there are more kitchen gardens in Serengeti is not consistent with the greater food security experienced there in comparison to Nyatwali. A possible explanation for this curious result, the majority households in Serengeti (79%) reported selling more than half of produce. Kitchen gardens in this case appear to be more closely tied to the wealth index than food security.

4. 7   Agriculture

Farmers in Bunda District are predominantly small-scale, subsistence farmers with a portion going towards cash crop production. Residents of Serengeti own and rent the most acreage followed by Kabasa and then Nyatwali. The average land under cultivation per household presents a slightly different picture with households cultivating 2 acres in Nyatwali, 3 acres in Serengeti, and 4 acres in Kabasa. According to villagers participating in an agricultural focus group, 99-100% of households own land without title in Kabasa and Serengeti. In Nyatwali, 89% of villagers own land without title, 10% rent land and 1% own land with titles.

Most households grow a diversity of crops with large proportion variation between the three villages as shown in Figure 17. On average, maize is grown by nearly 80% of farmers followed by sweet potatoes (53-78%), green vegetables (25-55%) and cassava (3-72%). In Serengeti, nearly twice as many households grow green vegetables as compared to Nyatwali. Cotton is most common in Kabasa and Serengeti (approximately 30% of households) and least common in Kabasa (4 households). Papaya and mango cultivation is greatest in Kabasa. Other crops that are grown include: rice, beans, groundnuts, millet, cabbage, sugar cane, and simsim.

Although similar crops are grown and sold among the surveyed villages, variations exist in the prices of certain crops. For example, a kilogram of cotton sold for 500 TSH in Nyatwali compared to 700 TSH in Serengeti. Though the variance is not great between the recorded prices of crops in these three villages, discrepancies are frequently the result of market access. Kabasa reports a 10 kilometer distance to the nearest market while Nyatwali reports 18 kilometers, and Serengeti 20 kilometers.

Figure 17.   Percent Households Cultivating Various Crops by Village
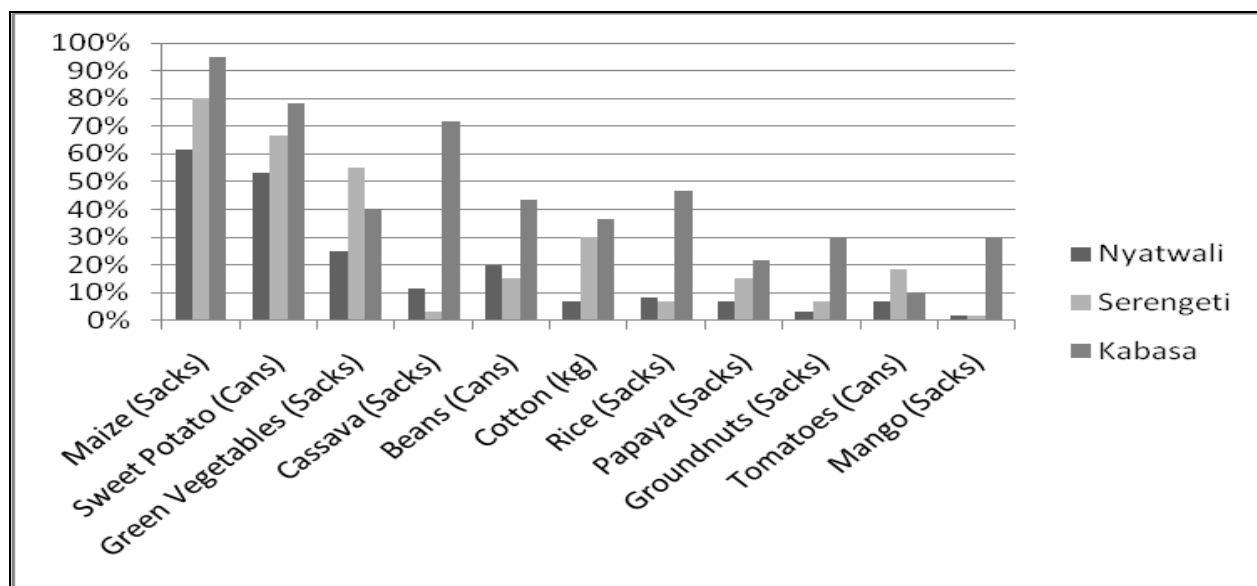
Focus group discussions (FGDs) were facilitated with top farmers (typically 4-6 farmers per village), as defined by village leaders, and agricultural extension officers (if applicable) to further assess the agricultural environment in each village. Qualitative data collected and analyzed from these FGDs are presented in Table 9.

Table 9. Qualitative Data on District Agricultural Environment

Village	% HH that Irrigate Plot	% HH using Fertilizer		% HH with Soil Erosion as Serious Problem
		Inorganic	Organic	
Kabasa	5%	1%	20%	50%
Nyatwali	75%	5%	5%	30%
Serengeti	75%	25%	25%	NA

Farmers in all three communities indicated that they used intercropping and terracing to control for erosion. None of the villages had received visits from agricultural extension workers in the previous year. They reported no access to inorganic fertilizers, herbicides or pesticides and expressed the need for new seeds.

4.8   Livestock

Overall, households in the three villages surveyed in Bunda District own more cattle than goats, sheep, or chickens (Table 10). Households in Serengeti own more livestock (e.g., cows, goats and chickens) than households in Kabasa or Nyatwali. Farmers in Serengeti own nearly twice as many goats and sheep.

Table 10. Mean Number of Livestock Owned per Household by Village

Village	Cattle	Goats/sheep	Chickens
Kabasa	10.7	7.0	7.8
Nyatwali	8.3	7.7	9.3
Serengeti	14.6	13.3	11.2

In the agricultural focus groups, farmers in Kabasa indicated that none of their cows, sheep, or goats had been vaccinated. Villagers in Nyatwali reported 100% of their cows (vaccinated for CBPP), sheep and goats (vaccinated for CCPP and Rinderpest) vaccinated in the past year. In Serengeti, 75% of goats and sheep had been vaccinated in the past year whole no cows received vaccinations. Serengeti had the advantage of a visit from an agricultural extension worker in the past year. There were few animals lost to disease or drought; 5% of cattle in Kabasa and 10% in Serengeti were said to have died due to disease.

On the other hand, the three villages experienced a relatively high loss of chickens to disease. Kabasa and Nyatwali lost nearly half their chicken population (43%) and Serengeti farmers lost 30% to disease. Newcastle Disease is the number one cause of chicken mortality in Tanzania yet despite this, only 10% of Kabasa and 3% of Serengeti chicken-owning households vaccinated against this disease.

5   CONCLUSIONS
5.1   Recommendations

All three villages share many commonalities in their profiles overall. As district and village leaders review these results, it would be meaningful for them to consider how best to increase access to government services in villages in each of the three villages as well as encourage wider participation by relevant NGOs. 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
- Build on existing strengths within these villages such high mosquito net coverage; child vaccination rates for BCG, DPT and polio and widespread latrine ownership. Both villages should be encouraged to strive for 100% coverage in each of these areas.
- Significant infrastructure support is needed for schools and clinics in order to improve the quality of services they are able to deliver. .

- Reducing health outcomes and food security in both villages is the limited access to protected drinking water for most villagers; this should be a primary target for improved quality of life for all villagers.

- Women's education rates are particularly low and this in turn may be affecting the lower nutrition intake and cases of malnutrition identified in the villages. Increasing women's literacy skills and in particular, their knowledge of nutrition, water quality, and HIV/AIDS could improve health outcomes for the whole family.

- There is a need to expand access to agricultural services, the coverage of extension workers to rural villages and access to vaccinations for livestock. In addition, community level training on the value of kitchen gardens and Newcastle disease vaccinations could also significantly improve food security.

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 Bunda 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

		Kabasa	Nyatwali	Serengeti
THE HOUSEHOLD AND HOUSING				
	Number of households surveyed	60	60	60
	Average household size	7.6	5.2	6.4
	% households in polygamous marriage (more than 1 wife)	26.8%	16.7%	21.7%
	% of households headed by women	29.8%	30%	26.7%
	% of households with corrugated roof	61.7%	65%	60%
	% of households using a toilet	91.7%	91.7%	88.3%
	Avg time (minutes) required to collect water	61.8	27.9	59.5
	% households use firewood as primary energy source for cooking	95%	33.3%	5%
EDUCATION				
	% of all adults without education	15.4%	10.8%	19.9%
	% of household heads completed primary school	49.1%	68.3%	56.7%
	% of adult men completed primary school	68.9%	79.5%	61.5%
	% of adult women completed primary school	58.3%	66.3%	51.6%
	Average primary school teacher to student ratio	1:38, 1:49, 1:41	1:47	1:36
	Average primary school textbook to student ratio	1:4, 1:7, 1:5	1:3	1:20
	Average secondary school teacher to student ratio	--	--	--
	Average # of years teachers stay at primary school	10 yrs; 8 yrs; 8 yrs	2 years	2 years
	Average # of years teachers stay at secondary school	--	--	--
	Ratio of female to male gross enrollment rates (primary school)	160:180; 201:238; 144:181	275:287	80:62
	Ratio of female to male gross enrollment rates (secondary school)	--	--	--
HEALTH				
	% of households with at least one mosquito net	93.3%	95%	90%
	% of households with access to protected drinking water	53.3%	33.3%	13.3%
	% of households that take measures to make the water safe	68.3%	88.3%	78.3%
	# of hospital/dispensary/clinic in the village	1	0	1
CHILDREN UNDER 5				
	% of infants exclusively breast fed through 6 months of age	43.1%	30.4%	47.8%
	Average age in months at introduction of complementary feeding	5.5	5.6	5.1
	% of children whose birth mother is still alive and inside the hh	90.7%	88.2%	87.2%
	% of children moderately to severely underweight	0%	15%	3.7%
	% of children who are vaccinated for BCG	97.3%	92.2%	91%
	% of children who are vaccinated for polio	97.3%	94.1%	94.9%
	% of children who are vaccinated for DPT	96%	92.2%	88.5%
	% of children who are vaccinated for measles	80%	62.8%	68%
	% of children received Vitamin A supplement	69.3%	54.9%	65.4%
	% children with fever	53.3%	41.2%	53.9%
AIDS KNOWLEDGE				

Appendix B – Table of Selected Indicators by Village | Whole Village Project – Bunda District, February 2010

	% of men with high AIDS knowledge score (5-6 points)	58%	76%	58%
	% of women with high AIDS knowledge score (5-6 points)	60%	58%	58%
	% of women who know that a person can protect themselves from HIV	94%	93%	95%
	% of men who know that a person can protect themselves from HIV	100%	100%	98%
FOOD SECURITY AND NUTRITION				
	% of households worried about food in the past 4 weeks	58.3%	51.7%	70%
	% of households ate limited variety of food in the past 4 weeks	96.7%	80%	85%
	% of hhs went one day and night with no food in the past 4 weeks	10%	10%	15%
	% of households that are currently growing kitchen garden	10%	11.7%	40%
	Avg # of days/times hhs ate meat protein in past week	5.5	6.9	5.5
	Avg # of days/times hhs ate legumes in past week	0.9	1.2	0.5
	Avg # of days/times in last week hh ate foods with Vitamin A	2.2	2.2	2
	# of different types of food eaten in last week OR NUTRITION DIET DIVERSITY SCORE	6.1	6.7	5.9
	Food Security Index	2.5	4.8	3.7
ECONOMIC ACTIVITY, AGRICULTURE AND INCOME				
	% households own any agricultural land	96.7%	58.3%	66.7%
	Average acres cultivated per household	4.1	2.0	3.4
	Average # of cattle owned per household	10.7	14	10.7
	Average # of goats/sheep owned per household	7.0	7.7	13.3
	Average # of chickens owned per household	7.8	9.3	11.2
	% of hhs whose chicken are vaccinated for Newcastle disease	10%	48.3%	3.3%
	% of cattle lost to disease in the past 12 months	5%	9%	9.5%
	% of cattle lost to drought in the past 12 months	0%	3%	0%
	% of cattle lost to wildlife in the past 12 months	0%	0%	0%
	% of chickens lost to disease in the past 12 months	45%	41.5%	30.1%
	% of chickens lost to drought in the past 12 months	0%	0%	0%
	% of chickens lost to wildlife in the past 12 months	23%	14.6%	22.9%
	% of goats/sheep lost to disease in the past 12 months	17%	18.1%	10.1%
	% of goats/sheep lost to drought in the past 12 months	0%	1.1%	0.6%
	% of goats/sheep lost to wildlife in the past 12 months	1%	7.1%	1.3%
	% of household heads with the main occupation of farming	86%	58.3%	86.4%
	% of hh heads with the main occupation of livestock keeping	0%	0%	0%
	% of HHs that irrigate the plots in village (from focus group data)	5%	75%	75%
	% households with bicycle	61.7%	53.3%	71.7%
	% households with radio	60%	66.7%	66.7%
	% households with cell phone	45%	58.3%	58.3%
KEY INSTITUTIONS AND CIVIC ENGAGEMENT				
	Distance to major weekly market	10 km	18km	20km
	# of village committees/groups	4	4	4

Appendix B – Table of Selected Indicators by Village | Whole Village Project – Bunda District, February 2010

	# of NGOs	0	2	3
	# of credit, banking services or VICOBA	1	4	2
	% of hhs that participated in village assembly in past 12 mo	13%	20%	18%
	% of hhs in village gov't or committee in past 12 mo	17%	17%	12%
	% of hhs that asked village leaders for assistance in past 12 mo	80%	87%	83%
DEMOGRAPHICS				
	Religion (% Christian; % Muslim; % Traditional)	75%; 1.7%; 0%	61.7%; 10%; 0%	65%; 5%; 0%
	Dependency Ratio (# of child (0-14 years) and aged (65+) population per 100 intermediate age (15-64 years)	127.9	89	108.2
	Child-Woman Ratio (# of children aged 0-4 years per 1,000 women in the age group 15-44 years)	0.5	0.4	0.5
	Sex Ratio (# of males per 100 females)	1.0	1.0	0.9