

IMPACT OF HIV/AIDS ON THE AGRICULTURAL SECTOR IN NORTHERN  
NAMIBIA

A Thesis

by

CHARLES RUSSELL CARTER

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 2009

Major Subject: Agriculture Leadership, Education and Communications

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Approved by:

Chair of Committee,	Gary Wingenbach
Committee Members,	James Lindner
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## ABSTRACT

Impact of HIV/AIDS on the Agricultural Sector in Northern Namibia. (December 2009)

Charles Russell Carter, B.S., Texas A&M University

Chair of Advisory Committee: Dr. Gary J. Wingenbach

In agrarian societies, HIV/AIDS extends far beyond the realm of healthcare into agricultural production and food security as well. Namibia is a developing country with a large portion of its population involved in agriculture; the average HIV/AIDS infection rate of 21.3% in the country leaves a large portion of agricultural workers living with or affected by HIV/AIDS. The purpose of this study was to further evaluate the impact of HIV/AIDS on national and community level food security in northern Namibia by ascertaining the perceptions and experiences of local farmers living with HIV/AIDS. In addition, this research aims to define the specific training needs for this population, and to identify possible barriers to access. Four focus groups and four key informant interviews were conducted in northern Namibia, and participants were asked a variety of questions relating to People Living with HIV/AIDS (PLWHA) in agriculture. Qualitative analysis drew out prevailing themes and ideas from the data. This study found that there is a greater need for HIV/AIDS specific education and programs targeted to HIV/AIDS infected agrarian workers. Additionally this study found there were barriers to education present in the current system, and identified needs for joint programming initiatives between the ministries of health and agriculture.

## DEDICATION

To my sister, Cherie Carter, who without her help and encouragement none of this would have been possible.

To Dr. Norman Borlaug, for taking the time out of his busy life to talk to my class and giving me the dream of International Agriculture.

## ACKNOWLEDGEMENTS

I would like to thank SMA (Social Marketing Association) for their invaluable help in organizing and planning the focus groups and providing the much needed local perspective.

I would also like to thank the help of Cherie Carter for her help in planning my trip to Namibia and help in preparing my research.

## NOMENCLATURE

HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
NGOs	Non Governmental Organizations
PLWHA	People Living With HIV/AIDS
CIA	Central Intelligence Agency
ARV	Anti-Retroviral Medication
MOA	Ministry of Agriculture
FGD	Focus Group Discussions
SMA	Social Marketing Association
UNAM	University of Namibia

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## CHAPTER I

### INTRODUCTION

In agrarian societies in Africa, the HIV/AIDS epidemic has had a devastating impact. The combined effects of the loss of labor due to disease and the increased nutritional demand of People Living with HIV/AIDS (PLWHA) are felt most strongly in impoverished societies. Additionally, farming practices and techniques passed on by generations are lost as young orphans never have time to learn from their elders. The disruption in production can also lead to food and political insecurity. The policy implications for the agricultural sector are many, and initiatives to combat the effects of this disease involve combined efforts from government ministries, non-governmental organizations (NGOs), and local community groups.

Although previous research has investigated knowledge, attitudes, and practices related to HIV/AIDS, further research is needed to understand the role of the agricultural sector in preventing or mitigating the effects of this disease.

This study discovered current attitudes, practices, and policies relating to agriculture and HIV/AIDS in Namibia, and presents policy and programmatic recommendations for future initiatives.

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This thesis follows the style of the *Journal of International Agricultural and Extension Education*.

## Namibian Demographics

Namibia is nearly twice the size of California at 852,418 sq. km, with a population of 2,088,669 people, and is the second most sparsely populated country worldwide next to Mongolia. Two large deserts, the Namib and Kalahari, comprise a large portion of total land, with arable land condensed in the middle and northern areas of the country; these areas are prone to droughts and flooding. About 50% of the population is involved in agriculture as the source of their primary livelihood (CIA, 2009), with the majority being subsistence farmers.

While the official spoken language in Namibia is English, the majority of the population speaks Afrikaans, German or another local dialect as their primary language, with English as a second language. The nation was colonized by Germany then controlled by South Africa, and since achieving independence in 1990 it has been a relatively stable democracy. Under restrictions from the apartheid system, native Namibians were denied education, land ownership, and access to several vocations. The country has grown considerably in the past two decades, but there are still gaps in development evident nationwide.

HIV/AIDS infection rates in Namibia are 21.3%, meaning that one in five people in the population is infected with HIV/AIDS, with even more caring for a family member who is infected. Two-hundred and ten thousand people are estimated to be infected with HIV/AIDS in Namibia (CIA, 2009).

The Cities of Katima and Rundu have an average of 31.7% and 18.8% HIV/AIDS infection rate respectively (Ministry of Health and Social Services, 2008) which is in line with the national average of 21%.

#### Impact of HIV on Labor

When many people consider the impact that HIV/AIDS has on labor they fail to realize that HIV/AIDS is not a fast acting virus, some of the projections of ING Barings (1999) put HIV/AIDS at a span of 8-10 years from infection to death this leads for the realization that was made by Arndt and Lewis (2000) “AIDS is very slow moving....During much of this [infection] period, the HIV positive individual may experience relatively few direct symptoms, and employment and productivity may be only marginally affected.” Arndt and Lewis further discuss the later effects of HIV/AIDS, “With the gradual onset of AIDS (usually during the last 2 years), HIV positive individuals are likely to have declining labor productivity (with implications for supply), and to incur increasing and substantial medical costs over the period (with implications for demand)” (Arndt & Lewis, 2000, p. 6).

“The most immediate effect of the HIV/AIDS epidemic is the reduction in quantity and quality of farm household labor due to incapacitation or death” (Kormawa, 2005, p. 3). With fewer farmers able to produce, the loss of agricultural products results in a national and family level income loss. With the loss of land cultivated and the amount of labor available to cultivate the remaining land there is a decrease in production of crops. In addition, there will not be the manpower available for labor-intensive, high-yield crops (du Guerny, 1999).

In families affected by the HIV/AIDS epidemic, time that can be spent in the field is instead traded for time spent caring for the sick and seeking medical attention, thus resulting in a loss of potential income (Haslwimmer, 1994). As more family members become infected with the disease, more of their income is diverted to healthcare costs, reducing their ability to invest in agricultural supplies or equipment (Food and Agriculture Organization of the United Nations, 2001a).

There are also several issues related to inheritance and land rights. In several situations land was divided by community authorities, and the rapid increase of HIV-related sickness and/or death of community members resulted in confusion and inability to cultivate all of the arable land (du Guerny, 1999). This leads to land being left uncultivated or large areas broken up piecemeal.

#### Loss of Generational Farming Knowledge

The high mortality rate associated with HIV/AIDS leads to a loss of transfer of farming knowledge, with parents dying before passing on their knowledge to their children (Kormawa, 2005), and the traditional system of community education being broken by unexpected sickness or death. Additionally, with the death of working aged family members means that younger members were assuming the role of head of house, and “the failure of child-headed households to maintain household food security was an indication that farming crop and livestock management skills were not being adequately transferred to the children” (Matanyaire & Timpo, 1999, p. 39).

While it was hard to measure the impact that has occurred in generational knowledge loss from farming techniques and practice general assumptions were

assumed from other information on the subject. With a loss of farm-specific knowledge from a farm cuts the time for role modeling and knowledge transfer from parent to child, which leads to less appropriate farming practices and more farmers who are inexperienced and need training (Haddad & Gillespie, 2001).

The striking down of adults in their prime by HIV/AIDS severely abbreviates the ability of individuals to transfer knowledge both within their generation and from their generation to the next. Both verbal and role model mechanisms are interrupted by HIV/AIDS. New generations are less able to draw on the body of knowledge that dies along with their parents and they are deprived of ‘learning by doing’ under the guidance of someone more experienced (Haddad & Gillespie, 2001).

#### Food Security

At the country level, a decrease in productivity leads to food shortages, price instability, inflation, and loss in national income (Kormawa, 2005). The United Nations Food and Agricultural Organization (FAO) describes food security as the “availability and accessibility of adequate quantities of nutritious and safe food for a healthy and active lifestyle” (Haslwimmer, 1994, p. 10). The reduction can lead to an increase in poverty, malnutrition, and even political instability.

For PLWHA the need to eat more food than the average ‘healthy’ person puts strains on their already diminished capacity to work and tend for themselves. Lawrence Haddad and Stuart Gillespie (2001) made note of the problem faced by PLWHA, “HIV infected individuals have higher nutritional requirements than normal, particularly with regard to protein (up to 50 percent increased), and energy thus reducing dietary intake at

the very time when requirements are higher. Moreover, such interactions are thrown into starker contrast for the poor who are more likely to be malnourished prior to becoming infected” (Haddad & Gillespie, 2001, p.489).

It is important to understand that HIV/AIDS is more than just a health problem, that it has impact in all the sectors of society. The Directorate of Special Programmes in Namibia puts it best when they state,

HIV/AIDS is not just a health problem... HIV/AIDS is reducing food security, economic productivity and household incomes. Families and communities’ capacity to care for their children and the elderly is declining. The impact of HIV/AIDS is felt in the delivery of all government services and in the private and NGO sectors (Directorate of Special Programmes, 2007, p. 2).

This made the issue of HIV/AIDS into a problem not just for the health sector but also for the agriculture sector as it affects food security.

The pattern of HIV/AIDS infection and food and nutrition security in a community is a major problem. “The interaction between HIV/AIDS and food and nutrition security has been described as a vicious cycle in which food insecurity increases susceptibility to HIV exposure and infection and HIV/AIDS in turn increases vulnerability to food insecurity” (Colecraft, 2008, p. 110). This made it hard to fight one without fighting the other. Another problem is the effect that malnutrition has on HIV/AIDS. “The effects of malnutrition and HIV are synergistic and so they amplify their individual deleterious effects. Malnutrition exaggerates the effects of HIV on the

individual by promoting fatigue and disease progression, resulting in increased morbidity and earlier death” (Colecraft, 2008, p. 110).

#### Role of Agricultural Extension Workers in HIV Education

Agricultural extension workers who work with local populations have been doing little to ebb the HIV/AIDS pandemic in Namibia. The main reason for this is the fact that HIV/AIDS education does not fall within their mandate (Food and Agriculture Organization of the United Nations, 2002). The literature to date does not support the trend of agriculture extension agents having involvement in HIV/AIDS education to any noted degree.

Research has shown that most farm workers knew at least one correct way of contracting the HIV infection. However, there were a few wrong answers such as sharing food, sleeping together, and uncircumcised people (Food and Agriculture Organization of the United Nations, 2001b). However, there was still a lot of stigma associated with the disease, with respondents noting “People get shy when they are HIV positive, because people say things that are very bad and hurt” (Food and Agriculture Organization of the United Nations, 2001b, p. 15).

However, in addition to the noted effect on the agricultural sector, the impact of HIV/AIDS has caused a loss of about 50% of the agricultural extension staff time from being ill themselves, sick family or attending funerals. The impact is therefore on both a macro and micro level in Namibia.

## CHAPTER II

### IMPACT OF HIV/AIDS ON COMMUNITY LEVEL FOOD SECURITY IN NAMIBIA

#### Introduction

HIV/AIDS has had a far reaching and devastating impact on food security at the community level in Namibia. Despite this noticeable impact, the issue was not as well defined as most would believe, and little has been done to focus on the specific implications of HIV/AIDS on agrarian workers or household and national food security issues.

Namibia is nearly twice the size of California at 852,418 sq. km, with a population of 2,088,669 people, and is the second most sparsely populated country worldwide next to Mongolia. Two large deserts, the Namib and Kalahari, comprise a large portion of total land, with arable land condensed in the middle and northern areas of the country; these areas are prone to droughts and flooding. About 50% of the population is involved in agriculture as the source of their primary livelihood (CIA, 2009), with the majority being subsistence farmers.

According to the World Health Organization, the infection rate of HIV/AIDS in Namibia is 21.3%, one of the highest in the world. In a situation like this, one in five individuals was infected by HIV/AIDS, and even more are affected by HIV as they are caring for family members who are infected. Additionally, Persons Living with HIV/AIDS have an increased nutritional demand which puts further stress on the agriculture industry.



While the official spoken language in Namibia is English, the majority of the population speaks Afrikaans, German or another local dialect as their primary language, with English as a second language. The nation was colonized by Germany and then and then controlled by South Africa, and since achieving independence in 1990, it has been a relatively stable democracy. Under restrictions from the apartheid system, native Namibians were denied education, land ownership, and access to several vocations. The country has grown considerably in the past two decades, but there are still gaps in development evident nationwide.

Namibia is primarily agrarian and the agrarian workers need to perform consistent high levels of physical activity, which is greatly impacted by a disease like HIV/AIDS. Individuals often miss work due to illness or the need to care for sick family members, meaning lower production overall. In addition, some PLWHA take Anti-Retroviral Medication (ARVs), which slows down the effects of AIDS, and this medication must be taken several times a day with food – should these agrarian workers not have enough food for themselves or their families, they are not able to take the medications.

When many people consider the impact that HIV/AIDS has on labor they fail to realize that HIV/AIDS is not a fast acting virus, some of the projections of ING Barings (1999) put HIV/AIDS at a span of 8-10 years from infection to death leads for the realization made by Arndt and Lewis (2000) that, “AIDS is very slow moving....During much of this [infection] period, the HIV positive individual may experience relatively few direct symptoms, and employment and productivity may be only marginally

affected” (Arndt & Lewis 2000, p.6). Arndt and Lewis further to discuss the later effects of HIV/AIDS, “...with the gradual onset of AIDS (usually during the last 2 years), HIV positive individuals are likely to have declining labor productivity (with implications for supply), and to incur increasing and substantial medical costs over the period (with implications for demand)” (Arndt & Lewis, 2000, p. 6).

The high mortality rate associated with HIV/AIDS leads to a loss of transfer of farming knowledge, with parents dying before passing on their knowledge to their children (Kormawa, 2005), and the traditional system of community education being broken by unexpected sickness or death. Additionally, the death of working aged family members means that younger members were assuming the role of head of house, and “the failure of child-headed households to maintain household food security was an indication that farming crop and livestock management skills were not being adequately transferred to the children” (Matanyaire & Timpo, 1999, p. 39).

It is often difficult to quantify the devastating loss of generational knowledge and farming techniques due to AIDS. Traditional farming, especially on family run farms, involved role modeling and knowledge transfer from parent to child. With the loss of the older adult population from HIV/AIDS, this traditional learning is diminished, leading to less appropriate farming practices and inexperienced farmers (Haddad & Gillespie, 2001).

The striking down of adults in their prime by HIV/AIDS severely abbreviates the ability of individuals to transfer knowledge both within their generation and from their generation to the next. Both verbal and role model mechanisms are interrupted by

HIV/AIDS. New generations are less able to draw on the body of knowledge that dies along with their parents and they are deprived of ‘learning by doing’ under the guidance of someone more experienced (Haddad & Gillespie, 2001).

“The most immediate effect of the HIV/AIDS epidemic is the reduction in quantity and quality of farm household labor due to incapacitation or death” (Kormawa, 2005, p. 3). The loss of agricultural products results in a national and family level income loss with fewer farmers able to produce. There is a decrease in production of crops with the loss of land cultivated and the amount of labor available to cultivate the remaining land. In addition, there will not be the manpower available for labor-intensive, high-yield crops (du Guerny, 1999).

In families affected by the HIV/AIDS epidemic, time that can be spent in the field is instead traded for time spent caring for the sick and seeking medical attention, thus resulting in a loss of potential income (Haslwimmer, 1994). As more family members become infected with the disease, more of their income becomes diverted to healthcare costs, reducing their ability to invest in agricultural supplies or equipment (Food and Agriculture Organization of the United Nations, 2001a).

#### Purpose of Study

The purpose of this study was to determine the impact of HIV/AIDS community level food security in northern Namibia in describing the perceptions of local farmers on the current situation of people living with HIV/AIDS. Additionally, this study aimed to understand the perceptions of key informants in position to influence policy on agriculture and HIV/AIDS. Findings will be used to better inform NGOs, extension

agents, and policymakers by suggesting improved policy regarding HIV/AIDS education from agricultural extension agents.

### Objectives of Study

1. Understand the relationship between HIV/AIDS infection and agriculture production and security in Namibia
2. Explore the impact of HIV infection on individual-level nutritional intake
3. Explore the impact of HIV/AIDS on northern Namibian food security

### Methods

Qualitative methods were used to collect data from four focus groups located in northern Namibia in the towns of Katima and Rundu. The focus group discussion, or FGD, was coined in 1964 by Merton, Fisk, and Kendall to be a situation where the interviewer asks members of the focus group questions about the research topic (Merton, Fiske, & Kendall, 1956). Additionally four key informant interviews were conducted interviewing key personnel in the education sector and the Ministry of Agriculture.

Purposive sampling was utilized to collect data from both focus groups and key informants. The purpose of the research was to identify common problems facing PLWHA, and purposive sampling drew out pervasive themes and gather rich data pertaining to the research topic (Denzin & Lincoln, 2005). Key informants were selected to their various positions in dealing with the education sector and the agriculture sector, holding titles in both the Ministry of Agriculture and University of Namibia.

The research was conducted in the northern region of Namibia along the border of Angola, between the towns of Katima and Rundu. The primary ethnic group is

Ovambo and the majority of inhabitants speak Oshiwambo. The economy in the area is primarily subsistence farming. Participants were recruited from the areas surrounding Katima and Rundu.

The cities of Katima and Rundu have an average of 31.7% and 18.8% HIV/AIDS infection rate respectively (Ministry of Health and Social Services, 2008) which is in line with the national average of 21%.

Since the official language of Namibia is English, the focus groups were primarily conducted in English with a trained English speaking focus group moderator and two English speaking Namibian transcriptionists. In the Rundu FGD the participants were not completely comfortable speaking in English, so in order to increase comfort levels, both of those particular FGD were assisted by trained Oshiwambo-speaking research assistant who was experienced in qualitative research to help translate difficult to understand English language concepts. Additionally, audio of the focus groups was taken.

Focus groups were recruited from villages around the towns of Katima and Rundu. Participants were a part of the “Tusano Network,” a support group for PLWHA organized by the Social Marketing Association of Namibia (SMA). A total of four FGDs were held with six to eight participants each, making a total of 29 participants.

The FGD schedule covered the following topics: HIV prevention knowledge before infection, knowledge of different governmental and non-governmental policies in place for HIV positive individuals, programs sought by individuals after learning their

Positive Status, perceived benefits of HIV/AIDS education from local governmental agricultural extension workers, and recommended interventions.

In addition, four semi-structured key informant interviews with various individuals influential in the community and/or government were conducted to give insight into local services geared towards HIV/AIDS infected agrarian workers, MOA policy and programs, and future directions. Key informants were chosen because of their role in local education and policy formation and included the positions from the Ministry of Agriculture, National HIV-AIDS Peer Education Coordinator, and the Program Coordinator: UNAM HIV/AIDS Peer Education Project.

Key informant interview questions were open-ended and sought to expand upon regional and local policy, regional and local programs and services available to HIV/AIDS infected agrarian workers, as well as different perceptions of success within different programs and policies. Topic areas included: perceptions of impact HIV/AIDS on the agriculture sector in Namibia, awareness of groups which provided support, policies in place to support HIV/AIDS infected agrarian workers; perceptions of knowledge by the agrarian workers are about governmental and non-governmental policy, and recommendations for improved service provision and policy.

FGD and key informant interviews were transcribed within a week of completion by two local research assistants from the Social Marketing Association to interpret local slang, meaning and context. The transcription was then independently verified by the main researcher in order to increase the validity.

## Findings

It was found that respondents living with HIV needed assistance in meeting the increase in nutritional demand. Micro- or urban-gardening programs were recommended to combat the problem of nutritional intake. The loss of knowledge due to deaths from HIV was a common theme, with this affecting both ministerial and community levels.

The Ministry of Agriculture in Namibia felt that they played an important role in addressing agricultural issues in Namibia, especially in the rural north. A respondent, who holds an influential role in the training department of the Ministry of Agriculture, explained the importance of this role. “Namibia is an agricultural based country and more than 70 - 75% of the population indirectly or directly depends on agriculture.” When asked about the particular impact of HIV on the agriculture sector, she stated, “If these people are infected and their health status decreases... their livelihoods are decreased. Obviously food security becomes affected” (‘W’, 2009). This stress was felt throughout the Ministry of Agriculture, that their role in coordinating the agricultural production of Namibia was affected by HIV/AIDS.

PLWHA have increased nutritional demands due to weak immune systems and ARV medication which must be taken with food. “Someone taking ARV treatment should eat a balanced diet, as far as possible. This should include green vegetables, proteins, starches and fruit. Some fat is also necessary to help maintain health and to assist in absorbing some ARVs into the body” (International HIV/AIDS Alliance, 2007, p. 1). Several participants mentioned they learned about nutritional requirements for PLWHA from the Ministry of Agriculture, but there were not many concrete solutions

suggested for fixing this problem. The respondents stated, “[I] have changed in the way I eat, I know proper food for all kinds of people, food for HIV positive people, pregnant mothers etc” (FGK1Q4 Female). However, “People [Ministry of Agriculture] never went into detail with agricultural projects, they touched a bit on nutrition, what we can eat; but they did not really give details, especially when it comes to agriculture” (FGR1Q2 Male). Statements such as these show how there is not enough training focusing on the increased nutritional demands that come along with HIV/AIDS.

As a large percentage of people in Namibia are living in poverty and do not have extra income to spend on the additional nutritional demands that come with living with HIV. “The little amount of resources they have in terms of financial, even in terms of food. They now have to try and use it for [HIV positive] people instead of the purpose that they wanted.” (‘W’, 2009). The Ministry of Agriculture knew that poverty worsens the situation of unhealthy agrarian workers. “I think at both National particularly at household level, because the people they are not able to produce enough food for themselves, what has to be produced is for sale” (‘W’, 2009).

One initiative that has not been brought to scale in Namibia is micro- or urban-gardening programs, which encourage household farms to supplement nutritional demands and can also provide an income generation source. Participants in some of the focus groups responded that they wanted support to produce their own food to supplement the nutritional changes needed from HIV/AIDS, and wanted the government to teach them how to plant and maintain small gardens (FGR2Q4).



The physical impact of HIV also affects agricultural workers considering the vast distances they must travel. “We must is [sic] provided with transport so that we can reach our gardens, because there is really a major problem when it comes to materials or resources that we need” (FGK1Q11 Male). Additionally, “Sometimes walking to our gardens is really terrible, we walk long distances, and if say one of our members is sick, the long distance prohibits them from working in the field since they cannot reach there, and as a result there is only few people to work in the garden, therefore this whole scenario affects production as well” (FGK1Q6 Female).

The loss of generational knowledge due to deaths from HIV also affects food security. The Ministry of Agriculture, National HIV/AIDS Peer Education Coordinator said

Our skilled people are dying ... I realized is that those people who died are the people who are in the Ministry for more than 12-20 years you know. They are not only skilled people but they are also the most experienced people. And the moment when they died, the new incomers, they don't have somebody who directs them ('X', 2009).

This loss of knowledge affects all levels of the agriculture sector, from the experts at the ministerial levels to the traditional cross-generational mentorships on household farms. As more of the working generation perish due to HIV, knowledge transfer in traditional farming techniques and food production will drop even further, putting in danger national food security.

There is also a vicious cycle regarding household food insecurity and the spread of HIV/AIDS. Those who are not able to meet their nutritional demands often fail their treatment, leading to an increase in resistant strains of HIV. As individuals become sick, their production and income falls, and this creates vulnerability and potentially increases risky behaviours which could exacerbate the spread of HIV/AIDS. “Food insecurity and malnutrition may accelerate the spread of HIV, both by increasing people’s exposure to the virus and by increasing the risk of infection following exposure” (Gillespie & Kadiyala, 2005, p. 11).

#### Conclusion, Recommendations, and Implications

Overall respondents believed that the Ministry of Agriculture was not doing enough to prevent food insecurity in both the household and the national level in the face of the HIV/AIDS pandemic. At the community level, household level food security was at risk for persons living with HIV/AIDS, who had few resources to handle illness or increased nutritional demands caused from the impact of HIV on themselves or their family. This could cause treatment failure and possibly increase the transmission rates of HIV.

The higher nutritional demands for persons on ARV medication is often not met as persons living in poverty often do not have the resources to obtain such food, leading to increased mortality rates and treatment failure. “There is... ample evidence that people living with HIV/AIDS in resource limited settings are unlikely to be able to follow food and nutrition recommendations for ARV therapy because of lack of access required foods or because they are already malnourished. Such difficulties may reduce

drug adherence, a major problem in all ARV programs” (Gillespie & Kadiyala, 2005 p. 57). Without access to consistent food sources patients risk treatment failure. It is recommended that the Ministry of Agriculture recognize the impact of household food security on ARV adherence, and allocate HIV prevention funding to food security efforts to ensure patients do not have treatment failure based on a lack of nutritious food.

As HIV/AIDS most strongly affects those of working age in Namibia, national-level food security is a large concern. Scarce resources are being diverted away from agriculture and development to treatment and care programs. “HIV/AIDS depletes MoA funds earmarked for agricultural service provision and may deplete funds allocated for agricultural investment” (Topouzis, 2003, p. 20). It is recommended that the Government of Namibia recognize the intertwined nature of HIV in relation to workforce and food security, and invest in projects that take into account the need for new agricultural innovations to meet the gap left by a depleted workforce due to HIV.

A significant amount of knowledge is being lost with the death of skilled employees and laborers, extending beyond high-level policy makers and onto the farms themselves. With so many of the working generation affected by HIV, and unable to pass down traditional farming practice to the younger generation. This is not only a problem at the household level, but also within the Ministry of Agriculture itself. “The loss of staff and the corresponding loss of knowledge, expertise and experience depletes the pool of highly specialized MoA personnel and affects the quality and continuity of MoA services” (Topouzis, 2003, p. 16).

One service that was mentioned in over half of the focus group discussions was the assistance in developing urban farming programs. These programs would enhance food security at the household levels, meet the increased nutritional needs of HIV positive individuals, and offer possible income generation activities for families suffering from a loss of labor. It is recommended that the Ministry of Agriculture work with local organizations and existing agricultural extension programs to scale up urban gardening programs in the rural areas. A Micro-gardening pilot project in Zimbabwe was designed to offset the nutritional requirements of HIV infected households and found that it was not only effective but cost efficient. The study urged ministries and non-governmental organizations to pursue micro-gardening as a source for nutrient supplementation (Mutenje, Nyakudya, Katsinde, & Chikuvire, 2007).

Finally, it has been shown that decreased food security could heighten vulnerability to HIV infection due to a decrease in immune functioning due to decrease in nutrition, as well as an increase in risky behaviors. “Food insecurity is also hypothesized to increase sexual risk-taking—especially among women living in poverty who are often dependent on others for food and other resources, and whose human rights are inadequately protected” (Weiser, et al., 2007, p. 1590). It is recommended that the government focus on household food security in HIV affected communities as a preventative measure against increased HIV transmission.

CHAPTER III  
ROLE OF THE MINISTRY OF AGRICULTURE AND AGRICULTURAL  
EXTENSION PROJECTS TO ADDRESS ISSUES RELATING TO HIV/AIDS IN  
NAMIBIA

Introduction

Namibia is a primarily agrarian society where one in five individuals is infected by HIV/AIDS, with the national infection rate at 21.3%. Additionally, 70 to 80% of the population of Namibia is currently employed in agricultural work either as a primary vocation, subsistence farming, or through supplementing their current diet. Because of this it is important to understand the need for agricultural education tailored specifically for people living with HIV/AIDS.

Namibia is a uniquely large country with a small population for its land. With a large portion of the country being desert and uninhabitable most of the population is located in the fertile north of Namibia. Additionally the northern areas are prone to both drought and flood (CIA, 2009).

As a primarily agrarian society, the Ministry of Agriculture (MOA) has been active on creating policies and procedures for agriculture related trainings, and has agriculture extension units which deliver some of these trainings. Additionally, non-governmental Organizations (NGOs) serve as implementing partners and follow the recommendations of the government to design their extension trainings; however, they are more flexible to do creative outreaches as they do not have to follow the strict governmental guidelines (CIA, 2009).

In Namibia, where one in five individuals is HIV positive, there are problems accessing the most at risk persons through normal agriculture extension channels. There are many barriers that currently exist to reaching these people, including vast geographic distances to training sites, ability to attend trainings and outreaches due to work restrictions, as well as financial and emotional barriers. Therefore, workers on large farms are often out of reach from most activities (CIA, 2009).

The high mortality rate associated with HIV/AIDS leads to a loss of transfer of farming knowledge, with parents dying before passing on their knowledge to their children (Kormawa, 2005), and the traditional system of community education being broken by unexpected sickness or death. “Loss of trained professionals pose major problems for governance, development, extension services, the health and education sector, and economic growth” (Barnett & Whiteside 2002, p. 164). This situation leaves a country with a low number of extension and other trained personnel, and cause a loss of knowledge loss that is hard to replace. This loss of farm-specific knowledge lowers the amount of time available for role modeling and knowledge transfer from generation to generation, leading to inexperienced farmers who require additional training (Haddad & Gillespie, 2001).

At the country level, a decrease in productivity can lead to food shortages, price instability, inflation, and loss in national income (Kormawa, 2005). The United Nations Food and Agricultural Organization (FAO) describes food security as the “availability and accessibility of adequate quantities of nutritious and safe food for a healthy and

active lifestyle” (Haslwimmer, 1994, p. 10). The reduction can lead to an increase in poverty, malnutrition, and even political instability.

It is important to understand that HIV/AIDS is more than just a health problem, impacting all sectors of society, especially in a country like Namibia where one in five individuals are HIV positive. “HIV/AIDS is not simply a problem for Ministries of Health to address. Mitigating the spread and the consequences of HIV/AIDS requires a coordinated approach involving agencies responsible for agriculture, health, trade and commerce, and finance” (Kormawa, 2005, p. 24). However, it is often found that the largest share of responsibility lies with Ministries of Health, with the other ministries only briefly addressing the issue.

Agricultural extension workers who work with local populations have been doing little to ebb the HIV/AIDS pandemic in Namibia. The main reason for this is the fact that HIV/AIDS education does not fall within their mandate (Food and Agriculture Organization of the United Nations, 2002). The literature to date does not support the trend of agriculture extension agents having involvement in HIV/AIDS education to any noted degree.

The argument has been made that the extension organizations need to do more to fight against HIV/AIDS. The way that can be done is best described by Qamar, “The agricultural extension organizations are not expected to be medically involved in the fight against AIDS, but they can play an extremely important role in preventing or at least minimizing the further spread of infection by educating the farming communities” (Qamar, 2003, p. 19).

However, in addition to the noted effect on the agricultural sector, the impact of HIV/AIDS has caused a loss of about 50% of the agricultural extension staff time from being ill themselves, sick family or attending funerals. The impact is therefore on both a macro and micro level in Namibia. “The challenge currently posed by the HIV/AIDS epidemic to agricultural extension organizations in sub-Saharan Africa, however, is quite unusual as it affects both staff and clientele” (Kormawa, 2005, p. 7).

While agriculture extension agents are sometimes sent to the remote farms to provide training, health extension workers are often unable to do so. The unique relationships between HIV, poverty and food security lend questions to the possibility of combining health and agriculture outreach to remote at risk populations.

There may be an issue of reluctance in dealing with HIV/AIDS in the extension realm. Kormawa said it best by stating,

It is understandable that a sectoral ministry might be reluctant to engage itself in an area in which it possesses no real competence and could be perceived as treading on the authority of the Ministry of Health. But there is a need to systematically address the contribution that Ministries of Agriculture could make toward the goals of (1) preventing the spread of HIV; (2) supporting people living with HIV and AIDS; and (3) reducing the vulnerability of individuals and communities to HIV/AIDS (Kormawa, 2005, p. 24).



### Purpose of Study

The purpose of this research is to define the specific training needs of agrarian workers in Namibia living with HIV/AIDS, and to identify possible barriers to access. Additionally, this research hopes to highlight the importance of trainings about both food security as well as nutrition for people living with HIV/AIDS.

### Objectives of Study

1. Identify barriers of access to reaching HIV/AIDS educational and agricultural extension education.
2. Describe possible disconnects in knowledge base and services between local farmers and policy makers.
3. Identify the possibilities for congruence of HIV/AIDS and Agriculture Extension Projects in Namibia.

### Methods

The use of qualitative method was used to collect data from four focus groups located in northern Namibia in the towns of Katima and Rundu. Additionally four key informant interviews were conducted interviewing key personnel in the education sector and the Ministry of agriculture. The use of focus groups allowed for synergistic communication between participants to enrich qualitative data collected. As it is backed up by Denzin and Lincoln (2005) the focus groups allowed for promoting a participants energy that led to gathering new information that was not immediately apparent before focus groups started.

The research was conducted in the northern region of Namibia along the border of Angola, between the towns of Katima and Rundu. The primary ethnic group is Ovambo and the majority of inhabitants speak Oshiwambo. The economy in the area is primarily subsistence farming. Participants were recruited from the areas surrounding Katima and Rundu.

The Cities of Katima and Rundu have an average of 31.7% and 18.8% HIV/AIDS infection rate respectively (Ministry of Health and Social Services, 2008) which is in line with the national average of 21%.

The use of purposive sampling was done to collect data from both focus groups and key informants. Since the purpose of the research was to identify common problems facing People living with HIV/AIDS the use of purposive sampling was done in order to draw out a pervasive theme s and gather rich data pertaining to the research topic (Denzin & Lincoln, 2005). Key informants were selected due to their various positions in dealing with the education sector and the agriculture sector, holding titles in both the Ministry of agriculture and University of Namibia.

Since the official language of Namibia is English, the focus groups were primarily conducted in English with a trained English speaking focus group moderator and two English speaking Namibian transcriptionists. In the Rundu FGD the participants were not completely comfortable speaking in English, so in order to increase comfort levels, both of those particular FGD were assisted by trained Oshiwambo-speaking research assistant who was experienced in qualitative research to help translate difficult

to understand English language concepts. Additionally, audio of the focus groups was taken.

Focus Groups were recruited from villages around the towns of Katima and Rundu. Participants were a part of the “Tusano Network,” a support group for PLWHA organized by the Social Marketing Association of Namibia (SMA). A total of four FGDs were held with six to eight participants each, making a total of 29 participants.

The FGD schedule covered the following topics: HIV prevention knowledge before infection, knowledge of different governmental and non-governmental policies in place for HIV positive individuals, programs sought by individuals after learning their Positive Status, perceived benefits of HIV/AIDS education from local governmental agricultural extension workers, and recommended interventions.

In addition, four semi-structured key informant interviews with various individuals influential in the community and/or government were conducted to give insight into local services geared towards HIV/AIDS infected agrarian workers, MOA policy and programs, and future directions. Key Informants were chosen because of their role in local education and policy formation and included the positions from the Ministry of Agriculture, National HIV-AIDS Peer Education Coordinator, and the Programme Coordinator: UNAM HIV/AIDS Peer Education Project.

Key Informant interview questions were open-ended and sought to expand upon regional and local policy, regional and local programs and services available to HIV/AIDS infected agrarian workers, as well as different perceptions of success within different programs and policies. Topic areas included: perceptions of impact HIV/AIDS

on the agriculture sector in Namibia, awareness of groups which provided support, policies in place to support HIV/AIDS infected agrarian workers; perceptions of knowledge by the agrarian workers are about governmental and non-governmental policy, and recommendations for improved service provision and policy.

FGD and Key Informant interviews were transcribed within a week of completion by two local research assistants from the Social Marketing Association to interpret local slang, meaning and context. The transcription was then independently verified by the main researcher in order to increase the validity.

### Findings

There is a strong need to tailor outreach specifically for agrarian workers living with HIV/AIDS by NGOs and governmental programs in Namibia. Currently the Ministry of Agriculture and Ministry of Health and Social Services deliver their trainings and services in silos, with little overlap or collaboration. Recipients therefore are often missed by one or both outreaches, and the messages they receive become confusing. Statements from focus groups conducted in Rundu drive this point home, “It is my first time to hear that the Ministry of Agriculture can provide assistance but I never knew any of that” (FGR2Q2 Male). “There was not enough information. People only focused on condoms, and not really on agricultural project that people living with AIDS can do” (FGR1Q2 Male). Respondents agreed that each topical outreach was conducted irrespective of the other.

Throughout the Focus Groups and Interviews, both participants and key informants repeated that currently there was no collaboration between the Ministries in

regards to programming and outreaches. One participant mentioned that he got separate educational sessions but nothing together. “I heard the information concerning agriculture and people living with HIV and AIDS only from support groups and not really from Ministry of Agriculture here in Rundu. We also get information from SMA [Social Marketing Association]” (FGR1Q2 Female). “There was not enough information. People only focused on condoms, and not really on agricultural projects that people living with AIDS can do” (FGR1Q2 Male). Additionally, “some of the trainings we get from Ministry of Health are good, but they do not touch on agricultural topics” (FGK1Q8 Female).

As HIV/AIDS exacerbates vulnerability, poverty and ability to perform consistent work, it is especially important to provide agrarian PLWHA with trainings on successful agricultural practices as well. A female participant from the focus group conducted in Katima summed up the current problem by saying, “Right now it is only non-governmental organizations that talk about HIV and agriculture, we need government to come out strongly and also intervene in any way they can. The government must provide seeds or start up gardening projects so that we can engage in. Government must also monitor gardening efforts people are making especially in the villages. Government is really not doing anything especially here in Katima” (FGK1Q9 Female).

Statements coming from Mrs. ‘W’ at the Ministry of Agriculture describe the key informant’s perceptions on how the agricultural extension agents are doing. “Most of the time their [agricultural extension agents] work involves dissemination of information on

agricultural production. But as I said they include HIV/AIDS in it. How far they can go now to say it support now this particular group now with this and I think .... The support itself to them I think it's a problem" ('W', 2009). Comparing statements from Mrs. 'W' to statements collected from multiple focus group discussions shows a gap in perceived services for agrarian workers living with HIV. Participant responses included "I've never seen anyone from the Ministry of Agriculture giving information" (FGR2Q2 Male); "I do not hear anything from government agricultural teachers at all" (FGK1Q2); "I've received no information from the Ministry of Agriculture" (FGR2Q2 Male); and "Never seen anyone from the Ministry of Agriculture giving information" (FGR1Q2 Male). These are in stark contrast to the perceptions from the Ministry.

The perceptions of the Ministry of agriculture differ according to the constituents. Often what is policy at the MOA headquarters was not carried out in the rural areas. The findings showed that there was a general perception among the population that the Ministry of Agriculture was not doing enough to make the situation better. "Right now it is only non-governmental organizations that talk about HIV and agriculture, we need government to come out strongly and also intervene in any way they can" (FGK1Q9 Female). Several of the rural northern farm workers never had access to MOA workers.

Apparently, the Ministry relies significantly on local and international NGOs to assist them in their work. Most of the information that the participants received was given to them from NGOs that would reference the Ministry of Agriculture and its responsibilities, but would deliver the trainings themselves. Many of the participants

stressed the fact that they did not have any interactions with the Ministry of Agriculture directly. “It is my first time to hear that the Ministry of Agriculture can provide assistance but I never knew any of that” (FGR2Q2 Male).

Historically there were additional reasons why the trainings were to be performed in silos, with stigma and discrimination meaning PLWHA had to be segregated from the general population. “In the past the ministry people did not want to include people living with HIV/AIDS in their workshops or agricultural projects. Such people were discriminated and stigmatized because of their statuses. A lot of HIV positive people died as a result, because there was not enough information on what such people need to eat for instance, in order to prolong their lives” (FGR1Q2 Male). Although stigma is reducing, respondents indicated that little effort is being made to provide tailored information and outreaches. Another issue identified by Mrs. ‘X’, “... we realized that some farmers, the commercial farmers they try to... lock even their gates... the people who have done mobile groups or try to go to farmers find that their gates are locked and they cannot talk to the farmers... They don’t have interest to go... and doesn’t have permission to enter there, you see” (‘X’, 2009).

The unique combination of risk factors, including geographical location, nutritional needs, and livelihood are not necessarily translating into tailored services in Namibia.

### Conclusion, Recommendations, and Implications

This study found that there were unique challenges for agrarian workers living with HIV/AIDS in Namibia. Community persons interviewed had widely differing views regarding services available than the policy makers, and respondents unanimously agreed that while there should be specific attention given to agrarian workers with HIV/AIDS, at the moment health and agriculture agents worked in silos and did not combine activities.

Overall, it was suggested that the Ministry of Agriculture and Ministry of Health and Social Services combine their efforts to provide specific outreach to agrarian workers living with or affected by HIV/AIDS. However, several policy makers seemed to believe that some HIV activities were already being done by agricultural extension workers. This may be due to the area of inclusion of HIV activities within the Ministry of Agriculture. “Mainstreaming HIV/AIDS in the work of MoAs... tends to be situated within “soft” units... rather than within “hard” units (livestock, crop production, fisheries, agricultural extension, etc.). This identification of HIV/AIDS focal points with “soft” units can make mainstreaming of HIV/AIDS in the core areas of MoA work more difficult” (Topouzis, 2003, p. 9-10). This downplays the importance and hinders full integration. It is recommended that the Ministry of Agriculture prioritize activities that focus on agrarian PLWHA and place these activities in a prominent area of the ministry.

It was found that the geography of Namibia presented a barrier to HIV/AIDS or agricultural extension activities. Due to the geographic layout of Namibia, and the lack of transportation at the rural level, participants and policy makers alike noted the



difficulty of reaching rural populations. Additionally, it was noted that agrarian workers are even more removed from possible trainings as farm owner's lock gates for safety, barring extension workers from entering the property. Policy makers mentioned that agricultural extension workers may have more success gaining entry to the farms as the employers would want their laborers to receive agricultural education. Combining HIV related outreach with these extension agents would be a way to reach these populations with messages that would otherwise not be available to them.

The differing perceptions between policy makers and community members regarding activities being carried out in the rural areas points to a need for further monitoring and evaluation of purported governmental activities. These evaluations should be used to determine if agricultural extension workers are indeed reaching the target population, or if they need to intensify in scale. It is recommended that the Ministry of Agriculture and Ministry of Health and Social Services collaborate to design programming specifically tailored towards PLWHA agrarian workers, and that they combine resources to ensure their outreaches and messaging are reaching the intended audiences with the appropriate messages.

## CHAPTER IV

### SUMMARY AND CONCLUSIONS

HIV/AIDS has a large and devastating impact on the population of Namibia, an agrarian society. With one in five individuals infected by HIV, and more affected by HIV, the potential loss of labor could potentially lead to not only national but also household food security issues. The need for increased nutritional intake for persons living with HIV/AIDS could prove to be a dire problem. Finally, there is a strong link between poverty and increased risk to HIV/AIDS infection, so the loss of labor and decreased household food security could damage the traditional family unit and lead toward increased infections.

Further research should be conducted on the long term impact of HIV on national food security; notably, the loss of farming knowledge, loss of man hours due to illness or caring for family members, and regional instability in the circumstance of drought or flooding. “In parts of Africa where farming is a primary occupation and nutritional requirements are usually met through local food production, HIV/AIDS in agricultural workers is affecting farm incomes, food productivity, and nutritional status” (Piwoz & Preble, 2000, p. 10). It is recommended that the Ministry of Agriculture investigate possible ways to tailor training programs for generational knowledge retention, either through audio-visual records or government sponsored cross-generational mentorship programs.

Additionally, further research is recommended for issues surrounding household food security in populations infected by or affected by HIV/AIDS, notably the ability of

PLWHA to obtain increased nutrition for optimum health, as well as adhere to the required food intake with certain ARV medications. Special attention should be paid to the relationship between household food security and treatment failure due to improper ARV adherence, which leads to the possibility of developing resistant strains of HIV. “Proper nutrition management can help maintain food intake, compensate for nutrient losses, prevent weight loss and improve the condition of the patient. Proper nutritional management can also improve adherence to the regimen” (Ministry of Health and Social Services Directorate of Special Programmes, 2007, p. 21).

Micro or urban gardening programs should be scaled up as a way to provide nutritional supplementation and income generation to households affected by HIV/AIDS. “The project was perceived as generating the highest income and being the most reliable micro enterprise nutritional/herbal gardens with its multiple tasks seemed to function well in mitigating the economic and nutritional effects of HIV on the household” (Mutenje, Nyakudya, Katsinde, & Chikuvire, 2007).

There appeared to be a strong gap between national policies and actual activities being implemented at the community level. The results from this research suggest further qualitative research to determine ways the national, regional and district government officers can improve their communication and knowledge flow. Systems should be put in place to allow for improved monitoring and evaluation of ministry programming which will feed back into policy and programming. It is recommended that regular independent assessments should be conducted to ensure optimum flow of

communication from the national to community level, and that those at the end of the chain are given the training and support to enable them to provide quality services.

The Ministry of Agriculture and Ministry of Health and Human Services should explore joint programming and initiatives pertaining to long term planning for food security in the face of HIV/AIDS. Before integration may happen, the Ministry of Agriculture may need to reframe how they use their agricultural extension workers. “An important role for the Ministry of Agriculture is to rehabilitate the agricultural extension system. This means more than reviving the number of extension agents and contacts with farmers, but also improving the mode of transmitting information to farmers” (Jayne T. , Villarreal, Pingali, & Hemrich, 2005, p. 174). In order for successful activities to be carried out, the Ministry of Agriculture must support its workers to provide enhanced services.

Considering the interrelationship between persons living with HIV and agriculture in Namibia, it is recommended that the Ministry of Health and the Ministry of Agriculture work together to organize joint programming specifically aimed at agrarian workers living with HIV/AIDS. Collaborative activities and joint work plans are encouraged to reduce duplication of activities. Several of these individuals are difficult to reach due to geographic distance or barriers, and they are uniquely affected by the disease; by forming joint working groups the government will be able to overcome several of these barriers and provide targeted interventions and trainings. This would conserve limited government resources, and allow “two for one” trainings, saving

time and manpower needed. Most importantly, it would deliver services and education specific for this population.

It is anticipated that joint programming initiatives would lead towards collaboration on certain policy development, as well as promote collaboration and sharing between the Ministry of Health and Ministry of Agriculture.

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## APPENDIX A

**STAKEHOLDERS INTERVIEW GUIDELINES****KEY INFORMANT INTERVIEW**

**We would like to talk to you about some matters about Agriculture relating to People Living With HIV/AIDS (PLWHA) in Namibia. We would like you to provide us with as many details as possible. Your views are important to us and will be treated with confidentiality. You will not be personally linked to any opinions in the final report. Thank you for your time and for speaking to us.**

- 1) In your view, what is the impact of HIV/AIDS in Namibia over the past decade?
- 2) (if not mentioned) Has HIV/AIDS had an impact on the Namibian agriculture sector? If so, how? (PROBING AREAS BELOW)
  - Adverse effects on land/labor productivity and on agricultural production
  - Erosion of knowledge base and skills for agricultural production
  - Economic effects on communities
  - Effect of instability on individuals
  - Loss of labor to disease or caretaking
- 3) Are you aware of any groups or programs that provide PLWHA with support? Which ones? What do they do? Are they successful?
  - Namibian government programs
  - Foreign government or International programs (USDOA, UNFAO)
  - Foreign Non Governmental Organizations
  - Local community based or faith based organizations
- 4) (If not mentioned) are there groups which provide PLWHA support in regards to agricultural support? Which ones? What do they do? Are they successful?
  - Nutritional Counseling
  - Micro-Gardening
  - Farming for income supplementation
  - Creation of PLWHA farming co-operatives
  - Funds for PLWHA who are out of work due to illness
  - Support for widows or orphans of agrarians with PLWHA

- 5) What government policies or funding mechanisms are in place to support PLWHA, namely agrarian workers?
  - Laws on anti discrimination, land inheritance, healthcare for illness, free ARVs, etc
- 6) How informed do think the farm workers are in regard to HIV/AIDS? Is there any need for interventions in this regard?
  - Education
  - Support to PLWHA
- 7) Who should be targeted for these interventions? Who should be doing these interventions?
  - Ag extension Workers
  - Links between MOH and MOA
- 8) Is there anything related to these issues you would like to discuss before we end this interview?

Thank you very much indeed for your time.

## APPENDIX B

**FOCUS INTERVIEW GUIDELINES****FOCUS GROUP INTERVIEW**

**We would like to talk to you about some matters about Agriculture relating to People Living With HIV/AIDS (PLWHA) in Namibia. We would like you to provide us with as many details as possible. Your views are important to us and will be treated with confidentiality. You will not be personally linked to any opinions in the final report. Thank you for your time and for speaking to us.**

- 1) Before you became aware of your own status of being HIV/AIDS positive what were your perceptions of ways of avoiding HIV/AIDS infection?
- 2) How much if any information did you receive on HIV/AIDS education from Extension Personnel prior to your infection?
- 3) What agricultural policies were you aware of involving HIV/AIDS education before your infection?
- 4) Since infection, has there been any noticeable change in your nutritional intake?
- 5) After infection was there any agricultural extension program that helped you? If so which ones?
- 6) What if anything has changed in the way that you deal with your agriculture production since discovery of you being HIV/AIDS positive?
- 7) What if any programs are helping you now as a person living with HIV/AIDS?
- 8) Have you heard of Urban Microfarming? If so, do you feel that Urban Microfarming would be a benefit to you as a person living with HIV/AIDS?
- 9) Did you gain any perceived benefit from HIV/AIDS education from Agriculture extension workers?

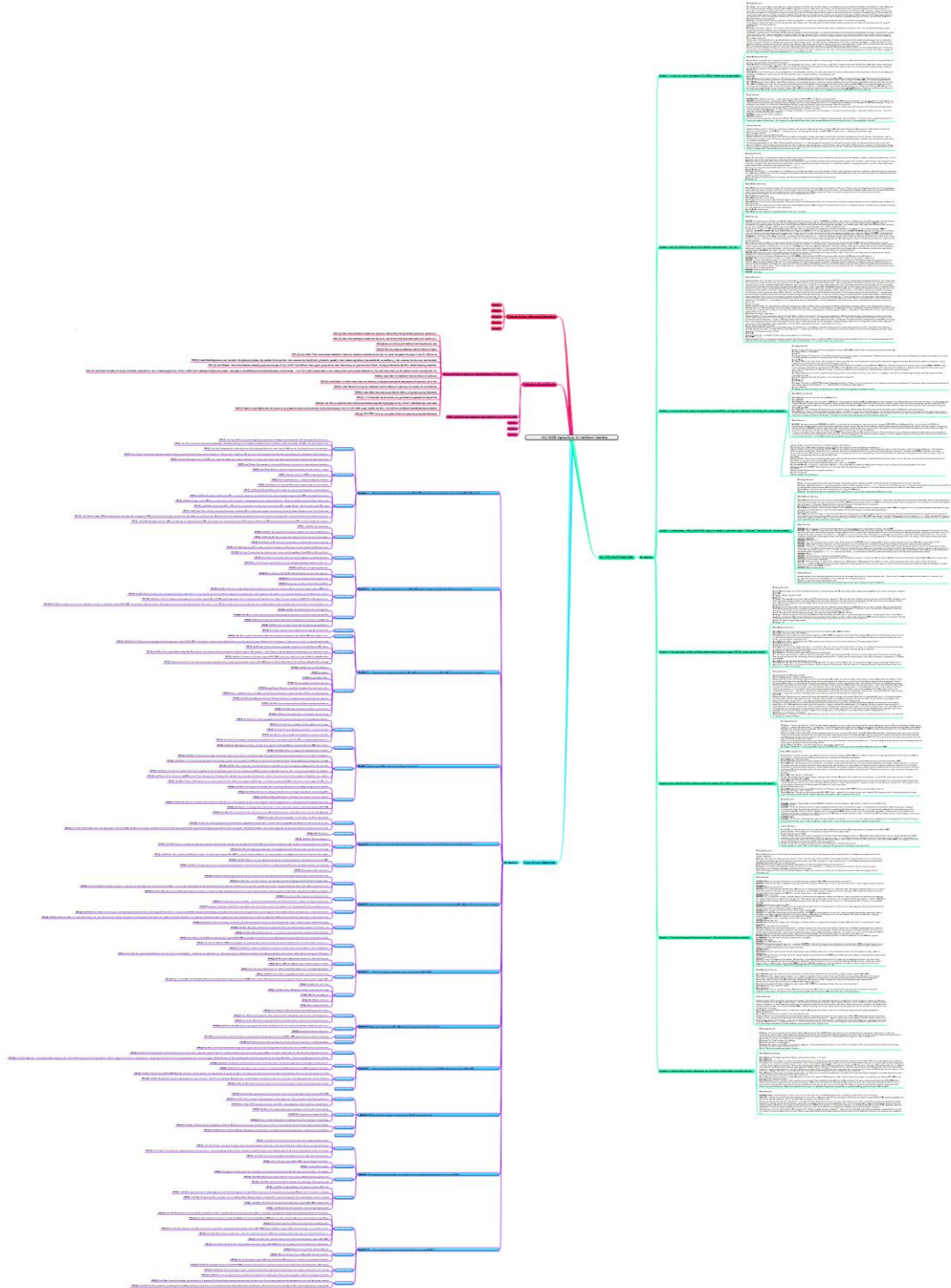
- 10) In your opinion, what agricultural policy could be enacted to help PLWHA deal with both the rigors of agriculture work and HIV/AIDS?
- 11) What could other programs do to help you deal with PLWHA and agriculture work?
- 12) Looking back now what would you say is lacking in the current Agriculture extension workers effort to assist PLWHA.
- 13) Is there anything else that you feel would be beneficial towards assisting PLWHA?
- 14) Is there anything you would like to tell us that we have not already discussed?

Thank you very much indeed for your time.

# APPENDIX C

## Qualitative Data Analysis Map

Novamind Pro 4 v.4.7.3.4 © NMS Global 2002 - 2008



## APPENDIX D

## Explanation of Data Codes

FGK1Q#	Focus Group Katima 1 Question #
FGK2Q#	Focus Group Katima 2 Question #
FGR1Q#	Focus Group Rundu 1 Question #
FGR2Q#	Focus Group Rundu 2 Question #
Ms. W	Key Informant Interviewee
Ms. X	Key Informant Interviewee
Ms. Y	Key Informant Interviewee
Ms. Z	Key Informant Interviewee



## VITA

Charles Russell 'Rusty' Carter was born in 1984, in Austin, Texas, and is the son of Charles and Sheila Carter.

Rusty received a Bachelor of Science in agricultural development specializing in International Agricultural Development from Texas A&M University at College Station in December 2007.

After graduation, Rusty entered the Department of Agricultural Leadership, Education, and Communications at Texas A&M University in 2007 and received his Master of Science degree in December 2009. While completing his master's degree, Rusty traveled to Namibia, Africa to conduct in country research pertaining to his thesis.

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