

UNIVERSITY OF MINNESOTA



## The Whole Village Project

Village reports for Mwabomba,  
Mwang'halanga and Runele in Kwimba District

January 2011

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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 representative 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. Household surveys, interviews and focus groups were conducted in Mwang'halanga and Runele villages, Kwimba District during the month of September 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 Kwimba District: Mwabomba, Mwang'halanga, and Runele. 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 relatively high mosquito net ownership, high rates of child vaccinations for BCG, DPT and polio, widespread latrine usage, and a moderately high HIV knowledge score.

In Mwabomba, 97% of households own at least one net, 93% in Runele, and 90% in Mwang'halanga. Further adding to these high percentages, 78% of nets in Mwabomba, 82% in Runele and 69% in Mwang'halanga had recently had their nets dipped in insecticide treatment. 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 90% in both villages. However, vaccination rates for measles were about 78%; given the virulence of this disease, clinic officers and health committee members should identify strategies to meet the gaps in measles vaccination. Although approximately 75% 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 two of the villages surveyed, Mwabomba (85%) and Mwang'halanga (80%), there was a high percent of households with latrines. Runele, however, had significantly reduced latrine rates at 50% of households. Access to latrines and appropriate waste disposal reduce opportunities for communicable disease transmission and water borne diseases.

General AIDS knowledge is relatively good among the three villages surveyed in Kwimba district. The average AIDS knowledge scores ranged from 3.6 to 4.3 among males and 3.8 to 4.1 among females (on a scale of 6). On average, three in ten respondents in the three villages reported no HIV/AIDS prevention knowledge. Again, although there is an overall strength here, all three

communities should strive to increase both men's and women's 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 as economic productivity, food security, and overall health. In all three villages, the quality of schools is a concern and the significantly lower percent of girls attending secondary school. Of the three villages, Mwabomba is the only one to have a secondary school. Enrollment rates reveal twice as many boys as girls (female to male enrollment ratio 108:230). 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 limited food available at school. Only Runele provides any school meals, consisting of maize and beans for a fee. 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 health services and quality care is also limited in the district. Mwabomba reports no hospital, dispensary, or clinic. Most respondents in the other two villages 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 tuberculosis and sexual health. In addition, maternal and child health services are offered only in Runele.

Any level of acute malnourishment among children under-five must be considered a gap. We observed that 4% of children in Runele and 6-7% in Mwabomba and Mwang'halanga had children suffering from under nutrition. Of greater concern is the large percentage of children who are stunted for their age and weight ranging from 27% in Runele to 40% in the other villages. In all villages, the main source of food for children under-five is ugali, which itself cannot meet a child's nutrition needs. The consumption of other starches (rice and potatoes) was also high. Although there was a moderate amount of greens and fish in their diet they generally lacked adequate amount of fruit, vegetables and other proteins in their diet which are clearly affecting their physical development.

Farming, as the main source of income, is vulnerable to the problem of soil erosion. In the villages surveyed, 50% of households in Mwabomba, 40% in Mwang'halanga, and 10% of households in Runele considered soil erosion to be a serious problem, which is harmful to the sustainability and

reliability of farming. Further, there is little to no irrigation of plots and very limited use of fertilizers. Only one of the villages indicated that they had received a visit from an agricultural extension officer in the past year and of the NGOs working in the three villages, only one in Mwang'halanga focusing on the issue of farming and agriculture.

Newcastle Disease is the number one cause of chicken mortality in Tanzania. Vaccination rates against Newcastle Disease are low in Kwimba District. Only 1 in every 6 households owning chickens vaccinate those chickens against Newcastle Disease. The highest vaccination rates (15% in Mwang'halanga and Runele) are still low given the severe consequences of infection with Newcastle Disease. Household surveys revealed that in Mwabomba and Mwang'halanga nearly one-quarter of their chicken populations were lost to disease.

Despite multiple village assemblies held in the past 12 months in each of the villages only 8-10% of households participated. This factor emerged in both the household surveys and in the qualitative institutional analysis – the reason for poor participation is not clear. It creates a poor environment however, for generating any community development projects and suggests that few projects will be sustainable since there is so little shared community engagement. Until civic engagement is addressed in the villages in Kwimba, the district is unlikely to see any positive significant changes in social or economic indicators.

### **3.3 Opportunities**

Girls' participation in secondary school is quite low. The education committee in Mwabomba has an opportunity to work with district leaders to identify opportunities for solutions to this and improving the quality of schools in the district overall. 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 Mwang'halanga and Runele reported that they did not receive a visit by an agricultural extension worker in the past year. Mwabomba was the only one of the three villages to receive a visit. 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.

A trend among the 45 villages surveyed by WVP to date has been that households with kitchen gardens tend to have less serious food insecurity problems. Specifically, villages with higher coverage of kitchen gardens tend to have a lower percentage of households that went to bed hungry, ate limited variety of food, and fewer underweight children. Though the trend was not observed in these three villages, the most probable explanation for the discrepancy is the severely limited pool of respondents with kitchen gardens. Kitchen garden training remains very limited in the villages surveyed in Kwimba district. Village leaders have the opportunity to convey knowledge about kitchen gardens as a means to alleviate food insecurity and improve child nutrition.

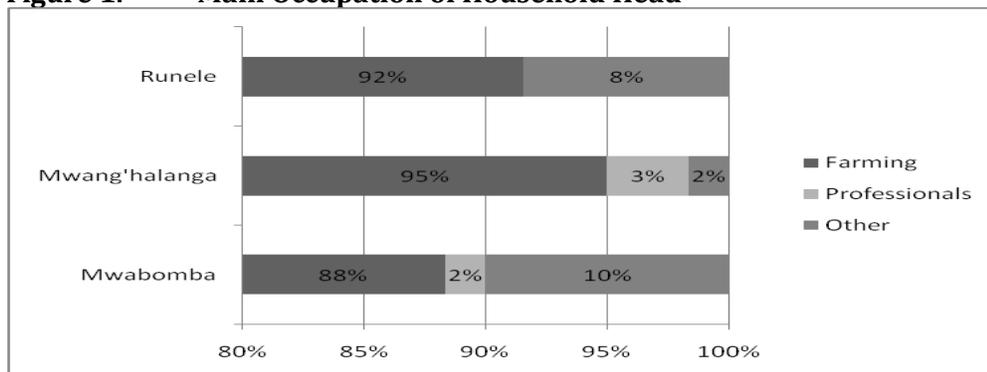
District leadership also has an opportunity to further protect the children in the district from vaccine-preventable disease. A high percentage of children under-five in Kwimba District are vaccinated against tuberculosis (BCG), DPT, polio, and measles, as recommended by the World Health Organization (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**

Over 85% of household heads surveyed in Kwimba District report farming as their main occupation (see Figure 1). The remaining primary occupations of household heads include professionals and small business owners. 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 Mwabomba, Mwang'halanga, and Runele is 28%.

Income, in the form of cash or goods, is most commonly generated through agricultural production and small businesses. Village leaders in Mwabomba, Mwang'halanga, and Runele 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 Mwabomba (100%), Mwang'halanga (80%), and Runele (100%). Livestock, alcohol sales (Mwabomba and Runele), and firewood (Runele) are additional non-agricultural income generators.

Focus group discussions (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.

**Table 1. Village Recommended Activities to Improve Local Livelihoods**

Village	Men	Women
<b>Mwabomba</b>	Borehole Vegetable Farming Chicken Keeping	Borehole Sewing Machines Vegetable Farming
<b>Mwang'halanga</b>	Poultry Keeping Fish Farming Borehole	Beekeeping Fish Farming Borehole
<b>Runele</b>	Microfinance Borehole Sewing Machines	Beekeeping Fish Farming Borehole

The recommended activities did not vary significantly between gender focus groups. Other recommendations included alternative income generating activities such as beekeeping, working with poultry, and obtaining a sewing machine. Village leaders focused on selling cash crops and livestock production.

Asset ownership, a proxy indicator of a household's socioeconomic status, was polled. When households were asked about ownership of durable goods such as mobile phones, radios or bicycles, the most common item owned in Mwabomba was a bicycle (80%) followed by a radio (48%). In Mwang'halanga, a bicycle (75%) is the most common item followed by a radio (50%). In Runele, like the other two villages, bicycle ownership was most common (88%), however cell phones are the next most common item (50%). Among the villages, average ownership of a mobile phone was 40%.

The WVP has also created a "wealth index" based on 20 household assets including items such as roof type and radio ownership but excluding livestock. There was limited variation in scores across the three villages: 2.9 for Runele, 3.0 for Mwabomba and 3.2 for Mwang'halanga. Across the 45 villages surveyed by WVP to date, these villages fall into the lower third of villages for overall assets.

The vast majority of houses surveyed in Kwimba District were built with natural materials, with walls made of mud and baked bricks and floors made of earth or clay and roofs made of grass or palms. Mwabomba has a slightly greater percentage of households with corrugated metal roofs (37%) than Mwang'halanga (27%) or Runele (32%).

## **4.2 Unexpected Loss of Income or Assets**

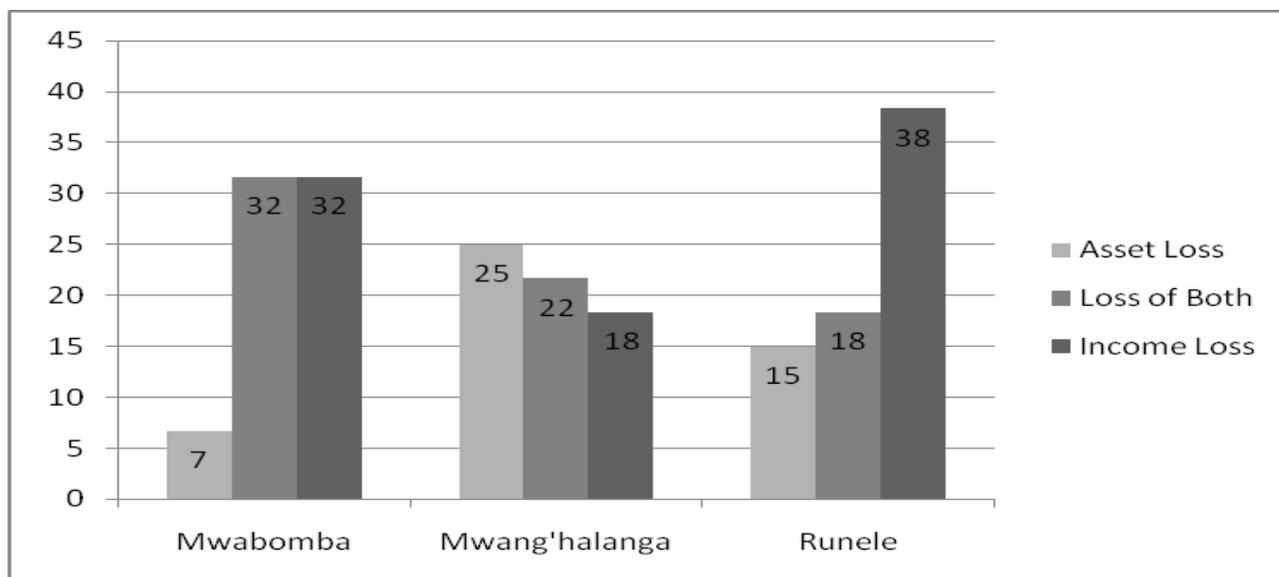
In a given year, a household may experience unanticipated crises such as the death of a family member, the loss of a job or the loss of crops or livestock. Some families or households are able to cope with these losses better than others.

When we asked households in Mwabomba, Mwang'halanga, and Runele 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.

87% of households in Runele reported unexpected loss in the past year. While the figures were slightly lower in Mwang'halanga (78%) and Mwabomba (77%), more 1 in 4 households reported unexpected loss.

For 42% of households in Mwabomba and 48% in Runele, the loss of crops due to weather was cited as the primary cause of unexpected loss. In Mwang'halanga, death or theft of livestock was reported by 32% of respondents as the most reported unexpected loss.

**Figure 2. Impact of Unexpected Loss**



As demonstrated in Figure 2, unexpected losses result in a significant setback to stability within both households and the villages themselves. 18% in Runele, 22% in Mwang'halanga, and 32% in Mwabomba reported both income and asset loss.

### 4.3 Village Institutions and Civic Engagement

Table 2 presents a picture of the institutional analysis conducted in the villages surveyed in Kwimba 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 3, 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	Mwabomba	Mwang'halanga	Runele	Sector
<b>Village-Run</b>				
Community Health Worker	x	--	--	Health
Education	x	x	x	Education
Health Service	--	x	x	Health
Religious Institution (church, mosque, etc.)	x	x	x	Aid/Development, Food/Hunger, Human Development, Social Welfare
Veterinary Services	--	--	x	Health, Wildlife/Conservation
Village Council/ Government	x	x	x	Politics/Government
Village Market	--	--	x	Business Development
Community/Publicly Owned Water	x	x	x	Water
<b>Sub-total Village-Run</b>	<b>5</b>	<b>5</b>	<b>7</b>	
<b>Village Committee/Group</b>				
Agricultural & Livestock Committee	--	--	x	Farming/Agriculture
Farmers Coop/ Agriculture Association	--	--	x	Farming/Agriculture
Security Committee	x	--	x	Legal/Law Enforcement
Community Development/ Planning/ Financial Committee	x	--	x	Financial/Socioeconomic
<b>Sub-total Village Committee/Group</b>	<b>2</b>	<b>0</b>	<b>4</b>	
<b>Third-Party Operated</b>				
CARE	x	--	x	Health: MCH, RH and HIV/AIDS
DBSPE	--	x	--	Aid/Development
HESAWA		x		Water projects and building latrines
JICA		x		Development – building dam for irrigation
KIKUMAKA	x		x	Agriculture – info on jatropha
Malaria	x			Health – provides mosquito nets
MEM		x		Building classrooms and teacher houses
PADEP	--	x	--	Farming, Agriculture
SACCOS	--	x	--	Financial/Socioeconomic
SIDA	--	x	--	Aid/Development
TASAF	x	x	x	Building road and schools, dispensaries
Teach			x	Teaches gardening and micro-business
Tunajali	x			Health – support to people with AIDS
UNDP	--	x	--	Aid/Development
<b>Sub-total Third Party</b>	<b>5</b>	<b>9</b>	<b>4</b>	
<b>Total</b>	<b>12</b>	<b>14</b>	<b>15</b>	

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. Mwabomba is generally favorable about its village run institutions and committees with lower score being awarded to its health services. Mwang’halanga is generally positive about its institutions and committees though it is very critical of its village government; 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.

Neither Mwabomba nor Runele had a large presence of NGOs though Mwang’halanga reported nine NGOs. They focused their services in the areas of health, development, agriculture, social welfare, and financial wellbeing. In general, Mwang’halanga and Runele provided above average scores for NGOs working in their communities; in Mwabomba there was a wide variation in scores 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 village government or committee, participation in village assemblies, and asking a village leader for assistance. Only 1 in 10 respondents in any 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**

	<b>Mwang’halanga</b>	<b>Runele</b>	<b>Mwabomba</b>
Village government or committee member	10%	20%	13%
Participated in village assembly (last 12 mo)	8%	10%	8%
Asked village leader for assistance (last 12 mo)	70%	68%	65%

Overall civic participation in village assemblies held in the past 12 months was very poor in each of the villages surveyed. Only 8 to 10% of households surveyed participated although there were multiple opportunities (5 village assemblies in Mwang’halanga, 4 in Runele, and 2 Mwabomba). Despite lack of participation in village assemblies, most households (65-70%) felt comfortable asking village leaders for assistance.

## **4.4 Education**

### **4.1.1 Household-Head Education**

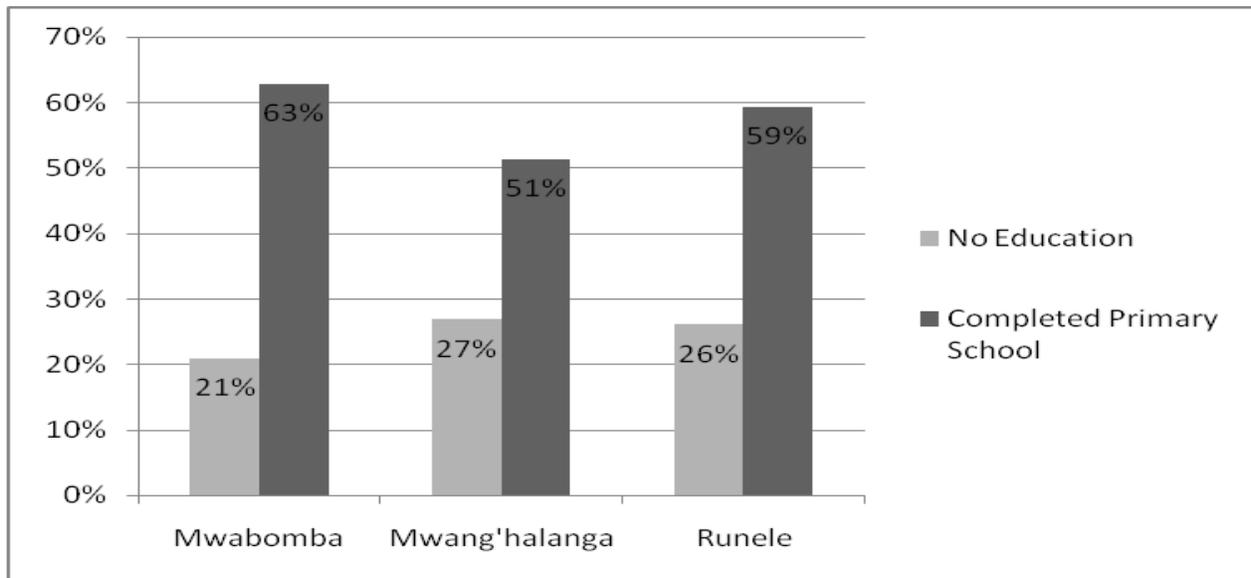
Among household heads in Mwabomba, Mwang'halanga, and Runele, the percentage of primary school completions varied. The highest percentage of primary school completions are in Mwabomba (62%), the lowest in Mwang'halanga (40%), and Runele between the two (53%). Runele had the highest number of household heads with no education at 32% compared to Mwang'halanga at 30% and Mwabomba at 27%. Mwabomba (5%) and Mwang'halanga (2%) had some household heads that attended secondary school, though none had completed their secondary education. Other types of education, such as adult or certificate programs, were low.

There was a contrast in education between male and female household heads. Primary school completion rates for male household heads in each of the villages were above 50% (an average of 59%) while female household head primary school completion rates were averaged at 31%. Male respondent rates were highest in Mwabomba (67%) and lowest in Mwang'halanga (51%). Female completion rates varied from 42% in Mwabomba (5 respondents) to 16% in Mwang'halanga (3 respondents). 6% of men in Mwabomba and 2% of men in Mwang'halanga attended but did not complete secondary school. The low number of respondents factors into percentage variants. Neither male respondents in Runele nor female respondents in any of the three villages responded as having attended any secondary school.

### **4.1.2 Primary School Completion**

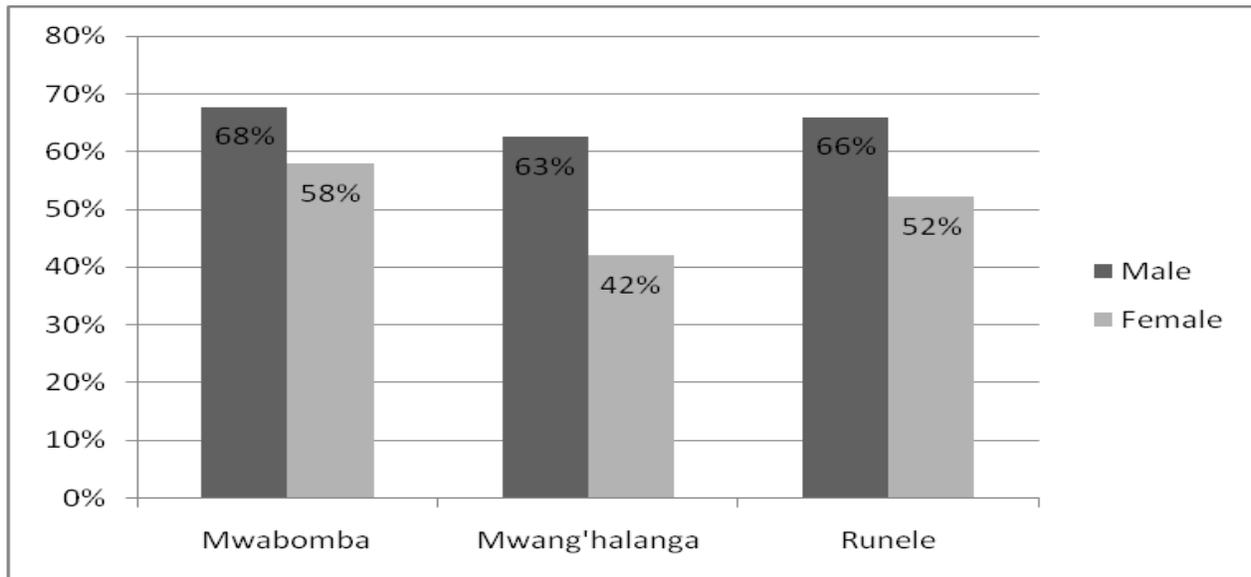
We also assessed the primary school completion rate for all adults (age 15 and over) and saw that in Mwang'halanga barely 51% had completed primary school (see Figure 3).

**Figure 3. Percent Adults Completed Primary School versus No Education**



Approximately one-quarter of the adults in Mwabomba, Mwang'halanga, and Runele have had no education with women consistently having less education than men (see Figure 4). The largest adult gender education gap is in Mwang'halanga with male rates at 63% and female rates at 42%.

**Figure 4. Adult Primary School Completion Rates, Disaggregated by Sex**



Mwang'halanga has the highest percentage of adults with at least some secondary education, but this is still low at only 1 in 6 adults. Mwabomba and Mwang'halanga each report one adult surveyed having completed secondary school. In Mwabomba, twice as many boys attend secondary school as girls. This school needs to work harder at retaining female students.

### 4.1.3 Access to Primary Education

Of the three villages surveyed in Kwimba District, each village has one primary school. Mwabomba, in addition, has one 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**

<b>Village/School</b>	<b>Students Enrolled</b>	<b>Teacher to Student Ratio</b>	<b>Classroom to Student Ratio</b>	<b>Textbook to Student Ratio</b>	<b>% Teachers completed Form IV</b>
Mwabomba	555	1 to 92	1 to 92	1:3	67%
Mwang'halanga	472	1 to 59	1 to 59	1:5	88%
Runele	492	1 to 70	1 to 70	1:3	71%

A shortage of classrooms/studying facilities and teachers and staff 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 Kwimba District have poor teacher-to-student ratios, classroom-to-student ratios, and textbook-to-student ratios. In the male and female focus groups in Mwabomba, parents remarked that they were unhappy with the number of teachers, teacher housing, and the number of classrooms and desks. The headmaster in Mwabomba cited the issue of teacher shortages and a generally poor community-school relationship. Issues of student attendance, performance, and discipline were cited in Mwang'halanga along with a low standard of teaching. At Ibaya Primary School in Runele, the best qualities were the student examination results, and the quality of teaching. The challengers were teacher housing, classrooms, desks, and student attendance.

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. The primary schools of Mwang'halanga and Runele have a vast majority of students coming to school hungry (see Table 4). The headmaster at the primary school in Runele stated that they provide food to students (at a cost).

**Table 5. Percent of Students Attending Primary School Hungry**

Village	% Students Attending School Without Eating Food or Having Tea Only	School Meals Provided
Mwabomba	50%	None
Mwang'halanga	100%	None
Runele	90%	Maize/beans provided for a fee

Mwabomba Secondary School, the only secondary school in the three surveyed villages, reported issues of classroom, textbook, and teacher shortages. Of the 338 enrolled students at Mwabomba Secondary, of which 108 are female and 230 are male, 50% of students attend regularly sharing 14 classrooms and 9 teachers.

## 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 Kwimba District was collected through focus group discussions with men and women. In the three villages assessed, respondents frequently ranked malaria as a serious health issue facing men, women, and children (see Table 5). Other issues for adults included tuberculosis, bilharzia, and sexually transmitted diseases. For children, diarrhea, measles, eye disease, and ring worm 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
Mwabomba	<ol style="list-style-type: none"> <li>1. Malaria</li> <li>2. Tuberculosis</li> <li>3. Impotence</li> </ol>	<ol style="list-style-type: none"> <li>1. Malaria</li> <li>2. Miscarriages</li> <li>3. Stomach Diseases</li> </ol>	<ol style="list-style-type: none"> <li>1. Malaria</li> <li>2. Diarrhea</li> <li>3. Ring Worm</li> </ol>
Mwang'halanga	<ol style="list-style-type: none"> <li>1. Tuberculosis</li> <li>2. Urinary Diseases</li> <li>3. Pneumonia</li> </ol>	<ol style="list-style-type: none"> <li>1. Stomach Pain</li> <li>2. Malaria</li> <li>3. Swelling of the legs</li> </ol>	<ol style="list-style-type: none"> <li>1. Malaria</li> <li>2. Diarrhea</li> <li>3. Measles</li> </ol>
Runele	<ol style="list-style-type: none"> <li>1. Bilharzia</li> <li>2. STDs</li> <li>3. Malaria</li> </ol>	<ol style="list-style-type: none"> <li>1. STDs</li> <li>2. Malaria</li> <li>3. Stomach Pain</li> </ol>	<ol style="list-style-type: none"> <li>1. Malaria</li> <li>2. Eye Disease</li> <li>3. Diarrhea</li> </ol>

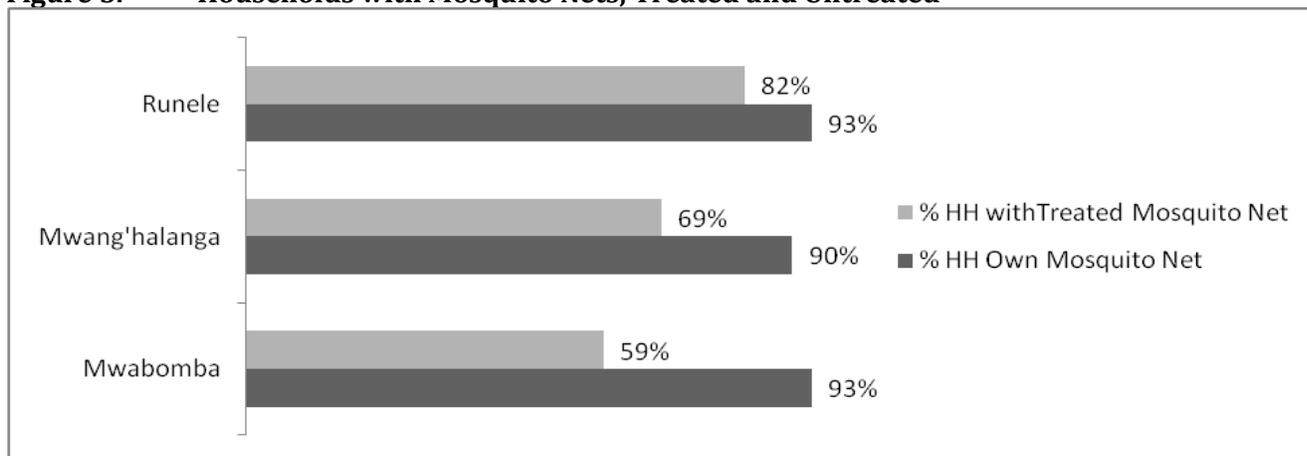
In Mwang'halanga and Runele, villagers are fortunate to have a government dispensary although some services and drugs or equipment are lacking. Mwabomba reported having no dispensary and therefore villagers must travel to Sumve Hospital for any serious medical conditions. Runele's dispensary is staffed by one medical officer; Mwang'halanga reports none. Neither of the two dispensaries has a refrigerator therefore limiting the treatments. The dispensary in Runele offers maternal/child health and family planning services. 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. Of the three villages, Runele had by far the most medical services available.

Household surveys indicate that there is a slightly higher distribution of households in this district that seek treatment for ailments and diseases both from established health facilities than traditional healers. The majority of households surveyed take their children to a dispensary or hospital when sick.

#### 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 5 presents data by village on percentage of households owning a mosquito net as well as households owning a mosquito net with insecticide treatment. Overall, all three villages have high rates of mosquito net ownership with Mwabomba and Runele having the highest at 93%. In regards to net treatment, Runele has the highest ownership rates at 82% while Mwang'halanga scored 69% and Mwabomba 59%. Consistent mosquito net use by household members should decrease their malaria rates.

**Figure 5. Households with Mosquito Nets, Treated and Untreated**



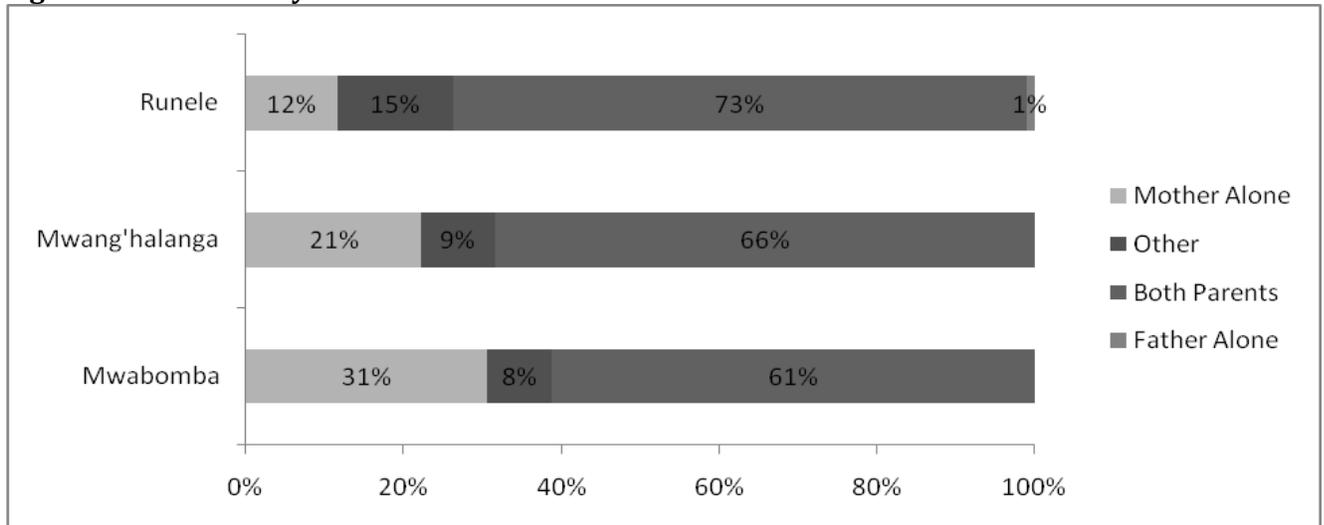
Although malaria was the most consistently identified health problem by participants in male and female focus group discussions (FGDs) other health problems were also mentioned as concerns (Table 5). The health officer in Runele noted that the most common symptoms treated in the village over the past 12 months for adults were high fever, diarrhea, and vomiting and children under-five were fever, vomiting, and pneumonia. The health officer expressed concern about the insufficient facilities and services, the shortage of health workers, and the lack of safe water sources.

#### 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 measure 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. 92% of mothers of children under-5 in the three villages are alive and in the household. A total of 20 mothers in the three villages combined are alive but not living in the household. Six households had lost the natural father, although the percentage of households with the father still alive remains high at 95-98%. In roughly 30% of households, the father is alive but lives outside the household. Figure 6 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 Kwimba District.

**Figure 6. Primary Caretaker of Children Under-Five**



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

In the villages surveyed, approximately 16% of children under-five are considered frequently sick. Six of the households have lost a child less than five years old in the last 2 years. The majority of these deaths were in Mwabomba, several in Mwang'halanga, and none in Runele. These losses directly reflect the healthcare realities in the villages as discussed in [Access to Health Services](#) above. The greatest losses of life were experienced in Mwabomba, the village lacking even a dispensary.

**Figure 7. Percent Children Under-5 Who Have Had a Disease in the Past 3 Months**

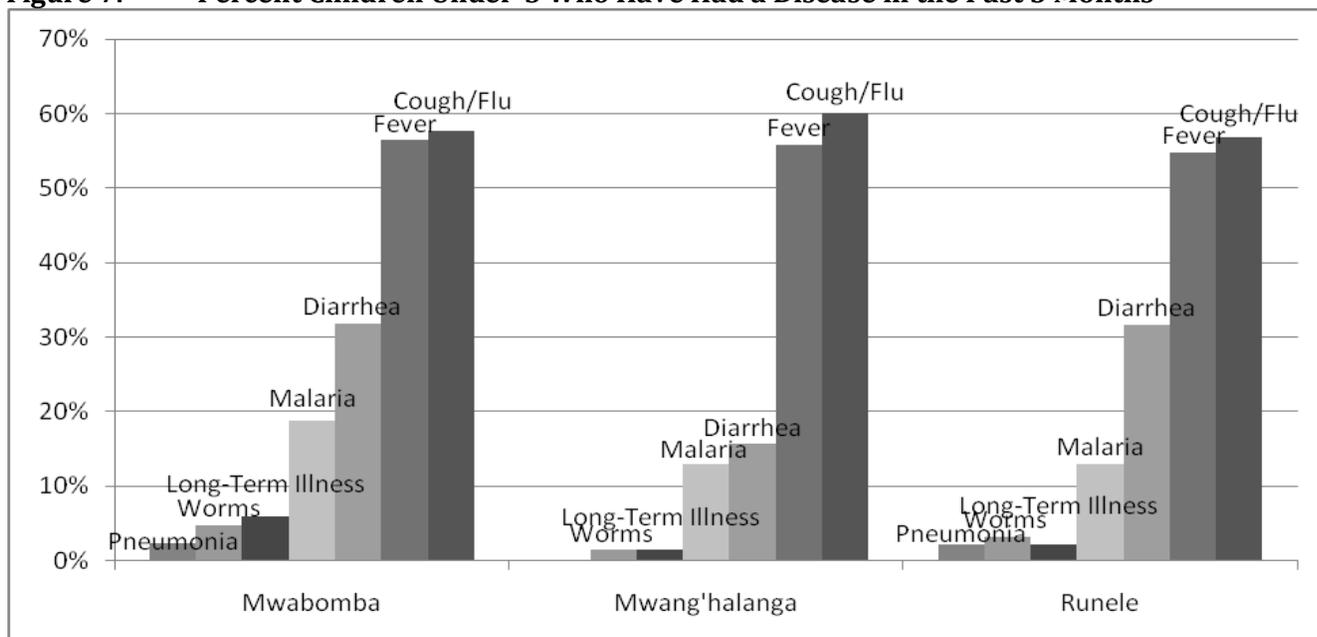
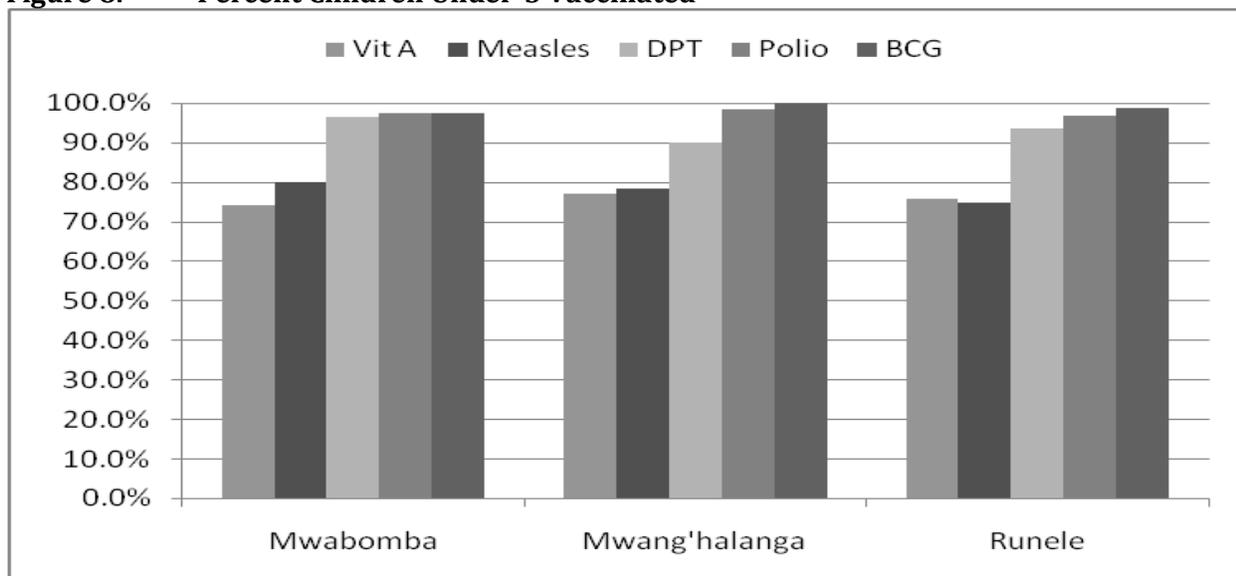


Figure 7 gives a picture of the disease burden for children under-five in these villages in the past three months with Mwabomba showing a slightly higher disease burden overall followed by Runele and then Mwang'halanga. The most commonly reported illness in the past three months was a cough or flu with nearly equal rates among the three villages. On average, about 50% of children under-five in both villages suffered from fever while an average of 26% suffered from diarrhea. The incidence of pneumonia in children under-five is very low among these villages and no cases of measles were reported. The highest percentages among the three villages were reported in Mwabomba where 5% of children suffered from worms and 6% are suffering from a long-term illness.

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 8 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 8. Percent Children Under-5 Vaccinated**



Over 97% of children under-five in Kwimba district have received a BCG or polio vaccine. Rates are slightly lower for the DPT vaccine though still high at an average of 93%. Among all recommended vaccines, measles vaccination rates (75-80%) are the lowest within each village surveyed, Runele with the lowest rates for measles vaccinations. Vitamin A supplements were highest in Mwang'halanga at 77% and lowest in Mwabomba at 74%. The data shown in Figure 8 do not take into account the age at vaccination or number of doses, so a determination of whether or not children are fully vaccinated is not possible.

#### 4.5.4 Environmental Health

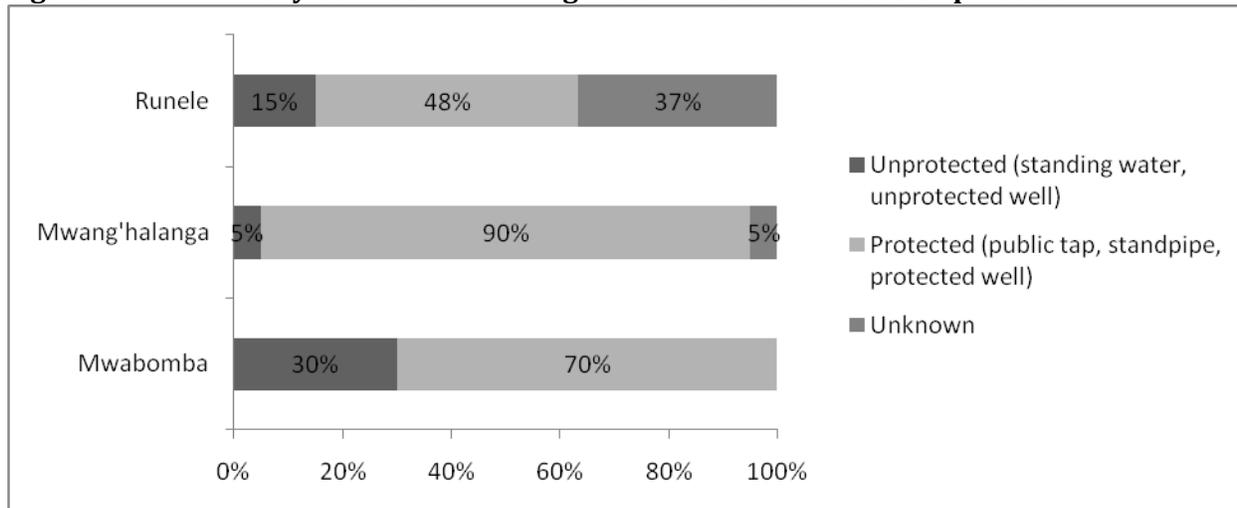
Many infectious diseases, especially diarrheal diseases, can be a result of poor hygiene and contaminated water and food sources. The villages of Mwabomba (85%) and Mwang'halanga (80%) had high rates of latrine coverage which is very positive. Only half of respondents in Runele reported using a pit latrine while the remaining half reported no latrine usage.

Qualitative data indicates the primary modes of refuse disposal in Kwimba District villages are to bury refuse on a household compound (Mwabomba, Mwang'halanga) and burning in compound (Mwabomba, Mwang'halanga and Runele).

A wide range exists between proportions of households that have access to protected drinking water in the villages surveyed in Kwimba district. Of respondents with protected water sources, Mwang'halanga (90%) ranked the highest followed by Mwabomba (70%) and Runele (48%). As shown in Figure 9, sources of protected drinking water were protected wells that had been dug. In

the three villages, surface water (unprotected) represents nearly 10% of water sources in Runele and 2% in Mwabomba and Mwang'halanga.

**Figure 9. Primary Sources of Drinking Water: Protected versus Unprotected**



Given that between 5% and 30% 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. In all three of the villages the proportions of households treating their water in some way are low. In Mwabomba 33% of households are treating their water. In Mwang'halanga rates are lower at 25% of households and in Runele only 18% of households treat the unprotected water.

The average amount of time households from each village spend collecting water varies greatly. 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. Households in Mwabomba (38 minutes) and Mwang'halanga (40 minutes) spend approximately the same amount of time collecting water. Households in Runele spend nearly three times as much time to collect water (nearly 3 hours). In addition to significant time required to collect water, access to drinking water is further limited by long distances. Residents of Mwabomba and Mwang'halanga travel between 1-2 kilometers though during dry parts of the year distances stretch up to 8 kilometers. Runele's residents regularly travel between 2-8 kilometers to collect water, the explanation for the average 3 hours a day they spend 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 all villages cook with wood (98%).

#### 4.5.5 HIV/AIDS

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 63% women in Mwabomba, 65% women in Mwang'halanga, and 60% women in Runele. 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**

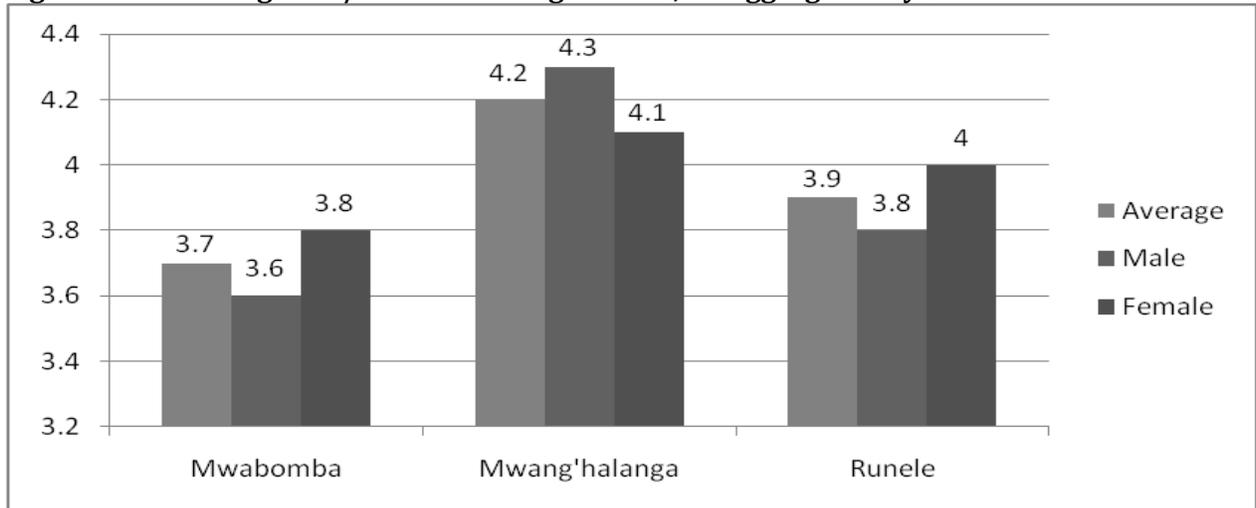
	Sample size		
	Male N (%)	Female N (%)	Total
Mwabomba	40 (37%)	67 (63%)	107
Mwang'halanga	44 (35%)	82 (65%)	126
Runele	44 (40%)	66 (60%)	110

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 10.

**Figure 10. Village HIV/AIDS Knowledge Scores, Disaggregated by Sex**

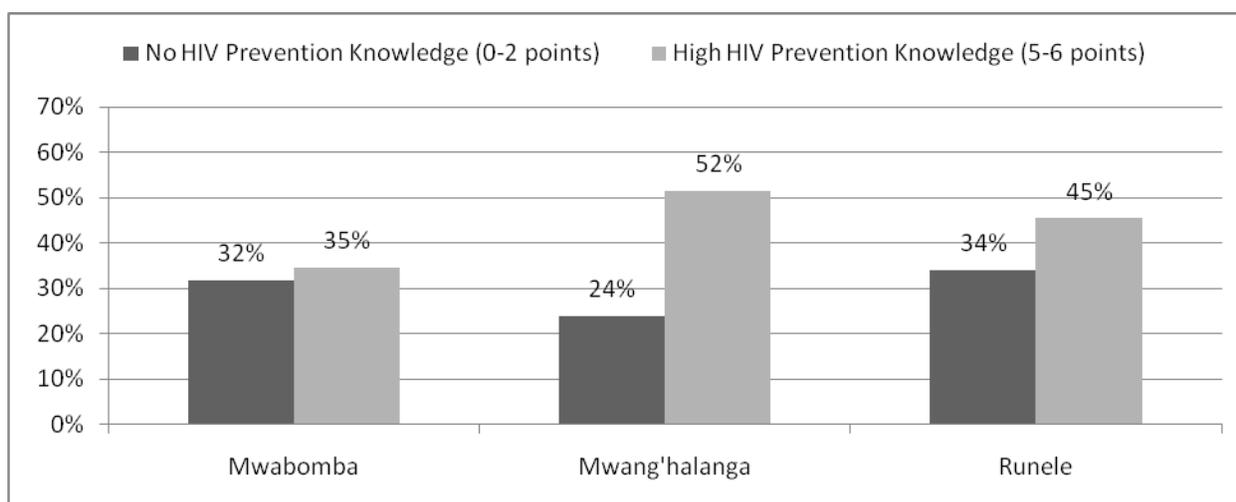


Mwang'halanga has a higher average HIV/AIDS knowledge score (average 4.2) than Runele (3.9) and Mwabomba (3.7) though this difference is not statistically striking. The women's scores are relatively close, the largest gap between Mwabomba (3.8) and Mwang'halanga (4.1). The variance among the men's' scores was slightly greater, Mwabomba (3.6) and Mwang'halanga (4.2). In two of the three villages (Mwabomba and Runele), women's knowledge scores are higher than men's scores.

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.

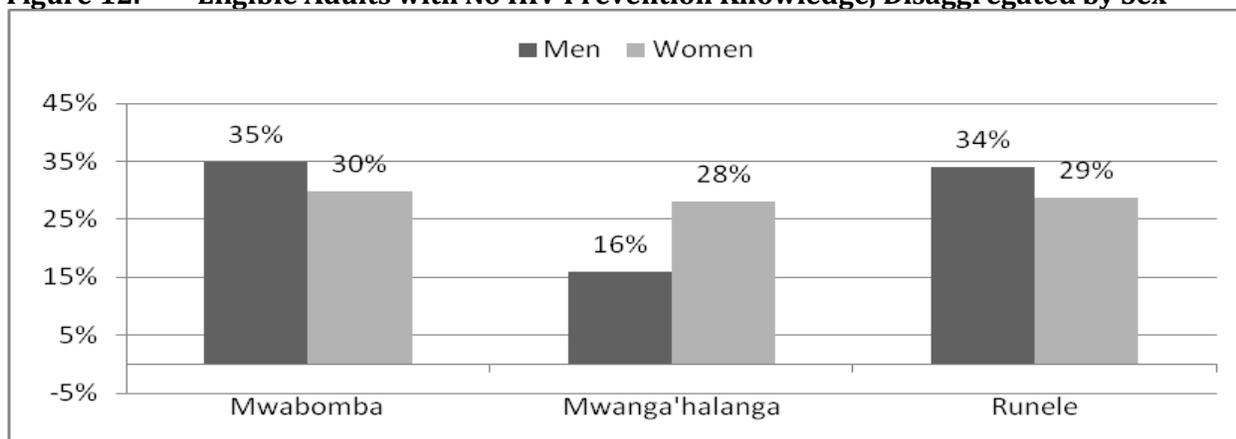
As shown in Figure 11, 52% of eligible adults in Mwang'halanga, which is the highest, have high knowledge of HIV and its prevention. Runele also has a relatively high number of eligible adults scoring 5-6 points on the HIV knowledge assessment. The greatest percentages of adults with no HIV prevention knowledge are in Runele and Mwabomba where approximately 3 in 10 adults (32%) know no correct method of preventing HIV.

**Figure 11. Percent Eligible Adults with No versus High HIV Prevention Knowledge**



It is unclear whether men or women have a higher knowledge of HIV prevention. As shown in Figure 12, rates in Mwabomba and Runele show men in greater percentages than women as having no HIV prevention knowledge. Rates in Mwang'halanga, however, display the opposite with women having significantly less knowledge of HIV prevention than men.

**Figure 12. Eligible Adults with No HIV Prevention Knowledge, Disaggregated by Sex**



There appears to be a tendency among women in some villages to deny knowledge about HIV/AIDS prevention, possibly because they do not feel comfortable discussing it. It is impossible to know how much of the sex differences reported in Figures 10 and 12 result from this phenomenon versus actual lack of knowledge. Since the questions about prevention strategies are skipped if the respondent says s/he does not know if there are any ways to prevent HIV infection, such denial would artificially lower the overall knowledge scores of women.

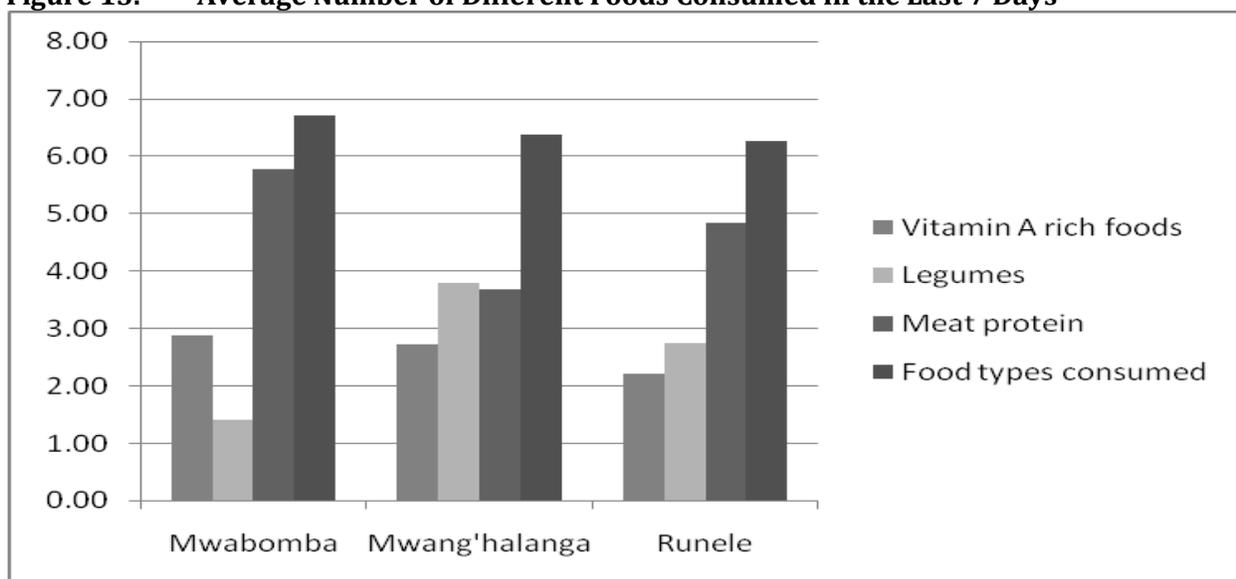
We also ask men and women if they have ever been tested for HIV. In Mwabomba, 53% of men and 61% of women had been tested; in Runele, 41% of men and 33% of women and in Mwang'halanga, 59% of men and 41% of women.

## 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 6.7 (Mwabomba) to 6.4(Mwang'halanga) to 6.3 (Runele) types of different foods in a week with a range from 2 to 10. In Mwabomba, households eat more meat protein than in Mwang'halanga and Runele but otherwise appear to have similar diets when comparing consumption of legumes, grains, and Vitamin A nutrient foods as well as food types (Figure 13).

**Figure 13. Average Number of Different Foods Consumed in the Last 7 Days**



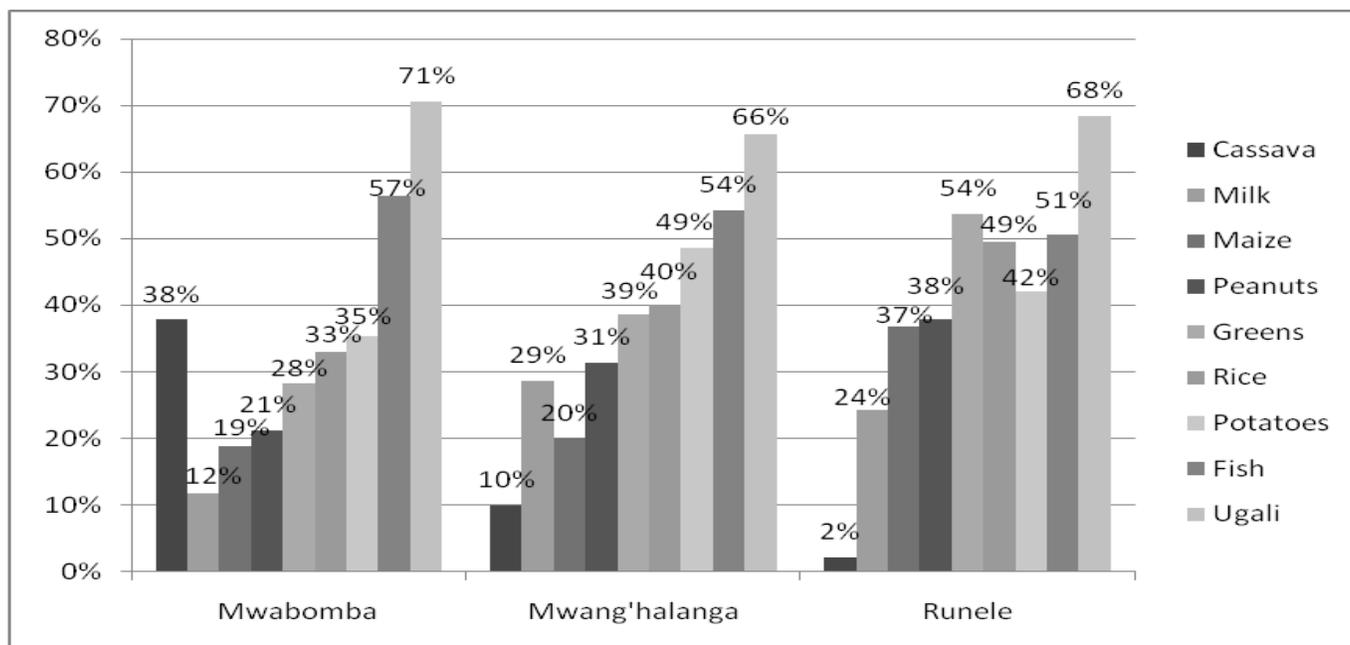
### 4.5.7 Infant and Young Child Feeding

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 breastfed, only 10% of babies in Mwabomba, 13% in Mwang'halanga, and 8% in Runele 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 19-20 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 14. (Percentages labeled in Figure 14 indicate the most commonly eaten food by children under-five in that village.)

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



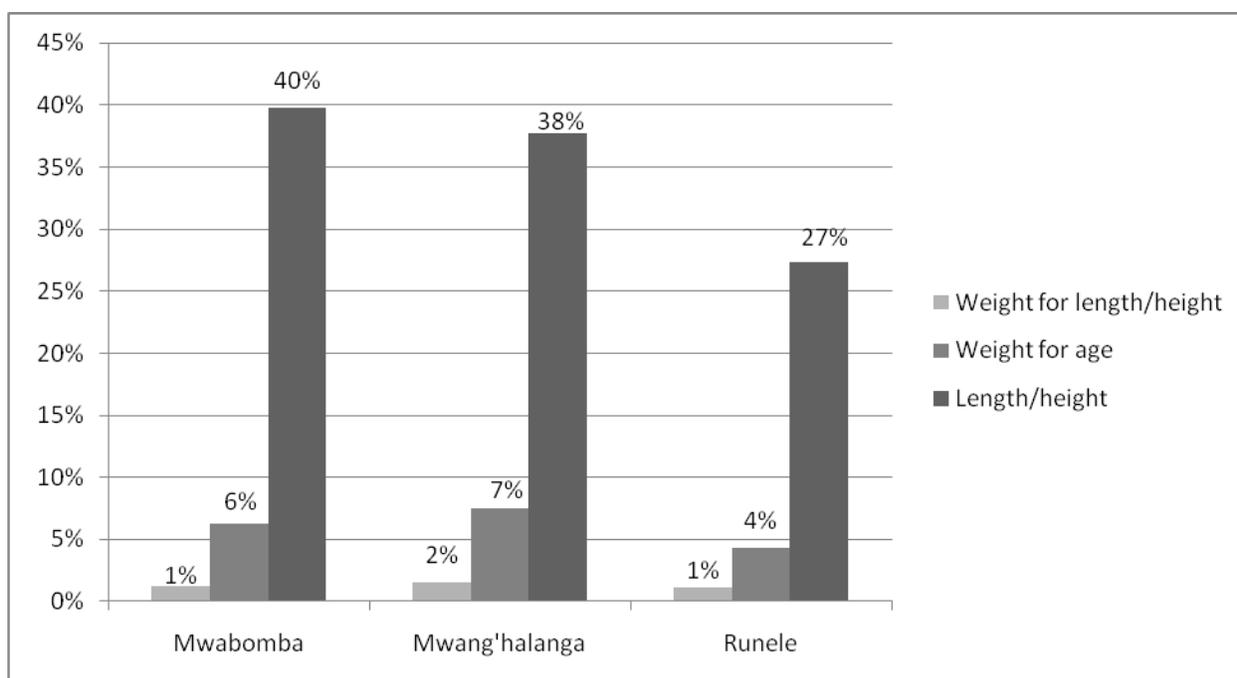
Ugali was the most commonly consumed food by children under-five in the last 24 hours in both villages, at an average of 68%. Fish (54%) followed by potatoes (42%) and rice (41%) were the second and third most commonly consumed foods. Although ugali and fish consumption were the highest in Mwabomba, consumption of milk, meats, and fruits were low. In general, consumption patterns shown in Figure 14 indicate that children in Kwimba District have a very starch heavy daily diet with only moderate nutritional in-take or fruits and vegetables.

Children under-five are mostly likely to get protein from a non-meat source, specifically milk or fish, though milk consumption in these villages is relatively low. Similarly, greens were the most commonly eaten vegetable and the most commonly eaten fruits were not specified. A greater percentage of children in the three villages surveyed consumed a vegetable than a fruit in the 24 hours preceding the survey.

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 15), nearly 1 in 14 children under-five in Mwang'halanga and Mwabomba are moderately underweight compared to 1 in 25 in Runele. One child in both Mwang'halanga and Runele were identified as severely underweight children. Runele also had lower rates of stunting (27%), whereas it was quite high in the other two villages approaching 40%. 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 15. 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 Kwimba District, households in Runele were the most food secure with a mean index score of 2.5 compared to 2.7 in Mwang'halanga and 3.3 in Mwabomba.

Consistent with this finding, one can see in Table 8 that households in Mwabomba worried about food more often than those in Mwang'halanga and Runele.

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

	<b>Mwabomba</b>	<b>Mwang'halanga</b>	<b>Runele</b>
<b>Worried not enough food</b>	41.7%	21.7%	30%
<b>Ate fewer meals</b>	36.7%	23.3%	20%
<b>No food</b>	13.3%	8.3%	13.3%
<b>Went to sleep hungry</b>	15.0%	8.3%	8.3%
<b>One day and night without food</b>	1.7%	0%	3.3%
<b>Average food insecurity index</b>	<b>3.3</b>	<b>2.7</b>	<b>2.5</b>

#### 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 had received training on kitchen gardens, only two people in Runele, one person in Mwabomba, and no one in Mwang'halanga. Low numbers of households from our sample are currently growing kitchen gardens: 9 in Mwabomba, 2 in Mwang'halanga, and 0 in Runele. The fact that there are more kitchen gardens in Mwabomba, though it has the highest food insecurity index, is inconsistent with the expected result. From the low respondent rates in the data collected, it is not possible to produce a definitive correlation between kitchen gardens and food insecurity index. Alternate explanations, such as household wealth for example, may account for the results.

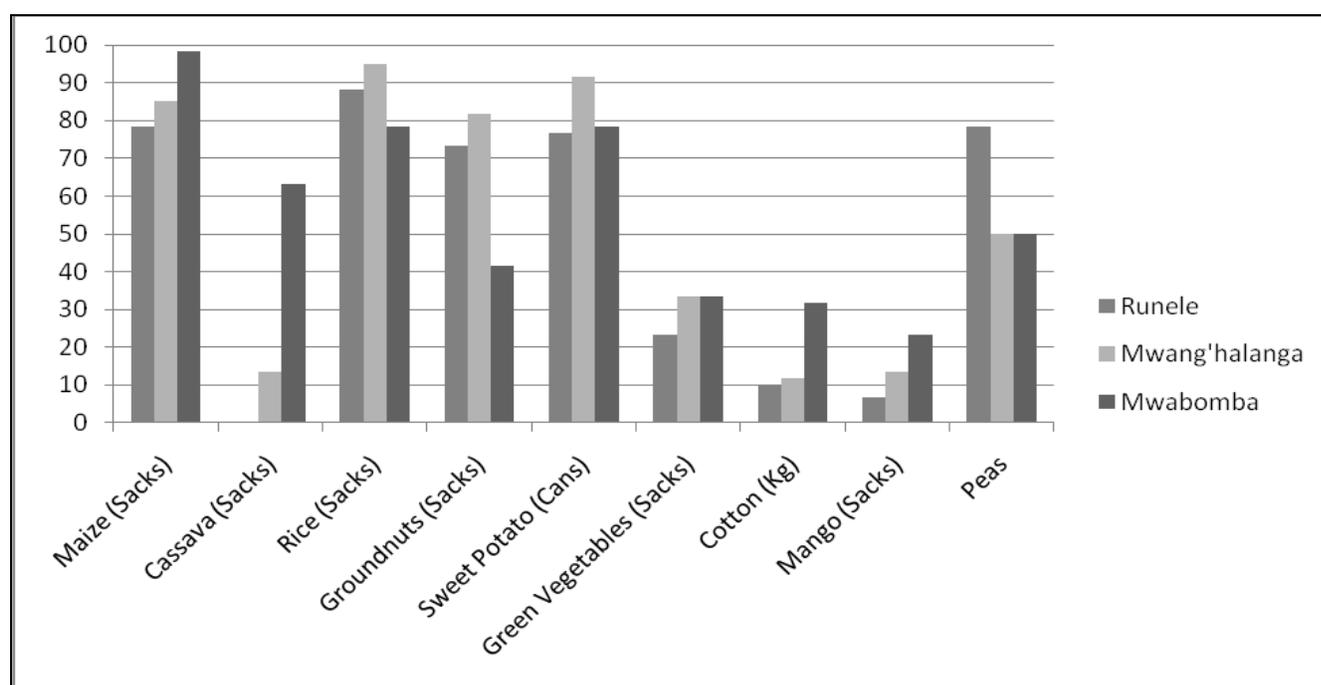
## 4.7 **Agriculture**

Farmers in Kwimba District are predominantly small-scale, subsistence farmers with a portion going towards cash crop production. The average land under cultivation per household is slightly greater than 3 acres in Mwabomba and Mwang'halanga while in Runele the average is slightly less than 7 acres. Farmers in Mwang'halanga on average own significantly more land (12 acres) than in Runele (8 acres) and Mwabomba (3 acres.). The maximum acreage owned in Mwang'halanga, 500 acres, is indicative of a plantation of significant size in the village. However, the percentage of households that own land is highest in Mwang'halanga (95%) followed by Runele (87%) and Mwabomba (85%). The high percentages of villagers owning or renting land in Mwang'halanga demonstrates that land distribution though clearly not equitable is somewhat dispersed. Farmers in Mwabomba rent the largest acreage followed by Runele and Mwang'halanga. According to villagers

participating in agricultural focus groups, 80% of households own land without title in Mwang'halanga and Mwabomba surpassed by 95% in Runele.

Most households grow a diverse number of crops with varying proportions between the three villages as shown in Figure 16. Maize and rice are grown by nearly 90% of farmers followed by sweet potatoes (77-92%), groundnuts (66-82%) and peas (50-78%). In Mwang'halanga, twice as many households grow groundnuts as compared to Mwabomba. Mwabomba reported 10 households growing mangoes while Mwang'halanga reported 8 and Runele 4 households. Fewer than 5 households in the sample in each village were growing any other kind of fruit (e.g., banana, papaya) although guava is grown more commonly but it was not included in the survey. Although similar crops are grown and sold among villages in relatively close proximity, oftentimes significant price variations exist among certain crops. This is often due distance from market. From the data collected in these villages however, prices were fairly standard. The price of cotton, for example, as reported by participants of focus groups in each of the three villages surveyed was 600 Tsh/kg in Mwabomba and Runele and 500 Tsh/kg in Mwang'halanga. Rice was reported as 35,000 Tsh/sack in Mwabomba and Runele and 500 Tsh/kg in Mwang'halanga. Rice was reported as 35,000 Tsh/sack in Mwabomba and 30,000 Tsh/sack in Mwang'halanga.

**Figure 16. 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	
Mwabomba	20%	80%	80%	50%
Mwang'halanga	15%	0%	40%	40%
Runele	0%	3%	30%	10%

Farmers in all three of the communities indicated that they used terracing to control soil erosion. Mwang'halanga also relied on trenches for drainage. Mwabomba was the only of the villages to have had a visit from an agricultural extension worker in the previous year.

## 4.8 Livestock

Overall, households in Runele own more livestock (e.g., cows, goats and chickens) than households in either Mwabomba or Mwang'halanga. Farmers in Mwabomba own more cattle than Mwang'halanga though farmers in Mwang'halanga own more chickens than Mwabomba's farmers. Farmers in Runele own twice as many cattle as farmers in Mwang'halanga and twice as many chickens as farmers in Mwabomba.

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

	Cattle	Goats/sheep	Chickens
Mwabomba	8.2	5.4	6.5
Mwang'halanga	6.3	5.9	9.6
Runele	14	9.4	12.1

In the agricultural focus groups, farmers in Mwabomba and Runele indicated that 0% of cows and goats had been vaccinated. Villagers in Mwang'halanga reported that 80% of cows had been vaccinated for East Coast Fever though no goats had received vaccinations in the past year. Predictably, the percentages of cattle and goats lost to disease are as follows: 19% in Mwabomba, 25% in Mwang'halanga, and 16% in Runele.

In all three villages, relatively high numbers of chickens were lost to disease. Mwabomba and Mwang'halanga lost nearly one-quarter of their chicken populations and Runele farmers lost 21% to disease. Newcastle Disease is the number one cause of chicken mortality in Tanzania yet despite this, only 14% of Mwabomba, 15% of Mwang'halanga, and 15% of Runele chicken-owning households vaccinated against this disease.

## **5 CONCLUSIONS**

### **5.1 Recommendations**

All three villages share many commonalities in their profiles. 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 such as Mwang'halanga as well as encourage wider participation by relevant NGOs, especially in Mwabomba and Runele. 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 Kwimba District in 2-3 years to re-assess the current status of each village. In the immediate future, the Savannas Forever Tanzania (SFTZ) team will return to each village to present the data collected and to discuss the results and conclusions of this report. Data and reports will also be shared with government officials and policy makers in Tanzania, and non-governmental and local government partners working on the ground in the villages surveyed.

## 5.3 How You Can Help

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

## **APPENDIX A – SURVEY INSTRUMENTS**

### Household level

- Household survey
- Food security, nutrition and jatropha

### Individual surveys:

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

### Focus group and key informant interview questionnaires:

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

## APPENDIX B – TABLE OF SELECTED INDICATORS BY VILLAGE

		Kwimba District		
		Mwang'halanga	Runele	Mwabomba
<b>THE HOUSEHOLD AND HOUSING</b>				
	Number of households surveyed	60	60	60
	Average household size	6.85	6.9	6.7
	% households in polygamous marriage (more than 1 wife)	23.3%	18.3%	18.3%
	% of households headed by women	31.7%	23.7%	20%
	% of households with corrugated roof	26.7%	31.7%	36.7%
	% of households using a toilet	80%	50%	85%
	Avg time (minutes) required to collect water	39.9	177.9	38.1
	% households use firewood as primary energy source for cooking	100%	95%	100%
<b>EDUCATION</b>				
	% of all adults without education	26.9%	26.1%	20.9%
	% of household heads completed primary school	45%	52.5%	61.7%
	% of adult men completed primary school	65.6%	66%	67.7%
	% of adult women completed primary school	42%	52.1%	57.9%
	Average primary school teacher to student ratio	7:472	7:492	6:555
	Average primary school textbook to student ratio	5:1	1:3	1:3
	Average secondary school teacher to student ratio	--	--	9:338
	Average # of years teachers stay at primary school	3 years	6 years	8 years
	Average # of years teachers stay at secondary school	--	--	1 year
	Ratio of female to male gross enrollment rates (primary school)	239:233	251:241	287:268
	Ratio of female to male gross enrollment rates (secondary school)	--	--	108:230
<b>HEALTH</b>				
	% of households with at least one mosquito net	90%	93.3%	96.7%
	% of households with access to protected drinking water	90%	48.3%	70%
	% of households that take measures to make the water safe	25%	18.3%	33.3%
	# of hospital/dispensary/clinic in the village	1	1	0
<b>CHILDREN UNDER 5</b>				
	% of infants exclusively breast fed through 6 months of age	13.2%	7.9%	10%
	Average age in months at introduction of complementary feeding	4.7	4.3	5.2
	% of children whose birth mother is still alive and inside the HH	91.4%	89.5%	0%
	% of children moderately to severely underweight	5.3%	2.2%	5.1%
	% of children who are vaccinated for BCG	100%	99%	97.7%
	% of children who are vaccinated for polio	98.6%	96.8%	97.7%
	% of children who are vaccinated for DPT	90%	93.7%	96.5%
	% of children who are vaccinated for measles	78.6%	74.7%	80%
	% of children received Vitamin A supplement	77.1%	75.8%	74.1%
	% children with fever in past 3 months	55.7%	54.7%	56.5%
<b>AIDS KNOWLEDGE</b>				

		Mwang'halanga	Runele	Mwabomba
	% of men with high AIDS knowledge score (5-6 points)	52%	46%	30%
	% of women with high AIDS knowledge score (5-6 points)	51%	41%	37%
	% of men who have talked with their wife/primary partner about ways to prevent AIDS	52.3%	47.7%	47.5%
	% of women who have talked with their husband/primary partner about ways to prevent HIV/AIDS	36.6%	39.4%	35.8%
<b>FOOD SECURITY AND NUTRITION</b>				
	Food Security Index	2.7	2.5	3.3
	% of HHs went one day and night with no food in the past 4 weeks	0%	3.3%	1.7%
	% of households that are currently growing kitchen garden	3.3%	0%	15%
	Avg # of days/times HHs ate meat protein in past week	3.7	4.9	5.8
	Avg # of days/times HHs ate legumes in past week	3.8	2.8	1.4
	Avg # of days/times HH ate poultry or eggs in past week	0.4	0.5	0.6
	Avg # of days/times in last week HH ate foods with Vitamin A	2.7	2.2	2.9
	# of different types of food eaten in last week	6.4	6.3	6.7
<b>ECONOMIC ACTIVITY, AGRICULTURE AND INCOME</b>				
	% households own any agricultural land	95%	86.7%	85%
	Average acres cultivated per household	3.4	6.8	3
	Average # of cattle owned per household	6.3	14	8.2
	Average # of goats/sheep owned per household	5.9	9.4	5.4
	Average # of chickens owned per household	9.6	12.1	6.5
	% of HHs whose chicken are vaccinated for Newcastle disease	15%	15%	13.8%
	% of cattle lost to disease in the past 12 months	4%	10%	8%
	% of cattle lost to drought in the past 12 months	0%	0%	0%
	% of cattle lost to wildlife in the past 12 months	0%	0%	1%
	% of chickens lost to disease in the past 12 months	6%	28%	44%
	% of chickens lost to drought in the past 12 months	0%	0%	0%
	% of chickens lost to wildlife in the past 12 months	4%	18%	14%
	% of goats/sheep lost to disease in the past 12 months	15%	8%	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	8%	3%	5%
	% of household heads with the main occupation of farming	95%	91.5%	88.3%
	% of HH heads with the main occupation of livestock keeping	0%	1.7%	0%
	% of HHs that irrigate the plots in village (from focus group data)	15%	0%	20%
	% households with bicycle	75%	88.3%	80%
	% households with radio	50%	38.3%	48.3%
	% households with cell phone	40%	50%	30%
<b>KEY INSTITUTIONS AND CIVIC ENGAGEMENT</b>				
	Distance to major weekly market	7 km	6 km	10 km
	# of village committees/groups	2	6	4

		<b>Mwang'halanga</b>	<b>Runele</b>	<b>Mwabomba</b>
	# of NGOs	5	1	1
	# of credit, banking services or VICOBA	1	1	1
	% of HHs that participated in village assembly in past 12 mo	8%	10%	8%
	% of HHs in village government or committee in past 12 mo	10%	20%	13%
	% of HHs that asked village leaders for assistance in past 12 mo	70%	68%	65%
<b>DEMOGRAPHICS</b>				
	Religion (% Christian; % Muslim; % Traditional)	70; 0; 0	45; 1.7; 1.7	68%; 0%; 2%
	Dependency Ratio (# of child (0-14 years) and aged (65+) population per 100 intermediate age (15-64 years)	122	118	125
	Child-Woman Ratio (# of children aged 0-4 years per 1,000 women in the age group 15-44 years)	0.46	0.54	0.56
	Sex Ratio (# of males per 100 females)	0.91	0.97	0.92