

THE EFFECTS OF DISTANCE AND QUALITY-OF-LIFE CONSEQUENCES
FOR REFUGEE-HOSTING POPULATIONS IN TANZANIA

THESIS

Presented to the Graduate Council of
Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

for the Degree

Master of SCIENCE

by

Bret Adams, B.A.A.S.

San Marcos, Texas
May 2010

COPYRIGHT

by

Bret Adams

2010

ACKNOWLEDGEMENTS

I would like to thank Dr. Day, my thesis advisor, for his help and guidance in conducting the research and presenting it in the most professional manner possible. That said, he should not be held responsible for the run-on sentences, overly-long paragraphs, or bureaucratic idiom that remain in this paper as he gave it a valiant effort to discourage my obtuse writing style. I am also grateful for his patience in dealing with my anxieties as deadlines became overwhelming and the typical obstructions to completion of this thesis surfaced.

I deeply appreciate the assistance of my committee members, Dr. Robert Gorman and Dr. Sven Fuhrmann, who were exceptionally considerate in complying with unreasonable time requests and whose reviews helped sharpen and improve this thesis.

And most of all, I am grateful to my husband, Rusty, for making massive adjustments to accommodate my unreasonable withdrawal from our life as I worked on this thesis project.

This manuscript was submitted on April 21, 2010.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	ix
CHAPTER	
1. INTRODUCTION	1
Study Area	1
Research Questions	7
2. REFUGEE IMPACTS ON LOCAL POPULATIONS	9
3. STUDY OVERVIEW	13
Dependent Variable	14
Survey Respondent Analysis	19
4. QUALITY-OF-LIFE INDICATORS	23
Variable Selection	23
Descriptive Analysis	24
Education Indicators	25
Adult Literacy	25
Educational Attainment	28
Children Attending School	30
Health and Nutrition Indicators	34
General Health Perception	34
Childhood Vaccination	35
Use of Mosquito Nets	36
Food Security	37

Housing and Settlements.....	38
Drinking Water	38
Lighting Source.....	42
Cooking Fuels Used.....	43
Permanent Structural Characteristics.....	43
Wealth Indicators.....	46
Durable Goods	46
Assistance	48
Availability of Emergency Funds	48
Annualized Household Consumption	49
Discriminant Analysis.....	50
Summary	53
5. HOUSEHOLD CHARACTERISTIC VARIABLES	55
Variable Selection.....	55
Descriptive Analysis	56
6. CONCLUSIONS AND IMPLICATIONS FOR FUTURE STUDY.....	62
BIBLIOGRAPHY.....	66

LIST OF TABLES

Table	Page
1 Individual characteristics of survey respondents.....	19
2 Percentage of respondents within dependency age categories.....	20
3 Household characteristics in 1991.....	21
4 Household characteristics in 2004.....	22
5 Quality-of-life indicators examined.....	24
6 Adults responding they could read a newspaper.....	26
7 Change between 1991 and 2004 survey in adults responding they could read a newspaper.....	27
8 Highest educational level reached for adults.....	29
9 Change between 1991 to 2004 in highest educational level reached for adults.....	29
10 Change in percentage between 1991 and 2004 of respondents who never attended school or who dropped before level P7.....	34
11 Children under six who have received at least one vaccination.....	36
12 Cooking fuel utilization by household.....	43
13 Building materials used for household dwellings.....	44
14 Number of households possessing durable goods, and percentages of population they represent.....	47
15 Sources of emergency funds considered available to household.....	49
16 Annualized household consumption per capita.....	50
17 Variables used for discriminant analysis.....	51

18	Group means for variant subsamples	52
19	Standardized canonical discriminant function coefficients.....	53
20	Classification table for discriminant analysis of 1991 respondents	53
21	Classification table for discriminant analysis of 2004 respondents	53
22	Household characteristics examined	56
23	Comparison of quality-of-life variables within households defined by characteristics which may provide resilience or place at risk	58
24	Household quality-of-life characteristic change between 1991 and 2004.....	59

LIST OF FIGURES

Figure	Page
1 Map of Tanzania highlighting the Kagera Region	2
2 Refugee camp locations within the Kagera Region	17
3 Overall dependency ratios	20
4 Percent of respondents ages 6-17 presently enrolled in school	31
5 Percent of respondents ages 6-17 who ever attended school	32
6 Percent of respondents ages 10-15 who never attended school or who dropped before level P7	33
7 General health perception by age	35
8 Percent of mosquito net usage in 2004.....	37
9 Frequency of problems satisfying hunger in the past year from 2004 survey	38
10 Water source information for households showing percent of source type.....	39
11 Detail of sources other than river, lake, spring, or pond	40
12 Percent of households with electricity as lighting source	42
13 Secondary lighting source type, omitting kerosene, oil, or gas lamp usage	42
14 Permanent material utilization for household dwellings.....	45
15 Percent of households possessing common durable goods	46
16 Percent of households possessing luxury goods.....	47

CHAPTER 1

INTRODUCTION

This study examines the major consequences of an influx of refugees on the quality of life of local host populations. The research analyzes the longitudinal data of the Kagera Health and Development Survey (KHDS) conducted in the Kagera district of northwestern Tanzania between 1991 and 1994 with follow-up in 2004. The survey instruments utilize the Living Standards Measurement Study (LSMS) developed by the World Bank which focuses on welfare aspects of the community, household, and individuals. The first wave of the KHDS was administered prior to the unanticipated arrival of Rwandan refugees in the area and a comprehensive follow-up provides the opportunity to examine the effects of this influx on the host population based on their proximity to refugee camps. This dataset was analyzed to contrast the quality of life of people in refugee-affected communities to those less affected. In essence, this research asks the question: do large refugee settlements affect people in neighboring local settlements positively or adversely, and in what ways?

Study Area

The study area, the Kagera Region, is in the northwest corner of Tanzania and is bordered by Burundi, Rwanda, and Uganda, all of which stand between it and the Democratic Republic of the Congo (DRC) (Figure 1). The Kigoma Region to the south shares a border with the DRC allowing access to Kagera. Each of these

fluctuations in rainfall (Litchfield and McGregor 2008). The destitute residents of this region truly do not have adequate resources to support a disadvantaged refugee population.

Tanzania has long hosted refugees from neighboring countries while maintaining a relatively peaceful existence since liberation in 1961. The early government saw the value of maintaining regional stability as important to Tanzania's well-being and maintained an open-door policy for refugees until the retirement of President Nyerere in 1986 (Ongpin 2008). The majority of this early assistance was handled at the local level with refugees assimilating into the local villages receiving aid from relatives and friends residing in Tanzania. By the mid-1990s tensions between the Hutus and Tutsis in neighboring Burundi and Rwanda were threatening the regional peace and the Tanzanian government was working with leaders of these nations when the President of Burundi was assassinated in October of 1993. The ensuing conflict drove approximately 250,000 refugees into the Kagera and Kigoma regions of northwest Tanzania. The situation was further exacerbated when the plane carrying the Presidents of Burundi and Rwanda was shot down on April 4, 1994, as they returned from peace talks in Tanzania.

This event triggered an incredible genocide within Rwanda creating a refugee flow of unprecedented proportions into the Kagera Region, specifically the Ngara District, with nearly one-quarter million crossing the border within a 24-hour time period at its peak (UNHCR 1995). This influx continued with an estimated refugee population reaching 1,300,000 in the area with refugees comprising as much as 39% of the population in Ngara and Kibondo districts, within the Kagera and Kigoma regions respectively (Alix-Garcia and Saah 2008, citing documents from OCHA 1998 and

UNICEF 2000). Local-level assistance was unable to cope with the numbers of refugees seeking asylum and international aid agencies moved in to construct large, city-sized camps and establish networks of food distribution facilities. By the end of May 1994, the Benaco refugee camp in Ngara district was the largest in the world. By 2005 Tanzania hosted fewer refugees than they had in over a decade, yet the volume was such that they still hosted the fourth largest refugee population in the world (Berry 2008).

Landau (2004) estimated that over the thirty-year period between 1961 and 1993, Tanzania hosted a total of approximately 400,000 refugees. In the seven years between 1993 and 2000, the country hosted almost 1.5 million refugees making shifts in practice and policy unavoidable. Refugee assistance policy changed within Tanzania from an open-door strategy to a more restrictive approach represented by the adoption of the 1998 Refugee Act. Refugees were viewed as a burden on the country, distressing the economy, environment, and security of the local people, and policy changes attempted to prevent assimilation of the refugees by prohibiting work outside the camps.

Whether the presence of refugee populations is detrimental to the nation's economy is debatable: the cons of environmental impacts, strains on limited local resources, and security issues weighed against the pros of positive economic factors at play when international organizations come into an area (Chambers 1986; Whitaker 1999; Jacobsen 2002a; Jacobsen 2002b; Whitaker 2002; Vas Dev 2003; Ongpin 2008). The massive flow of money through the humanitarian pipeline affects the local economy. The World Food Programme's food distribution in the area exceeded \$1 million per week for years, likely increasing local employment and economic opportunities. Market opportunities were created to meet refugee needs not provided for through humanitarian

aid efforts and to purchase humanitarian leakage, aid commodities redistributed in ways not intended by aid agencies, but this same leakage may undercut prices of locally grown foodstuffs creating hardship for local farmers. (Landau 2004).

Additionally, improvements to infrastructure such as roads, bridges, airstrips, and water systems, undertaken by international organizations to carry out their mission generally prove beneficial to the host country (Washoma 2003). However, international donors during the Great Lake crisis shifted policy from coordination of relief and development to a “relief only” policy (Waters 1999, 143). This meant that infrastructure improvements required for the humanitarian operations were often viewed as temporary and short-term solutions rather than more permanent options which could have more benefitted the local communities once the refugees departed. Further coverage of this debate is outside the scope of this research but acknowledgment of the government’s resistance to the refugee presence and the international community’s response are relevant to understanding the potential attitudes of the host population and the dynamics of the “humanitarian influx,” a term coined by Landau (2004) to describe the arrival of refugees and international relief in the study area.

The unprecedented flow of refugees into the Kagera Region had devastating environmental effects. The refugees damaged fields and crops to get food and cut down coffee plants for firewood and shelter (Jacobsen 1997). Destruction of infrastructure was also rampant as public buildings were destroyed for wood, and local water and waste facilities were burdened beyond capacity. The environmental impact of the refugees in this area included deforestation, devegetation, erosion, degradation and pollution of water sources, overgrazing, and illegal poaching and fishing as negative consequences of the

refugee presence (Washoma 2003). Refugees trespassed on village land to collect and cut firewood and to burn trees to make charcoal, thus creating resource competition. This conflict affected relations with the host communities as it fed hostilities between refugee and hosts (Martin 2005; Berry 2008).

Pressures by the Tanzanian government to repatriate refugees displaced by the Rwandan genocide led to support by the United Nations High Commissioner of Refugees (UNHCR) for forced repatriation beginning in December 1996. While the Rwandan refugees initially repatriated by 1997 lessened the number of refugees hosted for a short time, refugee population growth persisted until 2000 (Landau 2004). The region continued to host refugee populations from Burundi, the Democratic Republic of Congo, Somalia, and Rwanda until June 2008 when the Lukole camp closed, leaving the region free of refugees for the first time in fifteen years (Maystadt and Verwimp 2009). The refugee situation within the Kagera district attracted a great deal of initial media attention and voluntary donations supporting the Rwandan refugee influx, however hosting the refugee camps continued for many years with fluctuating refugee spillover from conflicts within neighboring countries, all of which attracted less media attention, popular interest, and financial support.

The problems encountered in the Kagera Region of Tanzania are not unique. With refugee and internally displaced populations increasing in distressed communities around the world, consideration must be made for the increasing demands placed on hosting communities in the developing world. While most of the attention of the humanitarian assistance agencies and the academic study is directed toward the refugee population and the effects of their flight, it is also important to recognize the impact of

the humanitarian influx on the host communities (Chambers 1986). Some recognition of the perceived benefits and costs to these communities has been addressed (Aukot 2003; Dryden-Peterson and Hovil 2004). However, the impacts of this humanitarian influx on host communities remains understudied, particularly as to the long-term effects on the well-being of the host population.

While the welfare of the host community is of importance in its own right, recognition that perceived inequalities in treatment exacerbate refugee-host relations makes this a topic of concern to humanitarian organizations. Incidents of violence and conflict between refugees and hosts create security problems for both populations (Jacobsen 2002b; Martin 2005). It is therefore beneficial for the international community to consider how their actions can minimize these inequalities, which are often a result of policies, humanitarian law, and organizational mandates.

Research Questions

The KDHS survey was fortunately conducted in the Kagera Region prior to the unanticipated influx of the Rwandan refugees. The follow-up study thirteen years later was unprecedented in its thorough tracking of individuals even if they had left the country (Beegle, De Weerd, and Dercon 2006). The data provide therefore an ideal, if unintentional, snapshot of before and after well-being conditions of the refugee-impacted area.

This research analyzed the survey data to investigate the following questions:

1. Does the relative proximity of a refugee camp to a community result in differential effects on indicators of long-term quality of life for the host community?

2. Do certain characteristics of the household in the host community make it more or less resilient to the potential effects of humanitarian influx? Characteristics include: 1) sex of the head of household, 2) age of the head of household, 3) educational attainment of the head of household, 4) religious minority status of the head of household, 5) tribal minority status of the head of household, 6) household wealth, and 7) household size.

Additional local characteristics, while of potential interest in the discussion of host community well-being, are outside the scope of this research.

CHAPTER 2

REFUGEE IMPACTS ON LOCAL POPULATIONS

The majority of previous research on host populations within developing countries concentrates on economic indicators. Recognizing that income statistics in less developed areas, particularly agricultural ones, will not provide an adequate picture of the household economics, a variety of techniques for determining the impact of refugees on household wealth and income are employed. The study of changes in commodity prices in nearby markets is one method to evaluate the effect of the refugee influx and the impact of humanitarian aid and products within the local markets. Changes in wealth indicators such as “possession of a radio, bike, motorcycle, cement floor, car, television and refrigerator” can also indicate economic impacts (Alix-Garcia and Saah 2008, 19).

Economic theory might suggest that the humanitarian influx would expand regional or national markets and could transform the socialist economic practices of the host population within this study area. However, there was not any predictable transition of the market. The population remained disadvantaged despite what appeared to be opportunities related to cheaper refugee labor and employment opportunities created by the presence of the international organizations and the refugees (Landau 2004).

A review of the impact of the refugee influx on the goods and labor market found that nonagricultural workers and farmers with larger farms were able to take advantage of the increased labor market but that farm laborers were likely to suffer with increased

competition from refugee labor. Interestingly, it appeared that a minimum mass of refugees is required to “generate positive externalities” and that number appeared to be much higher than the size of camps UNHCR normally recommends (Maystadt and Verwimp 2009, 26).

KHDS data on expenditure and income focused on rainfall shortage shocks, rather than the refugee influx, while recognizing that poverty “goes beyond the lack of income or other monetary resources. Poverty is generally understood to be multidimensional, encompassing economic, social, political, and institutional perspectives” (Litchfield and McGregor 2008, 3). Connectedness at the community level was an important aspect of how households protect themselves from shock, as was livelihood diversification (Litchfield and McGregor 2008). The work of Amartya Sen (1999) serves as a primary reference when building on the concept of poverty to include quality-of-life indicators. While many of the measures of well-being discussed by Sen are of an intrinsic nature and difficult to quantify, this research utilizes proxies for many of these measures (Litchfield and McGregor 2008).

An extensive qualitative study of eight of the surveyed KHDS villages determined characteristics which assisted individuals to move out of poverty (De Weerd 2010). The focus was on shocks, both positive and negative, on households and individuals, but there was no analysis related to refugee impacts. The poor within well-connected communities were more likely to have access to advantages allowing them to escape poverty than those in more remote villages. This finding reinforces the importance of personal accessibility as a potential determinant of quality-of-life issues (De Weerd 2010).

Developing a framework for evaluating changes in well-being of host populations resulting from the humanitarian influx requires an understanding of this nebulous concept of “well-being.” One definition of the multidimensionality of well-being contrasted to “ill-being” derived from worldwide interviews indicate wealth and well-being “are seen as different, and even contradictory” (Narayan, Chambers, Shah, and Petesch 2000, 21). Therefore studying only the market and economic indicators would not adequately capture well-being information, and may suggest market successes which mask failures at maintaining household or individual well-being. The primary components agreed on by respondents in developing nations worldwide which constitute well-being include: material well-being which involves having adequate food, assets, and work; bodily well-being with health and access to health services as well as a suitable physical environment; social well-being encompassed self respect, dignity, peace, harmony and extends to social cohesion and support with the ability to help one another; security consists of both a safe and secure environment and security from persecution by police and other powers; and freedom of choice and action with a sense of control in their lives, again mentioning the moral responsibility to help others. While poverty negatively impacts these characteristics of well-being, these attributes are not dependent on economic standing (Narayan et al. 2000).

A review of 43 demographic and health surveys from 24 African countries determined differences in living-standards indicators of urban and rural populations (Sahn and Stifle 2003). The multidimensional aspects of poverty were emphasized and eight indicators established: asset poverty, primary school enrollment rates and educational attainment, gender disparities in primary and secondary education, infant

mortality rates, neonatal care as a proxy for maternal morbidity, use of reproductive health services, child malnutrition, and malnutrition of women. Large inequalities in living standards remain in Africa despite development projects directed at rural communities (Sahn and Stifle 2003). KDHS data relating to child malnutrition within refugee-hosting populations found that children within refugee-hosting communities exhibited higher incidence of stunting than non-refugee hosting communities (Baez 2007).

The Health and Development Surveys and Core Welfare Indicator Questionnaire (CWIQ) surveys utilized in Rwanda employed poverty monitoring indicators which can serve as a model. The variables were categorized into outcome indicators, access indicators, process indicators, and proxy indicators which analyze health/nutrition, education, income/consumption poverty, time poverty, housing and settlements, growth and distribution, employment/wages, and public expenditure data, and allowed researchers to quantify poverty with measures appropriate to the area (Sangano, Nsanzabaganwa and Mpyisi 2003).

CHAPTER 3

STUDY OVERVIEW

The Kagera Health and Development Survey data were investigated using discriminant analysis to determine the impacts of refugee influx on the quality of life of local peoples in Northwest Tanzania. Quality-of-life indicators chosen from the related literature were used to measure changes in education, health, and income contrasting households within refugee-impacted communities and those communities determined to have little refugee interaction.

The data were downloaded from the KHDS website available from the World Bank. The site provided 49 data files prepared in Strata (.dta format) for the 1991 Wave 1 data and 47 data files prepared in SPSS (.sav format) for the 2004 data. Additionally, copies of the questionnaires, user guides, and supplemental data files related to household assets and expenses, community price indexes, rainfall, and distance to borders and camps were downloaded and reviewed. The documentation provided full questions, coding, and sequencing information. A Users Guide and a 2004 Basic Information Document provided information on how the participating households were selected, follow-up procedures of the longitudinal study, and changes to the questionnaires between the 1991 and 2004 surveys. A similar survey, the Kagera Rural Survey CWIQ (Economic Development Initiatives 2004), provided information on regional standards allowing an appropriate understanding of the local relevance of particular questions. For

example, an evaluation of the responses related to building materials used in the homes would be difficult without knowledge of local standards of permanent materials.

The data files and documentation were reviewed to determine and select variables appropriate for analysis of quality-of-life changes. The data files were then configured into three main files at the community, household, and individual levels. The community and individual level files provide necessary information on household statistics which were derived and added to the household file. Some data files had to be restructured to allow integration within the household and individual files. For example, the file asking about household assets such as radios, cars, and bicycles, listed each asset as individual line items, with some households having more than twenty asset items. The file was reorganized to provide the information by household and indicating possession of each of the items. The data were further adjusted to provide consistency between the surveys. Again using the household assets file as an example, in 1991 the survey asked if the household possessed a radio, a cassette player, and a record player as separate items while the 2004 survey grouped them together. The 1991 data were modified to be consistent with 2004 survey response.

Dependent Variable

Proximity of a community cluster to the nearest refugee camp was evaluated to determine usefulness in establishing those communities most likely impacted by the refugee influx. Community clusters had populations of 540 to 9,140 and were anywhere from 6 to 278 kilometers from the nearest camp. Distance to camp information was provided by Maystadt and Verwimp (2009), available in the KHDS data downloads. Based on their on-site verification of refugee camp locations in relation to the community

GPS coordinates provided in the surveys (unavailable for download), they evaluated GPS distances of each community cluster to each refugee camp. Inadequate road systems impede transportation and accessibility in much of the Kagera Region, both prior to the arrival of refugees and still today, so actual travel distances to these camps will differ from GPS distance. GPS proximity to nearest camp as the defining characteristic of refugee-impacted versus non-refugee-impacted may not capture the reality of interaction to the communities. Indeed, though Maystadt and Verwimp completed the field work which identified distances between camps and community clusters, their research considered refugee-impact as those community clusters who had responded on the KHDS survey that they had been “close by” a refugee camp (Maystadt and Verwimp 2009, 16).

Because of the unanticipated nature and the speed with which the refugees fled into the Kagera Region, the Tanzanian government and UNHCR were challenged to determine appropriate camp sites close enough to where the refugees gathered as moving the vast number of people involved would have been cost prohibitive. This meant establishing some camps within a distance to the border normally discouraged by the UNHCR. The flow of refugees did not appear to seek out particular areas, with the flow across the border described as “a swarm of loco bees” (Maystadt and Verwimp 2009, 5). These circumstances prevented selection of camp locations based on local village characteristics. The size of the refugee groups coming into Kagera, the cost of refugee relocation, and ease of future repatriation determined selection of camp locations by the Tanzanian government and the UNHCR. Maystadt and Verwimp (2009) also evaluated local community characteristics prior to the influx and determined there was no

significant relationship with camp locations, removing the concern that camp location could have an exogenous effect.

Camp size was also evaluated for the potential impact on communities. Camps varied in size from small transit camps usually housing less than a hundred refugees to Benaco which housed at least 160,000 during peak service. However, camps were clustered so that refugee hosting communities, if close to one camp, were likely close enough to several other camps that separating impacts was neither feasible, nor informative. It was therefore determined not to take camp size into consideration recognizing that research in other geographic circumstances may find it helpful to take into account the camp sizes when determining impact. The largest camp cluster in the Kagera Region consisted of several large camps, Benaco, Lumasi, Musuhura, Kitalli Hills and Lukole, hosting combined populations in excess of 530,000 (Figure 2). The second camp cluster within the Kagera Region consisted of Kyabalisa I and II camps (also referred to as Chabalisa), Rubwera, Kagenyi, Omukariro, and Burigi camps with combined populations exceeding 167,000 (Kopoka 1998; UNDHA 1998). Though the Burigi camp housed less than 2,000 refugees, both nearby local communities indicated on the survey problems with refugee-related robberies, verifying there are impacts regardless of camp size.

After a review of existing literature and the particular circumstances of the refugee influx into the Kagera Region, it was determined that the dependent variable representing proximity to refugee camps would be best measured by the community leader's response on the KHDS questionnaire "were there refugee settlements close by?" This variable defined 12 of the 51 community clusters as near settlements. Of the 12



Figure 2. Refugee camp locations within the Kagera Region.

near-settlement clusters, the camps ranged from 6.16 to 55.15 kilometers to the nearest camp. The far-settlement clusters had one camp 7.25 kilometers from the nearest camp and the other nearest camp distances ranged from 25.72 to 123.24 kilometers. Within the 12 near-settlement communities, 6 communities indicate there had been many refugee-related robberies, 3 communities indicate few refugee-related robberies and 3 report no problem with refugee-related robberies (75 percent affected). The 39 far-settlement communities reported only 23 percent of the communities were affected by refugee-related robberies (2 indicating many refugee-related robberies, 7 indicating a few, and 30 indicating no refugee-related robberies).

The Kagera Region is largely rural with the exception of areas near the regional capital of Bukoba and two other communities with sizable populations, Biharamulo, and Muleba. Recognizing that urban and rural environments would greatly influence the responses related to quality-of-life indicators, it was determined to establish a near-settlement group consisting of the 12 communities responding they were close to refugee settlements, a far-rural-settlement group including 27 community clusters, and a far-settlement-urban group with the 12 communities indicated as urban areas near Bukoba. The identification of 12 community clusters as urban areas was based on information received from Economic Development Initiatives (private communication, 14 March 2010). Analysis was focused on comparisons of the near-settlement and far-rural-settlement groups as a predominant difference in these groups would be the refugee impact.

Survey Respondent Analysis

A review of the dataset illustrates the increase in the number of individuals affiliated with the original KHDS survey households from 1991 to 2004 (Table 1). The number of households increased three-fold in both of the rural settlements and over 2.5 times in the urban settlements. The number of individuals exhibited similar growth increasing 2.5 times for near settlements, 2.4 times for the far rural settlements, and 2.2

Table 1. Individual characteristics of survey respondents.

	1991								
	Near Settlements			Far Rural Settlements			Far Urban Settlements		
	Freq.	Percent		Freq.	Percent		Freq.	Percent	
Households	210			500			209		
Individuals	1,317			2,919			1,137		
Male	629	47.8%		1,389	47.6%		556	49.0%	
Female	688	52.2%		1,530	52.4%		580	51.0%	
Age in Years	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
	0	107	21.1	0	95	22.1	0	100	22.5
Age Ranges									
<6	269	20.4%		561	19.2%		210	18.5%	
6-15	433	32.9%		924	31.7%		316	27.8%	
16-24	204	15.5%		527	18.1%		240	21.1%	
25-50	265	20.1%		509	17.4%		224	19.7%	
>50	146	11.1%		398	13.6%		147	12.9%	

	2004								
	Near Settlements			Far Rural Settlements			Far Urban Settlements		
	Freq.	Percent		Freq.	Percent		Freq.	Percent	
Households	669			1,552			553		
Individuals	3,342			7,258			2,526		
Male	1,603	48.0%		3,540	48.8%		1,228	48.4%	
Female	1,739	52.0%		3,718	51.2%		1,303	51.6%	
Age in Years	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
	0	99	20.5	0	105	21.3	0	100	22.2
Age Ranges									
<6	783	23.4%		1,508	20.8%		444	17.6%	
6-15	767	23.0%		1,816	25.0%		638	25.3%	
16-24	700	20.9%		1,372	18.9%		506	20.0%	
25-50	803	24.0%		1,906	26.3%		718	28.4%	
>50	289	8.6%		655	9.0%		220	8.7%	

times for far urban settlements. Male/female distribution and average ages remained similar among all settlements and in comparisons of 1991 and 2004.

An interesting shift between the 1991 and 2004 surveys is the improvement in overall dependency ratios (Figure 3). The growth experienced in the region has greatly increased the number of working age adults, 16 to 60, and the percentage of underage and elderly dependents has decreased, though these populations are certainly rising (Table 2). This reduction in the dependency ratio presents opportunities for these areas as the increase in the proportion of working age adults allows for more per capita economic productivity, but it also presents challenges as the large increase in the number of employable individuals is not likely to be matched by employment opportunities, with the possibility of higher unemployment and underemployment. The primary unit of analysis for the research is the household so comparative information is provided at the household level as well (Tables 3 and 4).

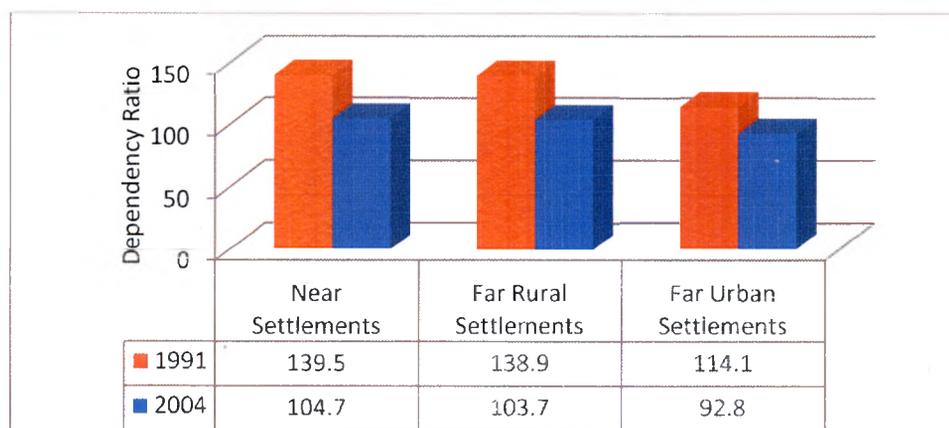


Figure 3. Overall dependency ratios.

Table 2. Percentage of respondents within dependency age categories.

	1991			2004		
	Near Settlements	Far Rural Settlements	Far Urban Settlements	Near Settlements	Far Rural Settlements	Far Urban Settlements
15 and under	53.3%	50.9%	46.3%	46.4%	45.8%	42.8%
older than 60	4.9%	7.3%	7.0%	4.8%	5.1%	5.3%
16-60	41.8%	41.9%	46.7%	48.9%	49.1%	51.9%

Table 3. Household characteristics in 1991.

	Near Settlements				Far Rural Settlements				Far Urban Settlements			
	Freq.	Percent	Mean	Median	Freq.	Percent	Mean	Median	Freq.	Percent	Mean	Median
Total Households	210				500				209			
Household Head												
Sex	1.15				1.27				1.34			
Male	178	84.8		1.00	363	72.6		1.00	137	65.6		1.00
Female	32	15.2			137	27.4			72	34.4		
Age	Min 17	Max 95	46.45	44.50	Min. 15	Max 95	49.08	50.00	Min. 7	Max 91	47.92	47.00
Religious Majority	1.40				1.31				1.29			
Yes	125	59.5		1.00	346	69.3		1.00	148	71.5		1.00
No	85	40.5			153	30.7			59	28.5		
Tribal Majority	1.20				1.22				1.11			
Yes	169	80.5		1.00	389	78.0		1.00	185	89.4		1.00
No	41	19.5			110	22.0			22	10.6		
Years Schooling	3.70				3.99				5.71			
Never Attended School	58	29.1		4.00	125	26.0		4.00	31	15.9		6.00
Household Size	Min 1	Max 17	5.36	5.00	Min. 1	Max 14	4.93	5.00	Min. 1	Max. 13	4.9	5.00
Annualized HH Total Consumption Per Capita	Min 47,012	Max 1,024,408	218,801	167,166	Min. 25,725	Max 1,310,598	233,867	173,480	Min 32,442	Max. 1,400,347	255,488	178,306
Annualized HH Food Consumption Per Capita	Min. 16,235	Max 814,544	148,289	112,805	Min. 15,118	Max 1,032,691	154,598	114,629	Min 7,413	Max. 1,071,591	172,081	123,592 54,652
Annualized HH Non-Food Consumption Per Capita	Min. 9,179	Max 593,846	70,782	54,035	Min 6,034	Max 706,253	79,838	54,996	Min. 4,680	Max. 647,361	85,793	

Table 4. Household characteristics in 2004.

	Near Settlements				Far Rural Settlements				Far Urban Settlements			
	Freq	Percent	Mean	Median	Freq.	Percent	Mean	Median	Freq	Percent	Mean	Median
Total Households	669				1,552				553			
Household Head												
Sex												
Male	1 17				1 22				1 25			
Female	1.00				1.00				1.00			
Age	554	83.1			1196	77.9			410	75.2		
Religious Majority	113	16.9			340	22.1			135	24.8		
Yes	Min 12	Max. 96	40.58	34.00	Min 10	Max. 99	41.57	36.00	Min. 15	Max 90	42.33	37.00
No			1.46	1.00			1.35	1.00			1.32	1.00
Tribal Majority	362	54.1			1013	65.3			377	68.2		
Yes	307	45.9			539	34.7			176	31.8		
No			1.17	1.00			1.19	1.00			1.11	1.00
Years Schooling	553	83.2			1254	81.0			489	88.6		
Never Attended School	112	16.8			294	19.0			63	11.4		
Household Size	Min 12	Max 28	4.99	4.00	Min. 1	Max 16	4.71	4.00	Min. 1	Max. 22	5.22	5.00
Annualized HH Total Consumption Per Capita	Min. 16,969	Max 1,823,100	252,663	173,822	Min. 31,888	Max. 4,771,619	264,845	188,629	Min. 15,444	Max. 2,250,364	218,168	150,805
Annualized HH Food Consumption Per Capita	Min 5,863	Max. 1,210,335	167,292	117,979	Min 19,524	Max. 3,506,300	174,739	122,309	Min 3,380	Max 1,295,627	144,001	101,461
Annualized HH Non-Food Consumption Per Capita	Min. 2,480	Max. 674,119	87,302	55,310	Min 3,916	Max. 1,318,299	90,936	61,448	Min. 4,265	Max. 1,103,732	73,269	47,663

CHAPTER 4

QUALITY-OF-LIFE INDICATORS

Variable Selection

Variables to be reviewed to assess quality of life are based in part on the poverty monitoring indicators provided by Sangano, Nsanzabaganwa, and Mpyisi (2003) to provide regionally appropriate measures (Table 5). Not all indicators described by these authors were obtainable from the KHDS survey data, but the variables available should serve as an adequate indicator of household well-being. The predominant categories include education, health/nutrition, housing and settlements, income/consumption poverty, and time poverty, each of which has a surrogate within the survey variables. These variables complement the living standards indicators proposed by Sahn and Stifel (2003) further defining the analysis. Three of the eight indicators utilized by Sahn and Stifel could not be analyzed as the KDHS 2004 survey regrettably eliminated the survey section which would have produced information on infant mortality rates, neonatal care, and use of reproductive health services. This research does not attempt to analyze child malnutrition, which has been covered thoroughly in an earlier study (Baez 2007), or the malnutrition of women, which is beyond the scope of this research.

Table 5. Quality-of-life indicators examined.

Education	Ability to read newspaper (literacy) Ever attended school Highest grade attained Children (6-15 year olds) in school Children (6-15 year olds) ever attended school Adult literacy
Health and Nutrition	General health perception Vaccinated (measles/tetanus/polio/TB) Use of mosquito net (2004) Frequency of food scarcity in past year (2004)
Housing and Settlements	Drinking water source type Lighting source type Cooking fuels used Permanent structural features of main dwelling - roof, wall, floor
Wealth	Possession of bicycle, radio/cassette/record player, motorbike Possession of luxury items refrigerator, television, car Received or provided assistance (2004) Provided assistance (2004) Ability of emergency funds (2004) Annualized household total consumption per capita Annualized household food consumption per capita Annualized household non-food consumption per capita

Descriptive Analysis

The analysis of quality-of-life indicators was conducted by reviewing each indicator for both 1991 and 2004 time periods. Wave 1 of the initial KHDS survey was conducted prior to the plane crash of the Rwandan and Burundi presidents which escalated the violence in Rwanda. Therefore these data serve as a snapshot of the local population prior to the arrival of the large Rwandan refugee influx. While refugee settlements were still active in 2004 at the time of the second survey, the camp populations were smaller and many camps had closed as refugees had been repatriated to their home countries.

The analysis contrasts quality-of-life variables for near-settlement and far-rural-settlement populations for both time periods, and provides change information from 1991 to 2004. Analyses of changes of each population between the two time periods determine whether there is meaningful change. Comparing the change of means in the near-settlement and far-rural-settlement populations provides information on which quality-of-life variables are impacted by refugee camp interactions with either positive or negative consequences.

Education Indicators

Adult Literacy

Adult literacy rates are a valuable indicator of quality of life. Gender disaggregated literacy information indicates that women have a lower level of literacy rates as well as attending school for a shorter time than men, with a higher frequency of never attending school at all. There were 1,744 respondents to the 1991 surveys, 47.8 percent men and 52.2 percent women. The individuals responding to the 2004 surveys increased to 5,203 with almost identical percentage breakdowns (47.7 percent men and 52.3 percent women).

Note that there are differences between the 1991 near-settlement and far-rural-settlement groupings, though the large refugee influx had not yet taken place. This is likely explained other geographic distinctions such as the proximity of the near-settlement groups to the border, an area which has been affected by smaller refugee movements in the past and also the distance of the near-settlement communities from the local urban center of Bukoba. Though there may be other explanations for initial

differences, concentrating on the changes within each group over time should adequately account for potential quality-of-life impacts.

The KHDS questionnaire asked if an individual was able to read a newspaper. While a similar question was posed asking if they could write a letter, only 143 of 2,656 (5.4 percent) respondents who could read were unable to write a letter in 1991, and only 107 of 7,170 (1.5 percent) 2004 respondents could read but not write a letter. It was therefore determined that the respondent's indication they could read a newspaper would be a reasonable proxy for literacy. There were some individuals who were able to read who indicated they had never attended school; 28 in 1991 and 83 in 2004, and also some who had attended school but were unable to read, 169 in 1991 and 272 in 2004.

In both 1991 and 2004 the percentage of adults over the age of 15 in near settlements who could read was less than the percent who could read in far rural settlements, both men and women (Table 6). Considering the change between these groups in 1991 and 2004, there was a higher increase of literacy among both men and women in near settlements, and the rate of increase among women exceeded the percentage change for men (Table 7). While a 14.2 percent increase for near-settlement women who can read appears substantial, it should be noted that the 2004 near-settlement

Table 6. Adults responding they could read a newspaper.

	1991				2004			
	Near Settlements		Far Rural Settlements		Near Settlements		Far Rural Settlements	
Adults Able to Read	378	61.5%	1,029	71.8%	1,231	70.6%	4,329	83.2%
Men Able to Read	218	76.8%	531	83.8%	662	79.5%	1,575	86.7%
Women Able to Read	160	48.3%	498	62.3%	569	62.5%	1,494	74.9%
Adults Unable to Read	237	38.5%	404	28.2%	513	29.4%	874	16.8%
Men Unable to Read	66	23.2%	103	16.2%	171	20.5%	241	13.3%
Women Unable to Read	171	51.7%	301	37.7%	342	37.5%	501	25.1%

Table 7. Change between 1991 and 2004 survey in adults responding they could read a newspaper.

	All Respondents (including urban)	Near Settlements	Far Rural Settlements
Adults Able to Read	+7.7%	+9.1%	+11.4%
Men Able to Read	+2.3%	+2.7%	+2.9%
Women Able to Read	+11.7%	+14.2%	+12.6%

literacy rates are only slightly higher for women than that indicated for 1991 far-rural-settlement women. Literacy for men increased very little in near-settlement or far-rural-settlement groups, and was higher in far-rural-settlement populations than near-settlement, the opposite of the change in rates among women from these groups. To illustrate the differences in far-settlement urban community clusters, men's literacy rates by 2004 were 94.0 percent and women's were 87.3 percent, increasing 1.7 percent and 9.8 percent from 1991 respectively.

With global development work focusing so strongly on empowering women and encouraging educational improvements as a primary means of accomplishing this, it is possible that related programs are encouraging the growth seen in women's literacy in the Kagera Region. One should note, however, that though the percentages of literate respondents have increased, there is still concern about the increasing numbers of those unable to read. In the entire region, the total number of adult respondents unable to read increased from 736 in 1991 to 1,387 in 2004. The number of men unable to read in near settlements almost tripled between 1991 and 2004, from 66 to 171. The number of women unable to read in near settlements doubled from 171 to 342 in the same timeframe. It is important not to lose sight of the impact to human capital such percentage increases can mask.

Educational Attainment

An analysis of educational attainment once again proves the far settlements have a greater percentage of individuals with higher educational levels than near settlements. Gender disparities are apparent but appear to be narrowing gaps between education for men and women (Table 8). University education is very limited and is almost exclusively within the far settlements populations and predominantly male. Increases within the secondary level are good indicators of improvements with educational attainment. An area of concern is the never-attended-school population. While one-third of women in the near settlements still indicate they have never attended school, the percentage of decrease in this category is the largest, with a drop of 11.0 percent from 1991 to 2004 (Table 9). Women's strides in achieving higher levels of education outstrip the men's. While a higher percentage of women are attending school by the 2004 survey, there was a decrease in the near settlements of men who had attended school, dropping 1.9 percent. The reduction in the percent of men completing primary school was largely due to the increase in completion of secondary school levels, but certainly includes those who have never attended. Women were also making inroads into secondary school with a higher percentage of women achieving secondary grade completion in 2004 even within the lower-ranking near settlements than men in the advantaged far settlements in 1991. University level education, while very low in this area, is strongly a male achievement with women in the region just beginning to have the opportunity to attend college.

Table 8. Highest educational level reached for adults.

		1991				2004			
		Near Settlements		Far Rural Settlements		Near Settlements		Far Rural Settlements	
University	Adults	1	0.2%	2	0.1%	2	0.1%	20	0.5%
	Men	1	0.4%	2	0.3%	2	0.2%	19	1.0%
	Women	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Secondary	Adults	18	2.9%	57	4.0%	125	7.2%	363	9.5%
	Men	12	4.2%	36	5.7%	73	8.8%	208	11.5%
	Women	6	1.8%	21	2.6%	52	5.7%	155	7.8%
Primary	Adults	377	61.3%	989	69.0%	113	65.0%	2,693	70.7%
	Men	217	76.4%	503	79.6%	600	72.2%	1,346	72.1%
	Women	160	48.3%	486	60.8%	533	58.5%	1,347	65.2%
Other	Adults	29	4.7%	43	3.0%	36	2.1%	83	2.2%
	Men	12	4.2%	15	2.4%	17	2.0%	40	2.1%
	Women	17	5.1%	28	3.5%	19	2.1%	43	2.2%
Never Attended	Adults	190	30.9%	334	23.3%	446	25.6%	651	17.1%
	Men	42	14.8%	76	12.0%	139	16.7%	201	10.8%
	Women	148	44.7%	258	32.3%	307	33.7%	450	21.8%

Table 9. Change between 1991 to 2004 in highest educational level reached for adults.

		All Respondents (including urban)		Near Settlements		Far Rural Settlements	
		Freq.	Percent	Freq.	Percent	Freq.	Percent
University	Adults	35	0.4%	1	-0.1%	18	0.4%
	Men	32	0.7%	1	-0.2%	17	0.7%
	Women	3	0.1%	-	0.0%	1	0.1%
Secondary	Adults	580	5.0%	107	4.3%	306	5.5%
	Men	337	5.5%	61	4.6%	172	5.8%
	Women	243	4.3%	46	3.9%	134	5.2%
Primary	Adults	2,992	0.9%	736	3.7%	1,704	1.3%
	Men	1,455	-6.0%	383	-4.2%	843	-5.4%
	Women	1,537	6.4%	373	10.2%	861	6.2%
Other	Adults	59	-1.3%	7	-2.6%	40	-0.8%
	Men	42	-0.6%	5	-2.2%	25	-0.2%
	Women	17	-1.9%	2	-3.0%	15	-1.3%
Never Attended	Adults	626	-5.0%	256	-5.3%	17	-6.3%
	Men	245	0.5%	97	1.9%	25	-0.9%
	Women	381	-8.9%	159	-11.0%	92	-10.0%

The other category encompasses schools listed as Koranic and adult education. In 1991 54.5 percent of respondents completing other education were able to read a

newspaper, which increased in 2004 to 84.0 percent. Percent of respondents indicating Koranic or adult education as their highest grade reduced for both men and women in all groups between 1991 and 2004.

While educational attainment levels are generally improving in both near and far settlements, the gaps between these two populations remain consistent. Women experienced the greatest increases in both near and far settlements, while men sometimes lost ground in education. Though it is apparent that there are gender disparities related to education and literacy, the educational attainment and literacy levels of women have improved during the study period, and at a more rapid rate within the near settlements than the far settlements demonstrating success in the changing social dynamics related to women and education.

Children Attending School

The number of children in school is a statistic that provides information about the quality of life of the population, particularly when taking into consideration gender disparities. This is particularly important in impoverished areas where family financial burdens can require children to stop school to work in an effort to assist in supporting the family.

The CWIQ survey from Tanzania considers the age of 6-15 prime school age, but an evaluation of the enrollment data by age indicates that there have been shifts between 1991 and 2004 with children starting school earlier than they had in the past. There were no six year old respondents enrolled in school in 1991, but 26.3 percent were enrolled in 2004 (Figure 4). Examining the data by age provides a clear picture of the distinctions between the 1991 and 2004 school enrollments, as well as the improvements made in the

near settlements, which lag behind the far settlements less in 2004 than in 1991. Because a large number of 16 and 17 year olds were still enrolled in school, their information was included on the analysis, though not counted in the overall growth figures. The proportion of girls enrolled compared to boys has also leveled out in 2004 and is far less pronounced than it was in 1991. What the graphs do not reveal is the increase in school age children, almost doubling from 1991 to 2004 in both near and far regions, increasing from 433 to 767 in the near settlements and 1240 to 2454 in the far settlements. This rapid growth in the number of school age children had to place strains on the educational system along with the additional increased enrollment percentages.

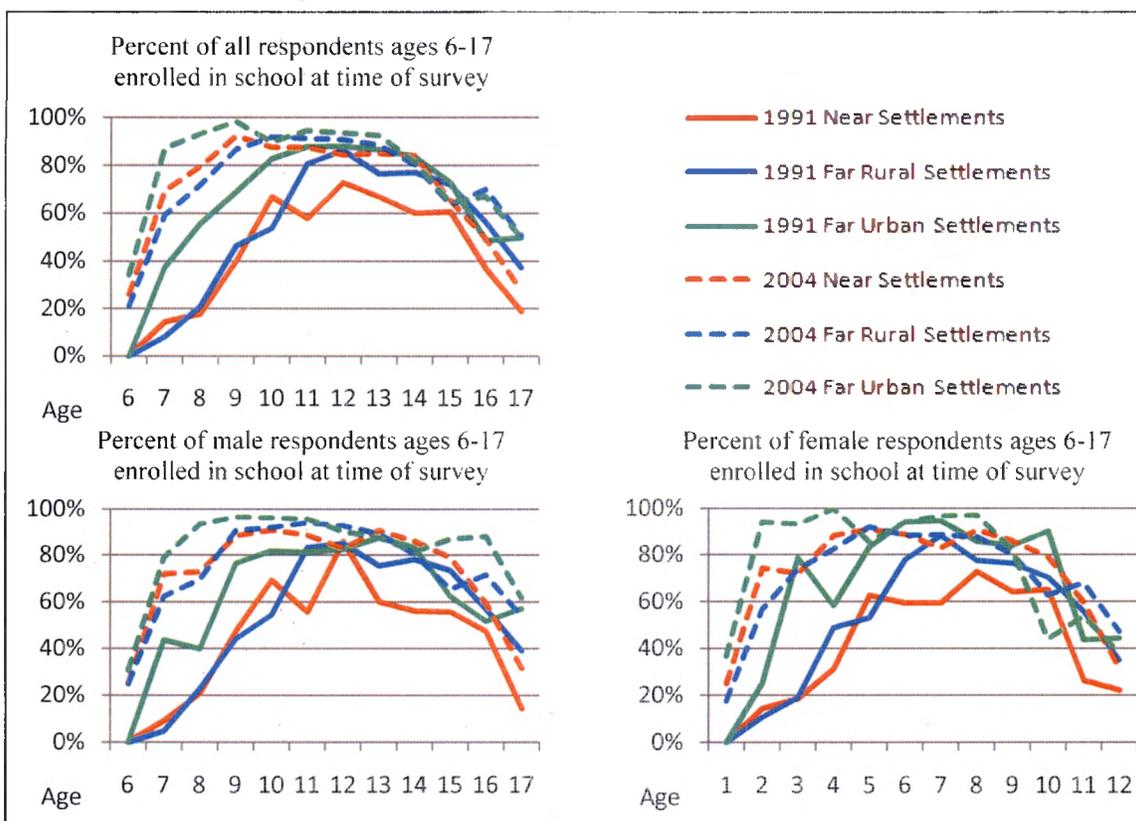


Figure 4. Percent of respondents ages 6-17 presently enrolled in school.

Investigating the data on those children who had ever attended school required an analysis by age since the overall statistic would be skewed by those who have not yet

begun school. The mean age of children to start school in 2004 was 8.16; data were unavailable for the 1991 respondents. This was lower than the mean age to start school of 9.37 in the 2004 adult population. However, provided with this mean age of adults, an evaluation of children aged 10 to 15 should provide an adequate view of the percent ever attending school. In 1991, 80.8 percent of children aged 10 to 15 had attended school, which increased to 90.2 percent by 2004 (Figure 5). Comparing this to adults aged 16 and over, in 1991 there were 77.6 percent and in 2004 80.2 percent who had attended school. While this indicates that the children are attending school at a greater rate than their predecessors, it is interesting to note the discrepancy when pulling out those over 50. Evaluating adults aged 16 to 50, 85.6 percent of the 1991 respondents had attended school and 83.8 percent of the 2004 respondents had attended. This may indicate that the 1991 youth were able to receive formal education less than the prior generation and that

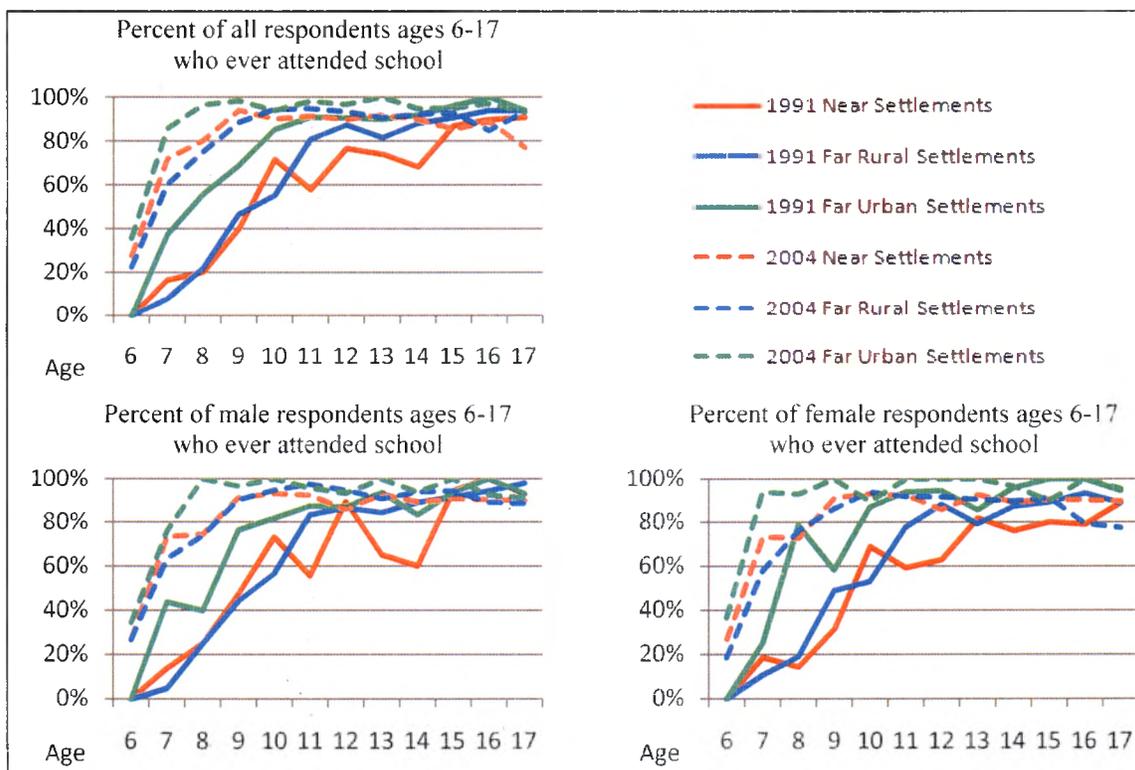


Figure 5. Percent of respondents ages 6-17 who ever attended school.

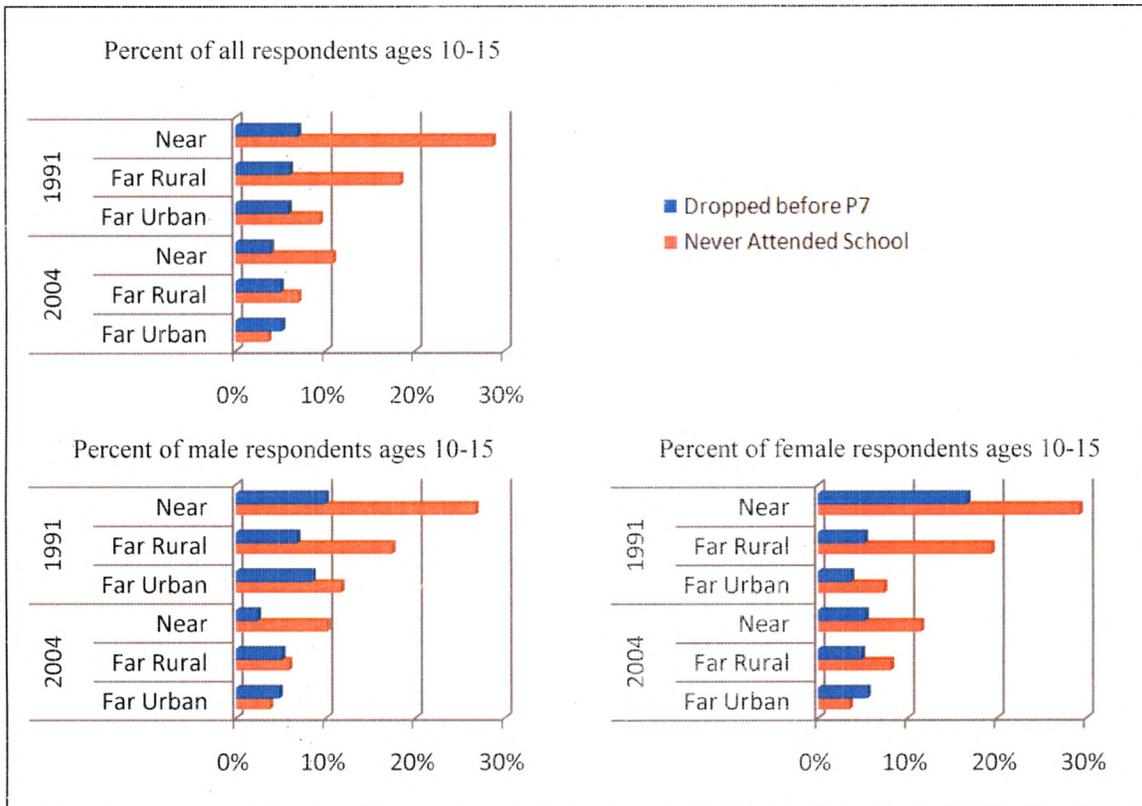


Figure 6. Percentage of respondents ages 10-15 who never attended school or who dropped before level P7.

the increase in those attending school in 2004 may not be as large overall. Gender differences, while still notable in 1991, are leveling out in the 2004 population.

While the educational attainment and school enrollment have increased, it is important to consider the children still unable to attend school or dropping out during primary school. It should not be overlooked that 200 respondents aged 10 to 15 in 1991, 19.3 percent of the total that age, and 133, or 7.2 percent in 2004, never attended school. There were 65, 6.3 percent in 1991 and 87, 4.7 percent in 2004, who dropped prior to completion of level P7 (Figure 6). There was a decrease from 1991 to 2004 in the percentages never attending school but the pattern for early drops was less consistent (Table 10). Within urban environments the percentage of boys who had never attended school dropped, but there was an increased percentage in girls dropping before

completing primary school. Near-settlement groups exhibited greater improvement in reducing both non-attendance and drop-out rates than did the far-rural-settlement group, particularly in the area of girls dropping out.

Table 10. Change in percentage between 1991 and 2004 of respondents who never attended school or who dropped before level P7.

	Change		
	Near Settlements	Far Rural Settlements	Far Urban Settlements
All - Never Attended	-17.8%	-11.4%	-5.7%
Boys - Never Attended	-16.6%	-11.5%	-8.0%
Girls - Never Attended	-17.7%	-11.2%	-3.8%
All - Dropped Before P7	-3.1%	-1.0%	-0.7%
Boys - Dropped Before P7	-7.6%	-1.7%	-3.7%
Girls - Dropped Before P7	-11.4%	-0.3%	1.8%

The gains made in school attendance rates and decreased dropout rates remain positive quality-of-life indicators for both near and far settlements, with greater gains seen within the near settlements. Whether this is because the near settlements lagged so far behind in 1991 and have yet to catch up with the rural far settlements, frequently yet achieving the 1991 far settlement standings, or as a possible effect of the humanitarian influx into the area remains uncertain.

Health and Nutrition Indicators

General Health Perception

While not an accurate indicator of an individual's true condition of health, responses to survey questions about general health perceptions provide a view of the individual's view of their own health status. General health perception is likely to adjust as levels of education, health facilities and information on illness improve so the comparisons of 1991 and 2004 survey information should be considered with this in mind. The general health perceptions of the respondents in both 1991 and 2004 near and

far settlements varied both over time and within age ranges (Figure 7). What is most interesting is there are moderate differences between the groups in the 1991 data but almost identical responses by 2004. There are far fewer responses of excellent and very good within the younger cohorts, mostly shifting to a response of good. This would lead one to believe that there are few differences in how the near-settlement and far-rural-settlement groups perceive their health conditions, but that these perceptions have moderately declined since the refugee impact.

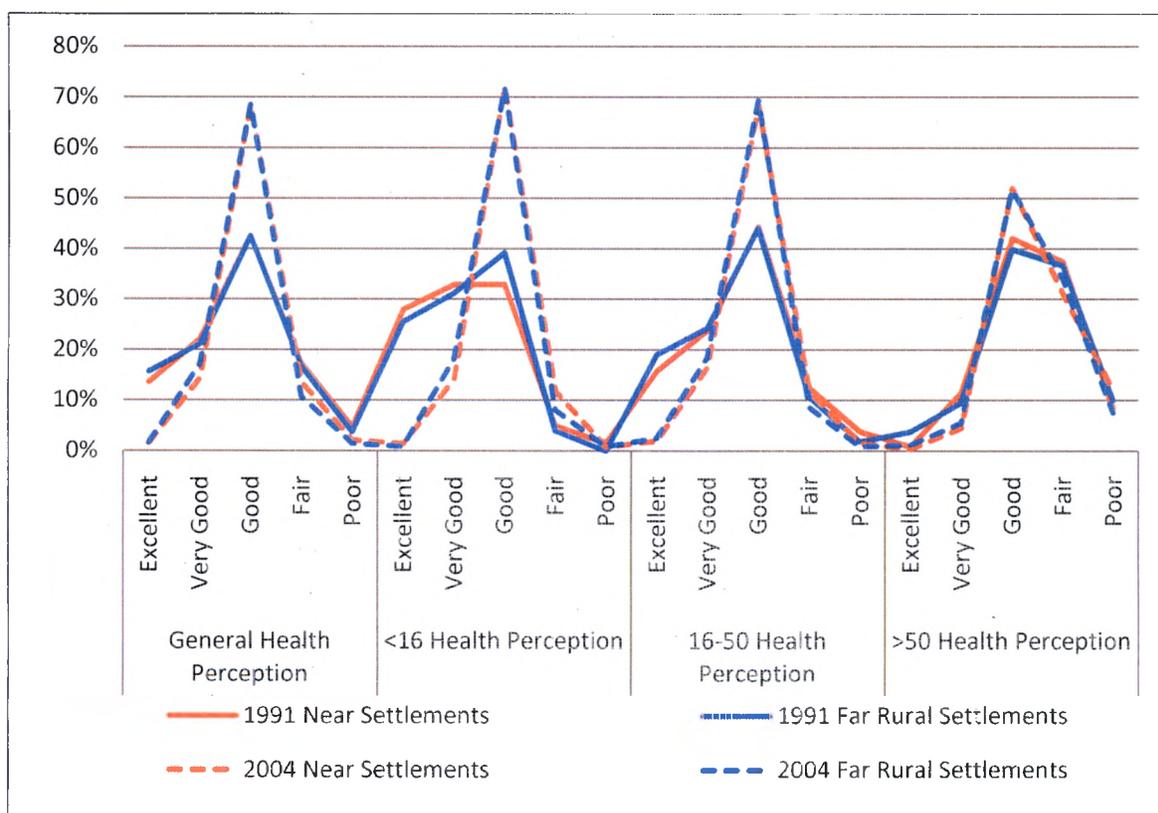


Figure 7. General health perception by age.

Childhood Vaccination

Vaccination of children is a reasonable indicator of available health care. The responses from the survey indicate a different trend than most of the other indicators with the near settlements showing higher rates of vaccinations for children under six in both 1991 and 2004, though with a considerable drop in 2004 (Table 11). However, high rates

of unknowns, particularly in 2004, may affect these percentages. If one views only those responding yes or no, the percentages range from 94.9 to 99.6 percent. However, this seems a hazardous supposition to make as it is more likely a child would not be vaccinated if household members do not have record or memory of it. Because this variable was not applicable to every household, it was not possible to include it within the discriminant analysis to determine its ability to classify these two populations.

Table 11. Children under six who have received at least one vaccination.

	1991		2004		Change	
	Near Settlements	Far Rural Settlements	Near Settlements	Far Rural Settlements	Near Settlements	Far Rural Settlements
Yes	89.6%	83.8%	84.5%	83.0%	-5.1%	-0.8%
No	4.5%	5.9%	0.1%	0.5%	-4.4%	-5.4%
Unknown	5.9%	10.3%	15.3%	16.6%	9.4%	6.3%

Use of Mosquito Nets

In an effort to curb death from malaria in the developing countries, the use of mosquito net coverage when sleeping has been encouraged in the past decade as a relatively cheap and effective form of protection, particularly when the nets have been impregnated with insecticides. The study area of Kagera Region has a significant problem with malaria and use of bed nets seems a reasonable precaution one would expect many individuals to use. Because of this relatively recent adaptation, no questions related to bed net use were included on the 1991 survey so only 2004 responses are analyzed. Whether or not nets were distributed to refugees during the Rwanda influx is unlikely, but uncertain. Such distribution at that time would likely have increased bed net use within the host population as well but it appears that any use now would be based on more current distribution efforts. Though these nets are priced relatively low, cost may be a barrier to some household's use. The use of nets is lowest in the near settlements, with 11.2 percent of respondents using nets, followed by 13.4 percent of far-rura-

settlement respondents, and highest use was 21.9 percent in the far urban settlements (Figure 8). The predominant difference between the near settlements and far rural settlements is the higher rate of insecticide impregnated nets within the far rural settlements of 45.5 percent as opposed to only 31.4 percent in the near settlements. This could be in part because of the cost and inconvenience of continually replacing or retreating the nets, which may be more easily accomplished with closer access to the rural areas.

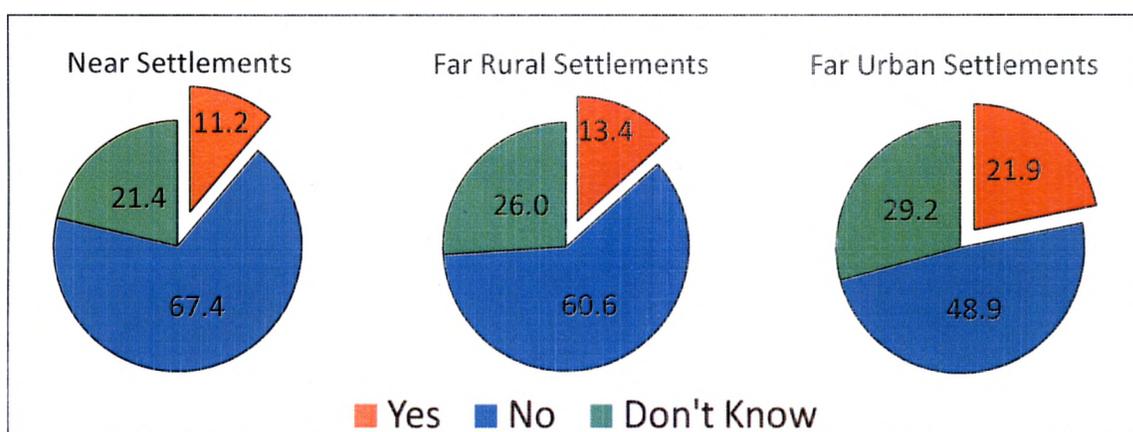


Figure 8. Percent of mosquito net usage in 2004.

Food Security

Food security is a very critical component of well-being and can be an issue in this region. The 1991 survey did not ask specific questions about food security so the analysis covers only 2004 responses. Households in near settlements had more issues with food scarcity with 20.7 percent experiencing problems satisfying hunger sometimes, often, or always in the past year, as opposed to 15.3 percent in the far rural settlements and 9.9 percent in the far urban settlements (Figure 9). Another measure of food availability is how often meat is consumed in the household. Meat consumption in the past week occurred in 35.4 percent of near settlement households and 43.8 percent of far settlement households, with some of the households indicating meat consumption at least

seven times during the week. This lower food security within the near settlements is in contrast to the previous health indicator of vaccinations where the near settlement was doing better than the far rural settlement group.

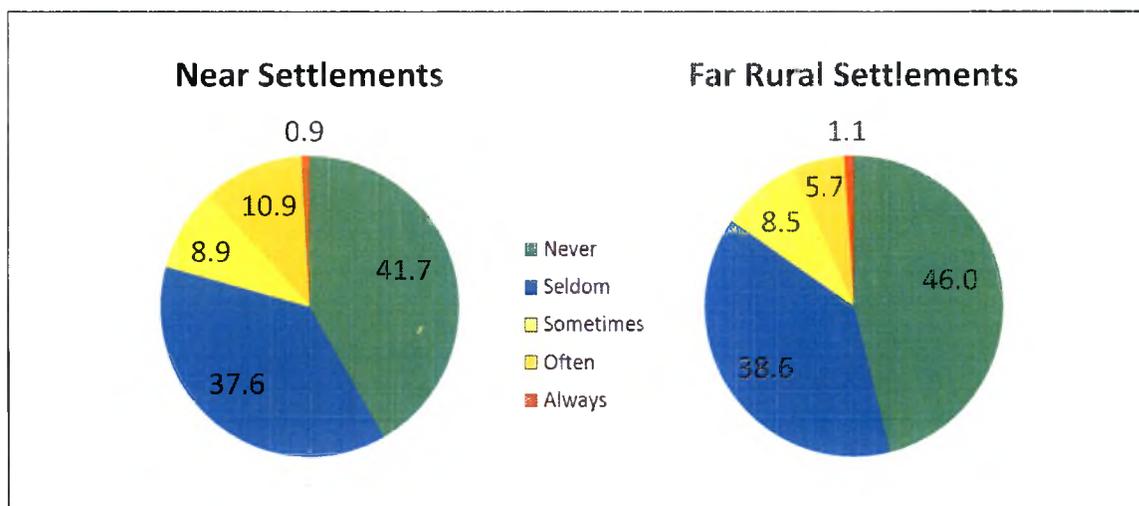


Figure 9. Frequency of problems satisfying hunger in the past year from 2004 survey.

Housing and Settlements

Drinking Water

There are two components to investigate related to household drinking water: source and distance to source. Twelve options were provided for survey respondents and the majority of respondents indicated they collect water from a water source such as a river, lake, spring, or pond (Figures 10 and 11). There is an appreciable drop from 1991 to 2004 in households collecting from an open water source with 72.4 percent in near settlements and 73.5 percent in far rural settlements in 1991 reducing to 60.7 percent in near settlements and 54.3 percent in far settlements. This represented an 11.7 percent decrease in the near settlements and a 19.2 percent decrease in the far rural settlements, indicating more of the far settlement households transferred to another water source. The primary other water sources for far settlements were wells, with and without pumps,

which grew from 14.2 percent usage in 1991 to 20.6 percent in 2004. The near settlements had an increase of 10.4 percent usage from wells with 11.2 percent of households using this source in 1991 to 21.6 percent in 2004. This is contrasted to the 8.4 percent increase demonstrated in the far rural settlements going from 16.7 to 25.1 percent, though once again the far rural settlement remains ahead in this category. The near settlements decreased use of public standpipes from 15.3 percent to 9.0 percent, which had been the second most prevalent source in 1991 near settlements. Far settlement households had relied more on well use already in 1991 and there was only a slight decrease in the percent of households using standpipes by 2004.

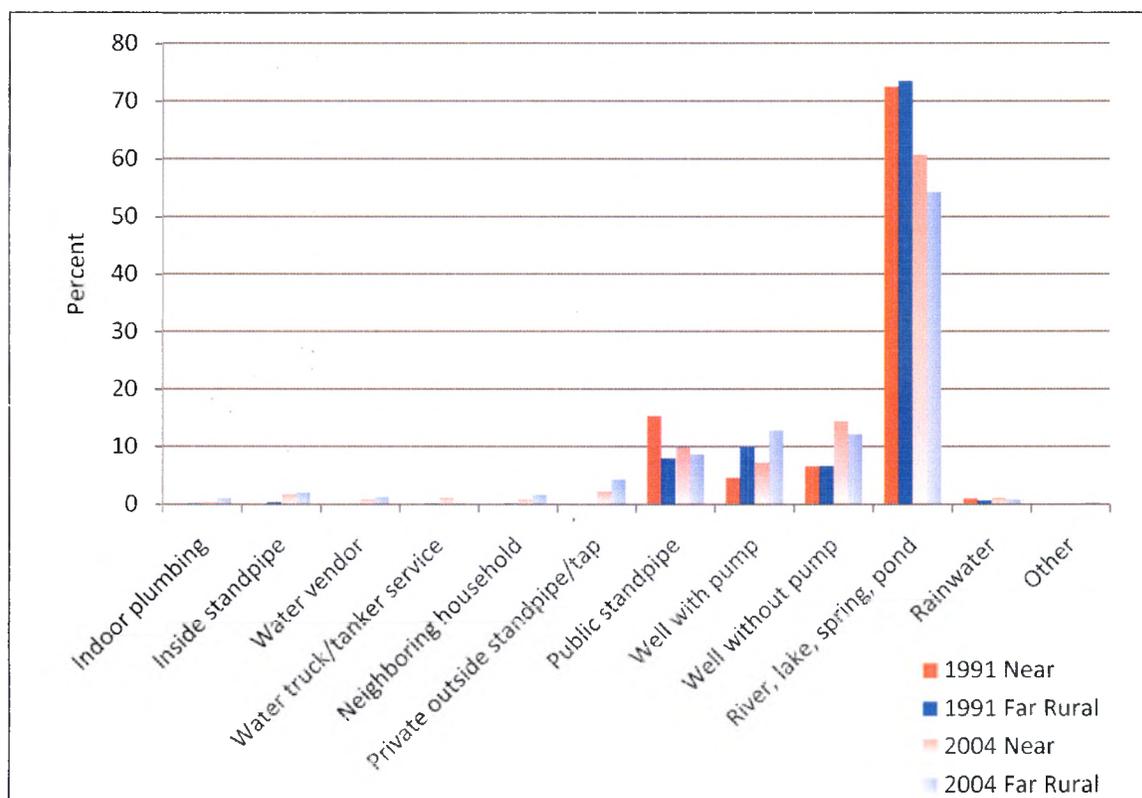


Figure 10. Water source information for households showing percent of source type.

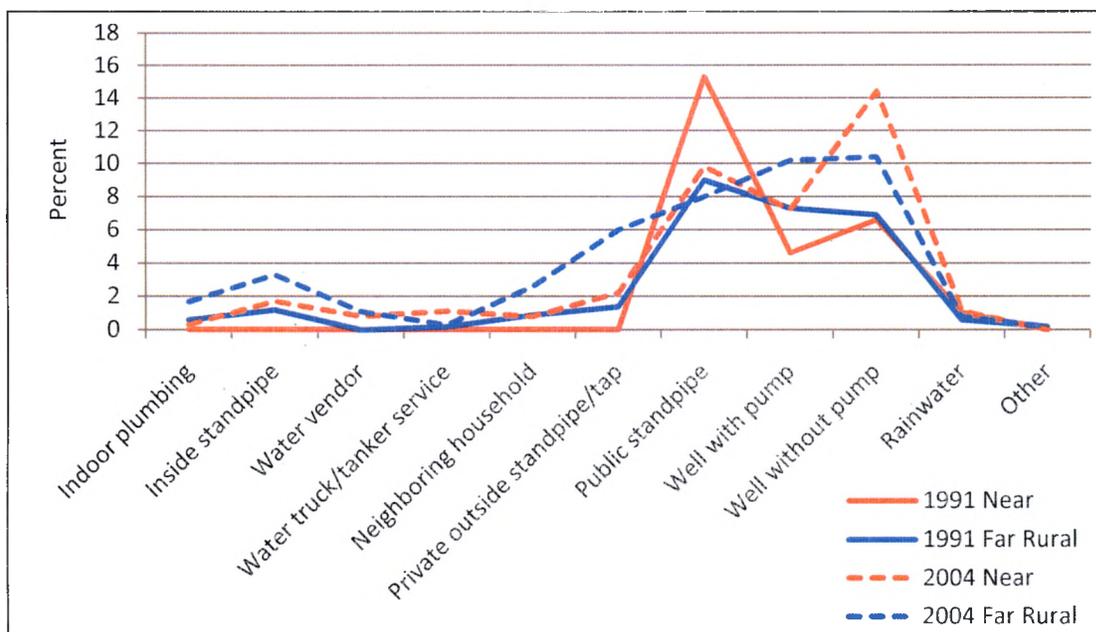


Figure 11. Detail of sources other than river, lake, spring, or pond.

Distance to the water source is relevant to quality of life since time and effort must be committed to transporting the water. Respondents reported distances to water sources outside the home ranging from 0.0 kilometers to 10.0 kilometers. The average distance between households and their water sources varied between far and near settlements, with near settlements having larger distances to traverse. The near settlement means increased slightly between 1991 and 2004 from 1.20 to 1.24 kilometers and the far rural settlements decreased slightly in the same time period from 1.10 to 0.98 kilometers.

Water and firewood collection is often a gender-defined task in developing countries and can be a significant burden with an impact on education of young girls, who are kept from school when tasks such as these require their assistance. The survey asked respondents the number of hours per week spent in collecting these. The unfortunate aggregation makes it impossible to determine if infrastructural changes affect water collection time or deforestation adds to the time it takes to collect firewood, but it

is possible to determine the time poverty effects of this work. The average provided in the data shows respondents are spending more time in this collection with the near settlements increasing collection time from 4.9 hours to 6.2 hours and rural-far-settlement respondents increasing from 4.52 to 6.57 hours.

However, the average provided may be misleading in the total number of hours required by the job when multiple members of the family are occupied by the task. In order to ensure a more consistent overview, the total number of hours reported in collecting water and firewood were divided by the number of households within the group providing a household average. Utilizing this calculation method, time required by the near- and rural-far-settlement respondents was still very similar, but household weekly averages were 21.9 and 22.1 hours per week for the respective groups in 1991. By 2004 this number had nearly halved reducing to 12.2 and 11.3 hours per week for near and far rural settlements. Simply to illustrate the difference within the far urban settlements, the average weekly hours per household decreased from 15.4 in 1991 to 8.4 in 2004.

A review of those collecting water and firewood reveals that 1991 near settlements had 39.5 percent of collection carried out by those in the 6-15 age range, and 52.4 percent female, while the far settlements had 37.0 percent collected by children aged 6-15 with 53.5 percent female. By 2004 the near settlement utilized less child labor with 33.7 percent of collection carried out by those in the 6-15 age range with an increase in female responsibility as 60 percent of those collecting were women and girls, as compared to far settlements with 35.8 percent children and 55.7 percent women and girls.

Lighting Source

Most households utilize kerosene, oil, or gas lamps for lighting: 87.2 percent in near settlements and 77.6 percent in far settlements in 1991 to 91.9 percent in near settlements and 87.2 percent in far rural settlements by 2004 (matching near settlement 1991 use). There is an increased use of electrical lighting, once again, growth within the far settlements exceeds that in the near settlements (Figure 12), particularly since there were no respondent households in the rural near settlement with electricity in 1991. A primary difference between the near and far settlements in 1991 was the higher use by the far settlements of candles or flashlights rather than kerosene, oil or gas lamps, which continues to a lesser extent into 2004 (Figure 13).

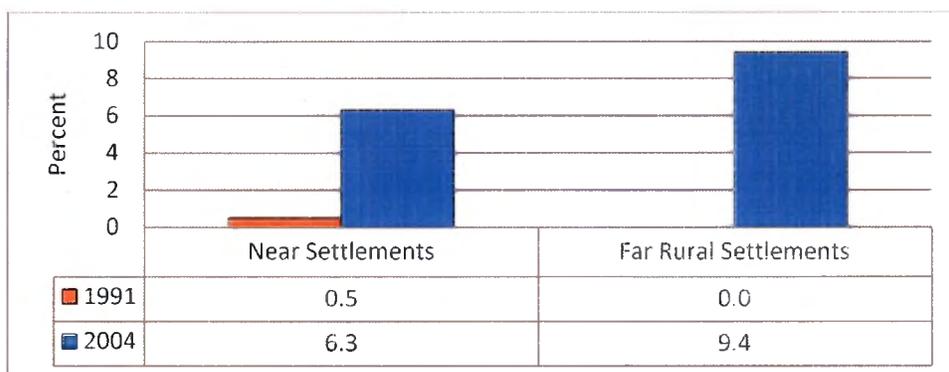


Figure 12. Percent of households with electricity as lighting source.

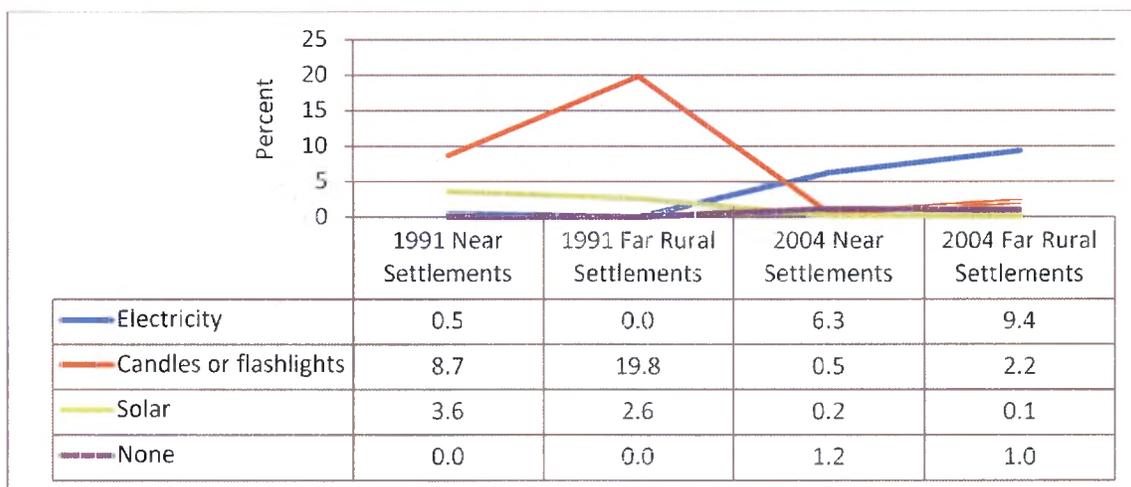


Figure 13. Secondary lighting source type, omitting kerosene, oil, or gas lamp usage.

Cooking Fuels Used

Wood is the predominant cooking fuel used in the area with charcoal as the primary secondary source and exhibiting increasing use in both areas between 1991 and 2004 (Table 12).

Table 12. Cooking fuel utilization by household.

		1991		2004	
		Near Settlements	Far Rural Settlements	Near Settlements	Far Rural Settlements
Primary Fuel Source	Wood	99.5%	98.3%	90.0%	81.4%
	Charcoal	0.0%	1.7%	8.3%	16.3%
	Gas	0.0%	0.0%	0.0%	0.1%
	Electricity	0.0%	0.0%	0.3%	0.4%
	Kerosene	0.0%	0.0%	0.9%	1.5%
	Biogas	0.5%	0.0%	0.0%	0.0%
	Other	0.0%	0.0%	0.5%	0.4%
Secondary Fuel Source	Wood	7.7%	2.9%	12.5%	14.7%
	Charcoal	61.5%	17.1%	52.5%	39.0%
	Gas	0.0%	0.0%	3.8%	0.8%
	Electricity	0.0%	0.0%	2.5%	2.8%
	Kerosene	30.8%	80.0%	27.5%	42.2%
	Biogas	0.0%	0.0%	1.3%	0.0%
	Other	0.0%	0.0%	0.0%	0.4%

Permanent Structural Characteristics

One indicator of financial status is whether permanent construction materials are used for the walls, floor, and roof of the dwelling. Building materials considered permanent for walls include bricks or cement and permanent roofing material consists of iron, concrete, tile, or asbestos (CWIQ – add to references). Permanent floors using cement or tile can also be considered. The majority of dwellings with permanent structural features have utilized iron for the roof (Table 13). Interestingly, mud was not an option for wall construction material listed on the survey but the majority of write-ins to the “other” category by respondents in 2004 indicated their dwellings had mud walls.

Table 13. Building materials used for household dwellings.

Materials		1991		2004	
		Near Settlements	Far Rural Settlements	Near Settlements	Far Rural Settlements
Wall	Mud brick	39.0%	40.1%	16.4%	20.6%
	Bamboo	48.1%	40.5%	0.3%	0.0%
	Iron	0.0%	0.5%	0.2%	0.5%
	Wood plank	3.3%	2.0%	0.6%	0.5%
	Standard brick *	3.3%	5.8%	4.1%	7.3%
	Cement *	1.0%	0.6%	11.8%	20.3%
	Other (Mud**)	5.2%	10.4%	66.6%	50.8%
Roof	Grass	48.6%	40.9%	26.4%	29.5%
	Mud	0.5%	0.2%	0.2%	0.1%
	Wood plank	0.0%	0.8%	1.2%	1.4%
	Iron *	43.3%	56.5%	63.5%	67.6%
	Concrete *	0.5%	0.0%	0.2%	0.2%
	Tile *	0.0%	0.0%	0.0%	0.0%
	Asbestos *	2.9%	0.8%	0.2%	0.0%
	Other	0.0%	0.8%	8.4%	1.2%
Floor	Earth	93.8%	89.0%	84.5%	73.1%
	Wood	1.4%	0.4%	0.2%	0.1%
	Stone	0.0%	0.0%	0.0%	0.3%
	Cement *	4.3%	9.8%	15.2%	25.7%
	Tile *	0.0%	0.0%	0.2%	0.3%
	Bamboo	0.0%	0.0%	0.0%	0.5%
	Other	0.5%	0.8%	0.0%	0.1%
Window	Glass *	0.5%	2.4%	3.8%	4.8%
	Screens	8.1%	12.2%	20.9%	20.0%
	Shutters	44.8%	42.9%	54.4%	53.0%
	Curtains	2.9%	2.6%	1.4%	1.9%
	No Cover	7.6%	7.8%	3.8%	4.8%
	No Window	36.2%	32.1%	15.7%	15.5%

* Permanent structural material.

** Write-in response of mud as wall material indicated by 99.5 percent of respondents in 2004.

In 1991 bamboo was a very popular wall material used in 48.1 percent of the dwellings in near settlements and 35.9 percent of the far settlements. Use of bamboo had drastically ceased by 2004 dropping to only 0.3 percent in the near settlements and no indication of use in the far settlements, apparently being replaced by mud. Determining whether this shift was related to ecological changes affecting availability of bamboo or some other market shift is outside the scope of this research, though it is an interesting development in the area.

Permanent features in household dwellings increased in both near and far settlements between 1991 and 2004 though near settlements remain below 1991 far settlement levels in both permanent roofing and floor material use, with greatest improvements in utilizing permanent wall construction materials (Figure 14). The most impressive change is that the near settlements went from the majority, 52.9 percent, of dwellings having no permanent structural features in 1991 to 36.2 percent without permanent features in 2004 showing an improvement of 16.7 percent. The far rural settlements exhibited 11.1 percent improvement in households constructed with permanent features.

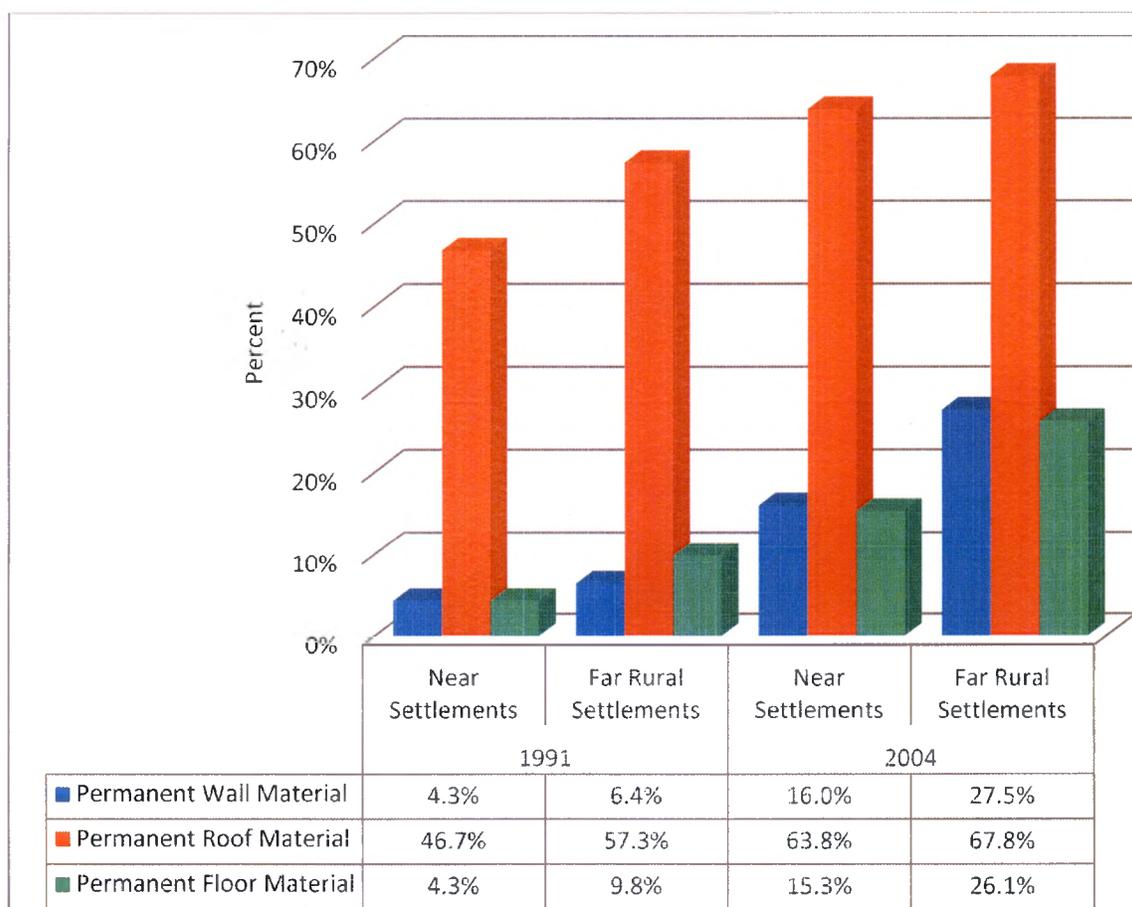


Figure 14. Permanent material utilization for household dwellings.

Wealth Indicators

Durable Goods

One measure of relative wealth utilized when salary information is not practical is a comparison of durable goods. Popular measures utilized in Africa include a household's possession of a radio or luxury items such as cameras or cars. Households responded whether they owned a stove, bicycle, or radio/cassette player/record player, considered common durable goods (Figure 15). The survey also identified the households who owned a luxury good, considered motorbike, car, camera, refrigerator, fan, television, sewing machine, or telephone (Figure 16).

To better relate how these goods are distributed among the populations, it was determined how many of the identified durable goods items households owned and a breakdown was produced (Table 14). More goods were owned by a larger percent of the population in 2004 than in 1991. There is, however, a definite lag in the near settlement population ownership related to the far settlement population.

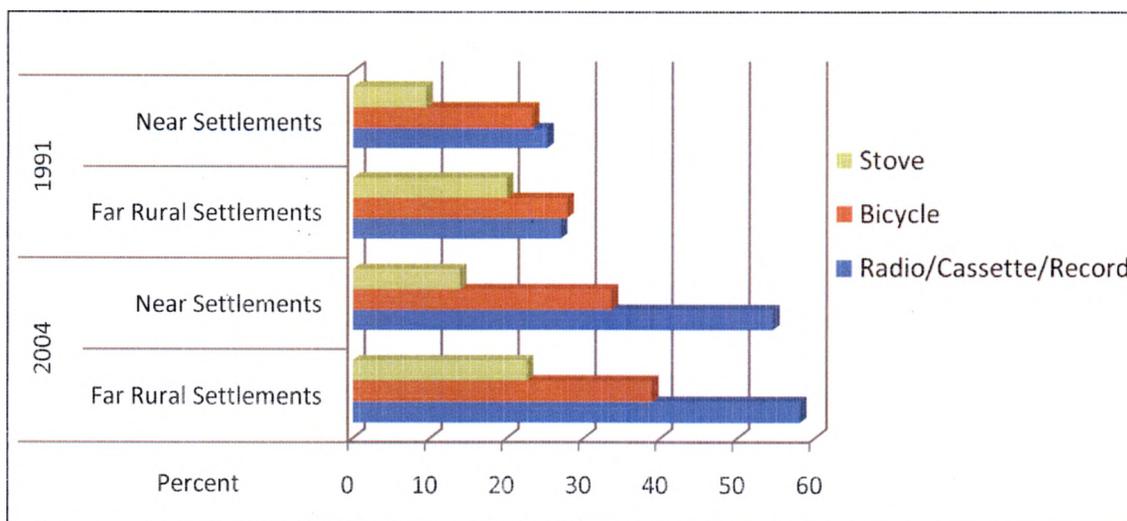


Figure 15. Percent of households possessing common durable goods.

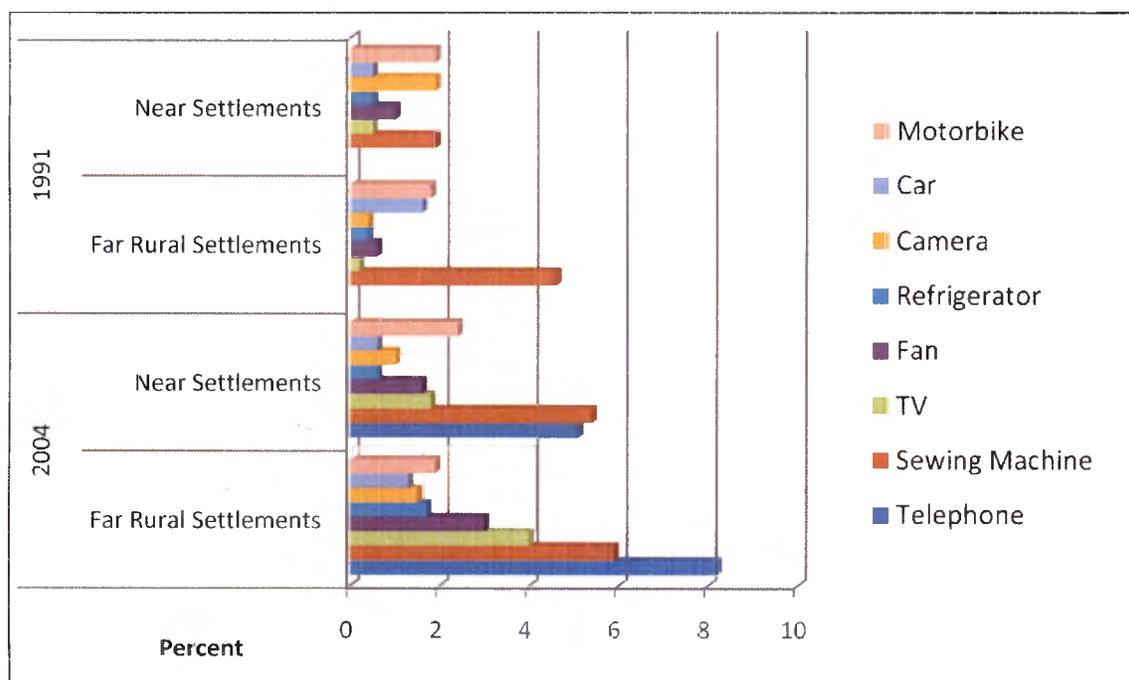


Figure 16. Percent of households possessing luxury goods.

Table 14. Numbers of households possessing durable goods, and percentages of population they represent.

Items Owned	1991							
	Near Settlement				Far Rural Settlement			
	Common Goods		Luxury Goods		Common Goods		Luxury Goods	
	House-holds	Percent	House-holds	Percent	House-holds	Percent	House-holds	Percent
1	54	25.7%	2	1.0%	185	26.1%	13	1.8%
2	22	10.5%	1	0.5%	129	18.2%	7	1.0%
3	8	3.8%	1	0.5%	68	9.6%	3	0.4%
4			0	0.0%			3	0.4%
5			0	0.0%			1	0.1%
6			1	0.5%			2	0.3%
7			0	0.0%			0	0.0%
8			0	0.0%			0	0.0%
Total	84	40.0%	5	2.4%	382	53.9%	29	4.1%

Items Owned	2004							
	Near Settlement				Far Rural Settlement			
	Common Goods		Luxury Goods		Common Goods		Luxury Goods	
	House-holds	Percent	House-holds	Percent	House-holds	Percent	House-holds	Percent
1	187	28.0%	33	4.9%	579	27.5%	176	8.4%
2	194	29.0%	17	2.5%	729	34.6%	75	3.6%
3	36	5.4%	10	1.5%	211	10.0%	54	2.6%
4			2	0.3%			41	1.9%
5			6	0.9%			23	1.1%
6			1	0.1%			9	0.4%
7			0	0.0%			7	0.3%
8			0	0.0%			1	0.0%
Total	417	62.3%	69	10.3%	1,519	72.2%	386	18.3%

Assistance

The 2004 survey asked specific questions related to assistance received by household members. Of households in the near settlements, 10.1 percent received assistance averaging 13,166 Tanzania Shillings (TZS) in the past decade and 4,297 TZS in the past year, while 13.5 percent of households in far settlements received assistance averaging 11,330 TZS over the past decade and 7,530 TZS in the past year. The percentage of households receiving assistance is much lower than those indicating they had received a gift or loan with 76.0 responding yes from the near settlements and 78.2 percent from the far settlements.

Another aspect of assistance is being able to provide it. Having enough to give to others is an important aspect of well-being. Those able to share by giving gifts or loans equated to 76.9 percent in the near settlements and 74.6 percent in the far rural settlements. There is a good deal of duplication of households receiving also giving but 10.3 percent of near households receiving assistance did not give, and 12.9 percent of far households received but did not give.

Availability of Emergency Funds

Having potential funds available in the event of unforeseen circumstances is another measure of financial security. When asked if they would be able to raise 20,000 TZS, the majority indicated they could, with 54.8 percent of households in near settlements and 52.5 percent in far settlements believing such funds could be made available. However, the potential sources of these funds are different for the two groups (Table 15). Far settlements had more access to savings with 17.6 percent indicating that would be their source, the second most likely source of funds among that group. In

contrast, more near settlement households would have to resort to selling off livestock or stocks and crops. Sale of durable goods and equipment were considered more likely sources of emergency funds for the far settlement households than selling off their primary assets of crops and livestock. When asked if they had a friend willing and able to provide these funds, 35.2 percent of the near settlement respondents indicated they did, while 43.4 percent of far settlement respondents felt they had such a source.

Table 15. Sources of emergency funds considered available to households.

	Near Settlements	Far Rural Settlements
From relatives/friends in same village	28.3%	37.2%
From savings	10.4%	17.6%
Selling durable goods/equipment	9.2%	13.2%
Selling stocks or crops	21.8%	12.0%
Selling livestock	22.7%	10.7%
Taking extra work	1.7%	3.9%
From relatives/friends in different location	2.5%	2.4%
Selling land/house	3.4%	3.1%

Annualized Household Consumption

In areas like the Kagera Region where income is not a straightforward measure of financial worth, annualized household consumption is used as a reasonable proxy.

Contrasting the 1991 near and far settlements, the near settlements had less annualized total consumption per capita with a median of 167,166 TZS compared to 173,480 TZS for the far rural settlements (Table 16). The annualized food consumption per capita varied more than the non-food consumption per capita. By 2004 the near settlements were much closer to the far settlements in annualized total consumption per capita with a median of 173,822 TZS as opposed to 168,629 TZS in the far rural settlements and the near settlements spent more on annualized food consumption per capita than the far settlements. There are interesting differences in the range of consumption figures with

Table 16. Annualized household consumption per capita.

Total Consumption	Minimum	Maximum	Mean	Median	Mode	Std Dev
1991 Near Settlements	47,012	173,718	218,801	167,166	47,012	159,255
1991 Far Rural Settlements	25,725	1,310,598	233,867	173,480	25,25	201,110
2004 Near Settlements	16,969	1,823,100	252,663	173,822	16,969	226,618
2004 Far Rural Settlements	31,888	4,771,619	264,485	188,629	31,888	263,267
Food Consumption	Minimum	Maximum	Mean	Median	Mode	Std Dev
1991 Near Settlements	16,235	112,488	148,289	112,805	16,235	115,848
1991 Far Rural Settlements	15,118	1,032,691	154,598	114,629	15,118	138,885
2004 Near Settlements	5,863	1,210,335	167,292	117,979	5,863	158,584
2004 Far Rural Settlements	19,524	3,506,300	174,739	122,309	19,524	182,607
Non-Food Consumption	Minimum	Maximum	Mean	Median	Mode	Std Dev
1991 Near Settlements	9,179	55,508	70,782	54,035	9,179	65,506
1991 Far Rural Settlements	6,034	706,253	80,940	54,996	6034	81,287
2004 Near Settlements	2,480	674,119	87,302	55,310	2,480	88,928
2004 Far Rural Settlements	3,916	1,318,299	90,936	61,448	3,916	98,222

* Consumption per capita calculated in 2004 TZS

the 1991 near settlements having higher minimum and maximum ranges. By 2004 the far settlements have spread to lower minimums and much higher maximums, almost five times that of the near settlements.

Discriminant Analysis

Discriminant analysis was conducted to determine those variables which best capture the refugee impact on quality-of-life indicators. Said differently, the analysis attempted to ascertain which indicators best differentiate the near settlements from the far settlements.

Analyses were run separately on the 1991 and 2004 information to include the near-settlement and the far-rural-settlement groups, since they are the focus of the comparison discussed earlier. Frequencies were run on the potential quality-of-life variables within the dataset to determine those with sufficient responses to be included. Some of the variables did not apply to all households and were therefore not viable options to include in the discriminant analysis. An example of a variable not included was the health indicator of children under seven vaccinated. Those households with no

children under seven years of age had no responses for this variable and would therefore have been eliminated had it been included. The variables tested for 1991 and 2004 include items from each of the quality-of-life indicators examined (Table 17).

Table 17. Variables used for discriminant analysis.

<u>Education</u>	
	Adult literacy (household average)
	Ever attended school (household average)
	Highest grade attained (household average)
<u>Health and Nutrition</u>	
	General health perception
	Use of mosquito net *
	Frequency of food scarcity in past year *
<u>Housing and Settlements</u>	
	Drinking water source type
	Lighting source type
	Cooking fuels used
	Permanent roof materials used in main dwelling
	Permanent wall materials used in main dwelling
	Permanent floor materials used in main dwelling
<u>Wealth</u>	
	Possession of durable goods
	Bicycle
	Radio/Cassette/Record player
	Motorbike
	Possession of luxury items
	Refrigerator
	Television
	Car
	Received or provided assistance *
	Ability to raise 20,000 TZS *
	Annualized household total consumption per capita
	Annualized household food consumption per capita
	Annualized household non-food consumption per capita

* Variable available only in 2004 analysis.

The discriminant analysis for 1991 indicated three variables best distinguished between the two groups: 1) adult literacy averages, 2) lighting source type, and 3) permanent floor materials used in main dwelling. Though the R_c canonical correlation was rather low at 0.209 (1.0 being an exact predictor), the Wilks' Lambda had a value of 0.956 indicating that there is a significant difference between the two groups in 1991 identifiable using the three variables identified. The step-wise analysis for 2004

presented four distinguishing variables: 1) permanent wall materials used in main dwelling, 2) adult literacy averages, 3) ability to raise 20,000 TZS, and 4) frequency of food scarcity in past year. Again, the R_c canonical correlation was low at 0.177 and the Wilks' Lambda at 0.969 indicated significant difference between the two groups in 2004. A comparison of the means within these variables indicates relatively close values (Table 18). Standardized canonical discriminant function coefficients are provided for reference as well (Table 19). The analysis was able to correctly classify 60.3 percent of the 1991 cases (59.5 of near settlement and 60.6 percent of far rural settlement) and 59.9 percent of the 2004 cases (53.7 of near settlement and 62.6 percent of far rural settlement) (Tables 20 and 21). A test was conducted eliminating the 2004 additional variables and the subsequent 2004 discriminant analysis yielded two variables: 1) permanent wall materials used in main dwelling, and 2) adult literacy averages with similar significance and R_c values.

Table 18. Group means for variant subsamples.

		Near Settlements	Far Rural Settlements
1991	Adult Literacy Household Average	0.57091	0.68921
	Lighting Source (1 or 2)	2.19	2.28
	Permanent Dwelling Floor (1 or 2)	1.96	1.90
2004	Permanent Dwelling Wall (1 or 2)	1.84	1.72
	Adult Literacy Household Average	0.70815	0.79789
	Ability to Raise \$20,000 TZS (1 or 2)	1.45	1.47
	Problems Satisfying Hunger (1 - 5)	1.92	1.77

Table 19. Standardized canonical discriminant function coefficients.

		Function 1
1991	Adult Literacy Household Average	.794
	Lighting Source (1 or 2)	.501
	Permanent Dwelling Floor (1 or 2)	-.457
2004	Permanent Dwelling Wall (1 or 2)	-.622
	Adult Literacy Household Average	.420
	Ability to Raise \$20,000 TZS (1 or 2)	.548
	Problems Satisfying Hunger (1 - 5)	-.315

Table 20. Classification table for discriminant analysis of 1991 respondents.

			Predicted Group Membership		Total
			Near Settlements	Far Rural Settlements	
Original	Count	Near Settlements	125	85	210
		Far Rural Settlements	197	303	500
		Ungrouped cases	50	159	209
	%	Near Settlements	59.5	40.5	100.0
		Far Rural Settlements	39.4	60.6	100.0
		Ungrouped cases	23.9	76.1	100.0

60.3% of original grouped cases correctly classified.

Table 21. Classification table for discriminant analysis of 2004 respondents.

			Predicted Group Membership		Total
			Near Settlements	Far Rural Settlements	
Original	Count	Near Settlements	359	310	669
		Far Rural Settlements	580	972	1552
		Ungrouped cases	115	438	553
	%	Near Settlements	53.7	46.3	100.0
		Far Rural Settlements	37.4	62.6	100.0
		Ungrouped cases	20.8	79.2	100.0

59.9% of original grouped cases correctly classified.

Summary

To return to our first research question which asks if relative proximity to a camp results in different quality-of-life outcomes for the host community, differences between

the two time periods were identified through discriminant analysis. Even eliminating the 2004 questions from the analysis of 2004 produced different predictive variables than 1991 which would indicate these groups underwent different changes. While there are many other extenuating circumstances in the area aside from just the humanitarian influx, many of the rapid improvements within the near settlements would be indicative of more concerted efforts at improvement than simply a focus on rural improvements would make, since these would have had an impact on the far rural settlements as well. It seems safe to reject the null hypothesis based on the differences perceived in the descriptive analysis along with the results of the discriminant analysis.

For future work within refugee host populations, it should be recognized that improvements in quality-of-life indicators may still not catch these populations to those in less affected regions. This can be seen in improvements in literacy and education attainment within the Kagera near settlements, particularly for women, which are still below the levels of far rural settlements. Many of the improvements related to dwelling materials, water sources, and fuel types would have seen some change over time as improvements are adopted in the area and there appeared to be relatively even growth between the two groups in these outcomes. The most telling issues are the differences between the groups in their food security and their different access to emergency funds. This information shows that more households within the near settlements most affected by the refugee influx face more difficulty meeting basic requirements and handling shocks.

CHAPTER 5

HOUSEHOLD CHARACTERISTIC VARIABLES

The second research question sought to determine those household characteristics which make it more or less resilient to the potential effects of the humanitarian influx. Such a determination provides information on which households will be most negatively impacted by proximity to refugee settlements which can assist in establishing procedures to minimize the risks for households in future refugee hosting areas.

Variable Selection

The research by Litchfield and McGregor (2008) utilized the KHDS data and provides the welfare indicators most similar to this research, though refugee hosts were not a focus of their analysis. This research does not analyze the rainfall data to determine shocks as did Litchfield and McGregor (2008). These authors elected to eliminate the variables of tribe and religion of household head. This research extends that information to determine majority or minority status of the head of household to the analysis as an additional household characteristic. The household majority/minority status is determined based on a comparison of the religion and tribal affiliation of the household head compared to community level responses of religious and tribal percentages within each cluster. Additional variables defining household characteristics include age, educational attainment, and gender of the head of household along with household wealth and size.

The analysis examines particular household characteristics, such as female-headed households, which may make them more vulnerable or more resilient to the impacts to quality-of-life indicators (Table 22). Again, these contrasts have been structured to compare changes of the 1991 and 2004 time periods for near-settlement and far-rural-settlement categories, while extending the breakdown to further discriminate changes related to the selected household characteristics. Occupation of household head and percent of household members involved in agricultural activities would have been included but identifying occupational standing from the survey responses was problematic and it was determined to omit this analysis

Table 22. Household characteristics examined.

Sex of household head
Religious majority of household head
Tribal majority of household head
Age of household head
Educational attainment of household head
Household wealth
Household size

Descriptive Analysis

Similar to the analysis of quality-of-life indicators, the household characteristics analysis was conducted reviewing the 1991 and 2004 KHDS survey results. The analysis contrasts near-settlement and far-rural-settlement populations for both time periods looking at the quality-of-life variables revealed by the discriminant analysis to best capture the distinctions between those groups. A review of household characteristic impact on these variables should provide information on the characteristics which create more resiliency or risk for households dealing with humanitarian influx in close proximity.

Groups defined with characteristics to be examined were contrasted utilizing the quality-of-life variables provided by the discriminant analysis (Table 23). A review of the variables as well as their change between survey periods provides information on differences between groups (Table 24). Some variables were considered from a different standpoint than in previous analysis in order to present all information in a simple to interpret form where higher numbers indicate better quality of life within each variable. For example, presentation of the information on frequency household has experienced problems satisfying hunger over the past year includes the percentage of households responding “never” or “seldom” to the question. Lighting source was broken down into electricity (a positive) and other sources besides the popular kerosene, oil, or gas lamps. In order to consistently show increasing percentages as positive indicators, this value is shown as a negative number, which clearly shows the incredible improvement in households with household heads who are tribal minorities in near settlements, going from 43.2 percent using candles, flashlights, solar, or no light source to 0.0 percent indicating all households utilize either electricity or kerosene, oil or gas lamps. While such an improvement might be created by sample size issues, that is not likely the case as there were 37 respondents in 1991 and 110 in 2004.

The pattern seen in earlier descriptive results is apparent within this analysis as well. The near settlements tend to have lower quality-of-life characteristics than the far rural settlements in both 1991 and 2004, but often have larger increases in improvements between those years than do the areas less affected by refugee populations. Household types consistently disadvantaged include those headed by females and individuals over 60. Both groups improved more in the near settlements than the far rural settlements in

Table 23. Comparison of quality-of-life variables within households defined by characteristics which may provide resilience or place at risk.

	Adult Literacy Averages				Permanent Dwelling Floor				Permanent Dwelling Wall			
	1991		2004		1991		2004		1991		2004	
	Near	Far	Near	Far	Near	Far	Near	Far	Near	Far	Near	Far
Female Headed	35.4	61.1	60.5	73.4	3.1	8.1	16.7	27.1	3.1	5.1	17.6	27.4
Male Headed	61.0	71.9	72.8	81.5	4.5	10.5	14.9	25.8	4.5	6.9	15.5	27.6
Religious Majority	61.4	71.6	71.7	82.0	7.2	10.4	16.0	25.1	6.4	7.8	16.2	28.0
Religious Minority	50.8	62.7	69.7	75.6	0.0	8.5	14.6	27.8	1.2	3.3	15.6	26.7
Tribal Majority	58.3	74.4	72.6	83.3	3.6	9.5	13.9	25.8	3.0	6.7	15.8	28.2
Tribal Minority	52.2	49.4	62.8	65.1	7.3	10.9	22.7	27.4	9.8	5.5	16.4	25.0
Young HH Head (<25)	64.6	71.0	74.6	75.7	0.0	0.0	18.9	33.6	0.0	0.0	16.2	32.2
HH Head Aged 25-60	60.8	73.3	74.4	83.7	5.0	10.8	16.6	26.7	5.0	7.1	7.1	28.1
Elderly HH Head (>60)	38.2	58.3	52.6	65.2	2.7	10.0	12.5	19.0	2.7	6.4	12.5	22.1
Never Attended School	22.8	33.8	27.2	34.3	0.0	9.7	4.3	13.3	1.7	6.5	4.2	13.7
Attended 1-3 Years School	58.3	60.8	56.9	57.5	4.2	3.5	8.0	12.8	0.0	5.3	8.0	16.3
Attended 4-6 Years School	70.5	82.1	68.9	88.5	3.0	10.2	5.0	18.9	3.0	5.4	11.3	22.9
Attended 7 Years (P7)	79.4	86.8	87.0	90.9	8.6	7.4	16.2	24.1	11.4	6.3	18.2	26.0
Attended >7 Years	84.6	89.0	95.8	95.6	18.8	24.3	48.4	57.9	12.5	10.8	42.2	51.0
HH Total Consumption Lowest Quartile	60.8	69.7	71.2	80.4	4.2	8.5	13.3	27.9	8.3	8.5	15.3	27.4
HH Total Consumption Mid Range – 2 Quartiles	54.0	68.4	68.9	80.4	3.1	8.5	15.9	26.8	1.0	6.0	16.2	29.2
HH Total Consumption Highest Quartile	60.1	69.9	74.4	77.4	6.3	13.7	13.1	23.6	6.3	5.1	14.4	25.0
Household Size 1-4	61.5	69.2	72.0	79.0	7.7	11.7	16.0	24.5	6.6	6.1	14.5	25.3
Household Size >4	53.7	68.7	69.5	80.6	1.7	8.2	14.6	27.8	2.5	6.7	17.5	30.0
	Lighting Source - Electricity				Lighting Source - Candles, Flashlights, Solar, and None (negative)				Able to Raise Emergency Funds		Few Problems Satisfying Hunger	
	1991		2004		1991		2004		2004		2004	
	Near	Far	Near	Far	Near	Far	Near	Far	Near	Far	Near	Far
Female Headed	0.0	0.0	5.9	7.3	-20.0	-20.2	-1.9	-3.6	37.3	38.7	78.4	82.9
Male Headed	0.6	0.0	6.2	9.9	-10.8	-23.3	-1.8	-3.4	58.0	56.5	79.4	85.1
Religious Majority	0.8	0.0	5.4	9.5	-10.2	-21.8	-2.0	-3.3	57.1	52.7	79.2	87.0
Religious Minority	0.0	0.0	7.3	9.3	-15.4	-23.8	-1.7	-3.4	52.2	52.2	79.4	80.4
Tribal Majority	0.6	0.0	5.9	9.9	-5.1	-20.2	-2.3	-1.9	54.8	52.9	78.6	86.5
Tribal Minority	0.0	0.0	8.2	7.6	-43.2	-30.3	0.0	-9.8	54.1	51.0	81.8	77.0
Young HH Head (<25)	0.0	0.0	9.5	13.8	-15.4	-14.7	-2.7	-6.0	54.1	47.0	79.7	86.5
HH Head Aged 25-60	0.7	0.0	7.1	10.3	-12.0	-22.6	-1.9	-2.6	55.4	56.2	80.7	85.2
Elderly HH Head (>60)	0.0	0.0	0.0	2.7	-12.2	-17.9	-0.9	-5.0	52.7	40.7	73.2	81.3
Never Attended School	0.0	0.0	1.4	2.7	-25.9	-27.0	-2.9	-6.3	39.4	30.6	68.1	74.8
Attended 1-3 Years School	0.0	0.0	2.0	0.1	-4.5	-32.1	-2.0	-5.7	42.0	38.4	78.0	75.6
Attended 4-6 Years School	0.0	0.0	0.0	5.8	-6.9	-21.7	-2.5	-3.5	57.0	45.6	72.5	83.8
Attended 7 Years (P7)	2.9	0.0	8.3	8.4	-11.8	-15.6	-1.6	-2.6	58.4	58.0	84.1	87.2
Attended >7 Years	0.0	0.0	14.1	23.5	-12.5	-17.6	0.0	-2.2	79.7	72.5	92.2	94.0
HH Total Consumption Lowest Quartile	0.0	0.0	6.7	11.8	-6.5	-27.9	-2.0	-2.0	50.7	53.8	82.7	100.0
HH Total Consumption Mid Range – 2 Quartiles	1.1	0.0	4.8	9.5	-13.0	-21.8	-1.6	-3.0	55.1	51.7	78.0	85.3
HH Total Consumption Highest Quartile	0.0	0.0	10.5	7.2	-11.6	-17.4	-2.0	6.3	57.1	52.9	77.7	84.4
Household Size 1-4	1.2	0.0	7.0	7.8	-10.8	-24.8	-1.1	-3.9	53.1	51.9	78.5	85.0
Household Size >4	0.0	0.0	5.5	11.1	-13.3	-20.4	-2.6	-2.8	56.8	53.1	80.2	84.3

Table 24. Household quality-of-life characteristic change between 1991 and 2004.

	Adult Literacy Averages		Permanent Dweiling Floor		Permanent Dwelling Wall		Lighting Source - Electricity		Candles, Flashlights, Solar, and None (negative)	
	Near	Far	Near	Far	Near	Far	Near	Far	Near	Far
	Change 1991-2004		Change 1991-2004		Change 1991-2004		Change 1991-2004		Change 1991-2004	
Female Headed	25.1	12.3	13.6	19.0	14.5	22.3	5.9	7.3	18.1	16.6
Male Headed	11.8	9.6	16.4	15.3	11.0	20.7	5.6	9.9	9.0	19.9
Religious Majority	10.3	10.4	8.8	14.7	9.8	20.2	4.6	9.5	8.2	18.5
Religious Minority	18.9	12.9	14.6	19.3	14.4	23.4	7.3	9.3	13.7	20.4
Tribal Majority	14.3	8.9	10.3	16.3	12.8	21.5	5.3	9.9	2.8	18.3
Tribal Minority	10.6	15.7	15.4	16.5	6.6	19.5	8.2	7.6	43.2	20.5
Young HH Head (<25)	10.0	4.7	18.9	33.6	16.2	32.2	9.5	13.8	12.7	8.7
HH Head Aged 25-60	13.6	10.4	11.6	15.9	2.1	21.0	6.4	10.3	10.1	20.0
Elderly HH Head (>60)	14.4	6.9	9.8	9.0	9.8	15.7	0.0	2.7	11.3	12.9
Never Attended School	4.4	0.5	4.3	3.6	2.5	7.2	1.4	2.7	23.0	20.7
Attended 1-3 Years School	-1.4	-3.3	3.8	9.3	8.0	11.0	2.0	0.1	2.5	26.4
Attended 4-6 Years School	-1.6	6.4	2.0	8.7	8.3	17.5	0.0	5.8	4.4	18.2
Attended 7 Years (P7)	7.6	4.1	7.6	16.7	6.8	19.7	5.4	8.4	10.2	13.0
Attended >7 Years	11.2	6.6	29.6	33.6	29.7	40.2	14.1	23.5	12.5	15.4
HH Total Consumption Lowest Quartile	10.4	10.7	9.1	19.4	7.0	18.9	6.7	11.8	4.5	25.9
HH Total Consumption Mid Range – 2 Quartiles	14.9	12.0	12.8	18.3	15.2	23.2	3.7	9.5	11.4	18.8
HH Total Consumption Highest Quartile	14.3	7.5	6.8	9.9	8.1	19.9	10.5	7.2	9.6	23.7
Household Size 1-4	10.5	9.8	8.3	12.8	7.9	19.2	5.8	7.8	9.7	20.9
Household Size >4	15.8	11.9	12.9	19.6	15.0	23.3	5.5	11.1	10.7	17.6

adult literacy averages and percentage with permanent floors, but did not improve as much as far settlements in relation to use of permanent walls, and use of electricity.

Female headed households in near settlements moved away from substandard lighting use than did their rural-far-settlement counterparts, but the elderly headed households did not.

Review of female-headed households shows a similar pattern of higher growth in individual women's literacy levels in the Kagera Region than the male-headed

households, with the near settlements exhibiting greater increases than the far rural settlements. The breakdown of the households by head of household's highest grade completed exhibits improvement on all selected quality-of-life variables as educational level increases, in what appears a predictable pattern. The effect of the combination of female-headed households and the likelihood of lower educational attainment could create a situation where these households suffer a double impact. With average household head educational attainment increasing from 3.91 years in 1991 to 5.54 years in 2004, some of the improvements between the survey periods could well be attributed to this factor.

A review of households utilizing age of household head as the distinguishing feature shows there was relatively little difference among households with younger heads, but that those households with elderly heads had poorer quality-of-life indicators. This group constituted 177 households in 1991 and 372 households in 2004 (25.0 percent in 1991 and 16.7 percent in 2004), a sizable number to have such issues.

To compare wealth attributes of the households from the information available in the survey, quartiles of the annualized median total consumption per capita were calculated for both population groups and both years. The lowest quartile and the highest quartile were compared to the two mid-quartiles. While there was still the pattern of far rural settlements doing better, there was not a great deal of differentiation between these groups. In fact the lowest percentile had the highest score in food security, which would appear to make this a poor measure for household resiliency and risk.

Characteristics which appeared to play relatively little role in the resiliency or risk of the households involved include the majority religious and tribal standing. This may

be related to the particular study region as tribal and religious conflict is much less problematic here than many other parts of the world. It would therefore be suggested that these characteristics not be overlooked when evaluating host population groups in other places who may find existing conflicts exacerbated more by the refugee presence.

The second research question related to determining household characteristics contributing to resilience when facing shocks. Analysis of these characteristics finds households most at risk are female-headed households, and households with elderly heads and those who have never attended school.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS FOR FUTURE STUDY

Differences in quality-of-life indicators between households close to refugee camps and those farther from them were identified within the research. The analysis was interested in identifying if nearby refugee settlements affected the host population in close proximity positively or adversely and it would appear that there were measures of both revealed. While it is recognized that there can be alternate explanations for some of the changes observed within these communities, the refugee impact was likely to have played an influential role and should not be discounted as a potential driver of some of the changes.

So what can be learned from this research to assist in ensuring that refugee influx in developing countries does not negatively impact the quality-of-life consequences for the host population? The results of this research corroborated some common-sense observations by establishing that long-term well-being of households in close proximity to refugee settlements were worsened for those most vulnerable. Food security and lack of emergency resources were lower among households closer to the camps than those comparable rural households farther from the refugee settlements, which would create additional hardship for those already most at risk.

Has the research helped identify the “winners and losers” within the host population suggested by Chambers (1986)? Evidence of changes in long-term quality-of-

life indicators do appear in the analysis of the responses to the Kagera Health and Development Surveys which may point to changes brought by the humanitarian influx potentially benefitting the most disadvantaged groups within the communities close to the large refugee settlements. We can see this in women-headed household's greater improvement in indicators of literacy and dwelling characteristics which were identified as discriminators between near settlements most affected by the refugee influx and those far rural settlements ostensibly less impacted. However, the other vulnerable group, households with an elderly head of household, had less consistent improvement in these indicators, sometimes improving more than households headed by younger individuals, and sometimes achieving less. Regardless of greater rates of improvement, the well-being indicators of women remain lower than that of men in their own settlements and all indicators within the near settlements continue to lag behind those within the far rural settlements.

The potential benefits of the refugee influx suggested by the literature related to economic, market, and employment opportunities may have assisted some households, at least in the short-term, and could be responsible for the greater improvements in quality-of-life indicators among the near settlement households. It does not appear that other potential benefits such as infrastructure improvements to roads or other services greatly improved the well-being of those closest to the camps. One evidence was the smaller rate of improvement by near settlements compared to far rural settlements in shifting from open water sources between 1991 and 2004.

Determining the impacts of environmental changes related to the refugee influx was made difficult by the particular questions asked in the survey. However, survey

responses which indicate potential environmental issues, such as increased time collecting water and firewood attributed to lack of wood sources since distance to water source change was minimal in both groups. Another potential environmental issue was suggested by the extraordinary drop in utilization of bamboo for dwelling wall material from 1991 to 2004 within both near and far rural settlements. Knowing that overpopulation is causing environmental degradation in most areas of Tanzania, it would be impossible to attribute any change solely as a result of the presence of the large refugee populations, though it would seem apparent it would add to any negative effect.

The conclusions we can draw related to this research should allow us to better assist host populations in future refugee events by focusing assistance efforts on communities closer to the refugee camps and settlements with an eye toward ensuring the most marginalized populations are considered in any policy or procedural decisions which will impact the host communities. This review of a refugee episode where international assistance policy separated refugee assistance from development should also be evaluated for its lack of effectiveness in building resilience in the host population to future shocks.

Future research of host populations would benefit from survey information which incorporates more thorough geographic information on actual travel distance to camps and can determine proximity less arbitrarily than survey results. Accurate records of camp populations would also be of assistance to better take into account any effects of camp density or population on the local host populations, which was beyond the abilities of this research project. This may be problematic if the refugee settlement populations

vary a great deal over time. Analysis of survey results by a researcher familiar with the area would likely provide more insight to future investigations as well.

Though the survey timing within this region was ideal for measuring before and after refugee impacts, the small area and the high concentration of refugees may not have provided sufficient distance for the far rural settlements to remain unaffected. A future study area where the refugee impact areas can be more definitively separated may provide meaningful insight on this topic.

The focus of the Kagera Health and Demographic Survey on at-risk households may not have shown as many winners from the humanitarian influx as a random selection of respondents could have. A future study with a greater diversity of respondents may provide interesting material on this subject.

This research supplements the current focus on economic effects of the humanitarian influx on host communities by reviewing other quality-of-life impacts which may be overlooked when considering only income and expenditures. That life will be changed for those individuals living in communities hosting refugees is certain, but having a sufficient understanding of how different communities are negatively impacted should assist in determining how future policy and practice can seek an equitable and just consideration of refugee host communities.

BIBLIOGRAPHY

- Alix-Garcia, Jennifer, and David Saah. 2008. The effect of refugee inflows on host communities: Evidence from Tanzania. <http://ssrn.com/abstract=836147> (accessed 25 October 2009).
- Aukot, Ekuru. 2003. "It is better to be a refugee than a Turkana in Kakuma": Revisiting the relationship between hosts and refugees in Kenya. *Refuge* 21 (3): 73-83.
- Baez, Javier E. 2007. Civil wars beyond their borders: The human capital and health consequences of hosting refugees. IZA Discussion Paper 3468. <http://ftp.iza.org/dp3468.pdf> (accessed 24 October 2009).
- Beegle, Kathleen, Joachim De Weerd, and Stefan Dercon. 2006. Kagera Health and Development Survey 2004 basic information document. The World Bank. <http://www.edi-africa.com/docs/khds/KHDS2004%20BID%20feb06.pdf> accessed 25 September 2009.
- Berry, Leah. 2008. The impacts of environmental degradation on refugee-host relationships. *African Security Review* 17 (3): 125-131.
- Chambers, Robert. 1986. Hidden losers? The impact of rural refugees and refugee programs on poorer hosts. *International Migration Review* 20 (2): 245-263.
- De Weerd, Joachim. 2010. Moving out of poverty in Tanzania: Evidence from Kagera. *Journal of Development Studies* 46 (2): 331-349.
- Dryden-Peterson, Sarah, and Lucy Hovil. 2004. A remaining hope for durable solutions: Local integration of refugees and their hosts in the case of Uganda. *Refuge* 22 (1): 26-38.
- Economic Development Initiatives. 2004. *Kagera Rural CWIQ Baseline survey on poverty, welfare and services in Kagera rural districts* <http://www.edi-africa.com/docs/cwiq/CWIQ%202003%20KAGERA.pdf> (accessed 12 October 2009).
- Jacobsen, Karen. 1997. Refugees' environmental impact: The effect of patterns of settlement. *Journal of Refugee Studies* 10 (1): 19-36.
- Jacobsen, Karen. 2002a. Can refugees benefit the state? Refugee resources and African statebuilding. *Journal of Modern African Studies* 40 (4): 577-596.

- Jacobsen, Karen. 2002b. Livelihoods in conflict: The pursuit of livelihoods by refugees and the impact on the human security of host communities. *International Migration* 40 (5): 95-121.
- Kopoka, Peter Anthony. 1998. Provision of health services to refugees in Tanzania: A case study of Rwanda refugee camps in Kagera. University of Dar-es-Salaam. <http://www.fiuc.org/esap/DAR/DAR11/General/kopoka6.pdf> accessed 12 January 2010.
- Landau, Loren B. 2004. Challenge without transformation: refugees, aid and trade in western Tanzania. *Journal of Modern African Studies* 42 (1): 31-59.
- Litchfield, Julie, and Thomas McGregor. 2008. Poverty in Kagera, Tanzania: Characteristics, causes and constraints. PRUS Working Papers 42, Poverty Research Unit at Sussex, University of Sussex. <http://ideas.repec.org/p/pru/wpaper/42.html> (accessed 24 October 2009).
- Martin, Adrian. 2005. Environmental conflict between refugee and host communities. *Journal of Peace Research* 42 (3): 329-346.
- Maystadt, Jean-Francois, and Philip Verwimp. 2009. Winners and losers among a refugee-hosting population. *Center for Operations Research and Econometrics* http://www.uclouvain.be/cps/ucl/doc/core/documents/coredp2009_34.pdf (accessed 12 October 2009).
- Narayan, Deepa, Robert Chambers, Meera Kaul Shaw, and Patti Petesch. 2000. *Crying out for change. Voices of the poor*. Washington DC: Oxford Press for the World Bank.
- Ongpin, Patricia. 2008. Refugees in Tanzania – asset or burden? *Journal of Development and Social Transformation* 5: 13-23. <http://www.maxwell.syr.edu/moynihan/Programs/dev/Author%20File%2008/Ongpin.pdf> (accessed 25 October 2009).
- Sahn, David E., and David C. Stifel. 2003. Urban-rural inequality in living standards in Africa. *Journal of African Economies* 12 (4): 564-597.
- Sangano, Kagaba, Straton Nsanzabaganwa, and Edson Mpyisi. 2003. Rwanda country position paper. *Regional Workshop on Ageing and Poverty, Dar es Salaam*. Kigali: UNDP.
- Sen, Amartya. 1999. *Development as Freedom*. New York: Knopf.
- UNDHA, 1998. Central and Eastern Africa: IRIN Update 336 for 20 Jan 98.1.20. <http://www.africa.upenn.edu/Hornet/irin336.html> accessed 4 February 2010.
- UNHCR. 1995. (The high cost of caring) - Money isn't everything. *Refugee Magazine* 102. <http://www.unhcr.org/3b5543434.html> accessed 12 December 2009.

- Vas Dev, Sanjugta. 2003. Asylum in Africa: The emergence of the 'reluctant host.' *Development* 46 (3): 113-118.
- Washoma, Karren. L. (2003). Impact of Refugees in Northwestern Tanzania: Executive Summary. The Centre for Study of Forced Migration. <http://www.grandslacs.net/doc/3765.pdf> (accessed 10 November 2009).
- Waters, Tony. 1999. Assessing the impact of the Rwandan refugee crisis on development planning in rural Tanzania, 1994-1996. *Human Organization* 58 (2): 142-152.
- Whitaker, Beth E. 1999. Changing opportunities: refugees and host communities in western Tanzania. New Issues in Refugee Research Working Paper No. 11. Geneva: UNHCR.
- Whitaker, Beth E. 2002. Refugees in Western Tanzania: The distribution of burdens and benefits among local hosts. *Journal of Refugee Studies* 15 (4): 339-258.

VITA

Bret Adams spent over thirty years working in administrative positions in a variety of business environments ranging from health care practices to institutions of higher education. Family issues on two separate occasions prevented her from completing work towards an undergraduate degree but she finally earned a B.A.A.S. from Texas State University-San Marcos in 2008 at the age of 50. She went on to pursue her master's degree in Geography while continuing her staff position with the university. She hopes to pursue a career related to international development and eventually to undertake a doctorate in that field.

Permanent address: 11340 FM 32

Fischer, Texas 78623

This thesis was typed by Bret Adams.