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Burundi, Factor 12: Human Diseases

Burundi: Improving Food Security through Disease Prevention and Treatment

Burundi is a small landlocked East African country between Tanzania and Rwanda. It has a population of 10.16 million people. Its people are vibrant; however, a civil war between its tribal groups of Tutsi and Hutu people caused ethnic tensions and led to an economically unstable country, though this instability isn't exclusively a result of the war. The bulk of its economic activity rests on agriculture, which is highly dependent on the fluctuating international tea and coffee market, as well as weather conditions and crop yields. Currently over 90% of economic activity is from agriculture ("Africa :: Burundi"). The average Burundian survives on less than \$2 USD daily, which leads to a lack of food security. This lack of food security is due to many issues: fragile farming weather and soil conditions, changes in the international market, but most importantly, it is a consequence of the instability and vulnerability of Burundian health due to human diseases. Burundians are constantly vulnerable to disease which results in sickness, prolonged handicap, and in many cases even death. All of these situations lead to the inability to work daily, which results in the loss of production, and thus loss of income and food security. As a result of these human diseases and other factors, only 28% of the population is food secure ("Burundi." *World Food Programme*). However, this food insecurity can be fixed. To solve the issue, human diseases must be eradicated. Currently, human diseases-- the main three being tuberculosis, HIV/AIDS, and malaria-- are ravishing lives by causing death in the family, lack of stable income, and lost time of work. As Burundi's population is expected to rise to 13 million by 2025 ("Stabilizing Rural Burundi"), the lack of food security must be on the main agenda. The solution to food insecurity is a joint effort between the government, rural Burundians, and outside organizations in preventing and treating the human diseases that are interrupting and ending Burundian lives, agricultural production, and food security.

The Bangirinamas are an average Burundian family. Like the national average, the family consists of six children ("Africa :: Burundi"): Gloria age fifteen, Nadège age twelve, Monia age ten, Fafa age seven, Dieudonné age four, and Yves age three. Along with the children, mother Rosine and father Pascal also live with their aunts and uncles, cousins, and parents. Rosine and Pascal are greatly helped by this extended family, as they play a major role in caring and heeding the children, expressed by the common Burundian phrase *Umwana si uwumwe* (A child is for all). Like most Burundians, the Bangirinamas' daily diet consists primarily of plantains, beans, sweet potatoes, cabbage, and, most importantly, cassava. These staple foods are made into popular meals such as sombe, while raw fruits, sugarcane, and groundnuts are eaten as snacks ("Burundi." *CultureGrams*).

Education in Burundi is inadequate. Primary school is mandatory but only a mere 62% of children actually finish, and of those 62%, only 18% enroll in secondary education. This is because secondary education requires a tuition which most Burundians cannot afford. The number of girls and boys enrolled in schools are nearly equal today; however, 73% of men are literate compared to 62% of women. Rural families still place more emphasis on teaching their children housework and life skills rather than formal education ("Burundi." *CultureGrams*). Because of the scarcity of food resources, these life skills are more applicable to the daily life of the average Burundian than formal education, as the major concern in their lives is producing enough food to survive. This leaves many children, such as Nadège Bangirinama, unaware of the possibility of advanced education, and therefore perpetuates the cycle of destitution.

Aside from formal education, another societal necessity that isn't being fully attained by the majority of Burundians is health care. Though each Burundian province has a central hospital along with health centers and clinics, these facilities often lack sufficient numbers of doctors and nurses. Nationally there

are a mere .03 physicians per 1000 people ("Burundi." *Countries.*). This lack of healthcare hits hardest on rural Burundians, like the Bangirinamas. Though 88% of Burundians live in rural areas ("Burundi." *CultureGrams*), 80% of all doctors and nearly 50% of all nurses are working in Burundi's capital of Bujumbura ("Geo-Additive Modelling Of Malaria In Burundi."). Malnutrition in children is another major issue. Only 32.8% of children ages 6-23 months eat one meal or more a day ("USAID Office of Food for Peace"). The result of this insufficient nutrition is extreme. 58% of all children less than 5 years old are chronically malnourished (Bloemen) and over half are stunted in height growth (Steiner). This malnutrition puts great stress on Burundian families and leaves them helpless to alleviate their children's hunger and discomfort.

The typical Burundian rural family works in agriculture, with the average proximity of a farm being .5 hectares (International Fund for Agricultural Development). Coffee and tea production dominates agriculture. Other foods grown include bananas, corn, sweet potatoes, and sorghum. Of all Burundi's exports, the three largest agricultural products are coffee, which accounts for 25% of all exports, tea which accounts for 5.2% of all exports, and palm oil, which accounts for .04% ("The Observatory of Economic Complexity"). Agriculture is divided into two primary planting seasons: from September to February and from February to July. Most Burundian farming practices are traditional. For example, to prepare for these agricultural periods, farmers spend nearly 12 days on planting, hoeing, and digging, and many households keep land uncultivated. The average Burundian livestock includes goats, poultry, rabbits, and cows, however, most Burundians do not own livestock because the cost of maintaining animals is far too high ("USAID Office of Food for Peace").

The Bangirinamas are part of the 88% of the population that lives on less than \$2 USD daily, meaning they are unable to supply themselves with enough food. This food insecurity is a result of low agricultural productivity and insufficient income ("Government's Commitment to Maternal"). The low agricultural productivity is greatly due to the scarcity of arable land. Only 44% of Burundi is arable ("Background Note: Burundi.") and of that land, about 36% is acidic, which greatly contributes to the erosion of soil. Another issue is the lack of agrarian diversity. 32% of farmers in Burundi do not diversify their crops, meaning they plant only one crop, while nearly 50% plant only two or three types of crop. This lack of diversity leaves many Burundians highly susceptible to a bad seasonal yield and fluctuating prices in the international market for a specific crop. Unstable weather conditions such as rain deficits and longer drought seasons result in decreases of crop yield. Furthermore, current increases in humidity and temperature result in stored seeds losing viability and germination ("USAID Office of Food for Peace") causing many farmers to lose hundreds of Burundian franc in future crops.

The lack of insufficient income is greatly due to the current healthcare system and lack of credit. For example, in a 2004 study by Phillips et al., in order to pay for health care, 81.5% of patients consulted said they were obliged to go into debt in land, livestock, or property. This means many Burundians must sacrifice economic security to get proper health care. Specifically, the health care system's treatment of women during childbirth is greatly responsible for the lack of income. 83% of Burundian women are in the workforce however, Burundian women have the fifth highest maternal mortality rate in the world, and only 60.3% of all Burundian births are attended by a skilled health professional. This not only reduces the highly agrarian work force, but it also lessens the income for large families, which in turn lowers the ability to retain adequate nutrition ("Burundi." *CultureGrams*).

Another issue is the lack of access to credit and capital. The average annual Burundian income is about \$250 USD. This low income along with low assets and property ownership results in Burundians needing credit for unexpected expenses, such as medical treatment. Over 90% of all Burundian household payments are in cash, emphasizing the need for credit and capital. However, 26% of Burundians do not have access to credit. This means that these Burundians must stretch their income and severely suffer a

lack of food security if faced with an unexpected expense, unproductive harvest, or other financial issue (“USAID Office of Food for Peace”).

The prominence of human disease in Burundi greatly affects the productivity and wellbeing of rural Burundian families. The Bangirinamas, like others, are affected by these diseases due to their lack of connection to affordable and adequate healthcare and education on diseases. Due to the lack of opportunity to receive medications and vaccinations (such as antimalarial shots), many communities rely on herbal medications (“Burundi.” *CultureGrams*) which leave citizens untreated and uninformed. In terms of productivity and income, recurring diseases result in the inability to perform the strenuous farm work needed for a stable income and thus a secure food source. Furthermore, due to the prominence of disease, many families face the constant burden of paying the often high additional expenses related to medical treatment, thus decreasing their annual income.

Nationally, the issue of human disease in Burundi is paramount. 60% of Burundi’s deaths in 2014 were from communicable, maternal, perinatal, and nutritional conditions (“Burundi.” *Countries*), meaning a large percent of the population is facing the devastation of highly preventable diseases. The most prevalent diseases--HIV/AIDS, tuberculosis, and malaria-- are rampant within the population. Globally Burundi ranks 34th in adult prevalence rate of HIV/AIDS, and currently 89,500 people are living with the illness (“Burundi.” *CultureGrams*). Furthermore, oftentimes these illnesses accompany one another. For example, 43% of tuberculin positive individuals also have HIV/AIDS (“Burundi.” *Countries*). Women and children are a specifically disadvantaged group. The top three causes of a woman's death in Burundi are malaria, HIV/AIDS, and tuberculosis (“USAID Office of Food for Peace”), with malaria being responsible for over half of all deaths among pregnant women and children under the age of five (“Geo-Additive Modelling Of Malaria In Burundi.”).

Although these statistics are alarming, progress is being made in the alleviation of this problem. To track the epidemic of human disease in Burundi, the trend is measured by the number of Burundians contracting these diseases, but also in the way in which health care systems are aiding and solving this issue. The prevalence of tuberculosis has dropped from 258 cases per 100,000 in 2007 to 193 cases per 100,000 in 2013. Furthermore, the number of deaths due to tuberculosis excluding HIV-positive patients dropped from 2,700 in 2007 to 2,300 in 2013. HIV/AIDS has also lessened in prevalence. The number of people who have died from HIV/AIDS dropped from 7,200 in 2009 to 4,700 in 2013, and the percentage of HIV/AIDS-positive adults dropped from 2.5% in 2001 to around 1% in 2013.

The number of patients admitted to hospitals is another indication of Burundi’s progression. In a positive trend, hospital admissions and clinic treatments for diseases have increased. Admissions for malaria have increased from approximately 300 to 1500 from 2000 to 2013 (“Burundi.” *Countries*). Furthermore, since the presidential directive for free pediatric and maternal health services was issued in 2006, public hospitals have seen and treated 2-3 times more people, which entails a higher treatment and prevention of disease (IRIN). However, this upward trend is interrupted. The quality of the free pediatric and maternal health services are often inadequate to ensure full coverage of the targeted demographic (“USAID Office of Food for Peace”) and currently there are still many risk factors for contracting human diseases. One of these is the scarcity of safe water. In rural Burundi, 26.8% of the population has unimproved water sources (“Africa :: Burundi”). This predicament closely correlates to Burundi’s human disease issue because unimproved water sources expose many Burundians to waterborne illnesses such as schistosomiasis, bacterial and protozoal diarrhea, and hepatitis A. The increasing human density exacerbates the issue of human diseases as well. Currently, Burundi has a growing population density of more than 310 people per square kilometers. Because many rural citizens are uninformed about the transmission of disease, this population growth has the ability to create a higher rate of transmission in the years to come (“Burundi.” *Countries*).

Improving and resolving the issue of human disease will increase food security by lessening premature death and lack of food production. Currently, the life expectancy of an average Burundian is only 56 years, a life span greatly shortened due to human disease and inadequate treatment of them. For the Bangirinamas, this means that Pascal and Rosine Bangirinamas will not only most likely live a shortened and unhealthy life, but their premature death will also leave their children in a state of financial instability. By investing the solution to Burundi's disease epidemic, major burdens can be relieved from the shoulders of the Bangirinamas. By combating human diseases, they will live longer, as well as be free of illnesses that often shorten their workdays and prevent them from producing as much food. By increasing agricultural productivity, the Bangirinamas can gain a larger income, and therefore find themselves food secure. In the decades ahead, combating human disease will allow the Bangirinamas to not only live a life with higher food productivity and food security, but it will also allow Pascal and Rosine, among other rural Burundians, to live to see their children's children.

To effectively address the abundance of human disease that is causing a lack of food security in Burundi, the government must focus on Millennium Development Goals (MDG) number six: "Combating HIV/AIDS, malaria, and other diseases." To promote MDG number six, I propose a few measures. First, the number of health professionals must be increased--especially in rural areas. Currently, Burundian healthcare is still centralized and less than 50% of rural health facilities meet the required minimum number of staff ("Geo-Additive Modelling of Malaria in Burundi"). Though this issue may seem daunting, there are many ways to increase the number of health professionals in Burundi. Firstly, the Burundian government can partner with outside organizations, such as the International Medical Corp, to offer medical training to community health workers and non-medical community leaders ("Burundi: Primary Health Care."). Secondly, the Burundian government should nationally advertise current globally funded scholarships and programs dedicated to increasing the amount of health professionals in Africa, such as the European Union-funded Partnering for Health Professionals Training in African Universities (P4HPT) and the Global Health Corps' medical fellowships. The government should also work with neighboring African countries to set up new fellowship programs and scholarships where young Burundians can study at prominent African Universities, such as Stellenbosch University and University of Ghana ("Call for Applications:"). The Burundian government should also allocate educational funds to provide national scholarships and recruitment for young (primarily rural) Burundians to train at accredited medical institutions within Burundi, such as The Frank Ogden Medical School. Through this recruitment, newly trained physicians will have the opportunity to serve their own community with their medical education. Finally the Burundian Health Ministry should launch programs across the country where designated Health Ministry aids can recruit prospective health students with incentives and redeploy medical training across the nation.

Second, health facilities must be decentralized through the creation of more local health offices, clinics, and hospitals. The Burundian government should allocate a percentage of its total 8.1% expenditure on health to create these facilities ("Burundi." *Countries*). Along with the government allocating these funds, outside organizations also play a huge role. The Burundian government must utilize aid from private international organizations. These organizations, such as the International Medical Corp, not only support established health facilities in Burundi, but also run mobile clinics that can reach thousands of citizens on the rural outskirts of the country ("Burundi: Primary Health Care."). This decentralization will ensure that those unable to go to the medical institutions in the city can maintain a safe and productive life.

A third recommendation in fixing the human disease issue is increasing education in primary and secondary school about the most common human diseases and how people acquire them. 46% percent of the nation's population is under fifteen ("Burundi." *Countries*) and therefore, direct education to youth on human diseases is essential for raising a generation informed of the transmission and prevention of diseases. In particular, there should be more education about HIV/AIDS and malaria. Currently, only 44.9% of all adolescent males and 43.2% of adolescent females have a comprehensive knowledge of

HIV/AIDS, which shows the lack of disease education ("Burundi." *Countries*). In knowledge of malaria, the education is also deficient. Only 75% of women know that malaria is from mosquitoes and only 58.3% of women know that carrying malaria could lead to the death of a fetus (Tagliaferri, Laura, et al.).

My fourth recommendation to fully fulfil the MDG number six is increased investment into public healthcare. Because over 80% of the Burundian population live in poverty ("Burundi." *Countries*) many rural families are not willing to invest in going for a checkup simply because they must sacrifice a day of farming, which is crucial for their income, so increased public health is crucial to keep the nation healthy and thus economically stable. Currently the total expenditure on health is 8.1% of the Gross Domestic Product ("Burundi." *Countries*), which is about 2.715 Billion USD. Of the Burundian health care expenditures, only 59.5% is used for public health ('Health expenditure'). The public health expenditure has decreased since 2009 when it was at 63.3%. By increasing the percentage of health expenditures used for public health from 59.5% to my recommendation of around 65%, more governmental programs and facilities can be used to regulate and monitor the health of the whole population, which is crucial for nationally preventing and eradicating the diseases that are preventing Burundians from increasing their productivity.

Village Health Works (VHW), based in Bujumbura, Burundi, is an organization that is currently aiding rural Burundians. It is comprised of various programs, two being the Health Care Program and the Food Security Program. Since its introduction in 2006, the VHW Health Care Program has helped the rural Burundians in the village of Kigutu with the treatment and prevention of malaria, tuberculosis, and HIV/AIDS. In 2013, the program screened and assisted 133 HIV-positive patients, screened and treated 191 tuberculosis-positive patients, and consulted 1,245 women on prenatal care. In 2008, VHW initiated their Food Security Program that focuses on nutritional education, crop diversification, and community agricultural training. Since its inception, the food security program has created 600 household gardens, 20 school gardens, and has 65 cooperatives ("What We Do"). Currently, VHW is only working in the rural village of Kigutu, however, this organization can be scaled up successfully by requesting more monetary and staff support from their governmental partner, the Burundian Ministry of Health. If granted money and more staff, the VHW programs can expand to other outskirts of Burundi, and can aid more families, such as the Bangirinamas.

In my recommendations, the national government and in particular The Burundian Ministry of Health should play major roles in fixing the current human disease issue. Without the government passing an increase in public health expenditures no work proposed can be properly enacted. Furthermore, the government is needed for increasing education on diseases in primary and secondary school.

Though the national government plays a major role, it is not solely responsible for the prevention of human disease; outside organizations are also responsible, especially since Burundi is still classified as a third world country. The World Food Programme, the World Health Organization, and many other international organizations are currently working toward a more secure and livable life for Burundians. For example, the first strategic priority of the WHO Country Cooperation Strategic Agenda (2009-2015) is communicable disease control through supporting HIV/AIDS, tuberculosis, and malaria control programs in Burundi. Also, as foreign aid represents 42% of Burundi's national income ("Burundi." *Countries*), external countries are currently responsible for aiding a large portion of governmental health programs. Volunteer corps and independent volunteering globally also help to improve Burundian food security through their supplying of medical care and aid. The major caretaker of these recommendations, however, is the rural Burundians it will affect.

The key element in solving the epidemic of human disease is the average rural family. Firstly, rural Burundians such as the Bangirinamas must be willing to accept and enforce the usage of preventative measures, health screenings, and medical treatments instead of herbal medicines. Also, they must

encourage their children to attend school sessions on disease-related education, and be willing to learn about the diseases themselves. Eventually, families should also encourage their children to pursue advanced education in the medical field so they can assist their communities in the future and become self-sufficient.

In conclusion, Burundi's food security is threatened by a number of issues, the biggest issue being that of human disease. To solve the problem, additional funding must be devoted to public health care, doctors and nurses must be recruited, hospitals and clinics must be built, and the population in general must be educated on human diseases. By devoting additional funds to public health care, Burundi can nationally treat and prevent the ravishing disease epidemic. By recruiting more doctors and nurses, facilities can treat more rural citizens. Building more hospitals and clinics will help decentralize health care, and thus make it more accessible to rural Burundians, who are most affected by diseases. Lastly, by implementing disease education in primary and secondary school, a larger percentage of Burundi's young population can be informed on the transmission and prevention of human diseases. The enactment of these recommendations should be a joint effort between the national government and Burundian Ministry of Health, rural families such as the Bangirinamas, and outside aid groups. By reducing the burden of disease on Burundians nationwide, rural Burundian families can experience heightened food production and exports, and therefore a heightened income. With this, prosperity, longevity, and food security can be attained by all Burundians.

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