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Responsibility for Disease Management on Rusinga Island: Reconciling the Limitations of External Aid and the Role of Community-Based Initiatives

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Responsibility for Disease Management on Rusinga Island:

Reconciling the Limitations of External Aid
and the Role of Community-Based Initiatives

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Fall 2009

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“Be the change you wish to see in the world.” -Ghandi

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	2
TABLE OF CONTENTS.....	3
ABSTRACT.....	5
1 CHAPTER ONE: INTRODUCTION.....	6
1.1 Background.....	6
1.2 Statement of Problem.....	7
1.3 Objectives.....	8
1.4 Literature Review.....	8
2 CHAPTER TWO: METHODOLOGY.....	11
2.1 Preparation.....	11
2.2 Community Entry.....	11
2.3 Interviews.....	11
2.4 Focus Group Discussions.....	12
2.5 Participatory Learning.....	12
3 CHAPTER THREE: FINDINGS.....	13
3.1 Setting.....	13
3.1.1 Location & Accessibility.....	13
3.1.2 Inhabitants.....	14
3.1.3 Economy & Livelihood.....	14
3.1.4 Health Facilities.....	15
3.2 Results.....	16
3.2.1 Transmission of Most Life-Threatening Diseases.....	16
3.2.2 External Aid Targeting Malaria and HIV/AIDS.....	19

3.2.3	Impact of External Aid on Community.....	20
3.2.3.1	Physical.....	20
3.2.3.2	Psycho-social.....	23
3.2.4	Community Solutions & Initiatives.....	25
4	CHAPTER FOUR: ANALYSIS.....	32
4.1	Discussion.....	32
4.2	Conclusion.....	33
5	RECOMMENDATIONS.....	34
5.1	Future Initiatives.....	34
5.2	Research.....	34
6	STUDY LIMITATIONS.....	35
7	APPENDIX.....	36
7.1	Glossary.....	36
7.2	Global Distribution of Malaria and HIV/AIDS.....	37
7.3	Graph: Community Perception of Most Life-Threatening Diseases.....	38
7.4	Table: Preventative Measures for Malaria on Rusinga Island.....	38
7.5	Sample Questionnaire.....	39
8	BIBLIOGRAPHY.....	40
8.1	Interviews.....	40
8.2	Literature.....	41

ABSTRACT:

Rusinga Island has been on the receiving end of many non-governmental and government-run health interventions. Though ample money has been invested in disease control, malaria and HIV/AIDS transmission and death rates remain higher than in any other location in Kenya. This study employs the use of interviews, both formal and informal, focus group discussions and observation in order to discover possible factors which have confounded the success of previous disease management programs. The study seeks the community's perspective on these programs as well as ideas for community-based, bottom-up strategies which might be able to curb the high rates of malaria and HIV transmission. The findings suggest a need for sustainable ways of tackling the *roots* of persistently high rates of disease transmission, not just the *leaves*. Potential points of entry include using existing youth group networks to spread knowledge, expanding micro-finance to promote income generation and poverty alleviation, and encouraging the health-related work and advocacy efforts of community-based organizations.

1 CHAPTER ONE: INTRODUCTION

1.1 Background

HIV/AIDS and malaria are diseases of poverty which disproportionately affect children and youth in Sub-Saharan Africa (SSA). The highest incidence rates occur in the most impoverished areas, where access to prevention methods and treatment is severely restricted by cost and accessibility. Government priorities also factor into disease management; even where programs and policies exist, implementation is often lacking.

Non-governmental organizations (NGOs) play an influential role in alleviating the burden of disease inflicted on impoverished communities. With the support of the international community, NGOs are able to mobilize large amounts of money and supplies. The nature of the work of NGOs enables the organizations to establish more intimate relationships with communities than governments are able to. Though this allows the NGOs to be more effective in disease control than the government, it has the down-fall of creating dependency. This dependency can cripple self-initiative within the community.

The gravid burden of disease attributable to HIV/AIDS and malaria among the poorest nations of the world becomes evident when one considers the global distribution.¹ More than 90 percent of illnesses and deaths due to malaria occur in Sub-Saharan Africa. In Kenya alone, over 25 million people of the country's total population of 39 million are at risk for contracting the disease. Children are the most at risk, with around 20 percent of deaths (under 5 years of age) being attributed directly to malaria. This equates to about 60 children per day in Kenya alone. (Luthi 2008)

The HIV epidemic shows regional heterogeneity. HIV prevalence rates in Nyanza Province are significantly higher than in any other part of Kenya. According to a DHS survey conducted in 2003, 18 percent of women and 11 percent of men aged 15-49 in Nyanza Province tested positive for the HIV virus. This is compared with Nairobi at 10 percent prevalence, and all other provinces with levels between 4 and 6 percent. The exception is North-Eastern Province, in which no respondent tested positive. Interestingly, prevalence within the Luo community was even higher, with 26 percent of women and 18 percent of men infected. (DHS 2003)

Mbita District, one of twenty within Nyanza Province, is one of the poorest regions in

1 See Appendix 7.2.

Kenya. More than three quarters of the population survives on less than \$1 USD/day, the World Bank's definition of extreme poverty. (Coudouel) The under 5 mortality rate (U5MR) and infant mortality rates (IMR) in Nyanza Province are the highest in the country at 206:1000 and 133:1000 respectively. (DHS) Infant and under 5 mortality trends are not promising either, with rates having steadily risen for the past 15 years. (DHS) This can be attributed to rampant disease, malnutrition and orphan-hood due to HIV/AIDS.

1.2 Statement of Problem

For the past ten years, Rusinga Island, situated on Lake Victoria in the Southern region of Kenya's Nyanza Province, has been an area of focus for many non-governmental aid organizations and government projects. These organizations have invested ample money in malaria and AIDS disease control programs on the Island. Yet these two killer diseases continue to impart a tremendous burden of disease on the community. Transmission and mortality rates remain higher than anywhere else in Kenya.

From the start, there has been a lack of *community ownership* of disease management programs. Without community participation in the management programs, the projects which are implemented fail to outlast the presence of the aid organizations which have created them. Thus today, there remains a lack of internally-driven *sustainability* for disease management programs.

Due to financial constraints and pressure for immediate fixes from the international donors, aid agencies often look for *quick and easy fixes*. Herein lies the problem international organizations face with aid work. Long-term success is rarely seen with this type of “hit-and-run” aid.

Governments and aid agencies alike often turn to preventative measures to tackle the “leaves” of the problem, such as bed-nets and condoms, but fail to look at the “roots” of the cause of rampant disease transmission. One of the most apparent “roots” of the challenge faced by disease management is the complication between *poverty* and disease. Without money to put food on the table, there are no extra funds to pay for disease treatment. Prevention methods become challenging to afford. Free handouts create dependency, worsening the situation instead of ameliorating it. The circular relationship between poverty and disease is complex. The two tend to spiral downward together. One cannot be addressed without the other.

1.3 Objectives

This research investigates factors which have confounded the success of previous disease control programs. In order to do this, the study examines the impact which external aid has had on self-initiative and motivation for disease management within the community as well as the community's perspective on with whom the responsibility for health lies. The study strives to discover sustainable, community-driven strategies to curb the high rates of malaria and HIV transmission.

1.4 Literature Review

1. Opiyo, Pamela, and W. Richard Mukabana. "An exploratory study of community factors relevant for participatory malaria control on Rusinga Island, western Kenya." *Malaria Journal* 6.48 (2007): 1-20.

The exploratory work of Pamela Opiyo and colleagues investigating community beliefs and practices concerning malaria on Rusinga Island provided valuable information for this study. The research employed focus group discussions and interviews in 1,451 households in order to discover knowledge about malaria transmission, typical practices for prevention, and treatment-seeking behaviors. The most striking results of the survey were that malaria is considered one of the major threats to life but that local knowledge about malaria transmission is a chimera of scientific knowledge (e.g. anopheline mosquitoes transmit the disease) and local beliefs (e.g. being rained on, eating sugar cane, or lack of hygiene cause malaria) which combined with impoverishment leads to ineffective malaria prevention. (Opiyo 2007:14) The report discussed the urgent need to design culturally sensitive but evidence-based education interventions which take local beliefs into account and which help the community to understand the causal connections between mosquito habitats, malaria transmission, malaria symptoms, treatment and prevention. The study was thorough in which questions were asked and to whom they were asked. This enabled the study to gather a holistic, statistically relevant picture of the issues relevant to malaria control programs on Rusinga Island.

2. De La Cruz N, et al. "Microfinance against malaria: Impact of Freedom from Hunger's malaria education when delivered by rural banks in Ghana." *Trans R Soc Trop Med Hyg* (2009), doi:10.1016/j.trstmh.2009.03.018

De La Cruz et al. utilized a pre-test/post-test study design to evaluate the effectiveness of a malaria education program provided by a microfinance institution in Ghana. The results indicated that clients receiving malaria education were more able to identify proper malaria prevention methods and the most vulnerable age groups, as compared with clients receiving diarrhea education and non-clients. The study showed that health education via microfinance groups was a successful method of passing information. However, the findings seem trivial, since it is unlikely that the malaria knowledge attainment level of those who were not receiving malaria education would ever surpass the attainment level of those who were receiving malaria education.

3. Coleman M, et al. "Household and microeconomic factors associated with malaria in Mpumalanga, South Africa." *Trans R Soc Trop Med Hyg* (2009), doi:10.1016/j.trstmh.2009.07.010

The statistical research conducted by Coleman and colleagues in South Africa analyzed the correlation between behaviors and living styles associated with different socio-economic statuses and malaria risk. A case-control method was employed. Malaria risk was found to positively correlate with mud-walled houses and leaving windows open at night. A strong negative correlation was noted between household wealth and malaria risk. The study concludes by suggesting that economic development may be more important than education campaigns targeting malaria risk behavior in malaria control strategies. The study surveyed a small number of households, only 53 "case" households. The study was also conducted in an area of low and intermittent transmission of malaria. The location for the study limits the application and validity of the data for widespread generalization of the correlation between micro-economic factors and malaria risk.

4. Mbugua, Njeri. "Strategies for Prevention of Sexual Transmission of HIV/AIDS among Adolescents: The Case of High School Students in Kenya." *HIV & AIDS in Africa: Beyond Epidemiology*. Blackwell Publishing: United Kingdom. (2004): 104-120.

The study was conducted by Njeri Mbugua in randomly chosen secondary schools in Nairobi and Nakuru Districts. The researcher utilized self-administered questionnaires, focus group discussions, key informant interviews and observation. The study focused on the HIV/AIDS information which high school girls possessed. The researcher sought to find correlations between sexual activity and different indicators (e.g. parental monitoring, discos, SES) as well as the girls' perspective on the most effective modes of teaching about HIV/AIDS. Concluding remarks include numerous recommendations for family socialization and education- and youth-related strategies including: communication not condemnation, responsible role models, "relax" parental monitoring, school teachers giving candid and practical sex lessons, utilizing various methods of teaching, train peer counselors, provide teenage recreation activities. The paper emphasizes the importance of focusing on adolescent girls, as they are at a greater risk of contracting HIV than their male peers. Though the recommendations are all appear straight-forward on paper, the researcher did not include how to best implement these strategies. The study was limited to urban-dwelling youth.

5. Stirrat, R. L. and Heiko Henkel. "The Development Gift: The Problem of Reciprocity in the NGO World. *Annals of the Academy of Political and Social Science*. Vol 554 (1997), pp. 66-80.

Drawing on Mauss's classical essay on "The Gift," the authors examine the relationship between Western development nongovernmental organizations and their Southern counterparts. In particular they look at European religious organizations in a historical and contemporary perspective. It is argued that what starts out as a seemingly free gift is transformed into a heavily conditional gift when it reaches the ultimate recipient, if it ever reaches that recipient at all. The authors examine religious moral principles in aid given as tangible charity, that is, material objects. They describe an embarrassment among foreign NGO activists over this sort of activity because it is seen as creating dependency: as treating people as recipients of charity. On the other hand, what is viewed as proper development- persuading the poor to form groups, to participate, to empower themselves is rather different and the proper work of the development NGOs. The article describes the dependency which is created by the giving of 'tangible charity' and its failure to create sustainable development within the community setting. The article fails to consider the difference between emergency relief work and non-relief work when considering the giving of tangible charity.

2 CHAPTER TWO: METHODOLOGY

2.1 Preparation

Preliminary preparation was conducted three weeks prior to the start of the study. The researcher visited Mbita to confirm the location as an appropriate site for the study. A key informant, contact, and community member, Ibrahim Kiche, was identified at ICIPE. Additionally, published literature regarding malaria transmission, disease management and Integrated Vector Management programs in Nyanza Province and throughout the world were thoroughly reviewed.

2.2 Community Entry

A planning meeting was held on the first day of the study with Ibrahim Kiche. The following day, the researcher met with the Chief of Rusinga East, the selected study site. A meeting was called with the clan elders to introduce the researcher to the community leaders. All 22 villages of Rusinga East were represented. Walking tours around Utajo, Wasaria, Kolo, Bondo, and Wanyama served the purpose of familiarization with the area, as well as to sensitize the community to a new mzungu living in the area.

2.4 Interviews

Key informant interviews provided valuable information and insight into the past work of NGOs and the Government, including projects which were implemented and challenges which were faced. These interviews also gave insight into current challenges faced in disease control and what the community sees as the next steps. Formal interviews were conducted with two NGO directors, two NGO workers, one Chief, one clinician, one lab technician, one micro-finance group leader, one women's' group leader, the District Statistician, the Rusinga Malaria Project community leader.²

Direct questioning methods in interviews led the interviewees to respond according to what they thought they should say in order to receive the most from the researcher. Thus, the primary method of study was changed from formal interviews to informal conversations and indirect participatory learning in order to best understand community function and beliefs about the responsibility of disease management.

2 See Appendix 7.5 and Bibliography 8.1.

Informal interviews, often arising from casual discussion, were conducted with ten community members. These discussions enabled the researcher to gain insight into challenges which the community faces on a daily basis, especially issues concerning disease management.

2.6 Focus Group Discussions

Two focus group discussions (FGD) were held. The first was with the clan elders of Rusinga East. It was important to hear from the clan elders, as they represent the thoughts and opinions of the members of their respective villages. It was important to understand the position of the elders on past and present disease management in their communities. The discussion was planned to be conducted with five elders. Due to the setting of the discussion, outside within the Chief's Camp, the discussion group grew to twenty-one elders. This drastically changed the dynamic of the discussion and perhaps hindered the ability of the discussion to delve into sensitive or intricate topics.

The second FGD was with two leaders from the Uva Youth Group, and one leader from a Youth Group from Rusinga West. The discussion addressed the responsibility of the youth in disease control, and how best to stop the spread of HIV within the youth of Rusinga.

2.7 Participatory Learning

Arguably the most effective mode of gathering information, the researcher spent time living within the community, observing their ways of life, experiencing the challenges which they daily face, and participating in community-based development initiatives. The researcher spent multiple mornings working on the Misenye Development Group's *shamba*, which is part of the first micro-finance project in the region. The researcher attended a graduation ceremony at the *Little Stars Academy*, half of whose students are HIV/AIDS orphans. The researcher also attended two days of a weeklong HIV/AIDS training seminar for Youth Group leaders entitled "*Men as Partners*," and a sporting tournament for the female members of the Rusinga Youth Groups.

3 CHAPTER THREE: FINDINGS

3.1 SETTING

3.1.1 Location and Accessibility

Province	Nyanza	Nyanza	Nyanza
District	Mbita	Mbita	Mbita
Division	Mbita	Mbita	Mbita
Location	Rusinga East	Rusinga East	Rusinga West
Sub-Location	Waware North	Waware South	Wanyama
Village	Utajo	Kolo	Wanyama

Rusinga Island (0°35'–0°44' South; 34°11'–34°22' East; altitude 1,100 m) is located in Mbita District (classified as Suba District prior to 2007) in the South Nyanza province of Kenya. Rusinga Island is the second largest island in Lake Victoria with an area of 42 km². Provisional Projections for the 2009 Census cite a population of 23,093 residents. (DSO 2008) The primary regions of study were the Kolo, Wanyama, and Utajo villages.

Due to the Island's close proximity to the mainland a 200 meter-long causeway was constructed in 1982 to link the island with Mbita Township, the major trading and the administrative center of the district. The Island can be reached from Kisumu via a two hour matatu and one hour ferry ride to Mbita. The other access road is from Kisumu or Kisii via Homa Bay on a rough, unpaved road. There is one dirt road encircling the Island. Primary modes of transportation are on foot, or by bicycle or piki-piki (motor-bike).

The land is extensively deforested and very rocky with limited forest cover. There are numerous river beds running from the hills into the lake, but all were very dry. Two previously reliable rainy seasons, the 'long rains' from March to May and the 'short rains' from November to December, have become less and less reliable. Prolonged dry periods are now increasingly common, and of late, community members have little faith in the occurrence of the 'short rains'.

Most houses are made from smeared mud or corrugated iron, with either reed or corrugated iron roofs. Lake Victoria is the main source of water for the Islanders. The Lake is used for washing clothing and dishes, bathing, and irrigating farmland. Latrine usage is low. Except for a few businesses, guest houses, and NGO offices, there is no electricity or running water. Generators are occasionally used to pump water, operate posho mills, run cell-phone charging businesses or power speaker systems for events and church services.

Figure 3-1



3.1.2 Inhabitants

The majority of inhabitants on Rusinga Island are Luo and Luo Basuba. The Luo are the second largest of the 43 tribes within Kenya. The tribes' people are River Lake Nilotes who originated in South Sudan, and are part of the Bantu/Nilotic mixed race which migrated to Western Kenya via Uganda in the 15th Century. They were called River Lake Nilotes because they were fishermen from along the River Nile. The mother tongue is Dholuo and most speak English; knowledge of the Kiswahili language is limited.

3.1.3 Economy & Livelihood

Rusinga Island is, by in large, a fishing community. Offshore fishing is the primary occupation of most men and boys, while the women partake in the onshore business aspect of fishing, such as selling the daily catch in the market. Most households have at least one member involved in fishing-related activities.

In the past half-decade, many families have switched to more agriculturally-based forms of income generation for both subsistence and commercial purposes. Due to a recent 'lack of fish,' as many Islanders say, the fishing business is becoming less profitable and less

viable as a means of sustaining a family. Thus, many are planting *shambas*, or farms, and raising a few cows, goats and chickens.

Additionally, there are a few small shops at each *beach*, or village center, as well as the business opportunities closer to Mbita township. Mbita Township serves as a local trading post for the surrounding villages and islands. There are a numerous retail shops, cafes, hotels and bars, as well as a post office, small supermarket, and a chemist.

3.1.4 Health Facilities

The sub-district hospital is located in Mbita on the mainland. The hospital is relatively inaccessible to many Islanders, as it is a distance from most points on Rusinga Island. The piki-piki fare to the hospital ranges from 50KSh from the nearest points to 150KSh from the far side of the Island.

Apart from the hospital, Waware Dispensary serves as the main (and sole) health facility for the inhabitants of Rusinga East sub-location. The Dispensary was built by the community in 2008 and is currently supplied by the Government of Kenya (GoK). The Dispensary is staffed by two clinicians, two nurses and one lab technician. Accessibility still remains an issue, with the furthest persons in the catchment area living 12km from the Dispensary. (Atieno) In 2006, the GoK trained 145 Community Health Workers (CHWs) in the Waware North sub-location. These CHWs report to the Waware Dispensary.

3.2 RESULTS

3.2.1 Transmission of Two Most Life-Threatening Diseases

There is a consensus among Island inhabitants that malaria poses the greatest threat to health.³ Malaria is the most prevalent disease on the Island, with an estimated prevalence rate of 45 percent. (ICIPE Staff 1) The region is classified as holoendemic, meaning the disease is endemic within all age groups at all times of the year.

Though HIV transmission is also rampant and prevalence rates extremely high, a strong stigma surrounding the disease prevents residents from bringing up its presence in casual conversation. A few interviewees commented that malaria was the biggest issue the community now faces because HIV/AIDS transmission was “under control.” (Ogada)

Both HIV/AIDS and malaria are diseases of poverty. The two diseases are, however, distinctly different in their causality; one is driven by the search for money, the other a result of not having money. The HIV/AIDS epidemic has created an entire generation of orphans. There are many child-headed households and widows. Unable to care for the many orphaned children and fatherless families, the women and girls go to the beaches in search of fish. HIV spreads rampantly through *jaboya*, or 'fish for sex,' which is what these women must resort to in order to provide food for their families. Thus the transmission of HIV/AIDS is perpetuated by poverty-driven behaviors.

Malaria is also driven by poverty, but in the sense that poverty inhibits the Islanders from adopting proper behaviors to halt transmission. High levels of poverty and low levels of educational attainment, especially amongst women, inhibits the community from fully understanding the transmission and prevention techniques of malaria, as well as hindering their ability to pay for proper treatment. Living by the lake-shore also increases the risk of malaria incidence. In this region, stagnant pools of water created by waves and hippopotami footprints act as ideal mosquito breeding sites. (ICIPE Researcher 1)

Thus, poverty drives both HIV and malaria transmission through a need for and a lack of money to survive. Their continued transmission is aided by the presence of the Lake. The Lake is both a source of life, providing water and fish, and a source of death, harboring HIV/AIDS and malaria along its shores.

3 See Appendix 7.3.

Malaria Transmission

Due to high rates of home-treatment and undiagnosed cases of malaria, precise prevalence rates on Rusinga Island are unknown. Nagasaki University Institute of Tropical Medicine has gone from village to village testing children under five years of age for malaria with Rapid Diagnostic Tests. A NUITM staff stated that generally, in the dry season, 15-20 out of 40 (38-50%) of children test will positive, whereas in the wet season, 25-30 out of 40 (63-75%) will test positive. (Ogada) A survey conducted in 1998 revealed 65 percent prevalence of malaria in children under five and 37 percent in expectant mothers. (Kentai)

Incidence is particularly high on the Western-facing shores of the Island. Every afternoon, a strong Westerly breeze builds and the consequent waves splash onto the beaches and leave stagnant pools of water, ideal for mosquito breeding. Hippopotami along the lake-shore also leave deep footprints in the mud which become breeding sites for malaria-carrying mosquitoes.

HIV/AIDS Transmission

Mbita District, and even more specifically Rusinga Island, has the highest HIV prevalence rate in Kenya at a remarkable 41 percent. (Kageno) “If a person on Rusinga is not infected, then they are certainly affected. If you or your wife or children aren't dead, then your brother's dead.” (Kolo Resident 1) Estimates for prevalence among girls aged 15 to 29 are between 60 and 80 percent. (Tuungane Staff 1)

Jaboya is the cause of this extremely high prevalence rate among young women. Its existence is known throughout, though it is only spoken of behind closed doors. “*Jaboya* means a customer who's also a lover, though not necessarily by choice.” (Utajo Resident 1) It was also defined to the researcher in this way: “I give you fish, you give me sex. Fish for sex.” (Utajo Resident 2) There are two types of women who are involved in *jaboya*: those who are lured or tricked into it and those who do it to survive in the fish mongering business.

As described by a young woman from Utajo, young girls begin to wander down to the beaches looking for fish to eat as early as at 9 years old. Some are orphans, looking to provide for their younger siblings; some are sent by their parents who are too ill to go out to look for food on their own. The fishermen, both young and old, come from far shores; some are married and have families, but most do not. They travel to where the fish are and sell them in different beaches all around the Lake.

The fishermen will “seduce” the young girls with soda. The soda, worth 30Ksh (~50 US cents), costs more than the girls could ever pay. Thus, the offer is tempting. After drinking the soda, the fisherman will tell the girl that she “owes him something” for the soda, meaning sex. Teenage pregnancy rates are high because girls are “seeing the moon” at younger and younger ages, but the youngest girls “don't know when they'll bleed,” thus they do not know or understand when it is safe to have sex and not get pregnant. “When an older man says you will do it, you will do it. You can't say no. But love stops there. Even if they get you pregnant, they'll just leave you. Love stops there.” (Utajo Resident 1)

The girls are lured into sex by promises of not only fish, but perfumes and lotions, items which will make the girls look beautiful. “Fathers ask their daughters, who are dirty from carrying charcoal, 'why can't you be pretty like the other girls, with cream to make your skin soft and perfume to make you smell nice?' But the fathers don't buy these things for their girls, so the girls need to find a way to get these things on their own.” The fishermen provide a way for the girls to get these things to please their fathers. (Utajo Resident 2)

There is tough competition within the fish marketing business. Each morning when the men bring in the night's catch, the women on shore fight for the best fish to sell in the market. In order to get the best fish, the women establish sexual relationships with the fishermen. “When I go down to the beach each morning, I don't catch just fish; I will also catch a man.” (Utajo Resident 3) For beaches which are far from the market, the fish travel in vans. These vans have limited space, so the women sometimes establish sexual relationships with the van drivers as well, in order to ensure their fish will get onto the van.

In these ways, HIV spreads rampantly from one beach to the next, from one fisherman to the next, and from one young woman to the next. Many women have no other way to support their families, and trading sex for food is a daily necessity. These women, whether healthy or already infected, have neither the social nor economic power to refuse sex with infected men or demand that they use a condom.

3.2.2 External Aid Targeting Malaria and HIV/AIDS

Organization	Year	Action Taken
Christian Children's Fund	1998 – 2004	Prevention, Training, Awareness, Resource Mobilization, Created Rusinga Malaria Project Volunteer Team
International Medical Corps	2001 - 2005	HIV/AIDS Awareness, Bed-Net Distribution
ICIPE	2001 - current	Vector Control, Larval Sampling & Data Collection, Mosquito Research
Be the Cause, Power of Love, Care Kenya	2005	Free Bed-Net Distribution
“German Lady”	~2005	Free Bed-Net Distribution
Kageno Trust	2005 - current	HIV/AIDS awareness, counseling; microcredit loans; Orphans and Vulnerable Children Support
GoK – Ministry of Health	2005 - current	Training CHWs, Free Bed-Net Distribution to U5 and Pregnant Mothers through Clinics
Nagasaki University Institute of Tropical Medicine	2006 - current	Vector Control, Bed-Net Distribution, Supplying Clinics
Tuongane Youth Center	2007 – current	HIV/AIDS Awareness, Youth Training, VCT, Male Circumcision
“American Man”	2008	Free LLITN Distribution (small sample as a test)

3.2.3 Impact of External Aid on the Community

3.2.3.1 Physical

Without a doubt, the communities of Rusinga Island have experienced a change in knowledge, attitude, and practice concerning malaria in the past decade. The advent of bed-nets signaled the most obvious change. At first, the community was hesitant to use the bed-nets. Unaware of the fact that mosquitoes were the cause of malaria transmission, the need to use bed-nets was confusing. However, after other aid groups came through, teaching about mosquitoes as vectors for malaria, and the relationship between mosquito bites and malaria, the communities were much more willing to use the nets. Still, it wasn't until the communities recognized the importance of bed-net usage, that is, that the under 5 mortality rate began to drop rapidly, that families were eager to use the nets. (Chief) Mothers were able to put newspapers around the edges of the beds and see the number of dead mosquitoes (which had come in contact with the insecticide-treated net) each morning. Recently, the community “rushes to participate in malaria control programs and to grab free nets” when they are distributed.

In the past four years, the GoK has stepped up malaria control activities throughout the country. In particular, the Government has made free bed-nets and malaria treatment drugs available to children under 5 and expectant mothers. “Sometimes [the government and aid organizations] just drive by, handing [the nets] out.” (Kolo Resident 2) Many NGOs have distributed free bed-nets. Education programs in schools have taught the youth about malaria transmission, and how to reduce incidence.

Many interviewees could quickly rattle off names of organizations which have operated in the region, and details of the projects which were implemented. However, when asked what the successes of these projects were, what was accomplished, interviewees become silent and distort their faces, searching for an answer. The lack of a response is a very informative response. A clinician at Waware Dispensary, after showing the researcher a chart produced by the CHWs which stated that 749 out of 754 households in Waware owned bed-nets, could not think of anything which had been accomplished by the vast number of malaria projects. (Waware Staff 2)

Concerning HIV/AIDS, schools teach pupils everything there is to know about HIV/AIDS from Primary School onwards. HIV/AIDS risk, transmission, prevention and treatment are all part of the standard curriculum. However, as a young Utajo woman says,

“Money talks. It's poverty that drives girls to the beach.” (Utajo Resident 2) Even though the young girls know about HIV/AIDS, many have no other way to feed themselves and their families. There comes a point where even education has reached its limit and what is needed is an alternative method of feeding their families than 'sex for food.'

Projects on Rusinga Island carried out by aid organizations are usually short-term and often only reach the communities closest to the mainland. These projects teach about the risks involved in unsafe sexual relations, and how to avoid getting infected with HIV. Most all projects also distribute free condoms. “The NGOs don't get far out [on the Island]. Even if they did, they just hand out condoms, talk about AIDS for one day, and then the next day it's something else.” (Utajo Resident 4) The interviewee insinuated that the work the NGOs do surrounding HIV/AIDS has little to no effect on the community. Though the intentions are good, it remains the bigger issues, the stronger under-currents of poverty, of needing food and income, which hinders any amount of education and free condoms from curbing HIV incidence.

Many community members commented that the lack of *sustainability* was one reason past projects had failed accomplish anything substantial. Health issues which have faced a community for decades cannot be solved in one day - in one or even ten distributions of bed-nets or condoms. Even after the community has been educated about the benefits of using these preventative measures, individuals may not have the capacity to demand their usage. Practices such as *jaboya* often put women in vulnerable positions in which they have no power to demand their partner use a condom. Some men will also pay less money or fish if a woman demands to use a condom. (Utajo Resident 3)

A lack of sustainability can be attributed to a lack of community *involvement* in many of the projects. Helping to enact change within one's community is much more empowering and motivating than being on the receiving end of what others perceive as beneficial change for one's community. The disconnect between aid organizations and existing community networks prevents knowledge from dispersing past the point where it has hit the ground. Without tapping into and utilizing these networks, portions of the community will be left out of the projects and will not receive the knowledge. Additionally, without using these networks, the project is likely to stop when the aid organization leaves. If the organization is able to utilize and train these networks, it is much more likely that after the organization

leaves, the project will continue and be able to expand to areas which the organization was unable to target, such as the farthest reaches of the Island.

Another difficulty which disease management faces is students being *misinformed* in schools, particularly concerning malaria. The two most common forms of malaria prevention are bed-nets and bush clearing.⁴ However, *Anopheles gambiae*, one of the common species of malaria-carrying mosquitoes in Mbita District, prefer hot, open areas. “Schools teach that people must clear bush to get rid of malaria. This is taught so kids will pass the exam, but really it is the opposite of what they should be doing.” (ICIPE Staff 2) Thus, clearing bush is actually increasing the number of breeding sites for these mosquitoes.

In addition to misinformation, students and communities are often not *fully* educated. The relationship between mosquitoes and malaria is now established and understood. Thus, many community members interviewed stated that the best and only way to eliminate malaria is to eliminate all of the mosquitoes. The recognition that malaria could be stopped without eliminating all of the mosquitoes had not yet been realized.

A few community members were intimidated by the enormity of the task of eliminating all mosquitoes. Thus they believed that it would not be possible to eliminate malaria from their community and that prevention efforts were a waste. Malaria, to them, was simply a reality of life. Those proactively fighting the disease felt that these community members were hindering the success of their work. “If every person is not participating, practicing the proper things to prevent malaria, this hurts the whole community. If one family isn't clearing bush and sleeping under bed-nets, the rest of us might as well not bother either. Some just don't care.” (MST Volunteer 1)

The last major hindrance to the success of many malaria and AIDS projects, in particular bed-net and condom distribution, is the reality of *poverty*. Women put business, their ability to provide food for their families, before health. If mothers have a bed-net but no way to put food on the table (an immediate need), the bed-net (something preventing a future need) will often serve as a fishing net instead. If the only way a mother can get fish for her children is to develop a sexual relationship with the fisherman, the consequences of her actions are often a burden she feels she has no choice but to endure. (Kolo Resident 3) Challenges faced in income-generation are intricately entwined in decision-making processes concerning health.

4 See Appendix 7.4.

3.2.3.2 Psycho-social

Over the course of the past couple decades, countless aid organizations have targeting Rusinga Island, an easily defined study area with the highest malaria and HIV incidence rates in the country, for their project sites. The impact of these organizations coming and going from Rusinga Island has left a mark much more than just skin deep. Dependency and expectation have become deeply entrenched within the communities of Rusinga Island. The creation of dependency and expectation have dampened internally-driven motivation and self-enterprise, two characteristics which every community needs to tackle diseases such as malaria and AIDS.

The creation of dependency is not something which happened in one week or even one year. It is the result of the constant presence of aid organizations and GoK distributing prevention methods free of charge. If something is distributed for free, one may be under the impression that there are more where the first one came from. As Mama Benter says, “If you give them, they will expect, and will keep expecting if you give them [what they asked for].” (Mama Benter) If the first bed-net was free and was given without having been asked for, another one is likely on its way. Thus, the first one can be used for what is immediately needed, which may not have been the original purpose for the handout. To elaborate, priority will be given to what is needed immediately for survival, such as food. If food is the immediate need, a bed-net may be used instead as a fishing net, which will provide a source of income and will put fish on the table for dinner. (ICIPE Staff 1) A staff member at Waware Dispensary estimates that 20 to 30 percent of the mothers who receive free bed-nets live along the lake-shore and use them instead for fishing. (Waware Staff 1)

The presence of aid organizations and many scientific and social researchers on the Island has also created the notion that all *wazungu* (white people) have come either to give out free things, or to exploit the community for their own research purposes without returning any benefit to the community members. Community members were aggravated by this. They also felt resentment that in projects and research efforts, only a few people are targeted and many others are left out. For example, some bed-net campaigns only give free nets to children under 5 years of age. Though this is the most vulnerable age group, the most venerated age group is the elders. The community members felt that it was not right for the children to have nets, something which was clearly beneficial to preventing malaria, when the elders did not have them. (Clan Elder 1)

A feeling of distrust of and disappointment with foreigners, especially *wazungu*, was palpable in many discussions. Too many foreigners had come into the community with their own agendas and ideas for what was best for the community. They had neglected to firstly gain entry into the community, secondly understand the community in which they were working, and thirdly include the community in the decision-making processes. False hopes were raised within the community that these foreign aid organizations would be able to solve the crises of malaria and AIDS which the Islanders had grappled with for so long.

Currently, there are two perceptions of *wazungu* among Islanders. The first and immediate perception is that the *mzungu* is rich, and has come to bring something for the Islanders. The second perception is one of disillusionment and disappointment, having come to the realization that many foreigners will continue to come, ask questions, do some research, “get there thesis,” and then leave without having done anything to benefit the community. (Clan Elder 2) These attitudes of distrust, disillusionment and slight resentment are barriers which organizations who are approaching the community in an appropriate, sustainable manner must first overcome.

The disillusionment apparent in some members of the communities has incited a shift in beliefs about with whom the *responsibility for health* lays, that is, the provision disease prevention and treatment, and the spread of health-related knowledge. The youth especially are taking the responsibility for health upon themselves instead of relying on external powers. They are sharing and spreading knowledge with not only their own age-mates, but with all members of the community. They are empowering youth, and taking matters in their own hands.

In general, the older generations feel that the responsibility for health lies mainly with the government. Nearly every interviewee commented that corruption within the government prevents money and supplies from getting to Rusinga Island. “The problem is, a lot of money gets sent [from the US, etc], but it doesn't reach here. The government is too corrupt; it takes all the money and we don't see it.” (Mbita Resident 1) “The loophole is in the government. Money disappears there and never reaches the community – where it is meant to go.” (MST Volunteer 2) Thus, since the government is unable to deliver on its promises, it is the NGOs which must step in to provide for the communities.

3.2.4 Community Solutions & Initiatives

Through the course of the study, it became apparent that three things were required to break the cycle of poverty and disease within the Rusinga Island communities. There exists a need for *income-generation, dispersion of knowledge, and advocacy-driven action.*

Income-generation

“Development stops right here, in the stomach.”

- MST Volunteer 2 12/11/09

Though poverty is not the only cause of the unrelenting cycle of disease on Rusinga Island, it is certainly one of the deepest roots. Without food to fill one's stomach, it becomes increasingly difficult to think about saving money for future needs, such as disease treatment. Immediate needs are served first. Food is the first priority; health is the second. For this reason, many “put business before health.” (Waware Staff 2) In order to address disease control on the Island, the community members must first have a means of feeding their families.

Case Study: Misenye Micro-Finance Development Group

One of the first groups looking for a sustainable solution to the need for income generation is the Misenye Development Group in Wanyama. This group is one of five taking part in a pilot micro-finance project initiated by NUITM. Joshua Ademba Onyango is the leader of the group consisting of 20 members. He is working with seven other members of the group on a large *shamba*, or farm. The *shamba* is on his land, and was first planted five years ago. Last year, NUITM gave them materials to build a fence and an irrigation system consisting of PVC pipes and a generator to pump water from the nearby lake-shore.

Though Mr. Onyango was slightly unsure about how micro-finance worked, and stressed the importance of a training session for the group, he commented on the success of the project. “The fish are few now, and even when they are many, all you have is fish – some food – but no money. Where is the ugali? With the farm, our families no longer cry for food.” (Onyango) Onyango expressed that farming was rewarding because, unlike fishing, the harder one works, the more money one earns, and the more types of food one reaps. He expressed that this relationship was not as “simple or reliable” in fishing. Each group member

is able to feed his family and sell surplus crops within the community. The farmers have no difficulties selling their crops because “demand is high, very high here. The market is there.” Onyango stated that the benefit of the micro-finance project was that there is enough food now. The irrigation system enables them to plant and harvest year round, instead of once per year. This benefits all members of the community with both income and increased availability of food. With enough food and money, families are able to send their children to school. “It's getting rid of poverty. In two years you'll come back, and you'll see people won't call themselves poor anymore.” (Onyango) Onyango stressed the point that with less poverty, health and the ability to fight disease would improve. To him, this relationship was direct and indisputable.

The importance of the project to the community was stressed repeatedly. Onyango stressed the *sustainability* of the project in the way that it would continue to help the community and families involved for many generations as tools and skills were passed on. “I can pass the tools to my son, then to his son, then his son.”

Of the income generated, 60 percent goes to the group for daily needs, 20 percent goes into savings, and 20 percent is sent to the 'pool' each month. Each of the five micro-finance groups sends money to the 'pool'. After the groups have re-paid the loans they were given to start their projects, the money banked will re-enter the community. From the pooled money, 80 percent will fund the creation of new micro-finance groups, and 20 percent will be spent on health-related activities within the community. Though this step has yet to begin, Dr. Kiche hopes the money will buy an ambulance as well as build clinics, employ doctors and purchase solar panels and supplies. All of the above are of critical importance to the future of the health of the community, considering the high infant, under five mortality, and malnutrition rates, as well as the more obvious battles with malaria and AIDS. (Kiche)

Womens' Groups:

Numerous women's groups exist within each village on the Island. Mama Benter is involved in two, both of which have noted the importance of income-generating activities. She envisions a project which will be sustainable in its ability to give back to the community. In the next few weeks, one of her groups will begin making bags which will be sold within Mbita and Rusinga Island. These bags will not only generate income for the group members, enabling the women to provide for their families, but will also encourage the community to

desist from excessive use of plastic bags which easily tear and destroy the environment.

(Mama Benter)

Knowledge Dispersion

“People like you know a lot, have a lot. You need to come give us some knowledge...Show us what to practice, and then we'll know.”

-Mbita Resident 1 10/11/09

“What we need is [sic] young ladies like you to come and teach us what you know. That would be very helpful.”

-Clan Elder 3 12/11/09

Many training schemes have come and gone from Rusinga Island. Many community members have very in-depth knowledge about many health issues. However, this vital information has not reached the community at large. The information was dropped in the ears of a few people in a few villages, and remained there. Existing networks between and within communities must be tapped and utilized in order to disseminate life-saving knowledge to the far reaches of the Island.

Case Study: Uva Youth Group

Uva Youth Group consists of approximately 30 members, both men and women, aged 10 to 30 years. The group acts as a HIV/AIDS support network and community advocacy unit. Their job is to bring knowledge to the community, door-to-door. The youth have taken the responsibility for the reproductive health of their fellow youth. They believe that knowledge, support and encouragement are the required ingredients to break the chain of HIV transmission within their community. By bringing HIV/AIDS “out of the box,” the group hopes to disband the stigma and ignorance which enables the disease to keep spreading.
(Youth Group Leader 1)

Uva Youth Group is one of eight youth groups on Rusinga Island which is part of the Tuungane Youth Center. The Project began in Kisumu in 2004, and has now spread to surrounding districts. The Center in Mbita was established in 2007. The Center selects the most established, active youth groups and sponsors them for one-year stints. The youth groups remain autonomous, organizing their own activities and pursuing their own goals.

Tuungane serves as a training body. In Level 1 training, the seminar facilitators are trained. Subsequently, these facilitators hold seminars (Level 2), some day-long, some week-long, in which leaders from each of the youth groups in the district are trained. In turn, these leaders pass the information onto their groups (Level 3). From here, the youth become implementers, and bring the information to their community.

The seminars stress open discussion between sexes and thinking “outside the box.” The 'box' represents past knowledge, beliefs, prejudices, stigma, culture – anything which might hinder the ability of the youth and community to think in new ways in order to prevent the spread of disease, namely HIV/AIDS. A seminar entitled “MAP – Men as Partners” drew 110 youth leaders from locations throughout Mbita and Suba Districts. The seminar discussed topics from gender roles within relationships, power and control, assertiveness and decision-making (challenge, choice, consequence) to human anatomy, growth and development, and male and female identity within today's culture. Group discussions fostered dialogue concerning gaps in HIV knowledge and how to address them, myths and facts about HIV/AIDS, how to identify STIs and what to do if you are infected by one, and the personal impact of HIV/AIDS. The trust the youth had for each other was evident in openness with which they discussed very personal issues. Issues which, a few years ago, may have been very taboo.

The youth leaders, most aged between 17 to 24 years, took the seminar very seriously, believing that their presence at the seminar was not for themselves, but for their communities. Their ability to spread this knowledge to the community could stop the transmission of HIV/AIDS and prevent many deaths, orphans, and abusive relationships. The youth are able to reach individual members of their communities in a way which aid workers, as outsiders, would never be able. The youth go from door to door, teaching about HIV and AIDS. They are occasionally accompanied by a doctor who performs voluntary testing. “People will get tested in private. It's safe, and no one else has to know.” (Youth Group Leader 2) The youth stressed the importance of *encouragement* to their fellow community members. The youth encourage others to get tested and to remain with a positive attitude even if they test positive. They also take the responsibility of supporting each other and the community. The importance of continual support and not being *lazy* was also mentioned numerous times. “You can't just be there for someone one day and the next day be gone. HIV is a lifelong disease. To really be a support system for someone, you need to be there for them every day.

It is important to share experiences, situations, statuses, to not be afraid. This is the only way to get rid of stigma within the community.” (Youth Group Leader 2)

The leaders blamed stigma and ignorance for the continual spread of the disease. The communities are still “scared” of the disease. For instance, church leaders will say that there is no AIDS in their church. This prevents those who do have AIDS from getting tested and getting help, out of fear that they will be rejected by their church. Tuungane gives youth, defined as anyone aged 10 to 29, an anonymous place to go for testing and counseling. “No one knows why you're going there. You could be going to play pool.” (Youth Group Leader 1) This is in contrast with parents who must go to the hospital to receive drugs, thus revealing their status to everyone.

The youth feel that their activities are having a significant impact on their community. The stigma surrounding HIV/AIDS is slowly dissipating and an increasing proportion of their communities are being tested, counseled, and treated. Male circumcision rates are also rapidly increasing, especially among the youth, due to the spread of knowledge about its benefits. (Male circumcision is not traditionally practiced in Luo culture.) The youth are also encouraging HIV-positive teen mothers to re-enroll in school and finish their education, something which is often perceived as an impossibility. The success of the youth groups lies in their ability to reach out to their communities with knowledge and establish support networks. One household at a time, deeply-entrenched patterns of HIV transmission are changing.

Advocacy to Action

The third tenet of successful community-based initiatives is *action*. There comes a point when some members of the community realize that external aid is not going to solve the problems faced by community; that the community must motivate from within to enact the change they want to see.

Case Study: Rusinga Malaria Project

The Rusinga Malaria Project (RMP) is a community-based organization (CBO) which was formed by members of the Rusinga Island Child & Family Program (RICFP), a local CBO affiliated with Christian Children's Fund (CCF). RMP was initiated in partnership with scientists based at a local research center, the International Center for Insect Ecology and

Physiology (ICIPE). Community volunteers from seven zones were trained in 2001. The volunteers were responsible for activities such as:

1. Mapping of Mosquito Breeding Sites
2. Larval Identification
3. Surveying larval habitats, both natural and man-made
4. Larvae collection
5. Training the community about breeding sites and larval identification

The project originally had multiple teams for school training, implementation, and surveillance. However, due to a lack of funding only the Malaria Surveillance Team (MST) remains active. Twice a month, the MST volunteers conduct larval sampling and talk to households with which they are working in order to raise awareness about how to stop the cycle of malaria transmission.

Joshua Ademba Onyango is the leader of the Malaria Surveillance Team for the whole of Rusinga Island. He commented that the project has been a success thus far in that awareness of breeding sites has increased drastically, and families are taking measures to destroy places where stagnant water gathers. The community has witnessed a great decline in the number of mosquitoes, and attributes this to the work of the MSTs.

The MSTs also act as a link with the Kenyan Ministry of Health (MoH). They are able to relay information from the community to the MoH and vice versa, as well as aid in orchestrating MoH malaria-related activities in the area. The MSTs are a voice from the community to the “higher powers.”

The work required of the MSTs is demanding. Since it is unpaid, there is little incentive for the MSTs who are struggling to provide for their families. The opportunity cost of doing volunteer work instead of say, fishing or farming, is too great of a sacrifice. Secondly, if a family member disappears for the day, they are expected to bring something back with them when they go home. They cannot go home empty handed. “What will your children eat if you come back empty handed? If they do not eat, they cannot go to school, they cannot learn, and the poverty continues.” (MST Volunteer 2) Many volunteers have dropped out of the project and many others are feeling disillusioned. Onyango is still hopeful for the project. He hopes that he will be able to motivate the group to continue their work.

Onyango's primary goal at the moment is a proposal which could be submitted to the GoK and NGOs. In this proposal, he plans to ask for insecticides to treat the breeding spots

and supplies, such as gumboots, for the workers. He also aims to acquire bed-nets and drugs to treat malaria, both of which could be sold to the community at a low price to generate income for the RMP.

The Rusinga Malaria Project is an example of dedicated community members who have come together to make a difference for their community. Their vision is a malaria-free Rusinga. Striving for this goal, the volunteers are destroying mosquito breeding sites and spreading knowledge about malaria transmission with the intention that this knowledge will incite other households to do the same.

4 CHAPTER FOUR: ANALYSIS

4.1 Discussion

Where is the short-fall in the work of all the dedicated non-governmental organizations? From the researcher's personal experience, the first elementary mistake outsiders make when coming into a new community is the entry process. The dynamics of Luo culture place profound importance on introductions and community entry. The manner in which this process is carried out determines the respect the outsider will garner from the community as well as how the outsider will be perceived by the community at large.

The first lesson learned about Luo culture was that first meetings are always reserved for introductions and familiarization. They should not go beyond this point. In subsequent meetings, an outsider is able to begin asking questions and directing discussions. Without an established relationship built upon respect and trust, efforts to gain insightful information from the community will be futile, as the community will be very closed-off to the outsider. The likelihood of procuring responses beyond the bare minimum required is low. The responses might also be tailored to what the respondent wishes the interviewer to hear, perhaps with the aim of "getting something" from the interviewer. Without having garnered respect from the community, "information will go in one ear and out the other." (Kolo Resident 2) Thus, some NGOs' failure to fully integrate with the community may have hindered the success of their projects.

The question remains, whose initiative will drive the disease management projects? Extensive knowledge about AIDS and malaria exists within members of the community; capacity building training has been conducted. Now all of the training must be put into action. Whose responsibility is it to jump-start the campaign for the dispersion of knowledge?

Dependency has created a lack of self-promotion, of self-enterprise. A community constantly on the receiving end of aid projects often lacks the motivation to undertake projects of their own. Dialogue which produces innovative ideas and community-driven solutions to challenges faced in disease management has also been muted by the presence of so many externally-driven projects. Recently however, the community's feeling of disappointment and disillusionment with these past foreign aid projects has begun to rejuvenate self-initiative and motivate community-based strategies for disease management on Rusinga. The Youth Groups especially are taking responsibility for managing the rampant spread of AIDS within their fellow youth. The Misenye Development Group is employing

micro-finance to lift their community out of the poverty which has exacerbated disease transmission for so long. The Rusinga Malaria Control volunteers are inciting action to prevent malaria and acting as a voice for their community. These groups are setting examples of proactive, sustainable, community-based disease control strategies for the rest of the local and global community to emulate.

4.2 Conclusion

Looking to the Future: Aspirations, Opportunities and Challenges

“Giving money is not a solution. We need to think of some sustainable projects for the future; that is the way we have to go. We have a lot of difficult diseases to face, so we'll have to think hard about it.”

-ICIPE Staff 3 12/11/09

Community members on Rusinga Island are hopeful about the future for disease management. There is a general feeling that malaria *can* be eradicated and that HIV/AIDS incidence *can* be reduced. How these things will happen is more of a contentious issue. Most believe it requires some sort of collaborative, focused, sustainable effort. Many community members expressed motivation and a desire to do *something*. They wanted to be part of the fight against malaria and HIV/AIDS; they just wanted to know *what* to do and *how* to do it.

Most of the community agreed that eradicating disease, or at least reducing its incidence, requires more effort from the government and NGOs. The community recognized the necessity of the NGOs in disease management due to the level of poverty on Rusinga Island. However, past NGO-directed projects have few measurable accomplishments to report due to the lack of sustainability. Additionally, these projects have created a culture of dependency which has undermined the ability of the community to self-motivate.

Projects like the Uva Youth Group, Misenye Development Group, and the Rusinga Malaria Control have shown the impact which community-based organizations can have. The future of disease management on Rusinga Island and in other developing nations lies in community-driven initiatives, supported by the international community.

5 RECOMMENDATIONS

5.1 Future Initiatives

The battle to control disease is also the battle against poverty, which is neither straightforward nor single-faceted. Concerted effort and participation is required from governments, specialists in many diverse fields, NGOs and *all* members of the communities involved. No one can be left out or left behind.

It is of utmost importance that any future aid work conducted on Rusinga Island has a component of sustainability. In order to do this, the community must be involved in the decision-making process. They must be *participants*, not just recipients, and be able and willing to sustain the project on their own after the NGO leaves the area.

For the future, the community must use the resources which they already possess: knowledge, networking, support, and the ability to knock on their neighbor's door and ask them if they want to get tested for HIV, remind them the importance that all family members sleep under a bed-net. The Youth Groups are the best example of the efficacy of this method. Sustainability must be an aspect of every project. The success of micro-finance has shown the importance and benefit of this. Finally, projects must be motivated and driven from within the communities, such as the work of the MSTs, in order to secure community ownership.

As always, there are many challenges for the future of disease management. Financial constraints always threaten the success of projects. Campaigns involving training, awareness, and behavior change all require time. "Sustainable projects take years to establish. One must be patient." (Onyango) Faith and the retention traditional beliefs and practices block some people from adopting preventative measures such as circumcision and using bed-nets. (Waware Staff 1) A lack of employment opportunities, both for the youth and adult members of the community, will continue to drive women to the beach.

5.3 Research

This study could best be expanded if the researcher were able to spend a prolonged amount of time with each community-based organization. In this way, the researcher could speak with more members of each group in order to fully grasp the challenges they face and how they hope to overcome these challenges. Additionally, the researcher could delve deeper into the aspirations these groups have and help them to realize ways in which they could attain these goals.

Topics which would be interesting for further study include jabooya and women's' empowerment, micro-finance for health, and methods for effectively reaching all age-groups within a community with knowledge which incites positive behavior change. Each of these topics would shed light on the challenges faced in community disease management and would potentially provide a pathway for the innovation of more effective community-based strategies in the future.

For future researchers, it is highly recommended to learn as much as possible about the rules for community entry prior to beginning the study. The most effective way to learn something about a community is to become part of it.

6 STUDY LIMITATIONS

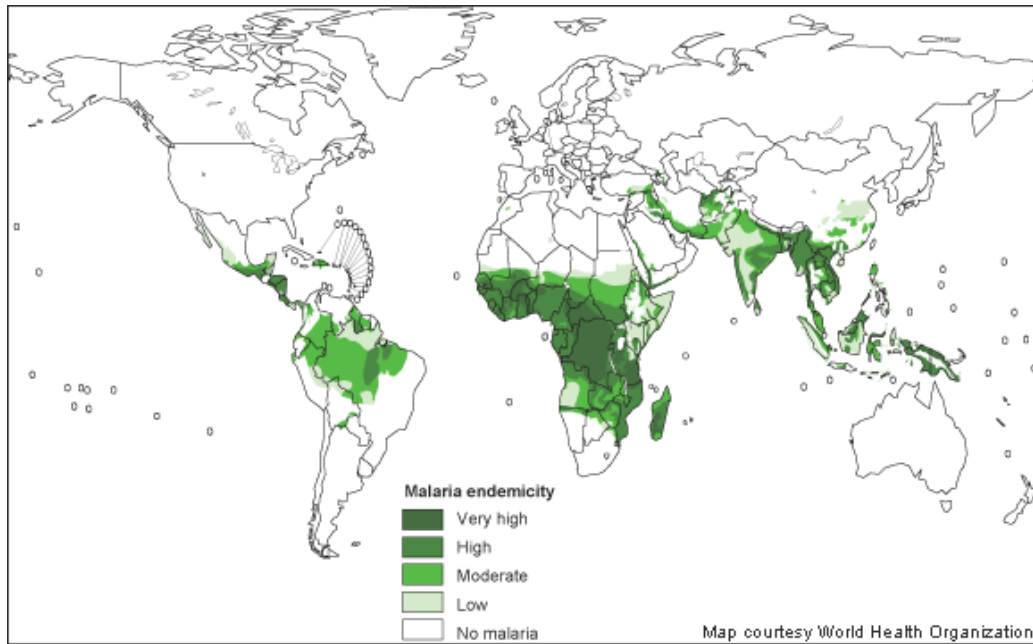
In Luo culture, the first meeting is solely for introductions. If the researcher wishes to ask questions, this must be breached in the second or even third meeting. Thus, the amount of time limited the number of persons with whom the researcher could establish a close relationship. The amount of time allotted for the study also limited the number of community-based organizations with which the researcher could speak. Due to the short amount of time and unspoken rules for entry into a community, the researcher was required to rely on friends of established contacts in order to find new people with whom to speak. This may have biased the types of people (title, status within community, SES-demographic) with whom the researcher spoke.

Due to the lack of electricity, communication was a challenge as cell-phone batteries were often dead. This made orchestration of schedules and meetings difficult. The nature of "African time" also proved difficult in setting up meetings. It was not uncommon for interviewees to be two hours late or not show up at all. All things considered, there were no limitations which directly stood in the way of the researcher's learning experience.

7 APPENDIX

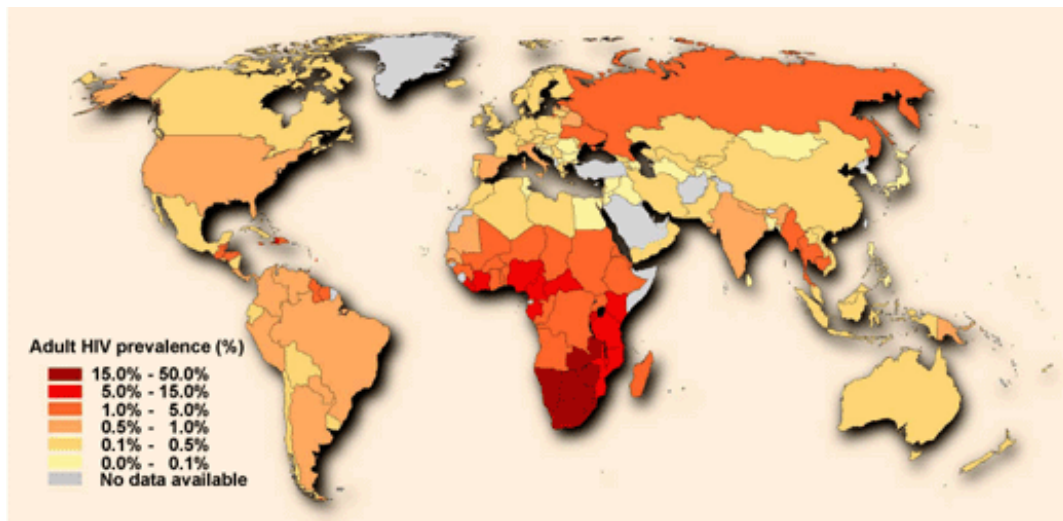
7.1 Glossary

Term	Definition
CBO	Community-Based Organization
CHW	Community Health Worker
CMR	Child Mortality Rate (<5 years)
GoK	Government of Kenya
ICIPE	International Center for Insect Physiology and Ecology
IMR	Infant Mortality Rate (<1 year)
IRS	Indoor Residual Spray
Jaboya	Fish for Sex (Dholuo word)
MoH	Ministry of Health
MST	Malaria Surveillance Team
Mzungu	White Person (Kiswahili word)
NGO	Non-Governmental Organization
Posho Mill	Machine which grinds dried maize into flour
Shamba	Agricultural Farm (Kiswahili word)
SSA	Sub-Saharan Africa
Wazungu	White People (Kiswahili word)



7.2

Source: Snow et al. 1999. *Bull. WHO* 77: 624-640.



Source: http://www.cdc.gov/Malaria/images/features/HIV_Epidem.gif

Accessed 2 Dec. 2009.

7.3

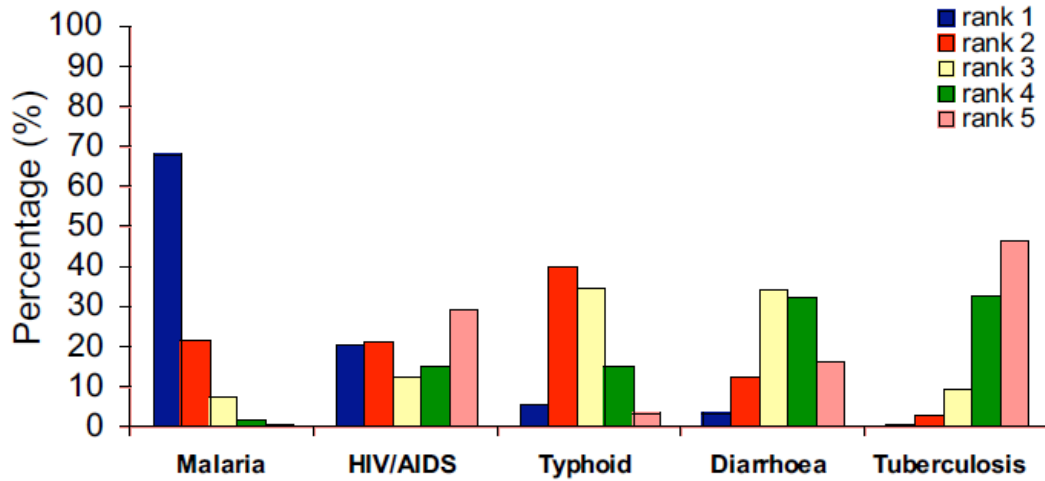


Figure 2 Ranks of perceived importance of diseases on Rusinga.

(Opiyo)

Malaria Journal 2007, 6:48

<http://www.malariajournal.com/content/6/1/48>

Table 7: Respondents' believed/known and used methods for malaria prevention

Methods	Methods known		Methods used		χ^2	p*
	N	%	N	%		
<i>Total N = 1451</i>						
Bednets	1274	87.8	692	47.7	528.0	<0.001
Bush clearing	633	43.6	492	33.9	28.4	<0.001
Destruction of burrow pits that can collect water	492	33.9	0	0.0	592.4	<0.001
Burning/spraying insecticide or mosquito repellents	233	16.1	236	16.3	0.1	ns
Boiling/treating water	186	12.8	109	7.5	22.4	<0.001
Taking anti-malarial drugs	183	12.6	170	11.7	0.5	ns
Keeping body/food warm and clean	170	11.7	0	0.0	180.6	<0.001
Proper disposal of empty tins that can hold water	122	8.4	309	21.3	95.3	<0.001
Keeping utensils, house and compound clean	117	8.1	38	2.6	42.5	<0.001
Burning rubbish in the compound	77	5.3	42	2.9	10.7	0.010
Use traditional herbs	48	3.3	61	4.2	1.6	ns
None	52	3.6	184	12.7	64.5	<0.001

*d.f. = 1; for significance $p > 0.05$ chi square (χ^2) should be ≥ 3.84 .

7.4

(Opiyo)

7.5 Sample Questionnaire

Questionnaire – MST

Basic Data:

Name (opt): Age: Gender: Education Completed: Residence:

Vector Control Project:

When did the project begin?

How were you chosen to become an MST?

What training was involved?

In turn, have you trained/taught the community about malaria transmission/prevention?

What was the original goal for the project?

What work are you responsible for now?

How has your work impacted the community? / What changes have you seen resulting from your work?

What challenges do you face in vector control?

How could they be resolved?

What would you like to see happen as a result of your work?

General:

Where does malaria rank in relation to all of the health issues faced by the community?

-What is the most life-threatening illness?

What are the most common forms of prevention?

What is the best form of prevention?

-**bed-nets** had a big impact on the community

-how can the bed-net distribution be considered a success?

-Is universal usage of bed-nets required to reduce the spread of malaria?

-What could be done to increase the amount of people sleeping under bed-nets?

Future:

Is malaria elimination possible? Why/why not?

What must be done to reduce the amount of malaria?

What is needed for this control?

What are current challenges faced in disease management?

What is stopping control efforts from working? (i.e. why haven't bed-nets significantly reduced malaria incidence?)

Who is responsible for disease control? Disease treatment? Vector control?

How can *you* contribute to disease control?

What can the community do to control malaria?

Is disease control a problem the community wants to tackle, or is it simply a fact of life?

Lastly, why do you think malaria prevalence is still so high on Rusinga?

Questions for me?

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