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Recasting Sustainability: A Case for the Reevaluation of a Sustainable Healthcare Model for HIV Programs in Botswana

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Abstract

Today, the global public health community places an emphasis on creating “sustainable” intervention mechanisms that integrate with local governments and existing infrastructure for long term success. Through an in-depth evaluation of Botswana’s public-private healthcare intervention to combat HIV/AIDS, with supporting on-the-ground interviews and extensive evaluation of published data, I argue that key factors deemed essential for long-term sustainable healthcare programs have the potential to isolate and additionally harm certain segments of a population. Given the distinct marginalization of key populations, the concept of sustainability needs to be recast in a manner that achieves health for all segments of a population.

Disciplines

Anthropology

RECASTING SUSTAINABILITY:

A Case for the Reevaluation of a Sustainable Healthcare Model for HIV Programs in Botswana

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ABSTRACT

Today, the global public health community places an emphasis on creating “sustainable” intervention mechanisms that integrate with local governments and existing infrastructure for long term success. Through an in-depth evaluation of Botswana’s public-private healthcare intervention to combat HIV/AIDS, with supporting on-the-ground interviews and extensive evaluation of published data, I argue that key factors deemed essential for long-term sustainable healthcare programs have the potential to isolate and additionally harm certain segments of a population. Given the distinct marginalization of key populations, the concept of sustainability needs to be recast in a manner that achieves health for all segments of a population.

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INTRODUCTION

In the contemporary world, the global south has faced the highest burden of deadly disease than any other region. As the international community has worked to understand and interpret the far-reaching effects of the many global epidemics, global public healthcare ventures have adapted and changed to incorporate the factors necessary for success in addressing the public health concerns stemming from these diseases. Global public health has faced many trials and tribulations in creating and implementing a program that is truly effective or sustainable for the long term. Sustainability, the buzzword of the healthcare intervention world, is considered by many to be the future of all global health programs. Fundamentally, a program that is sustainable increases access to quality care by engaging in strong partnerships that generate fiduciary or personnel contributions, utilize innovative delivery models, and adapt to local situational circumstances. (Novartis 2015) “Sustainability” is a concept frequently referred to in global health as a marker of success of global health initiatives; it is often applied in the evaluation of the impact of such initiatives. It was also born out of frustration of those providing the funding with the lack of continuity of public health programs that were often felt to reflect poor infrastructure, inadequate training of personnel, and public health objectives that are too broad.

The potential for sustainability became, and remains today, a key criterion in the ability to attract funding for global health given the belief that it enables continuous public health programs. Initial programs that used to concentrate on donation have grown to incorporate sustainable infrastructures necessary for the proper long-term eradication of disease burden in the world’s most impoverished nations. As these programs have

matured, additional emphasis has been placed on the maintainability of each intervention tied to individual government efforts. Due to high levels of success with programs that incorporate sustainability mechanisms, there has been a significant push by the global public health community to implement these programs.

Even the most successful programs, however, have inherent limitations that prohibit a fully realized plan to treat disease. By committing to a sustainable framework, a program must engage in multiple partnerships to run and achieve that sustainability. These partnerships can take any form, and are often influenced by the sociocultural norms of those creating the partnerships. Depending on their construction, these partnerships have the ability to limit said public health interventions and unintentionally contribute to the isolation of marginalized segments of a population. Using Botswana's public health intervention strategies for HIV/AIDs as a model, I will explore how key factors deemed essential for long-term sustainable healthcare programs have the potential to isolate and additionally harm certain segments of a population. In doing so, I will suggest that the concept of sustainability needs to be recast in a manner that achieves health for all segments of a population

FRAMEWORK AND METHODOLOGY

The framework for this project is an in-depth exploration of Botswana's HIV prevention and treatment program as a case study for the limitations of a sustainable healthcare intervention. I chose Botswana as a result of personal exposure during a summer internship in 2013. The research utilized in this paper draws upon anthropological theories of biopower and sociocultural norms, with original construction from on-the-ground interviews, conversations, and geopolitical interactions.

The first step towards creating this paper, prior to my departure, was through an in-depth academic deep dive into the Botswana-UPenn Partnership, which was my sponsoring organization. The partnership is a highly lauded program in the United States for its contribution to the eradication of HIV/AIDs in a highly prevalent country. Botswana, by all measures, was considered one of the greatest success stories of effective public-private partnerships. Botswana had all of the characteristics to make it a “perfect storm” of sustainable long-term partnership with a lasting ability to severely reduce the prevalence rate of HIV/AIDs in the country. The partnerships, which are a combined effort of ACHAP, PEPFAR, Merck, the University of Pennsylvania, and Harvard University, have become a model for other long-term sustainable intervention schemes. Through very strong relationships with the national government of Botswana, these players have established the infrastructure necessary for the government to continue their work when they leave. On paper, and through my pre-research, Botswana seemed to be an ideal place to make an impact and observe success on an untold scale.

My experience on the ground told a very different story. The next defining step in the research of this paper was through my personal encounters within the country. I worked with the Botswana Network on Ethics, Law, and AIDs (BONELA), an organization that fights and advocates for equal rights for marginalized groups across Botswana. It concentrates on three key demographics: HIV positive individuals (heterosexual), homosexuals (MSM, transgender), and the sex work population. While on the ground, I worked with SISONKE, an organization run by sex workers for sex workers.

Sex work in Botswana is a criminalized activity, an important factor that influenced my ability to research effectively and equitably. My placement with an organization that operates illegally within the country revealed tremendous obstacles, stigma, and a very different outlook on the HIV/AIDS crisis for some of the most vulnerable populations. The “criminal activity” of my organization, and those it tried to help, completely prevented both parties from providing and accessing the very programs lauded by the international community. Inherent social schemas and the legal system made it impossible or even criminally offensive for the sex workers I engaged with to obtain the treatments that were saving the men and women they serviced on a nightly basis. Additionally, the government did not, and still does not, accurately disclose the influence of HIV/AIDS on these marginalized populations. In data released by the government, it often only listed heterosexual populations, significantly skewing the relative comparison points for other countries impacted by HIV. More comprehensive data comes from international HIV progress reports, including UNAIDS and WHO, which often states the limits of the data sets if certain populations are excluded. These limitations are included throughout this paper.

The methodology for the initial fact-finding of this project was done in a particularly atypical way. The argument for this paper came well into my assignment as I became more familiar with the social injustices towards sex workers and the structural boundaries keeping them as second-class citizens. Supporting interviews were from project assignments and were loosely translated with an interpreter as necessary. These interviews, which will be discussed in the section titled “The Isolated: Words from the Sufferers,” span a two month period with a core group of sex workers engaged with

SISONKE. As such, the primary foundations for the call to reassess the effectiveness of overall sustainable healthcare infrastructure is both through initial personal interviews, with most support stemming from country (or lack thereof) data. Due to the limited nature of my on-the-ground exposure once I fully engaged with the effects of sustainable infrastructure on marginalized populations, a more holistic view of the epidemic, with a concentration of the history of HIV, its trajectory in Africa, and the impacts of HIV on marginalized populations has been included.

THE EVOLUTION OF SUSTAINABLE HEALTHCARE INFRASTRUCTURE IN HIV PROGRAMS

A Brief History of HIV and Treatments

In the summer of 1981, the U.S. Centers for Disease Control published the first two reports about increases in formerly rare infections among gay men in New York and California through the *Mortality and Morbidity Weekly Report* (MMWR). (1981: 305) It stated that, "Physicians should be alert for Kaposi's sarcoma, [*Pneumocystis carinii*] pneumonia, and other opportunistic infections associated with immunosuppression in homosexual men." (MMWR 1981: 307) From that day, extensive research about AIDS has continued in an attempt to combat the deadliest epidemic in recent history. (Shernoff & Smith 2001)

Characterized as an immunodeficiency retrovirus, HIV inhibits the body's immune response to infection. HIV replicates by infecting CD4+ cells (also known as t-cells), which are integral to triggering the body's immune system response to infection. (U.S. Department of Health and Human Services 2015) Through this process, the virus destroys the CD4+ cell, and reduces the person's ability to fight infection and makes him

more vulnerable to illness. (U.S. Department of Health and Human Services 2015) The lower a person's CD4+ cell count, the more likely he is to contract disease; eventually, when HIV permanently suppresses the immune system, the person is diagnosed with AIDS and considered to have a significantly damaged immune system. (U.S. Department of Health and Human Services 2015)

In 1986, five years after the first reported incident of HIV, the U.S. Food and Drug Administration (FDA) approved the first antiviral drug zidovudine (ZDV; AZT) that inhibits the activity of the reverse transcriptase enzyme to prevent the replication of HIV. (Manos & Horn 1998) Part of the class of drugs more formally known as nucleoside analog reverse transcriptase inhibitors, AZT and its immediate successors created the first anti-HIV arsenal. (Manos & Horn 1998) After 1991, a new class of anti-HIV drugs that were more quickly activated once inside the bloodstream, called non-nucleoside analog reverse transcriptase inhibitors, was introduced as the main anti-HIV drug. (Manos & Horn 1998) The final initial drug to be developed early within the epidemic was a class of antiviral drugs known as protease inhibitors. (Manos & Horn 1998) Distinctly different from the reverse transcriptase inhibitors, this drug attacked cells already infected cells and prevented them from producing more copies of virus. (Finzi et al 1997: 1295)

Despite this growth of drug options, between 1986 and 1995, the standard antiviral therapy for HIV-infected individuals remained a single drug "monotherapy" treatment due to the costs associated with producing the other inhibitors. The monotherapy treatments appeared to be semi-efficacious, with significant variation in effectiveness among individuals. (Finzi et al 1997: 1296) At the same time, scientists were able to make crucial advances in the understanding of mechanisms of HIV in the

body. Scientists were able to discern that HIV replicated throughout the entire period of infection, even if no symptoms were manifesting, rather than each individual going through a latency period of ten years or more after the initial infection. (Finzi et al 1997: 1296) Instead of AIDS surfacing as a result of a resurgence of the latent HIV virus, it was instead the product of a slow “war of attrition between HIV and the host immune system.” (Shernoff & Smith 2001)

Once the theory of persistent viral replication was predominantly accepted, scientists were better able to understand HIV’s proclivity for drug resistance over time. Such resistance generally occurs when a random mutation during the replication of HIV causes a small genetic change in the virus’ RNA, which makes it less vulnerable to the effects of antiviral drugs. (Horn 1998) Drug resistance has the ability to render treatment less effective or completely ineffective, and seriously complicated the initial stages of HIV treatment over the long latency periods. (Horn 1998) Drug resistance can take two forms, cross-resistant (same class resistance) or multidrug resistance. (Horn 1998)

After these resistances were discovered, monotherapy was of limited usefulness in long-term treatment of HIV due to the lack of long-term efficacy for treatment. The consistent development of multiple classes of drugs, however, made it possible to shift from monotherapy to combination therapy in which two or more drugs are used simultaneously. By combining multiple classes of drugs to target various resistance mechanisms, combination therapy became an effective long-term mechanism for treating HIV. Dramatic effects were seen after this switch, because “in essence, combination therapy suffocates mutated forms of HIV before they have a chance to flourish. For example, in a combination of ddI, d4T, and indinavir, a strain of HIV that is naturally

resistant to ddI will be kept in check by d4T and indinavir, while a strain of HIV that is resistant to indinavir will be kept in check by d4T and ddI". (Horn 1998) When all classes of drugs to combat HIV are used together, including nucleoside analog drugs, non-nucleoside analog drugs, and protease inhibitors, the combination is referred to as "highly active antiretroviral therapy" or HAART. (Horn 1998)

Physicians prescribe a wide variety of HAART treatments and combinations, and over time there has been evidence that certain combinations of one protease inhibitor and one or two other drugs have the ability to reduce the amount of the virus in the blood. (CDC and 1997) This prompts a bodily response to increase the number of CD4+ cells, and leads to improved health and well-being. (CDC 1997) Additionally, the increase in CD4+ cells minimizes the opportunity for new mutations that lead to drug-resistant strains of the virus. (CDC 1997) Combination therapy has since become the norm in patients with significant immunosuppression. (CDC 1997) Although there has been no definitively decided time to initiate therapy, most doctors agree that the decision to begin treatment must be based on the length of time since initial infection, current CD4+ cell count and viral load, clinical prognosis, side effect profile, and the individual's psychological readiness and motivation to begin and adhere to treatment. (Shernoff & Smith 2001)

The Emergence of HIV in Africa

While HIV did not come to the world's stage until the Mortality and Morbidity Weekly Report, epidemiologists studying the first outbreak of HIV estimate that in the early 1960's roughly two thousand individuals had already contracted the disease in Africa. (Sample 2006) One of the earliest incidence cases was discovered from the

analysis of blood samples from a malaria research project taken from the Congo in 1959. (Motulsky et al 1966) Many consider West Africa the initial outbreak zone for HIV; migrating populations most likely carried the disease to Eastern Africa in the early 1970s from the West. The disease was not considered an epidemic in East Africa until the early 1980s. (Serwadda et al 1985)

After HIV was introduced to Eastern Africa, transmission rates rapidly accelerated due to a combination of factors not seen in West Africa. These included widespread labor migration, which transmitted the disease easily across states; the low status of women, which often led to increased levels of nonconsensual sex; the higher ratio of men in urban populations, which is linked to higher utilization of sex workers and unprotected sex; lower circumcision rates, which is linked to easier STI transmission, and a higher prevalence of STIs, which indicates more radical fluid sexual behaviors. (Illiffe 2006) Home to larger economic epicenters, Eastern Africa had larger city-based populations, which is considered a factor in accelerating disease spread. Additionally, researchers believe that the higher prevalence of sex workers in these epicenters contributed to the rapid spread of HIV; by 1986 in Nairobi, 85 percent of sex workers were infected. (Piot et al 1987)

While the epidemic level rates of infection were affecting the east, HIV was spreading further into Western Equatorial Africa with lower levels of prevalence. Many of the countries within the equatorial belt, including Cameroon, Gabon, and the Congo did not see high rates of HIV because of a lack of similar sexual networks seen in the east due to long distances between cities, poor travel conditions, and perpetual violence in the region. (Averting HIV and AIDS 2010) Professions that required extensive regional

travel (truck drivers, soldiers, miners, traders), however, rapidly spread the disease to distinct trade epicenters throughout the continent due to their engagement with sex workers along heavily populated transport routes. (Averting HIV and AIDS 2010) In the late 1980s, Ugandan truck drivers and military personnel from General Amin's army had prevalence rates of 35 percent and 30 percent respectively. (Carswell et al 1989) In 1998, the second highest HIV prevalence rate reported was found among those living in the region surrounding the Tanzam Road, which connects Zambia to Tanzania. (Hiza 1988) Moving south rapidly through these newly afflicted travel routes, the epidemic reached Botswana, Zimbabwe, Zambia, Malawi, and Mozambique.

The Failures of Early HIV Treatment Programs in Africa

With a few noteworthy exceptions, the 1980s were typified by a lackluster response to the African AIDS crisis. (Carael 2006) Many of the governments in Africa did not have the capacity to handle the immediate concern of HIV due economic growth in the region, political crises, and consistent war. (Averting HIV and AIDS 2010) During the initial stages of the epidemic, with no treatment or cure in sight, governments needed to focus on preventative measures for transmission. Fighting against long-standing cultural norms, these prevention efforts included revising sexual behaviors, abstinence, correct condom usage, and encouraging faithfulness to partners. In many parts of Africa, religious authorities staunchly opposed these prevention efforts; both Christian and Muslim leaders directly contradicted the call for condom promotion and other prevention campaigns. (Averting HIV and AIDS 2010) In a report studying the early prevention programs in African countries, UNAIDS described, "The fear of offending powerful

religious constituencies... created gridlock in some national governments, and for good reason. Conservative lobbies have shown that they can obstruct everything from family life and education to condom promotion if they chose.” (1999) Across dozens of affected countries, senior politicians were hesitant to acknowledge a HIV/AIDS epidemic due to a fear of discouraging fledgling tourism sectors or creating widespread panic. (Sabatier 1988)

While the rest of the continent struggled, Senegal and Uganda are often regarded as countries that did respond the AIDS crisis rapidly and effectively. (Averting HIV and AIDS 2010) Currently, Senegal has one of the lowest rates of HIV prevalence in sub-Saharan Africa. (Averting HIV and AIDS 2010) According to UNAIDS, while it is impossible to predict how the epidemic would have progressed in these countries without initial intervention, many credit the prompt response of the government and community leaders at the first signs of the epidemic with avoiding the fullest devastating effects of the epidemic. (1999) Uganda’s response began after the end of the country’s civil war in 1986 and President Museveni pushed for a strong prevention program to combat the 26 percent prevalence rate within the capital city. (Tumushabe 2006) Shortly after, in 1987, Uganda created an AIDS control program with the assistance of the WHO; this five-year framework, which concentrated on the principles of openness and frankness about the disease, received over US\$30 million in donor funding and became a model for Africa HIV prevention programs. (Tumushabe 2006)

Conversely, many other African nations responded negatively to the HIV/AIDS epidemic. In the Congo, President Mobutu banned the press from reporting on HIV from 1983-1987. (Nolen 2007: 139) Zimbabwean doctors were mandated not to report AIDS

as a cause of death on death certificates. (Nolen 2007: 139) The Apartheid regime of South Africa refused to initiate a proposed AIDS education program in schools and did not acknowledge the danger of the country's large-scale heterosexual epidemic until the late 1980s. (Grundlingh 1999) Even though the virus arrived in the region late, by comparison, the epidemic was devastating by the end of the decade with several southern African countries overtaking East Africa as the focus of the global HIV epidemic. (Averting HIV and AIDS 2010)

The WHO was especially slow to respond to the HIV/AIDS epidemic in Africa because it did not consider AIDS to be the region's primary healthcare concern. (Carael 2006) In 1985, then Director-General Halfdan Mahler stated, "AIDS is not spreading like bush fire in Africa. It is malaria and other tropical diseases that are killing millions of children every day." (Inrig 2010) While Malaria was physically killing more individuals in 1985, HIV was quickly surpassing the disease in terms of morbidity and new infections. (Inrig 2010) The following year, however, Mahler admitted the inaccuracies of this statement and noted that "[e]verything is getting worse and worse in AIDS and all of us have been underestimating it, and I in particular." (Inrig 2010) The WHO Global Program for the Fight Against AIDS was started in 1986, and targeted to raise US\$1.5 billion a year to support prevention and educational endeavors, with a priority to focus in Africa. (Carael 2006)

During the 1990's, sub-Saharan Africa was the central focus of the HIV epidemic. In 1993, it is estimated that the region housed 9 million infected people out of a global total of 14 million. (WHO 1995: 2) By 1998, 70 percent of the people newly diagnosed

with HIV resided in sub-Saharan Africa, with 14 percent of these infections occurring in South Africa. (UNAIDS 1998)

The first highly effective treatment for HIV, HAART, was introduced to the developed world in 1996. (Porter et al 2003) HAART, also known as ART, was so effective in this region that AIDS death rates dropped by 84 percent over the next four years. (Porter et al 2003) As a result, many scientists declared, "aggressive treatment with multiple drugs can convert deadly AIDS into a chronic, manageable disorder like diabetes." (Maugh 1996) At a cost of \$10,000-15,000 per person per year, however, many sub-Saharan countries would have incurred costs of nine percent to 67 percent of their GDP to provide 100% government funded HAART therapy to everybody in their countries living with HIV. (UNAIDS 1998) Impossible for the majority of African nations, many started to advocate for more affordable options to help those in the socioeconomic classes too poor to afford treatment. South Africa was one of the first countries to lobby many Western multi-billion-dollar pharmaceutical corporations to either allow for compulsory licensing (local production of these HIV/AIDS drugs themselves) or to allow for parallel importation of these drugs from countries that were producing generics. Secondly, HAART treatment was clinically demanding and many governments did not have adequate healthcare infrastructure to manage large-scale treatment programs. (Averting HIV and AIDS 2010) In the 1980-1990s, sub-Saharan Africa had the world's lowest level of social security cover, which includes access to health services and doctor/patient ratio. (Carael 2006)

From the first reported cases of HIV through the development of HAART, Africa was mired by limited resources and an inadequate plan of attack to combat the epidemic.

The lack of response and acknowledgement of HIV allowed the disease to spread to epidemic proportions by the beginning of the twenty-first century. Sub-Saharan Africa created a need for a highly effective prevention and treatment program, which countries around the world continually attempted to create and innovate to stem the effects of HIV on afflicted countries.

The Call For a New Type of Program

At the turn of the century, it was clear that a new course of action was needed to combat the spread of HIV. Previous plans of attack were failing most populations, and global health programs were struggling to fill the gap in ART provision. In 2000, as a result of mounting pressure to increase access to AIDS medications worldwide, five pharmaceutical companies offered to begin negotiations for steep price reductions for HIV drugs in the world's poorest regions. (McNeil 2000) The production of generic drugs by India and Brazil and other local producers sparked a "price war" between major producers like GlaxoSmithKline and country-sponsored generics. (McNeil 2000) While the negotiations were lengthy, the early 2000s saw drastic price reductions by the world's largest drug manufacturers. These companies frequently cut prices on patented AIDS drugs until they were comparatively priced to newly produced, off-patent generics. (Hirschler 2001)

As HIV treatments became more affordable, many countries began facing intense skepticism regarding the feasibility of rolling out widespread ARV treatment to afflicted individuals in Africa. Many African countries had weak healthcare infrastructure; in 2005, Africa had a shortage of over 1 million health workers. (WHO 2006) A second, but

equally important concern, focused on a potential patient's inability to properly adhere to the prescribed treatment. (WHO 2006) Critics of equal access of HIV treatment questioned if it was cost-effective to provide ARTs to those in "less developed" regions. The latter concern was later proven to be unfounded; HIV positive patients in sub-Saharan Africa have since been found to have higher rates of adherence than patients in America. (WHO 2006) A final, major concern surrounded the physical delivery of drugs into hard-hit but remote regions of Africa. (Powell 2009) In 2001, it was estimated that over 20 million people in sub-Saharan Africa were living with AIDS, but only 8,000 were accessing proper treatments. (Averting HIV and AIDS 2010)

The hardest hit countries required a new way to contain the epidemic, and the international community began to look at options for extensive financial and medical support. The health sector in many sub-Saharan African countries had insufficient budgets and minimal resources to combat the disease in a manageable way in comparison to their western counterparts. (Nolen 2007: 108) In 2003, the WHO announced the "by 5" initiative, which strove to put 3 million individuals in developing countries on ARVs by 2005. (World Health Organization 2006) The initiative contained provisions for funding and infrastructure improvement, along with quality assurance provisions and the goal of global alliances. (World Health Organization 2006) Even though these goals were not met, the campaign was able to increase the number of people on treatment in Africa. It also raised political support and additional financial commitment by Western nations for HIV/AIDS in these resource-poor countries. The turn of the century brought about increased cash flows by many developed nations to help scale-up existing programs and build new ones. (Averting HIV and AIDS 2010) In 2001, The Global Fund to Fight

AIDS, Tuberculosis and Malaria was created. Shortly after, U.S. President George Bush announced his plan named the President's Emergency Plan For AIDS Relief (PEPFAR), which would be one of the largest endeavors to fight AIDS by a single nation. (The White House 2003) Initially, the \$15-billion aid package was designed to help eradicate HIV/AIDs in low-income countries over a five-year period. (Barney et al 2010: 9) The program, whose influence on individual country programs will be discussed later, is currently in its fourth iteration and continues to work towards eradication in low-income countries.

While many developed nations were willing to provide significant funding, and eventually treatment, significant challenges remained to treat the majority of populations. Third party interventions needed to integrate and bolster existing healthcare systems. When considering the size of the epidemic in sub-Saharan Africa, no international organization could provide the manpower necessary to fight the disease. The funding and drugs were in place, but the lack of health care infrastructure and inadequate human capital made it necessary for a new type of program to surface: the sustainable integrated healthcare intervention.

Sustainability: The Perfect Intervention Scheme?

The concept of sustainability is equated with the use of financial resources to build health care infrastructure and work force that can form the backbone of a delivery system. Infrastructure and work force can also be measured and so provides a metric by which to evaluate the many types of health care programs put forward for funding consideration. Successful sustainable public healthcare programs in the global south

integrate and leverage resource-backed initiatives with existing programs creating partnerships to improve previously established, or build entirely new, infrastructure and delivery mechanisms. The cooperation of non-profit organizations, community entities, and government programs are all essential factors in ensuring the success of new interventions to combat widespread epidemic disease burdens. (Asad et al 2012) When considered separately, each factor is purportedly ineffective in creating significant change in prevalence rates among populations. Without integration, non-profit organizations bear the vast majority of the burden of supporting the world's poorest because many of these governments "lack the funding and resources to actively contribute to desired intervention mechanisms." (Asad et al 2012) Conventional wisdom in the global health "beltway" is that "it is prohibitively expensive and logistically burdensome for governmental organizations to provide health care in resource-poor settings." (Asad et al 2012) In order for an intervention to be successful, government contribution is requisite in building public health infrastructure in any developing nation. (Asad et al 2012) Such involvement provides credibility and logistical support for nonprofits and public-private partnerships that operate within the country under various aims and objectives. Local legislative oversight also promotes responsibility among those working in their own communities. Community entities, or grassroots movements, are also essential to promote a ground-up approach to preventing, treating, and even living with deadly disease. These entities provide additional avenues in areas where NGOs and the government cannot effectively operate. Working in tandem, all three actors help contribute to the success of a sustainable healthcare intervention.

According to the WHO, eradication efforts have shown to be “most effective when a significant number of groups in both private and public sectors coordinate their efforts and holistically tackle a particular disease with pragmatic solidarity.” (World Health Organization 2008) The public sector in this model of pragmatic partnership, often tied to the private sector for funding support, will initiate, fund, and ensure sustainability of equitable health care programs by “building effective health systems in resource-poor settings while improving the skills and capacities of non-profit organizations.” (Moten et al 2008) Additionally, by using this form of cooperative agreement, the public sector works to increase access to competent providers, through health training and medication provided by the private sector, to their populations. (World Health Organization 2008) Integration of local and national governments with NGOs and (most consistently) public-private partnerships to provide medications, delivery systems, initial funding, and public support create more traction within local communities than separately approached mechanisms. (Moten et al 2012) Sustainable, successful interventions aim to incorporate all of these factors into one healthcare strategy to improve health in the communities they serve. Seemingly perfect, these interventions are designed to exist equally across all communities. In reality, however, each intervention is subject to the sociocultural norms in the country it operates setting the stage for inequity.

A problem arises when the national government heavily influences such a healthcare strategy. Achieving health for the community at large can easily devolve into the isolation of specific marginalized groups, depending on the public policy of the government. As exemplified in Botswana, based on the construction of the sociocultural

and religious beliefs within the country, the government recast sustainability such that it did not apply to those deemed unworthy of treatment. The overarching cultural and political implications that result significantly impairs the efficacy of the sustainable practices deemed successful by local and national organizations alike.

BOTSWANA: THE CASE FOR INTEGRATED PUBLIC HEALTH INITIATIVES

In order to understand the impact of a seemingly sustainable healthcare infrastructure on the epidemic in Botswana, it is important to comprehend the original steps taken by the country as HIV emerged. As will be delineated, the initial action by the country and its situational factors made it an outwardly perfect opportunity for international support and potential program replication for other equally devastated countries.

A History of HIV in Botswana

Botswana reported its first case of AIDS in 1985. The country's subsequent response to the emerging HIV and AIDS epidemic can be divided into three “precursor” stages and the current course of action, called the Term Plans. The different stages were subsequently adapted due to under realized goals set by the plans. The first, early stage (1987-89) concentrated on eliminating the risk of HIV transmission through blood transfusions by screening blood donations. (Government of Botswana 2014) The second stage (1989-97), and the first Medium Term Plan (MTP) introduced information, education, and communication programming. (Government of Botswana 2014) This response, while more encompassing, was still very narrowly focused. During the second stage in 1993, the government created and adopted the Botswana National Policy on

AIDS. (Government of Botswana 2014) The third and final precursor stage, (1997-2002), significantly expanded the response to HIV/AIDS to include more holistic education, prevention, and comprehensive care programs in addition to providing ARV treatment to the entire HIV positive population. (Government of Botswana 2014) The second Medium Term Plan (MTP II), introduced after the end of the third stage, aspired to engage more previously excluded stakeholders. It was aimed at not only reducing HIV infection and transmission rates, but also reducing the impact of HIV and AIDS at every level of society. (Government of Botswana 2014) While these programs were admirable, they were insufficient in addressing the rapidly rising prevalence rate among the Batswana (individuals from Botswana).

In an attempt to create a more comprehensive plan to combat HIV, the government commissioned the National AIDS Coordinating Agency (NACA). Since 2003, it has coordinated Botswana's existing response through a national multi-sectoral framework and formed the international partnerships currently supporting the country's intervention mechanism. NACA is responsible for mobilizing the country's long-term response to HIV/AIDS and coordinating the response with the country's many international partners. (Government of Botswana 2014) The National AIDS Council, which supervises NACA, is chaired by the President and has representative members from across the various sociocultural realms in the country, including both public and private sectors. (Government of Botswana 2014) The First National Strategic Framework (2003-2009) spearheaded the initial multi-sectoral national response, precisely outlining the implementation responsibilities of all partners and sectors involved and subsequently providing them with a clear set of structures and guidance. (Government of Botswana

2014) The first framework created a number of developments that included provisions for routine HIV testing, increased Voluntary Counseling and Testing (VCT) centers, and access to ARVs through the public sector. (Government of Botswana 2014)

The Role of Public-Private Partnerships in Botswana’s Intervention Mechanisms

The Republic of Botswana has implemented a sustainable, long-term intervention, which was executed through a cooperative multilateral approach that incorporates all aspects of “successful” intervention mechanisms. Public health officials around the world have lauded Botswana’s program, which uses a unique combination of public-private partnerships (both NGO and community based programs with international backing) and government involvement for its statistical successes. Prior to the involvement of any third party or international support, Botswana had a 38.9 percent HIV prevalence rate for adults, the second highest in sub-Saharan Africa. (Wester et al 2009: 501) The government of Botswana and its partners worked in tandem to foster and support a revolutionary public health intervention designed to reduce the burden of HIV in their country.

Botswana’s public-private partnerships led to the development of a national HIV treatment program through community-based networks, with a reduction in HIV prevalence to 29 percent; the highest reduction among effected nations within the region. (Wester et al 2009: 503) Theoretically, this level of success indicates an optimal sustainable program for the prevention and treatment of HIV/AIDS that cooperatively works with community members, national governments, and private actors. However, when considering the efficacy of Botswana’s HIV/ AIDS intervention, it is important to

note the significance of several underlying factors that likely contributed to its success in comparison to other sub-Saharan countries: the commitment of the country's highest leaders to fight the HIV/AIDS epidemic; a small population; a relatively well-developed health infrastructure; a relatively peaceful political environment; and a middle-income country status. These factors created the perfect backbone for an intervention program. (Ilavenil & Reich 2006: 397) The essential "starting point" for the country created the necessary platform for many organizations to implement pilot programs and identify the variable success factors of those ventures. It is impossible to know if Botswana would have been awarded similar attention by potential partners without these factors in place. Without the combination of factors present in Botswana and the mechanisms built into the intervention to promote long-term growth, the intervention would have likely failed. The partnerships were able to capitalize on the willingness of a nation, revolutionize care models, and serve as change-makers within the global health field giving this partnership trailblazer status in the world of sustainable healthcare ventures.

Two main forms of public-private partnerships have become staples in the Botswana sustainable intervention plan: philanthropic and academic. Addressing funding needs, the philanthropic partnerships often provides the monetary resources necessary to jumpstart comprehensive programming. Academic partnerships, whose actors are usually western-based healthcare systems, help provide training and on-the-ground support to administer and treat those afflicted by disease. Encompassing the public and private sector approaches deemed necessary for successful intervention mechanisms, the cooperative engagement of both types of partnerships has been integral to the success of the Botswana intervention and thus serves as useful case studies. Due to the inability for a

sustainable program to succeed without both the philanthropic and academic sectors of the partnerships, co-dependence within the private partnership field has further influenced the relationship of government to partners. Exhibiting a dynamic relationship, the different partnerships work collaboratively with the government of Botswana to utilize resources effectively and achieve success through cooperation. The power dynamics of the relationship are directly correlated with the acceptance of each arm's respective position in the larger scheme for success of the intervention. Through the variable bio-political forces exhibited by both the philanthropic and academic forms, the situational factors behind Botswana's success and sustainability mechanisms become even more pronounced. (Ilavenil & Reich 2006: 298) Each form has a main actor; the Africa Comprehensive HIV/AIDS Partnership (ACHAP) provides funding, drug donations, and infrastructure development, while the UPenn-Botswana Partnership (BUP) provides training and educational programs. One additional actor, PEPFAR, which provides financial support, has specific guidelines for treatment provisions necessary for required funding. By working in tandem, all actors have been essential in the successes achieved through the extended engagement of all of Botswana's situational factors and cooperation with the government for extended logistical planning.

One of the hallmark efforts created by ACHAP and the government of Botswana that directly targeted long-term sustainability was the planning, financing and implementation of MASA – a Setswana word meaning “new dawn” – the national treatment program. The inherent need for quick action, pressure from the country's most powerful leaders, and a desire for success led to a rapid implementation of a national program through private entities, in order to gain the funding necessary for such a

program. MASA, as a treatment and prevention model, has been extremely successful. The rollout model, completed in 2004, involved the completion of 32 sites, defined as hospitals with accompanying clinics that provided antiretroviral therapy (ARVT) services at various levels. (Gilles 1998) Successes of the program include improved access to ARV services through the sites and out-sourcing contingencies to private practitioners for fast-tracked enrollment into the program resulting in reduced congestion at government treatment sites; reduced morbidity associated with HIV and AIDS (as noted through a decline in patients in need of Community Home Based Care (CHBC) from 12,000 to 3,500); increased survival rates for patients on highly active antiretroviral treatment programs (HAART), with an estimated 50,000 averted deaths and an 88.6 percent survival rate for those adherent to the program; the stabilization of the orphan population due to the reduced mortality of parents; and increased collaboration for intensive and extensive training for health care providers in order to ensure effective and efficient implementation of MASA. (Jackson & Claeys 2011: 194) These outcomes, at the surface, are indicative of a program internationally recognized as “a case study for success.” After initial support from ACHAP and close collaboration with the government, MASA can be run solely by the government of Botswana, highlighting the successes of an integrated approach to long-term sustainable intervention mechanisms.

The delicate balance of private sector management and government actions have become defining characteristics of the Botswana model. The intervention mechanism was designed to create primary infrastructure and subsequently support the national framework when the third parties are withdrawn from the country. The organizations behind ACHAP sourced the perfect case study and saw tremendous growth. The variable,

and consequently, bio-political impact of the top-down partnership is emphasized in ACHAP's outcomes. Each outcome was shaped by the influence of the philanthropic partnerships, inherently ignoring the need for primary creation by the afflicted nation. (Jackson & Claeys 2011: 194) ACHAP's involvement with Botswana's ARV program directly demonstrates how public-private partnerships can be advantageous in initiating a major HIV/AIDS intervention; Botswana now has more people on ARV treatment than any other country in sub-Saharan Africa and is the only country providing free treatment for "all." (Ilavenil & Reich 2005) The ACHAP partnership has played a vital role in attaining these outcomes. It has created a viable, long-term sustainable intervention scheme with the capacity to serve as a model for countries with similar baseline disease burden.

THE IMPACT OF SOCIAL DETERMINANTS OF SUSTAINABILITY

While the actions of the government of Botswana have become a hallmark of success in national HIV/AIDS treatment programs worldwide, it is important to understand how it engaged with various international public and private partners to create a series of provisional, limiting agreements that prohibit equitable treatment throughout the country. By engaging in such limiting agreements with the African Comprehensive HIV/AIDS Partnership and supplemental funding sources through PEPFAR, the Government of Botswana has simultaneously created a sustainable HIV treatment program and a mechanism to isolate and further marginalize key populations in need of treatment within the country. Thus, the same factors that contribute to its sustainability, namely government regulations, create a program that isolates high-risk groups and perpetuates the prevalence of HIV/AIDS in highly marginalized groups.

The Effect of HIV on Sex Workers and MSM

Across the globe, HIV disproportionately affects key populations that are defined as sex workers, men who have sex with men (MSM) and intravenous drug users (IDUs). Worldwide, these populations account for a significant share of new infections on a yearly basis, and are especially prominent in areas of generalized epidemiology. (UNAIDS 2013) For the purpose of this paper, the subject groups of marginalized populations will focus on sex workers and MSM.

HIV continues to seriously impact female, male, and transgender sex workers. Female sex workers are 13.5 times more likely to be infected with HIV than women who are not engaged in the profession, and global sero-prevalence rates (reported) have increased overall. (Kerrigan et al 2013) In sub-Saharan Africa, the median prevalence rate for sex workers is 20 percent, compared to a global median of 3.9 percent. (UNAIDS 2014) In West African countries, it is estimated that up to 32 percent of new infections were attributable to sex work; in Swaziland, Zambia, and Uganda, it is estimated that 7-11 percent of new infections are due to active sex workers, their clients, and their clients' regular partners. (UNAIDS 2013) Although median HIV prevalence rates vary regionally, from 22 percent (Southern and Eastern Africa) to 17 percent (Western and Central Africa), these rates are higher than for the reported general populations. (UNAIDS 2013) According to the GAP Report, nine reporting countries, all in sub-Saharan Africa, had higher rates of HIV prevalence among sex workers than the general population. (UNAIDS 2014) Data is not readily available about this key population due to the stigma usually associated, and in 2013, UNAIDS reported that HIV prevalence among sex workers "remains extremely high in many countries worldwide." (UNAIDS)

According to the World Bank, HIV prevalence among sex workers in sub-Saharan Africa remains a key factor in determining the direction and effect of the epidemic worldwide. (Kerrigan et al 2013) In a 2013 report on sex work, it was estimated that sub-Saharan Africa has the highest pooled HIV prevalence rate at 36.6 percent. (Kerrigan et al) Service levels for HIV prevention and treatment amongst female sex workers are considerably low, less than 50 percent in most reportable countries; similar programs are almost nonexistent for male and transgender sex workers. (Kerrigan et al 2013) However, inadequate financing for sex-work focused HIV prevention programming is a divisive factor in why this prevention coverage continues to be extremely low. (UNAIDS 2013) Regardless of a sex worker's disproportionate risk of contracting HIV, global funding remains insignificant for this category. (UNAIDS 2013) In many regions, international funding for prevention efforts exceeds that of national funding for HIV treatment in sex workers (Figure 1).

This may be due to the highly stigmatized nature of sex work, which in many countries with high prevalence rates is criminalized or even illegal. One notable exception is Southern Africa, partially attributable to prevention programs created by South Africa, where sex work is decriminalized. (UNAIDS 2013) The World Bank report identified three key policy recommendations based on effective country data to reduce HIV prevalence in sex workers: scaled-up community empowerment, HIV prevention services, and earlier ART initiation; interactive relationships between sex worker's rights organizations and governments; violence reduction against active sex workers. (Kerrigan et al 2013) It is believed that if countries were to adopt these policies or actions, there could be a significant reduction of HIV prevalence in sex workers. There is little

movement, however, in regions with the most devastating effects of HIV to adopt these changes and strive toward additional treatment equality.

MSM, globally, have a HIV prevalence rate of 7-18 percent, and are 19 times more likely to have HIV than other men. (UNAIDS 2014) The MSM populations in Western and Central Africa (18 percent) and Southern and Eastern Africa (14 percent), or the regions with the highest MSM HIV prevalence rates, are significant contributors to regional epidemics. (UNAIDS 2013) As in the case of sex workers, epidemiological surveys of men who have sex with men are limited and may not be nationally representative. Regionally, epidemiological trends vary for MSM, and prevalence has been increasing for the global MSM population. (UNAIDS 2013) Conversely to sex workers, MSM typically contract HIV at a young age; in the 20 countries reporting age-disaggregated data, the median prevalence is 15 percent for MSM that are 25 years and older. (UNAIDS 2014)

There have been some advancements in appropriately creating treatment and prevention plans for men who have sex with men. Recent studies indicate ARV-based HIV prevention methods, including pre-exposure antiretroviral prophylaxis, can offer improved prevention efforts for MSM; however, this model comes with limited side-effects and potential long-term effects that must still be assessed. According to the UNAIDS 2013 report, survey data shows that “MSM often have extremely limited access to condoms, water-based lubricants, HIV education and support for sexual risk reduction.” (UNAIDS 2013) In order to properly combat the effects of this stigma and discrimination, a global health priority must be to increase the access of MSM to culturally sensitive counseling, testing services, and ARV treatment.

MSM are likely deterred from accessing mainstream health services due to fear of disapproval and discrimination by health care providers. According to the UNAIDS GAP Report, the percentage of MSM reached by prevention programs from 2009 to 2012 hovered between 52-54 percent. (2014) This report, in which only 20 countries disclosed data for MSM, indicated that global estimates may actually be lower for access to care. (UNAIDS 2014) As with sex workers, inadequate resources hinder the ability to reach afflicted or at-risk MSM prevention services. As can be seen in Figure 2, while international funding greatly outweighs domestic funding for MSM programs, it is still extremely limited in sub-Saharan Africa. (UNAIDS 2014)

According to UNAIDS, the effects of limited funding are “compounded by a host of additional challenges, including the deterrent effects of homophobia on the ability or willingness of men who have sex with men to seek essential HIV services.” Punitive laws, which occur disproportionately in sub-Saharan Africa, regarding same-sex sexual relations strongly contribute to an inherent climate of intolerance and fear of treatment.

For sex workers and men who have sex with men, both with a higher risk of acquiring HIV, programmatic deficits are amalgamated by societal and legal disadvantages that increase overall vulnerability and subsequently discourage these populations from securing the services they need.

The Role of PEPFAR as a Limiting Agent on These Populations

One of the other key limiting factors in the provision of fully inclusive HIV medication, is the President’s Emergency Plan for Relief (PEPFAR) program. Announced by President Bush in 2003, the \$15-billion aid package was designed to help eradicate HIV/AIDs in low-income countries over a five-year period. (Barney et al 2010:

9) The program focused on fifteen detrimentally affected nations that account for over 50 percent HIV infections worldwide; these "focus countries" were Vietnam, Haiti, Guyana, and twelve countries in sub-Saharan Africa. (Barney et al 2010: 11) Initially, PEPFAR aimed to attack the HIV epidemic through a three-prong process: providing ART treatment to infected individuals in resource-limited settings, preventing new infections in these settings, and supporting care for currently infected individuals. Originally, the program set out to affect 20 million people by 2010. (Henry J. Kaiser Family Foundation 2014) By 2008, PEPFAR had provided ART treatment for over 1.2 million Africans, up from 50,000 at the start of the program in 2004. (Henry J. Kaiser Family Foundation 2014)

PEPFAR has many limiting requirements that reflect the conservative views of President Bush and congress at the time. In order for a country to be eligible for funding, PEPFAR required that 20 percent of the funds given to the country be spent on prevention programs, and an additional 30 percent had to be devoted to enhancing "abstinence until marriage and fidelity to a single partner" programs. (Shelton et al 2004: 891) The program recommended that only those who participate in "risky behavior," namely truck drivers, sex workers, and HIV sero-discordant (infected) couples, use condoms as a way to combat HIV/AIDS. (Shelton et al 2004: 891) No country could negotiate a contract with PEPFAR without first proving adherence to these stipulations.

In 2005, Bush administration officials refined the requirements for PEPFAR support. The new stipulations required that all groups, both foreign and American, tackling HIV/AIDS issues proclaim their opposition to sex work and prostitution to receive this funding through an "anti-prostitution pledge". (Dussault 2008) This new

PEPFAR pledge prohibited organizations from accessing significant funding opportunities that did not actively condemn prostitution or sex work. Many social activists that emphasize the need for free expression in treatment for the epidemic due to complex social structures inherent in the disease process believe that this policy not only violates the rights of these organizations, but also of their constituents. (Kinney 2006: 158) This pledge, fully integrated into PEPFAR, obstructs the treatment of commercial sex workers, a key group in need of HIV/AIDS care. By preventing this group from accessing (in most cases) free medical treatment, PEPFAR is violating the rights of this key group and further increasing their risk of death by the disease because these sex workers are unable to seek out care in highly afflicted nations.

PEPFAR recognizes that the sex worker population has an increased seroprevalence rate of HIV; it concedes that, “persons who engage in socially stigmatized behaviors, including sex work...are at a disproportionately higher risk for HIV.” (PEPFAR Technical Working Groups 2011) PEPFAR, however, centers its efforts on “engaging in targeted prevention, care, and treatment outreach for prostitutes; helping governments to support alternatives to prostitution; and working to reduce demand for prostitution.” (Center for Health and Gender Equity 2011) While PEPFAR does intend to provide some resources to help this group, it also seeks to completely eradicate prostitution worldwide. The program states that any partner organization must reject all funding proposals or programs that are seen as legitimizing the practice of sex work. (Dussault 2008) While certain aspects of PEPFAR’s work do aim to help sex workers acquire ART treatment, by requiring organizations to utilize provisional statements that decry the “legality and morality of prostitution, PEPFAR in fact hinders the ability of

sex workers to receive the highest quality of HIV treatment.” (Dussault 2008) These outcomes, due to the process of establishing contracts and key documents for sex workers to qualify for treatment, highlight the neglected stakeholders of the agreement.

PEPFAR has endorsed an HIV/AIDS construct similar to that of sex workers for MSM. While many of the barriers exist at the country level, PEPFAR’s original mandate in 2004 imposed similar stringent resource allocation requirements for MSM. The most recent iteration of PEPFAR’s mandate has included significant expansion of supported MSM programming and long-term commitments from PEPFAR leadership. HIV/AIDS services through PEPFAR and other providers, however, remain insufficient to combat the epidemic for MSM. (UNAIDS 2014) Under current limitations and funding provisions, there is a significant dearth of interventions that have the ability to tackle the social, legal, religious, and political barriers that would allow for MSM to equally access HIV health services. (Averting HIV and AIDS 2014)

Multiple studies have shown that, in a fashion similar to sex workers, grassroots organizations remain the most effective form of responses to provide HIV/AIDS services to MSM. There is an immense opportunity for international donor programs, including PEPFAR as well as long-standing government interventions to build and expand these programs. (amfAR 2010) In a recent report by amfAR, which studied the effectiveness of PEPFAR’s MSM programs in eight countries, it stated that even though substantial funding had been introduced to help MSM, a lack of structural support was actually inhibiting and undermining efforts in the PEPFAR-run programs. (2010)

PEPFAR has made strides in accommodating MSM in its long-term strategy. In 2008, PEPFAR’s reauthorization legislation acknowledged the importance of providing

support for MSM, and called for the “appropriate HIV/AIDS education programs and training targeted to prevent the transmission of HIV among [MSM].” (amfAR 2010) Released in 2009, PEPFAR’s Five-Year Strategy recognized the disproportionate impact of HIV on MSM and stated that governments are “often reluctant to engage in outreach to these communities.” (amfAR 2010) The plan commits to address such discrimination and stigma against MSM, and also to support targeted HIV treatment and prevention services. (UNAIDS 2014) While these actions are commendable by the organization, limited effectiveness continues to hinder on the ground efforts. Due to inadequate data of HIV prevalence among MSM, and details of targeted country programming, PEPFAR’s structural limitations continue to marginalize this key group.

A second major actor that contributes to the isolation of key groups in Botswana with PEPFAR is the Government itself. Comprised of multiple actors responsible for contractual negotiations with PEPFAR, the partnership is often looked at as a cornerstone of international HIV/AIDS treatment programs. In 1995, the first partnership was established between the Government of Botswana and the United States Center for Disease Control (CDC/BOTUSA). (Stash et al 2012) A research outpost, BOTUSA conducts both treatment and population-based research on TB and HIV. It also supplies multiple layers of financial and technical support to fight the epidemic through PEPFAR. (Government of Botswana 2010) From the inception of the partnership in 2004, Botswana has received over US\$390 million to supplement and support successful HIV/AIDS capacity, treatment, and care activities. (Government of Botswana 2010)

Through extensive PEPFAR assistance, the United States Government has played a crucial role in diminishing the impact of HIV/AIDS in Botswana. Multiple strict

interventions, aligned only with the tenets of PEPFAR, were strengthened, and new services were also established according to these foundations. Some of the key programs initiated under the partnership were: prevention of MTC (mother-to-child) transmission; TB/Isoniazid preventive therapy; HIV counseling and testing; orphans and vulnerable children; laboratory infrastructure; monitoring and evaluation; the national MASA antiretroviral treatment program; biomedical transmissions; drug procurement; and infrastructure development. (Government of Botswana 2010)

PEPFAR's technical assistance was fully integrated into each of the above programs. The process by which these programs were established, through limiting language and strict legal requirements, led to the development of various national guidelines, manuals, and systems adaptations. (Government of Botswana 2010) PEPFAR was also responsible for addressing human capacity needs, and supported over one hundred positions within various government ministries and departments. (Government of Botswana 2010)

This program, however, prevents key groups from accessing treatment and thus creates an additional opportunity for further victimization by major stakeholders. (Gillespie and Bazerman 1997:280) Due to PEPFAR's funding of the MASA program, no sex worker is able to receive free ARV treatment because of the strict legal guidelines of PEPFAR and the subsequent mission guidelines of MASA. Here as victims, sex workers and MSM constitute a disproportionate amount of cases of HIV/AIDS within Botswana.

By preventing key groups from accessing this treatment, the foundation precepts of PEPFAR and the government's inability to separate from those tenets represent the

process of purposeful marginalization. The Government of Botswana and PEPFAR are the negotiating parties that are selecting groups to treat based on sociopolitical views; the Government of Botswana is negotiating for funding and PEPFAR is negotiating for support of a HIV prevention and treatment scheme that it deems socially worthy given its belief system, while completely isolating a key group that is an integral stakeholder in alleviating the pandemic in the region.

BOTSWANA: ISOLATING THE MARGINALIZED

While the public health intervention in Botswana has been successful within the general population, the existing government policies criminalizing behavior of marginalized groups is working against HIV prevention and treatment strategies. As the initial outposts of each arm of the public-private partnerships became fully integrated with the government of Botswana, they focused on the long-term sustainability of the intervention mechanism, not achieving an improved health outcome for the community at large. The government has been able to tailor and target each aspect of its intervention strategy to certain populations within the country, while legally isolating additional segments that require the same treatments for the same disease. The partnerships and resultant interventions must follow the laws and penal codes of the country; in order for a person within Botswana to receive free medical and diagnostic services provided by the government and the integrated public private partnerships, he or she must be a citizen with good standing. (Phaladze & Tlou 2006) When the laws of the land are superimposed on the “successful long-term sustainable” healthcare intervention, good citizens get access to services while others get marginalized and isolated. It is the

definition of “good” that truly undermines the goal of a sustainable public health intervention.

Two of the most marginalized groups within Botswana, homosexuals and sex workers, engage in activities that are criminalized according to the country’s penal codes and thus are not considered citizens in good standing. As a highly conservative country, many of Botswana’s laws are guided by principles found in the Bible and perpetuated by the Baptist community. Penal code 155 states that prostitution is a criminalized behavior, as is living off of wages gained by prostitution, sentencing those determined to be engaging in said activities up to eight years in prison. (Government of Botswana) Penal codes 164 and 167 criminalize all “unnatural acts” including but not limited to those that have carnal knowledge against the order of nature, and those that engage in acts of indecency with those of the same sex. (Government of Botswana) Primary offenses can result in up to seven years in prison; repeat offenders can earn time as determined by the highest court within the country. (Government of Botswana) Penal codes actively prevent those who participate in declared illegal activity from accessing the successful intervention program.

The criminalization of sex work and homosexual behavior impedes evidence-based HIV responses for these groups. The constant threat of arrest and antiquated penal codes that identifies a sex worker through condom carrying serve as nearly insurmountable barriers to the availability and sustainable uptake of HIV prevention programs and additional services for both sex workers and homosexuals. Sex workers must often remain mobile in order to avoid arrest or police-led sexual assault; this hinders the ability of a program to adequately help prevent and treat HIV positive individuals.

According to a recent study that evaluated the prevalence of violence faced by sex workers in 28 low-income countries, there is a strong causal link between the criminalization of sex work and the increased risk of contracting HIV and other sexually transmitted infections. (Deering et al 2013)

Men who have sex with men face significant threats, often extremely volatile and dangerous in nature, which are linked to their “criminalized behaviors.” MSM, in a sense, face compounded stigma due to additional social prejudice of “manly” behavior within the country. The punitive measures in Botswana hinder the ability for MSM to organize and design a proper implementation strategy for HIV-related services. This poses a significant threat to a long-term solution to HIV; a report by amfAR shows that the involvement of gay men in peer outreach and community-level behavioral interventions can reduce HIV risk by up to 25 percent. (2010)

Sex workers and homosexuals constitute a comparatively large portion of cases of HIV/AIDs within Botswana. Underreported and overly prevalent, the presence of the disease in these communities and social circles is almost triple that of the heterosexual, monogamous citizen in Botswana. (Government of Botswana) In the UNAIDs Country Progress Report 2013, statistics for indicators of prevalence for both sex workers and men who have sex with men were “unavailable due to incomplete mapping.” (UNAIDs) Further analysis of government-sponsored reports showed no mention of key at-risk groups; terminology was limited to “ARV eligible citizens.” In the GAP Report by UNAIDs, Botswana had the second highest prevalence rate in the world for sex workers at 61.9 percent, only topped by Swaziland at 63.2 percent. (UNAIDs 2014) Botswana’s estimated prevalence rate for MSM stood at 13.1 percent, but much of the data was

inconclusive due to the limited resources available. (UNAIDS 2014) Furthermore, neither ACHAP nor the government discloses the presence of the disease within these two populations in yearly reports. Constituting less than 2 percent of the population, both groups were estimated to contribute to 8 percent and 7 percent of new HIV cases across the population in 2013, respectively. (Phaladze & Tlou 2006) High incidence rates for these populations continue to grow as access to care is denied.

In 2013, the National AIDS Coordinating Agency released Botswana's country progress report to UNAIDS. Due to the completion of the 2012 Behavioral and Biological Surveillance Survey of HIV/AIDS on High-Risk Sub-Populations in Botswana, NACA was able to release preliminary HIV indicators on sex workers and MSM. It stated that only 54.4 percent of sex workers had been tested in the previous year for HIV, while 79.9 percent of MSM had been tested. (National AIDS Coordinating Agency 2014) The report concludes that due to the fact that no individual policies were put into place to protect and treat these key populations, interventions and policy adjustments are necessary for effecting change across the stigmatized groups. (National AIDS Coordinating Agency 2014) From 2012 to 2014, there has been no adjustment in legal standing from key human rights abuse concerns (2012) or the ability to access treatment (2014). (National AIDS Coordinating Agency 2014) A strategic plan is "under development" with no discernable timeline for change within national government policy for access to care. (National AIDS Coordinating Agency 2014)

An additional factor that effects and influences the isolation of these highly marginalized population is the cultural stigma associated with both living with HIV/AIDS and engaging in these behaviors. In Botswana, there is a distinct cultural stigma for those

living with HIV, and the resulting discrimination creates conditions for spreading HIV among both general and marginalized populations. Fear of being identified as sero-positive prevents individuals from learning their status, changing unsafe sexual behaviors, and caring for people who are positive. (Phaladze & Tlou 2006) This stigma and discrimination restricts access among the general population, and is compounded within marginalized populations due to the additional stigmas associated with said groups. In Botswana, it is not culturally acceptable to have same-sex sex, leading to an overwhelming denial of rights to this population. Similarly, sex workers engage in the behavior of the “bad woman,” and are often blamed for HIV/AIDs spread across the country through their promiscuity and “tainting of the good population.” (Phaladze & Tlou 2006) These citizens are often prevented from seeking out care due to the stigma associated with their behaviors; they consistently face isolation and social shunning if local populations discover the root of their sexual behaviors.

According to The Gap Report by UNAIDS, the effectiveness of mainstream HIV intervention programs has been called into question due to stagnant levels of access to condoms, lubricants, testing, and treatment for both sex workers and men who have sex with men in highly stigmatized, criminalized, and lower-income countries. (2014) These groups often have no other option for services in these countries, and are limited to seeking out potentially life-threatening situations in order to gain access to treatment or care. (UNAIDS 2014)

THE ISOLATED: WORDS FROM THE SUFFERERS

Working on the ground in Botswana provided me with a unique perspective and vantage point into their public healthcare intervention. I was able to see the viability of many aspects of the public-private partnerships that contributed to the significant drop in prevalence rates of HIV within the country. Whilst new annual HIV infections have declined by 71% between 2001 and 2011, key structural issues are undermining present HIV prevention efforts; as a result, the number of new HIV infections reported per year has barely declined in recent years. (Cohen 2008)

While in country, I was placed with human rights organization BONELA (Botswana Network on HIV, Ethics, and Law). A fairly influential group in the country, BONELA consistently fights for the marginalized and underrepresented, disregarding established cultural constructs of gender, sexuality, and HIV status. Policy and social norms regularly prevent this organization, and the groups it strives to help fight the epidemic in Botswana, from achieving results from prevention and treatment strategies touted by the government as essential for success.

During my time at BONELA, I worked with SISONKE, an organization that advocates for the rights of sex workers. Created for sex workers by sex workers, SISONKE endeavors to increase access to free ARV treatment provided by ACHAP and preventative care (condoms) by the government. The organization is not designed to persuade women out of their chosen profession, but support their choices and ensure equal access to care regardless of their criminalized status. Working for this organization also constitutes a criminalized activity; it is unable to operate independently of BONELA without constant fear of punitive charges. The legal implications of working with, and

for, sex workers create a significant hurdle in providing the care to this victimized group.

On my first day at Sisonke, my supervisor and former sex worker Tosh took me to visit three urban slums known for active sex-work communities: Tlokweng, Old Naledi, and Phase One. We went to discuss feasible goals and deliverables that the women wished to see from me during my internship; it also served as a venture into a cultural landscape completely unfamiliar to me. The slums encompassed five to seven square miles each, with the general dwelling occupying less than a 20 m² space. Building materials were mostly corrugated metal pieces, timbers, and tarps. There is no electricity or running water in Tlokweng and Old Naledi; infrastructure for proper sanitation is minimal at best. Phase One was comprised of cinderblock houses, some of which had electricity for minimal lights and televisions.

The driveway Tosh and I pulled into in Phase One was made of uneven dirt, a reddish brown substance that colored everything that touched it. Litter covered the ground as Tosh and I walked back to greet our focus group. Next to the doorway of a wall comprised of crumbling cinderblock was a small washbasin with murky brown water, a laundry board, and a small pile of clothes. I asked Tosh if this is how everything is washed here, and she explained to me that due to little running water in Phase One, most clothes were just scrubbed in the bucket and left to dry exposed to the dust-filled air. When I posed the question of creating a Malarial breeding ground, Tosh replied that it was only a concern during the worst months of summer, in which most water would be changed everyday. In the dead of winter, however, it was of minimal importance to change the clean water for clothes and linen washing. Many women used the same buckets for bathing first, partially soapy water and body oils tainting the water for

washing. Tosh emphasized that cups and glasses may even be washed in this water, potentially bringing three sources of cross contamination into the mix. The situational circumstance surrounding the most mundane aspects of living, or here, learning to live with the least, helps provide a greater understanding of the inherent limitations that many people face living in the slum districts.

Entering into a small one-room house in Phase One, we began a shuffle of proper seating arrangements acceptable for the twelve active sex workers attending our focus group. I was immediately instructed to take the largest, most comfortable looking seat as others sat on the floor. Invoking protest, I offered to give my chair to Tosh. She replied that I was an outsider, in every sense. White, university educated, and American, I was idealized by these women. Three would not make direct eye contact and many did not want to directly address me in the greetings. After going through this slightly uncomfortable cultural dance, Tosh began addressing the women in Setswana before switching over to English. I asked a group of 12 active sex workers what they needed from my organization. The responses, ranging from the extraordinary (a cure for HIV) to the simplistic (clean water), reflected the complex challenges prohibiting these women from realizing a successful lifestyle. Seemingly intangible for a minor NGO, I rephrased my question to what I could do to improve their standards of living on a more immediate timeline. Ndadi, Momi, and Moshane, sex workers for eight, six, and two years respectively, began a dialogue that was representative of the true problems afflicting the entire population of sex workers within country:

Ndadi: Can you change the laws? That is what we need most.

Me: No, I don't think I can, [pause] but I know others are trying to do this for

you.

Ndadi: We need the laws changed so I can get my medicines here. I am sick of going to South Africa [where the clinics give them] to get treatment.

Momi: I also do not want to get threatened with arrest every time I go to get condoms!

Me: They arrest you when you go to get condoms? Every time?

Momi: It depends on where you go. Most of the time, they do not even have condoms! Then we do not use condoms.

Ndadi: Men will pay [more] for that anyway.

Moshane: Why should we use condoms? It doesn't do anything anyway.

Me: Because it protects you from certain diseases.

Moshane: We already have the diseases. We cannot get condoms, we cannot get ARVs without papers, we can't get... we cannot go to the clinic without fear of getting arrested! Why should I protect others if I can't be helped? (personal interview, May 30, 2013)

The exchange between these women revealed a sense of isolation felt by those ostracized by policies preventing them from accessing care. This discussion also reveals two major public health effects afflicting those prevented from accessing the benefits of the public-private partnerships in Botswana; not only are these women prevented from saving their own lives through the idiosyncratic policies governing ARV and preventative care access, but they also perpetuate the spread of multiple diseases because they cannot access these care models. Additionally, as ACHAP begins its withdrawal and transitions the entirety of the program to the government of Botswana, there is a risk that sex workers and MSM

will lose any access to care they previously had. A third party no longer stands in the way of reporting cases of this criminalized behavior, further reducing incentives for either group to seek out care due to fear of retribution.

Approximately one month after the previous exchange, I was preparing to return to Phase One to meet with the women engaged with Sisonke to discuss some of my progress and deliver boxes of condoms. Acquiring the condoms was in of itself an arduous process; it took three separate visits to the Ministry of Health with two separate sponsors to acquire only five hundred condoms. Consistently given the run-around by the officials in the department, BONELA sent a representative with Tosh and I to put a little more muster in our requests. After filling out extensive paperwork to acquire the free boxes provided by ACHAP, Tosh explained that through these various stop-gates and red-tape maneuvers, the government was able to strictly control who could access to free condoms. By controlling the availability through required literacy and familiarity, the most at-risk groups continue to be victimized through the structural violence in play.

Arriving in the driveway of Moshane's home, she and four other sex workers from our previous session came to the car. Barely leaving the vehicle, one reminded me to take my bag from the backseat even if we were not going to enter the home. Tosh chided me for being too trusting, and too American. In an area ripe with petty theft, anything valuable "in a land of nothing" is quickly snatched, not out of thrill but out of necessity. I quickly understood that the value of my laptop far exceeded the value of the home into which I entered, and it allowed me to wonder if there was a financial correlation for these women and their chosen profession.

Tosh handed out condoms to the women in the room, quickly emptying the box

we spent weeks acquiring, and I struck up a conversation with Moshane. After explaining what I had been working on for the past month (grant writing for the organization to jumpstart additional programming across the country), I asked her what had happened in the previous month:

Moshane: Many of my friends this month were arrested

Me: For sex work?

Moshane: Yes, for sex work. And one for refusing sex work with a police officer.

Me: How common is that?

Tosh: Very common [in Setswana to Moshane]. Why did they take her?

Moshane: He [the officer] would not pay. She refused to go with him so he took her to jail. She was there for three days.

Me: Moshane, you do not have to answer me, but why do you do this when you know the risks?

Moshane: My mother was a sex worker, and now so am I. But I do not want to leave it.

Me: Why?

Moshane: I make good money. It is easy... men are easy to please with your body.

Two other women joined us at this point, Cynthia (she chose her name) and Dumana.

Cynthia: You can do it like this [imitates her favorite sex position]

Dumana: No, that is no good, you move like this [shows a different speed to the previous position]

Laughter echoes for a few minutes from all parties, and Moshane pokes my blushing

cheeks

Moshane: Liz, would you do our work? We can show you the best ways. Plus, men would like you here.

Tosh: No, of course not! She is white!

Me: I don't think I could do it... but it seems as if you like it.

Dumana: It is much better now [than before] because Tosh does not wish to change us.

Cynthia: I could never have another job. This makes me money quickly. Where else can you make money so quickly? It is what I do.

Moshane: It is what we do. (personal interview, June 29, 2013)

This conversation revealed that many of these women do not wish to leave their profession, as it is often inferred by outside organizing agencies. They exercise their own freedoms within their bodies, facing significant health and safety risks. By engaging with an organization that supports them in these decisions, rather than manipulates them, there exists a level of trust and camaraderie that isn't seen through regulatory programs. In a report by the Lancet, further evaluation of sex work programs shows that when sex workers are involved in the management of a safer sex or advocacy program, seroprevalence is more likely to stay the same or decrease within the engaged population. (Loff et al 2003: 1983) Loff discusses how it is important to increase social capital among sex workers, "allowing them to organise and lobby for better working conditions, would seem to be a more effective approach than creating new means of abuse, especially in environments prone to corruption." (2003: 1983) Sisonke is striving to engage with the community in this manner on the ground, but cannot effectively do so with the continued

stop-gates in place that would allow for an open, constructive dialogue with all parties involved. With minimal emphasis on promoting these programs, the government and the various PPPs are inhibiting the ability for marginalized groups to level the playing field of access to care and ostensibly, the ability to truly stem the sero-prevalence rates within these key groups.

THE ECONOMICS OF HIV IN BOTSWANA

While it is difficult to directly correlate the effects of HIV/AIDS on country-wide economics, key indicators of economic performance can be evaluated in comparison with affected sectors and subsequent markers. HIV has significant implications both macro-economically and micro-economically and in a country as hard-hit as Botswana, these compounded effects are clearly linked. Due to the extremely high levels of HIV in Botswana, in 2006 the government commissioned a study on the economic impact of HIV/AIDS in the country. While the data is limited in that it conforms to the regular reporting mechanisms of the country and does not segment for marginalized populations, it paints a descriptive picture of the economic outlook of Botswana with a very aggressive HIV/AIDS epidemic. It is important to note that the economic projections performed by the independent contractor draws upon data unavailable to the public as the government provided the data, with individualized research performed by the contractor. While it is important to acknowledge the limitations of a single set of data, Botswana is one of two countries with a detailed economic projection of the costs of HIV on country GDP for a long-term future of the epidemic. Comparisons of the government sponsored data available in the report and HIV statistics given by UNAIDS, demonstrate some similarities and allow for several conclusions to be drawn.

From a macroeconomic standpoint, HIV/AIDS considerably affects the size of the labor force, the availability of skills, and productivity (Ecoconsult Botswana 2006). As healthcare and health systems expand to combat and treat HIV, the diversion of resources to the healthcare sector has the ability to impact spending in other sectors that may be used to finance investments (Ecoconsult Botswana 2006). The report identifies two channels through which macroeconomic impact can be measured; rising morbidity and rising mortality. The conclusions are detailed below:

- Rising Morbidity Impacts:
 - Reduced productivity due to: worker's time off or sick leave, lower productivity at work due to illness;
 - Increased expenditures on: healthcare (all levels), training (to replace sick workers), sick pay (by firms and governments);
 - Reduced investment (public and private) due to: lower expected profits, increased economic uncertainty, diminished ability to finance investment due to lower savings;
- Rising Mortality Impacts:
 - Smaller population and labor force;
 - Changed age structure of the labor force, affecting skill, experience, and productivity;
 - Availability of skilled workers and labor force participation rates. (Ecoconsult Botswana 2006)

As this information indicates, rising morbidity and mortality has the ability to significantly impact factors that contribute to output GDP. By negatively affecting size,

skill structure, and productivity of the labor force, in conjunction with reducing the rate of investment and available capital, the report states that as long as AIDS is a serious health concern to the population it has the ability to negatively affect GDP growth.

(Ecoconsult Botswana 2006)

In order to accurately capture the macroeconomic impact of AIDS in Botswana, the report focused on long-term GDP growth and per capital real incomes. It simulated the economy through a 20-year period (2001-2021) with three scenarios that draw on the above-described impacts. (Ecoconsult Botswana 2006) Using three key scenarios of “no-AIDS” (AIDS is not present in the population), “AIDS with ART” (full ARV coverage in the population), and “AIDS without ART” (AIDS present in the population with no provided ARVs), the report was able to make projections on vital economic variables and GDP. (Ecoconsult Botswana 2006)

In looking at the size of the labor force, the model reveals that there is a large impact by HIV/AIDS. Assuming a consistent labor force participation rate, in 2021 the labor force would increase by 89 percent in the no-AIDS scenario, 61 percent in the AIDS-with-ART scenario, and 48 percent in the AIDS-without-ART scenario.

(Ecoconsult Botswana 2006) Additionally, there is a slight change in the age structure of the labor force for each scenario. In 2021, projections estimate that the average age would increase from 33 to 35 for no-AIDS and remain at 33 with AIDS in the population, shifting the labor force to a younger age structure. (Ecoconsult Botswana 2006)

In calculating the real-GDP shifts, between 2001 and 2021, the model predicts an average annual rate of 4.5 percent with no AIDS present in the population and 3.7 percent for AIDS-without-ART. (Ecoconsult Botswana 2006) GDP growth increases to 3.9

percent per annum when consistent ART coverage is introduced, and is reflective of a positive impact from increased participation by the labor force. (Ecoconsult Botswana 2006) Given these growth rates, in 2021, Botswana's GDP is 17.7 percent smaller with AIDS present and only 13.2 percent smaller with consistent ART coverage (Figure 3).

This model does not take into consideration labor force participation rates, variation in HIV/AIDS prevalence across skill categories, investment rate, productivity, and skilled labor force growth. In a supplementary analysis by Arndt & Lewis, each of the previously mentioned factors is incorporated into the real-GDP analysis. The changes to the parameters for input values are summarized in Table 1. (Ecoconsult Botswana 2006)

The alternative case, with affected parameters, reveals no change in the no-AIDS scenario as expected. The output for AIDS-without-ART shows an extremely low GDP growth rate of 2.5 percent per annum, while AIDS-with-ART shows a growth rate of 3.3 percent. Adjusted for 2021, the alternative case shows a GDP that is 34 percent smaller for AIDS-without-ART and only 23 percent smaller for AIDS-with-ART (Figure 4). (Ecoconsult Botswana 2006)

Through the analysis of the alternative case, it shows that HIV/AIDS has the ability to significantly reduce economic growth through its impact on investment, productivity, population, and the labor force. (Ecoconsult Botswana 2006) While consistent ART introduction raises the economic growth rate, the subsequent cost of ARV treatment for the entire population poses a substantial risk to growth. (Ecoconsult Botswana 2006) The largest factor in the reduction in growth as a result of HIV/AIDS is reduced capital stock, which contributes 48 percent to the fall in growth. (Ecoconsult

Botswana 2006)

A second economic category to observe in Botswana is the effect of HIV/AIDS on individual households. Affected households face increased expenditures and reduced income due to mortality and morbidity. (Ecoconsult Botswana 2006) HIV proportionately affects income level of a household with the introduction of the disease to that household; wealthier households may opt for private or insurance covered treatment, with additional out-of-pocket costs, while the poorest households must utilize state-provided care, with transportation and adjusted dietary costs. (Ecoconsult Botswana 2006) Additionally, HIV can affect overall income per household or income per household member. If an income-producing household member dies, overall income is reduced; if a non-income producing household member dies, per capita income increases for family members. (Ecoconsult Botswana 2006) In Botswana, funeral costs significantly add to the increased expenditures due to AIDS, and can further contribute to increased poverty in individual households. (Ecoconsult Botswana 2006)

Through the analysis of the above scenarios, a few key findings were revealed. If there was no worker replacement for a household with an AIDS death, household income falls by 45 percent, which raises the national poverty rate from the baseline at 33 percent to 36 percent. However, household income only falls by 15 percent and the national poverty rate only rises to 34 percent when ART treatment is introduced to these households. (Ecoconsult Botswana 2006) Thus the introduction of ART treatment into these households only mitigates the impact of HIV/AIDS by 1 percent overall. (Ecoconsult Botswana 2006) Households in the lowest quintile would experience a 36 percent decline in per capita income over a ten-year period due to HIV/AIDS, further

cementing their place in poverty. (Ecoconsult Botswana 2006)

A final, more impactful analysis surrounds the impact of HIV/AIDS on government spending and fiscal effects over the projected twenty-year analysis.

(Ecoconsult Botswana 2006) The largest expenditures of the government of Botswana to combat HIV are ART, Orphan Care, and Home Based Support. It is important to note that the government currently receives significant donor-based contributions to support its ARV provision program, with intensive structural support from the previously discussed public-private partnerships. (Ecoconsult Botswana 2006) These relationships make the programs fiscally achievable, and the report attempts to remove the residual effects of such contributions.

The report projected the impact the expenditures of HIV-related programs on overall GDP and government spending. The highest spending time period was projected to be from 2010 to 2012, in which costs will reach 8.8 percent of government spending and 3.5 percent of the GDP if ART is provided. (Ecoconsult Botswana 2006) Similarly, if ART is not provided, expenditures will be 7.8 percent overall government healthcare spending and 3.1 percent of the GDP. (Ecoconsult Botswana 2006) Therefore, even though the total cost of providing ART is considerable, the additional cost is offset by the potential incremental costs of not providing the treatment through additional healthcare spending and orphan care when these services are not provided. (Ecoconsult Botswana 2006)

The model does not take into account the fiscal support from donors, which amounted to US\$96 million for the duration of the estimates until 2021. (Ecoconsult Botswana 2006) Through the mandates of the donations, an overwhelming majority of

the funding will go towards ART provisions and prevention programming.

The incremental increase of government spending on ART will help unlock additional GDP throughout the life of the program and the fight against HIV/AIDS. As previously discussed, the additional GDP growth will result from a larger population and labor force that is more productive and healthier than estimated without ART provided by the government. (Ecoconsult Botswana 2006) This higher GDP with ART scenario generates additional revenues due to the more active, working population. (Ecoconsult Botswana 2006) The report estimates that the incremental revenues on the additional GDP, when net of other costs, will help cover the cost of the ART program (Figure 5).

Overall, the fiscal costs of HIV/AIDS are very high for Botswana, which has seen slowed government revenue growth due to a decrease in diamond production. In order for Botswana to successfully achieve their projected growth and surpass the epidemic in country, spending needs to be reallocated appropriately and strictly controlled. (Ecoconsult Botswana) The report emphasizes that the long-term sustainability of the program hangs on proper financing of the programs, with a watchful eye to prevent deficit financing. (Ecoconsult Botswana)

This analysis paints an undeniable picture of posterity if the Government of Botswana continues to provide ARV treatment to its citizens within current parameters. The report, however, does not address the need or overall effects of providing for all classes of citizens within Botswana. While difficult to project, the economic effect of providing treatment to MSM and sex workers, along with other marginalized groups that currently fall outside of the treatment spectrum, would most likely lead to a more healthful population and increase economic activity overall. It is likely that inpatient care

and associated expenditures would decrease, and the healthful labor population would continue to grow as the epidemic has an additional stop-gate to its spread. The importance of treating the entire population, including those previously left behind, can be inferred from interpreting the data at the no-ARV and ARV scenarios; a bleak outlook for one population (no-ARV) significantly affects the entire population, even when the outlook for most seems promising.

THE POTENTIAL IMPACT OF RECASTING SUSTAINABILITY IN BOTSWANA AND WORLDWIDE

The public-private partnerships in Botswana are considered models of excellence within the global health community in the fight against HIV/ AIDS. Botswana's characteristics appealed to international partnerships as a means to attain a potential foothold in the international public health world, identifying characteristics and implementing models regarded by the international community as essential for success. Through public-private partnerships, community organizations, and government involvement, Botswana has been able to create a significant reduction in reported HIV prevalence rates amongst the good citizens. Unique characteristics allowed Botswana to achieve its success. Independently, each arm of partnership would have achieved a fractional component of success in comparison to the total outcomes currently observed in the country. The situational factors, in combination with cooperation between various public and private entities, have fostered the development of a false sense of reality with respect to the potential for success of similar interventions.

When looking at Botswana as a case study for success of a lauded international program, the immediate reporting mechanisms that validate the actions of the government

and partners identify areas of improvement that each group has been able to overcome in comparison with other equally effected countries. Minimal reporting and undefined demographic specific plans for addressing the most at risk groups paints an incomplete picture of the epidemic within Botswana. Thirty years after the first reported case, Botswana has yet to create a holistic plan to address the most at risk groups for contracting HIV/AIDS. Given the cultural context of the country, with extreme stigma, discrimination, and antiquated legal precedents against these groups, the epidemic continues to disproportionately affect those that fall into these categories. The country is able to manipulate statistics, selectively report, and take advantage of programs that wish to show advanced outcomes given a “mostly developed” country in the HIV-ravaged Africa. The MASA program drew in donors and continued support by various developed countries and international donation programs by creating the idea of equal opportunity for complete treatment and ARV provisions. While admirable in theory, it is clear that the epidemic continues to ravage the untreated populations and cause a subsequent spread of HIV among the general population.

Botswana represents the “best of the worst”: it uses professed sustainable frameworks to proclaim success for most, while ignoring the lives of those who do not fulfill appropriate social constructs. From an international prevention mechanism viewpoint, the positive outcomes implore others to consider this same mechanism, without revealing the true presence and prevalence of disease within the country. The social constructs within Botswana prohibit these groups from accessing care that is seen as the right of the citizen, essentially categorizing said groups into non-citizen, unworthy categories. By both legally and socially preventing high-risk groups from accessing

treatment (ARVs) and prevention, the government is inhibiting itself from achieving its goals of prevalence reduction. Each group lacks the infrastructure and incentives to protect itself from spreading the disease; without access to care or a way to prevent spread, there remains no pathway for these groups to achieve these goals, rendering future efforts as futile. By criminalizing the activities of the two groups with the highest sero-prevalence rates, the government of Botswana is promoting the spread of the disease it strives to eradicate.

Economically, and socially, Botswana cannot continue to ignore the needs of these key groups. As previously discussed, the economic effect of HIV on the population, given the prevalence rate and overall effect on GDP, the labor force, and production of goods and services, the country is at risk of significantly effecting its overall position as one of the more developed countries in Africa. Diamond production is beginning to slow and the economy is at risk of stagnating and decreasing overall. The trickle down effect of leaving largely prevalent groups of HIV-infected individuals untreated will result in continued spread of the disease throughout the population and impact the economy at large. By preventing treatment for any individual, whether a “good” citizen or one who engages in criminalized activity, there remains an impact of the production power of a country. Untreated, either of these groups drain resources and impact the workforce’s ability to produce through spreading the disease and increasing the need for more treatment, utilizing secondary healthcare services, decreasing the size of the labor force, and reducing spending and increasing debt due to treatment and funeral costs. The selective withholding of life sustaining treatment to any segment of the population will

continue to have far reaching effects across the country, especially one with a relatively small population and limited sectors for economic growth.

Through the critical evaluation of Botswana's national ARV program and partnerships with ACHAP, PEPFAR, and universities, it can be seen that factors deemed necessary to create a sustainable program are not only harming certain segments of the population, but are also harming the country at large. The current policies around HIV treatment will never enable full eradication of the disease and thus subjects the country to an endless need for local and international resources. While this same form of negligence and ignorance may not be repeated in every long-term sustainable healthcare intervention mechanism, it identifies key concerns for the global public health community. As providers, organizations that are creating programs designed to integrate with local customs and government policy must consider the overarching health goals of the program and whether such goals are achievable given a particular country's situational factors. The public healthcare community would be remiss to disregard the rampant discrimination of high-risk individuals given the impact that has on disease eradication.

The AIDS epidemic is ever more an aggregation of multiple local epidemics. In order to successfully combat the devastating effects of HIV/AIDS on ravaged regions, healthcare interventions must bring services out of centralized health centers and to the populations who need it most. (Ecoconsult 2006) Increasing access of medication and services to combat stigma and discrimination is essential to fully combatting the HIV/AIDS epidemic for key populations. Placing an emphasis on appropriate technologies and social change programs that are relevant on a country-by-country basis would vastly increase the effectiveness of the money utilized to bring these programs to

those who need them, while potentially increasing adherence and decreasing overall costs. Within the current context of Botswana, however, the various plans of action do not include any of these provisions. Sustainability and integration is key for long-term success, but only when it addresses these factors. When sustainability and integration are negatively affecting the ability to combat localized epidemics, there is no potential end to the epidemic at large.

To be effective, HIV programs and services must be grounded in ubiquitous concepts of dignity and social justice. (WHO 2011) Prevention and treatment programs must be “implemented as part of an effective public health approach, even in countries where the marginalized are participating in illegal activities.” (WHO 2011) Simultaneously, work must be guided towards decriminalization. International donor programs must be separated from such limiting factors that prevent treatment of such groups. The negative effects of Botswana’s programs have been brought to light, and evidently explored. It is necessary to move toward equality and past the attractive draw of potentially reducing overall prevalence while fully ignoring those who need services the most. With such a morbid and highly infectious disease such as HIV, it is essential to move towards a more effective use of HIV funding and treatment programs. Sustainable programs may need to operate in difficult territory, clashing with the political norms that regulate countries and cultural beliefs. Respect for the bare life of a person and the possibility of eradicating the most deadly epidemic the world has ever seen, supersedes the need to completely adapt to preexisting geopolitical norms. Such programs do not need to be defined as “western” or developed, for they can take any form. It is imperative that, in order to eradicate HIV, those that reside on the margins are able to access care

and prevent the spread of the disease even further. These changes will be expensive, and long-drawn, but have the ability to truly eradicate HIV in countries with true epidemics and devastating effects.

Long-term sustainable public healthcare models that are to reduce overall prevalence rates must incorporate policies that allow equal access to care; this may or may not be feasible in countries with national policy that prevent such action. If long-term success can only truly be reached through integration and control of intervention mechanisms that promote isolation and therefore cause harm, overall outcomes and perhaps the current concept of sustainability are not the indicators of success necessary for global public health of today. Perhaps sustainability needs to be recast such that the focus of global health interventions reflect the challenges of achieving health outcomes in a community rather than the programmatic building blocks that support the strategy. Perhaps public and private partnerships as well as national governments need to focus on health as the goal regardless of the challenge such an approach may represent to social norms. Perhaps only then do we achieve sustainable cures for the world's most devastating diseases.

REFERENCES CITED

amfAR

- 2010 MSM and the Global HIV/AIDS Epidemic: Assessing PEPFAR and Looking Forward. Issue Brief. http://www.amfar.org/uploadedfiles/_amfarorg/Around_the_world/IBPepfar%281%29.pdf, accessed April 20, 2015.

Averting HIV and AIDS

- 2010 A History of HIV and AIDS in Africa. <http://www.avert.org/history-hiv-aids-africa.htm>, accessed December 15, 2014.

Barney, Robert J., Stephan Buckingham, Judith Friedrich, Lisa Johnson, Michael Robinson, and Bibhuti Sar

- 2010 The President's Emergency Plan for AIDS Relief: A Social Work Ethical Analysis and Recommendations. *Journal of Sociology & Social Welfare* 37(1): 9-11

Carael, M.

- 2006 Twenty years of intervention and controversy. *In* The HIV/AIDS epidemic in sub-Saharan Africa in a Historical Perspective. Phillipe Dennis and Charles Becker, eds. Senegal Network on "Law, Ethics, and Health". <http://rds.refer.sn/IMG/pdf/AIDSHISTORYALL.pdf>

Carswell, Wilson J., Lloyd Graham, and Julian Howells

- 1989 Prevalence of HIV-1 in East African Lorry Drivers. *AIDS* 3(11). http://journals.lww.com/aidsonline/Abstract/1989/11000/Prevalence_of_HIV_1_in_east_African_lorry_drivers.13.aspx.

Centers for Disease Control and Prevention

- 1997 1996 HIV/AIDS trends provide evidence of success in HIV prevention and treatment: AIDS deaths decline for the first time. CDC Press Summary.

Center for Health and Gender Equity

- 2011 Anti-Prostitution Pledge. PEPFAR Watch: The Global AIDS Relief Monitor.

Cohen, John

- 2008 Botswana's Success Comes at a Steep Cost. *Science* 321(5888): 526-529. <http://www.sciencemag.org/content/321/5888/526.full>, accessed May 2, 2014.

Deering, Kathleen N., Anvi Amin, Jean Shoveller, Ariel Nesbitt, Claudia Garcia Moreno, Putu Duff, Elena Argento, and Kate Shannon

- 2013 A Systematic Review of the Correlation of Violence Against Sex Workers. *American Journal of Public Health* 104(5): 42-54.

Dussault, Nicole

2008 PEPFAR's Violation of the Right to Health for Sex Workers. *The Journal of Global Health*.

Ecoconsult Botswana

2006 The Economic Impact of HIV/AIDS in Botswana. Report for National AIDS Coordinating Agency and United Nations Development Program.

http://www.gov.bw/Global/NACA%20Ministry/HIV_AIDS_Economic_Impact.pdf, accessed March 25, 2015.

Finzi, Diana, Monika Hermankova, Theodore Pierson, Lucy M. Carruth, Christopher Buck, Richard E. Chaisson, Thomas C. Quinn, Karen Chadwick, Joseph Margolick, Ronald Brookmeyer, Joel Gallant, Martin Markowitz, David D. Ho, Douglas D. Richman, and Robert F. Siliciano

1997 Identification of a Reservoir for HIV-1 in Patients on Highly Active Anti-Retroviral Therapy. *Science* 278(5341): 1295-1300.

Gillepsie, James J. and Max H. Bazerman

1997 Parasitic Integration: Win-Win Agreements Containing Losers. *Negotiation Journal*: 271-281.

Gilles, Pamela

1998 Effectiveness of Alliances and Partnerships for Health Promotion. *Health Promotion International* 13(2): 99-120. 10.1093/heapro/13.2.99, accessed May 2, 2013.

Government of Botswana

2014 National AIDS Coordinating Agency: Background.

<http://www.gov.bw/en/Ministries--Authorities/Ministries/State-President/National-AIDS-Coordinating-Agency-NACA1/About-NACA1/Background/>, accessed April 20, 2015.

Government of Botswana

2010 National Response and Partnerships.

http://www.hiv.gov.bw/sites/default/files/web_page_documents/National%20Response%20and%20Partnership%20downloads.pdf, accessed March 25, 2015.

Government of Botswana

Botswana: Penal Code. World Intellectual Property Organization.

http://www.wipo.int/wipolex/en/text.jsp?file_id=238601, accessed May 8, 2014.

Grundlingh, L.

1999 HIV/AIDS in south Africa: a case of failed responses because of stigmatization, discrimination and morality, 1983-1994. *Contree* (46): 55-81.

Henry J. Kaiser Family Foundation

2014 The U.S. President's Emergency Plan for AIDS Relief. Global Health Policy.

Hirschler, Ben

2001 Glaxo gives up rights to AIDS drugs in South Africa. Reuters. <http://ww1.aegis.org/news/re/2011/RE011009.html>

Hiza, P.R.

1988 International co-operation in the national AIDS control programme. *In* The global impact of AIDS: Proceedings of the First International Conference on the Global Impact of AIDS. Alan F. Fleming, Manuel Carballo, David W. FitzSimons, Michael R. Bailey, and Jonathan Mann, eds. New York:233-9. <http://www.popline.org/node/360057>, accessed December 15, 2014.

Horn, Tim

1998 Drug Resistance. *In* Encyclopedia of AIDS: A Social, Political, Cultural, and Scientific Record of the HIV Epidemic. Raymond A. Smith, ed. Pp. 70-72. Chicago: Fitzroy Dearborn Publishers.

Ilavetil, Ramiah and Michael R. Reich

2006 Building Effective Public-private Partnerships: Experiences And Lessons From The African Comprehensive HIV/AIDS Partnerships (ACHAP). *Social Science & Medicine* 63(2): 397-404.

Ilavetil, Ramiah and Michael R. Reich

2005 Public-Private Partnerships and Antiretroviral Drugs For HIV/AIDS: Lessons from Botswana. *Health Affairs* 24(2).

Iiffe, John

2006 *The African AIDS Epidemic: A History*. Oxford: James Currey.

Inrig, Stephen

2010 Book Review of *The African AIDS Epidemic: A History*. *Journal of Historical Medicine and Applied Sciences*. <http://jhmas.oxfordjournals.org/content/early/2010/07/28/jhmas.jrq047.full.pdf+html>, accessed March 25, 2015.

Loff, Bebe, Cheryl Overs, and Paula Longo

2003 Can health programmes lead to mistreatment of sex workers? *The Lancet, Health and Human Rights* 361: 1982-1983. [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(03\)13595-7.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(03)13595-7.pdf), accessed March 26, 2015.

- Jackson, Terrence and Frederik Claeys
 2011 "Conceptualizing The Cross-cultural Gaps In Managing International Aid: HIV/AIDS And TB Project Delivery In Southern Africa. *The International Journal of Health Planning and Management* 26(2): 194
- Kerrigan, Deana, Andrea Wirtz, Stefan Baral, Michele Decker, Laura Murray, Tonia Poteat, Carel Pretorius, Susan Sherman, Mike Sweat, Iris Semini, N'Della N'Jie, Anderson Stanciole, Jenny Butler, Sutayut Osornprasop, Robert Oelrichs, and Chris Beyrer
 2013 The Global HIV Epidemics among Sex Workers. The World Bank.
<http://www.worldbank.org/content/dam/Worldbank/document/GlobalHIVEpidemicsAmongSexWorkers.pdf>, accessed March 30, 2015.
- Kinney, Edi
 2006 Appropriations for Abolitionists Undermining Effects of the U.S. Mandatory Anti-Prostitution Pledge in the Fight against Human Trafficking and HIV/AIDS. *Berkeley Journal of Gender, Law, and Justice* 21:158.
- Manos, Negron T. and Tim Horn
 1998 Antiviral Drugs. *In* Encyclopedia of AIDS: A Social, Political, Cultural, and Scientific Record of the HIV Epidemic. Raymond A. Smith, ed. Pp. 70-72. Chicago: Fitzroy Dearborn Publishers.
- Maugh II, Thomas A.
 1996 Studies of Combined HIV Drugs Promising. *The Los Angeles Times*.
http://articles.latimes.com/1996-07-12/news/mn-23350_1_aids-drugs, accessed December 15, 2014.
- McNeil Jr., Donald G.
 2000 Companies to Cut Costs of AIDS Drugs for Poor Nations. *The New York Times*.
<http://www.nytimes.com/2000/05/12/world/companies-to-cut-cost-of-aids-drugs-for-poor-nations.html>, accessed December 15, 2014.
- Mortality and Morbidity Weekly Report
 1981 Kaposi's Sarcoma and Pneumocystis Pneumonia Among Homosexual Men. *Mortality and Morbidity Weekly Report* 30(25): 305-307.
- Moten, Asad, Daniel F. Schafer, and Elizabeth Montgomery
 2012 A prescription for health inequity: Building public health infrastructure in resource poor setting. *Journal of Global Public Health* 2(2).
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3529314/#_ffn_sectitle, accessed May 5 2014.

Motulsky, A. et al

1966 Population genetic studies in the Congo. I. Glucose-6-phosphate dehydrogenase deficiency, hemoglobin S, and malaria. *American Journal of Human Genetics* 18: 514-516.

National AIDS Coordinating Agency

2014 Botswana 2013 Global AIDS Response Report: Progress Report on the National Response to the 2011 Commitments on HIV and AIDS. UNAIDS.
http://www.unaids.org/sites/default/files/en/dataanalysis/knowyourresponse/countryprogressreports/2014countries/BWA_narrative_report_2014.pdf, accessed January 10, 2015.

Nolen, Stephanie

2007 *28 Stories of AIDS in Africa*. London: Portobello Books

Novartis

2014 Novartis Foundation symposium showcases sustainable healthcare interventions. Novartis. <http://hugin.info/134323/R/1873203/659645.pdf>, accessed April 25, 2015.

PEPFAR Technical Working Groups

2011 The President's Emergency Plan for AIDS relief: Technical Considerations. PEPFAR.

Phaladze, Nthabiseng, and Sheila Tlou.

2006 Gender and HIV/AIDS in Botswana: A Focus on Inequalities and Discrimination. *Gender and Development* 14(1): 23-35.
<http://www.jstor.org/stable/pdfplus/10.2307/20461113.pdf>, accessed May 7, 2014.

Piot, P., F.A. Plummer, M.A. Rey, E.N. Ngugi, C. Rouzioux, J.O. Ndinya-Achola, G. Veracauteren, L.J. D'Costa, M. Laga, and H. Nzani

1987 Retrospective seroepidemiology of AIDS virus infection in Nairobi populations. *Journal of Infectious Diseases* 155(6): 1108 – 1112.
<http://www.ncbi.nlm.nih.gov/pubmed/3471817>, accessed March 25, 2015.

Porter, K., A. Babiker, K. Bhaskaran, J. Darbyshire, P. Pezzotti, A.S. Walker, and CASCADE Collaboration

2003 Determinants of survival following HIV-1 seroconversion after the introduction of HAART. *The Lancet* 362(9392): 1262-1274.

Powell, Alvin

2009 Social pressure keeps African AIDS patients in treatment. *Harvard Gazette*.
<http://news.harvard.edu/gazette/story/2009/07/social-pressure-keeps-african-aids-patients-in-treatment/>, accessed March 25, 2015.

Sabatier, Renee

1988 AIDS and the Third World. London: Panos Publications.

Sample, Ian

2006 Hunt for origin of HIV pandemic ends at chimpanzee colony in Cameroon. The Guardian. <http://www.theguardian.com/world/2006/may/26/aids.topstories3>

Serwadda, D., N.K. Sewankambo, J.W. Carswell, A.C. Bayley, R.S. Tedder, R.A. Wiess, R.D. Mugerwa, A. Lwegaba, G.B. Kirya, R.G. Downing, S.A. Clayden, and A.G. Dagleish

1985 Slim disease: a new disease in Uganda and its association with HTLV-III infection. The Lancet 19(2): 849-852.

Shelton, James D., Daniel T. Halperin, Vinand Nantuluya, Helen D. Gayle, and King K. Holmes

2004 Partner reduction is crucial for balanced 'ABC approach to HIV prevention: An ABC Approach to HIV prevention. British Medical Journal 328(7): 891

Shernoff, Michael and Raymond A. Smith

2001 HIV Treatments: A History of Scientific Advancement. Body Positive.

Stash, Sharon, Jennifer Cooke, Matt Fisher, and Alisha Kamer

2012 Competing Pressure for PEPFAR in Botswana: Rising Ambitions, Declining Resources. Center for Strategic International Studies. http://csis.org/files/publication/121128_Stash_PEPFARBotswana_Web.pdf, accessed May 1, 2014.

Tumushabe, Joseph

2006 The Politics of HIV/AIDS in Uganda. United Nations Research Institute for Social Development. [http://www.unrisd.org/80256B3C005BCCF9/%28httpAuxPages%29/86CB69D103FCF94EC125723000380C60/\\$file/tumushabe-pp.pdf](http://www.unrisd.org/80256B3C005BCCF9/%28httpAuxPages%29/86CB69D103FCF94EC125723000380C60/$file/tumushabe-pp.pdf), accessed December 15, 2014.

UNAIDS

1999 Acting early to prevent AIDS: The case of Senegal. UNAIDS 34.

UNAIDS

1998 AIDS Epidemic Update. World Health Organization. http://data.unaids.org/Publications/IRC-pub06/epiupdate98_en.pdf, accessed March 25, 2015.

UNAIDS

2012 Country Progress Report: Botswana.
[http://www.unaids.org/sites/default/files/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce_BW_Narrative_Report\[1\].pdf](http://www.unaids.org/sites/default/files/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce_BW_Narrative_Report[1].pdf), accessed May 2, 2014.

UNAIDS

2013 Global Report: UNAIDS report on the global HIV/AIDS epidemic 2013. World Health Organization.
http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/epidemiology/2013/gr2013/UNAIDS_Global_Report_2013_en.pdf, accessed March 30, 2015.

UNAIDS

2014 The GAP Report. UNAIDS.
http://www.unaids.org/sites/default/files/media_asset/UNAIDS_Gap_report_en.pdf, accessed March 30, 2015.

U.S. Department of Health and Human Services

2015 What is HIV/AIDS? <https://www.aids.gov/hiv-aids-basics/hiv-aids-101/what-is-hiv-aids/index.html>, accessed April 24, 2015.

Wester, William C., Hermann Bussmann, John Koethe, Claire Moffat, Sten Vermund, Max Essex, and Richard G. Marlink

2009 Adult Combination Antiretroviral Therapy in Sub-Saharan Africa: Lessons From Botswana and Future Challenges. *HIV Therapy* 3(5).

The White House

2003 Fact Sheet: The President's Emergency Plan for AIDS Relief. <http://2001-2009.state.gov/p/af/rls/fs/17033.htm>, accessed January 13, 2015.

World Health Organization

1995 Global Program on AIDS, progress report 1992-1993.

World Health Organization

2006 Progress on Global Access to HIV Antiretroviral Therapy: A Report on 3 by 5 and Beyond. http://www.who.int/hiv/progreport2006_en.pdf?ua=1, accessed December 15, 2014.

World Health Organization

2008 Maximizing positive synergies between health systems and global health initiatives. Geneva.
www.who.int/healthsystems/MaximizingPositiveSynergies.pdf, accessed May 8, 2014.

TABLES

Table 1: Parameter weights utilized for Alternative Case Scenario GDP Calculations (Ecoconsult Botswana 2006)

Parameter	No AIDS	AIDS – with ART	AIDS – No ART
Labour force participation rate (LFPR), with AIDS, as percent of LFPR without AIDS	58%	58%	58%
Labour force HIV/AIDS prevalence rate (as % of overall prevalence rate)		100%	100%
Skilled labour force HIV/AIDS prevalence rate (as percent of overall LF prevalence rate).		66%	66%
Growth rate of skilled and unskilled labour forces (relative to overall growth rate of labour force).	0.75%	0.5%	0.25%
Productivity loss of workers with AIDS (percent of worker-equivalent per year).		15%	40%
Investment rate formal sector (percent of GDP)	25%	⇒23%	⇒22%
Investment rate – informal sector (percent of income)	10%	9%	8%
Annual growth rate in total factor productivity (TFP).	1.1%	0.9%	0.7%

FIGURES

Figure 1: International and domestic public spending on programs for sex workers in low-and middle-income countries, by region, latest available data as of 2013 (after UNAIDS 2014)

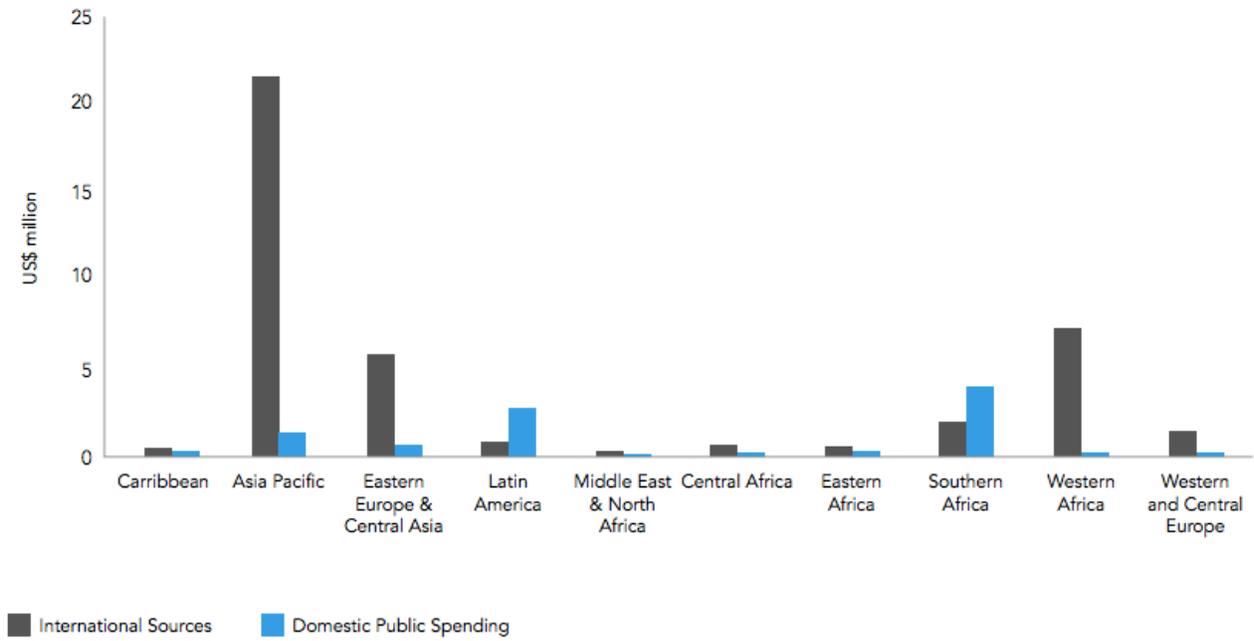


Figure 2: International and domestic public spending for programs for men who have sex with men in low- and middle-income countries, by region, latest data available from 2007-2012 (after UNAIDS 2014)

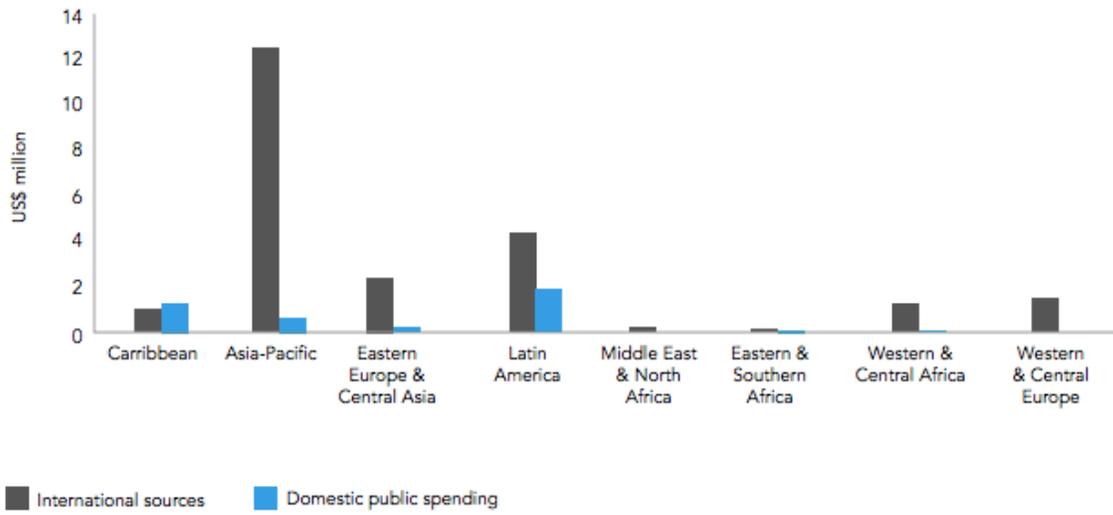


Figure 3: Base case real GDP Growth for Botswana (Econconsult Botswana 2006)

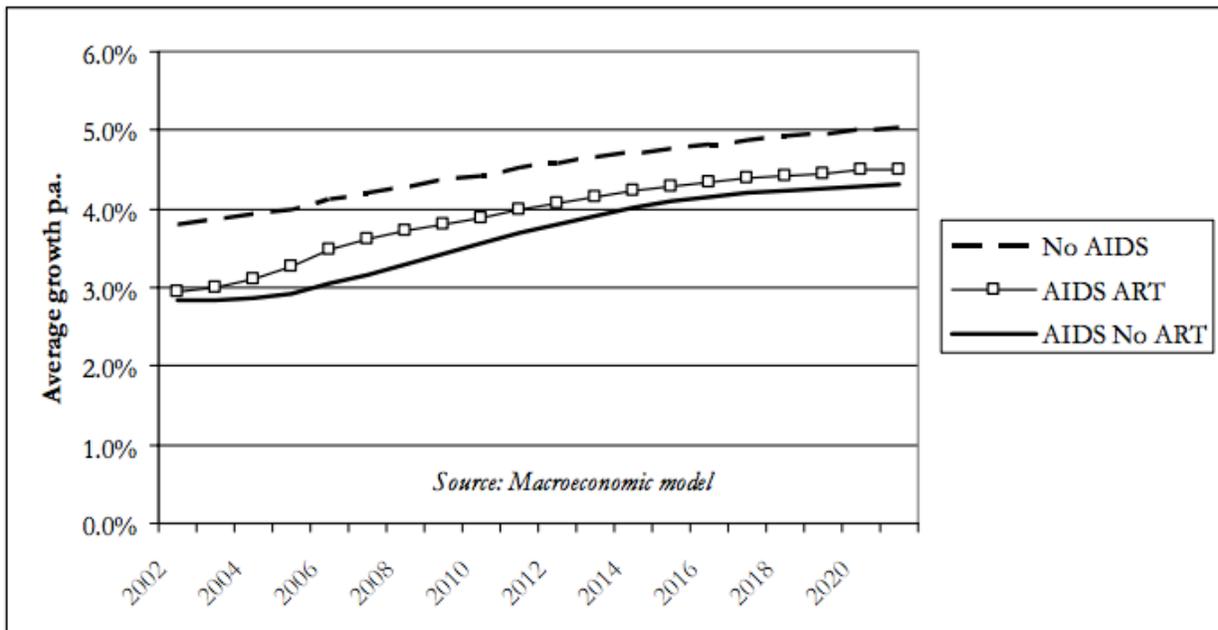


Figure 4: Alternative Case Real GDP Growth for Botswana (Ecoconsult Botswana 2006)

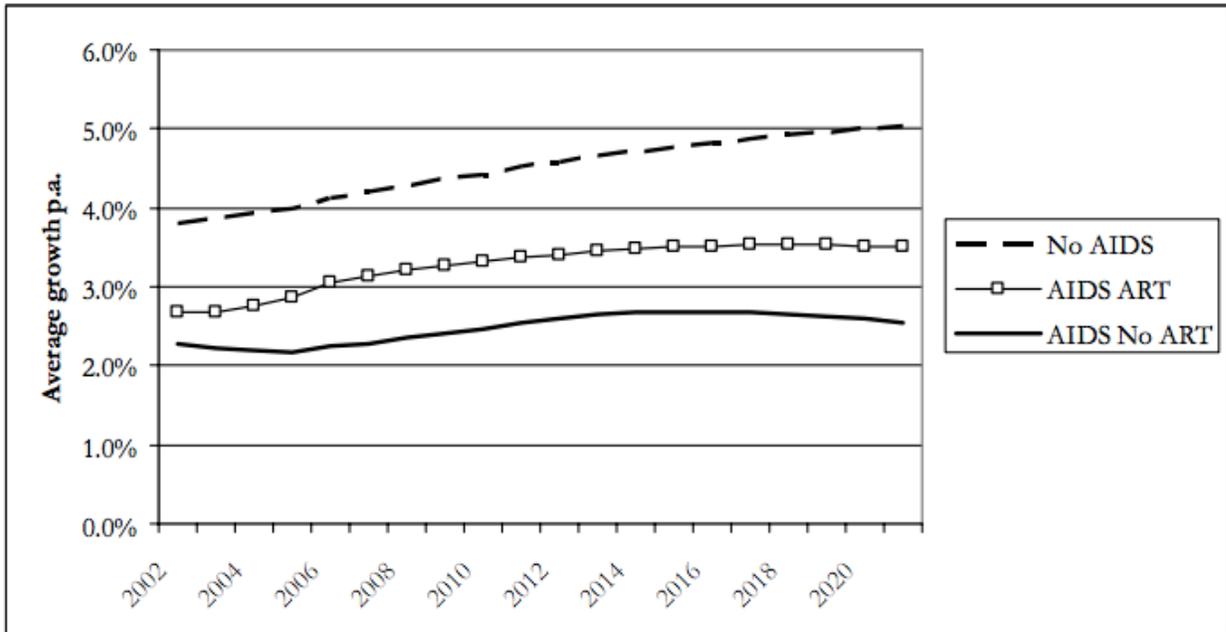


Figure 5: HIV/AIDS-related spending as percent of GDP and total Government Spending (Ecoconsult Botswana 2006)

