An Issue of Environmental Justice: Understanding the Relationship among HIV/AIDS Infection in Women, Water Distribution, and Global Investment in Rural Sub-Saharan Africa

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Abstract

This essay contributes to debates about the impact of HIV/AIDS on women of African descent by juxtaposing two challenges facing rural sub-Saharan African women today: HIV/AIDS and the water crisis. When analyzed in juxtaposition and in the specific context of rural sub-Saharan Africa, the HIV/AIDS and water crises represent an issue of environmental justice. The remediation of these two crises requires comprehension of the interrelations among the political history of sub-Saharan Africa. It requires an understanding of the policies driving global relief efforts that target rural sub-Saharan populations. And it requires insight into the socioeconomic needs of rural sub-Saharan African women as well as the cultural resources among this population that can be mobilized to help resolve the problem.

Documentation of the earliest cases of people infected with the human immunodeficiency virus (HIV) and dying from acquired immune deficiency syndrome (AIDS) began in the early 1980s.[1] Since that time, conversations about HIV/AIDS have evolved to address the cultural, social, and geopolitical ramifications of the disease, in addition to its evolution as a public health and biomedical pandemic.[2] Emphasis in these conversations has shifted from the effects of HIV/AIDS in primarily gay white male communities to the effects of the virus and disease on women of African descent. This shift can be explained in light of relevant facts. In 2007, the Joint United Nations Program on HIV/AIDS reported that 33.2 million people throughout the world are living with HIV. Two-thirds of these people reside in the sub-Saharan region of Africa.[3] Among those living with HIV in this region, 62 percent, or 14 million

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people, are women and adolescent girls. Among people living with HIV/AIDS worldwide, 70 percent are women of African descent.

The goal of this essay is to contribute to debates about the impact of HIV/AIDS on women of African descent by juxtaposing two challenges facing rural sub-Saharan African women today: HIV/AIDS and the water crisis. According to the Millennium Water Alliance (http://www.mwawater.org), a U.S.-based consortium of leading nongovernmental organizations (NGOs), approximately 1.1 billion people in the world's poorest countries lack access to safe drinking water and do not have adequate sanitation. In sub-Saharan Africa, lack of clean water exacerbates challenging conditions in education, economics, and health care that communities throughout the region have long endured. As I contend, when analyzed in juxtaposition and in the specific context of rural sub-Saharan Africa, the HIV/AIDS and water crises represent an issue of environmental justice. The remediation of these two crises requires comprehension of the interrelations among the political history of sub-Saharan Africa. It requires an understanding of the policies driving global relief efforts that target rural sub-Saharan populations. And it requires insight into the socioeconomic needs of rural sub-Saharan African women, as well as the cultural resources among this population that can be mobilized to help resolve the problem.

The first part of this essay characterizes the HIV/AIDS risk factors with which rural sub-Saharan African women contend today as extensions of the failures of environmental policies and regulatory schema put in place during sub-Saharan Africa's decolonization to promote the social and economic development of postcolonial African states.[4] Abrupt structural shifts in the economic base of subsistence agricultural communities resulted at once in the coerced removal of millions of indigenous African people from rural to urban centers and the increased isolation of people remaining in rural areas (Zulu et al. 2004).[5] These processes, coupled with insufficient governmental oversight over water distribution as well as deficient sanitary and health services in rural communities (Barlow and Clarke 2002; Debbané and Keil 2004; Klasen 2002; Melkert 2006; Ruether 1996), increase the vulnerability of women to a host of health problems, including HIV/AIDS infection.[6]

The second part of the essay analyzes these effects in juxtaposition with the development of a "pro-African trade movement" in the United States. This movement began with former President Bill Clinton signing into law the African Growth and Opportunity Act (AGOA) in May 2000. The movement culminated with current efforts by the Clinton Global Initiative, the Red Campaign, and other U.S.-based nonpartisan organizations with close ties to

U.S. industries to enhance resource allocation in sub-Saharan Africa so that cost-efficient medicine is more readily available for treating HIV/AIDS, thus bringing more infected women in rural sub-Saharan Africa into sustainable care.[7] For at least two reasons, I argue, these initiatives must also be framed in an environmental justice context. First, they are forms of intervention that highlight the complex array of stakeholders in the HIV/AIDS crisis. Second, unlike the majority of ecosystemic-affecting policies implemented during sub-Saharan Africa's colonial and postcolonial periods, these initiatives seek firm rooting in indigenous cultural values and social practices and, thus, aim to be more accountable to indigenous people (*The End of AIDS* 2006).[8] By extension, they point the way to the type of synergy among political, economic, humanitarian, and environmentalist interests that is necessary to build capacities to combat the disease in local and global contexts.

The third part of the essay briefly concludes by highlighting efforts currently underway in rural sub-Saharan Africa to address the HIV/AIDS epidemic and the water crisis. I conclude that framing the HIV/AIDS epidemic among women in rural sub-Saharan Africa as an issue of environmental justice can result in the coalescing of these efforts. This outcome would undoubtedly accelerate the remediation of both crises, while fostering stability and growth in rural sub-Saharan African communities.

"Because You Are Not a Bird"—and Other Reasons Why Rural Sub-Saharan African Women Are at Disproportionate Risk of HIV/AIDS Infection

Among the most powerful scenes in the critically acclaimed South African film *Yesterday* (2004) is its opening.[9] The film is organized around the conflict between the knowledge Yesterday, a young, illiterate Zulu mother, has that she will soon die from complications related to AIDS and her desire to see her seven-year-old daughter, Beauty, attend her first day of school. Even those who have not seen the film are likely to surmise that Yesterday is compelled to come to terms with the impact that her lack of a formal education has on her current situation, as well as the precariousness of physical isolation: from her husband, who contracts HIV while working in South Africa's diamond mines and unwittingly transmits it to his wife during one of his visits home; from healthcare authorities in the city, who diagnose Yesterday after the disease has advanced to an untreatable phase; and from a larger community wherein Yesterday's health status might subject her and her daughter to stigmatization, as she contemplates their futures.[10]

The central conceit of the film—the symbiotic relationship, on one hand, between space and time and, on the other hand, among actions, consequences, and expectations—is configured both in the allegorical naming of the film's protagonists and the establishing shot in the scene to which I am referring. A fusion of long and medium shots vests the vast natural landscape of Zululand, the setting with which the film opens, with a cluster of meanings. It is Ehlobo (summer). A slight, arid breeze courses through tufts of dead, isolated grass. Rocky, dry yellow plains—partially enclosed by a broken barbed-wire fence—flow seamlessly into red, presumably more fecund, yet barren, hillsides. The atmosphere is void of life but for the movement of two figures along a multi-S-shaped dirt road, who come into focus as the flow of shots pans the horizon. The figures are Yesterday and Beauty, and as their mutual slightness fully embodies the frame, their conversation becomes audible. Beauty asks Yesterday why she cannot fly like a bird. "Because you are not a bird. Because you are you," Yesterday responds.

The scene dissolves three times. First, into a frame that presents Yesterday and Beauty approaching a curve in the road. Second, into a frame that presents the two walking down a hill. And third, into a frame that presents Yesterday and Beauty arriving at their destination, a village at the center of which is a medical clinic. Beauty's desire to transform into a bird that can transport her and her mother to the clinic "quickly" so that they do "not have to walk so far" (*Yesterday* 2004) clarifies as the two file in a line of women and children that extends nearly to the point at which Yesterday and Beauty enter the village. Dissolve cinematically functions again to signify the hours that pass only for Yesterday and Beauty, along with dozens of other women and children still standing in line, to be told that they are not among the patients the doctor will be able to see and that they must return to the clinic a week later. The scene closes with Yesterday struggling to suppress a dry, guttural cough, an auditory corollary to the aridity and destitution of the expansive natural landscape she and Beauty earlier negotiate in their failed attempt to receive health care.

The sequence of events that comprise *Yesterday*'s opening scene provides an arresting visual framework for comprehending the complex routes that configure the water crisis and HIV/AIDS epidemic in rural sub-Saharan Africa as an issue of environmental justice. As Susan Craddock explains, "with the appropriation of arable land by white settlers, colonial control of agricultural production, and distribution of resources toward urban centers came the rural impoverishment and migration patterns currently playing a role in HIV transmission" (Craddock 2004, 13). The millions of HIV-positive sub-Saharan

African women embodied in Yesterday's characterization have both directly and indirectly been the subject of the foremost social science research and policy debates about the spread of HIV/AIDS throughout Africa. Of concern to scholars and advocates alike is the impact of colonization on indigenous land use and cultural practices (Vaughan 1991) and the resulting changes in sexual behaviors among African men and women, which place them at risk of infection (Akeroyd 2004, 89). In connecting the HIV/AIDS pandemic in sub-Saharan Africa to questions of natural-resource allocation, policymaking, and the risks and burdens assumed by indigenous people, critics and public health officials have written around, without ever formally naming, the HIV/AIDS pandemic as an issue of environmental justice.

To be sure, environmental issues have always been at the center of both biomedical and nonbiomedical HIV/AIDS discourse.[11] There is now general consensus, for example, that HIV/AIDS is an infectious disease that was transmitted to humans from either chimpanzees or sooty mangabeys of West and Central Africa. Changes in the agricultural practices of bushmeat traders, coupled with habitat destruction throughout West and Central African rainforests, facilitated the development of viral strains in the (nonhuman) primates to which humans have no immunity (Allan et al. 1991; Chen et al. 1996; Myers et al. 1992). More recently, Hank McKinnell Jr., CEO of Pfizer, the largest research-based pharmaceutical company in the world and producer of some of the most effective highly active anti-retroviral therapy drugs for treating HIV/AIDS, loosely connected the disease to questions of natural-resource distribution. He observed, "if we could cure AIDS with a clean glass of water, we could not deliver that cure to half the people in sub-Saharan Africa who need help" (*The End of AIDS* 2006).[12] Likewise alluding to the water crisis in sub-Saharan Africa, a team of epidemiologists found that because the "immune systems of HIV-positive individuals are prone to a wider range of illnesses and diseases," they have "greater requirement for potable water than uninfected individuals" (Obi et al. 2006; see also Ashton and Ramasha 2002; Stephenson and Randell 2003). In a U.S. context, the rise in HIV/AIDS cases among African Americans has been attributed in part to a lack of stable, safe, and affordable housing, which, public health authorities say, is needed to insure that infected populations have access to sustainable quality health care (Fullilove 2006).[13] Stabilizing housing within African American communities is an environmental issue, because it typically translates to expanding low-to-moderate-income housing development, which, in turn, calls for the removal of trees and other changes to natural landscapes (Blackwell 2004; Kenn 1995).

But to relate the origins of HIV/AIDS to the environment, or to address changes in the natural environment that can be made to enhance HIV/AIDS-infected people's access to sustainable care, does not necessarily bring the disease within the purview of environmental justice.[14] Environmental justice is both a theoretical and an activist framework that has two principal objectives: (1) exposing inequities in the distribution of natural resources among the economically disadvantaged and racial, ethnic, and national minorities and (2) meaningfully involving these groups in environmental policymaking, as well as in all phases of implementation, operation, and maintenance that impact their health and well-being.[15] To properly frame HIV/AIDS as an issue of environmental justice, express consideration must be given to the role that disparities in natural-resource distribution among minority and low-income populations play in transmitting HIV/AIDS within these groups. Consideration must also be given to the benefits that can extend from directly involving these groups in policies aimed at reallocating resources among them as a means both of treating and preventing HIV/AIDS. In the context of rural sub-Saharan Africa, understanding the HIV/AIDS crisis as an issue of environmental justice warrants consideration of policies that result in the inequitable distribution of clean water in this region, precisely because these policies place indigenous women at disproportionate risk of HIV/AIDS infection.

As I previously noted, although "AIDS affectedness" has been characterized as "a complex phenomenon that belies capture by a single indicator" (Murphy et al. 2005), women of African descent throughout the world are disproportionately afflicted by the disease.[16] "From New York to Nairobi," explains Dr. Zeda Rosenberg, CEO of the International Partnership for Microbicides, an anti-HIV vaginal gel currently in large-scale testing, women "bear the brunt of this epidemic, and they are most at risk for biological reasons, and they are at risk because of their lack of social and economic power" (*The End of AIDS*).

Data from Table 1 indicate that at least half of the HIV-infected population in all but four (Comoros, Madagascar, Mauritius, and Rwanda) of the forty-eight countries that comprise sub-Saharan Africa are women. In Guinea, nearly two-thirds of HIV-infected people are women. A number of factors extending both from Dr. Rosenberg's statement and the opening scene of *Yesterday* explains the particular vulnerabilities of rural sub-Saharan African women.

To begin, these women are most likely to suffer the effects of what Kevin Watkins, director and lead author of the *UN Human Development Report*, terms

Table 1. Sub-Saharan Africa HIV and AIDS Statistics

Country	People living with HIV	Adult (15-49) rate %	Women	Children	AIDS deaths	Orphans due to AIDS
Angola	320,000	3.7	170,000	35,000	30,000	160,000
Benin	87,000	1.8	45,000	9,800	9,600	62,000
Botswana	270,000	24.1	140,000	14,000	18,000	120,000
Burkina Faso	150,000	2.0	80,000	17,000	12,000	120,000
Burundi	150,000	3.3	79,000	20,000	13,000	120,000
Cameroon	510,000	5.4	290,000	43,000	46,000	240,000
Central African Republic	250,000	10.7	130,000	24,000	24,000	140,000
Chad	180,000	3.5	90,000	16,000	11,000	57,000
Comoros	<500	<0.1	<100	<100	<100	-
Congo	120,000	5.3	61,000	15,000	11,000	110,000
Côte d'Ivoire	750,000	7.1	400,000	74,000	65,000	450,000
Dem. Republic of Congo	1,000,000	3.2	520,000	120,000	90,000	680,000
Djibouti	15,000	3.1	8,400	1,200	1,200	5,700
Equatorial Guinea	8,900	3.2	4,700	<1,000	<1,000	4,600
Eritrea	59,000	2.4	31,000	6,600	5,600	36,000
Ethiopia	420,000–1,300,000	0.9-3.5	190,000–730,000	30,000–220,000	38,000–130,000	280,000–870,000
Gabon	60,000	7.9	33,000	3,900	4,700	20,000
Gambia	20,000	2.4	11,000	1,200	1,300	3,800
Ghana	320,000	2.3	180,000	25,000	29,000	170,000
Guinea	85,000	1.5	53,000	7,000	7,100	28,000
Guinea-Bissau	32,000	3.8	17,000	3,200	2,700	11,000
Kenya	1,300,000	6.1	740,000	150,000	140,000	1,100,000
Lesotho	270,000	23.2	150,000	18,000	23,000	97,000
Liberia	35,000	1.7	19,000	3,100	2,300	15,000
Madagascar	49,000	0.5	13,000	1,600	2,900	13,000
Malawi	940,000	14.1	500,000	91,000	78,000	550,000
Mali	130,000	1.7	66,000	16,000	11,000	94,000
Mauritania	12,000	0.7	6,300	1,100	<1,000	6,900
Mauritius	4,100	0.6	<1,000	–	<100	–
Mozambique	1,800,000	16.1	960,000	140,000	140,000	510,000
Namibia	230,000	19.6	130,000	17,000	17,000	85,000
Niger	79,000	1.1	42,000	8,900	7,600	46,000
Nigeria	2,900,000	3.9	1,600,000	240,000	220,000	930,000
Rwanda	190,000	3.1	91,000	27,000	21,000	210,000
Senegal	61,000	0.9	33,000	5,000	5,200	25,000
Sierra Leone	48,000	1.6	26,000	5,200	4,600	31,000
Somalia	44,000	0.9	23,000	4,500	4,100	23,000
South Africa	5,500,000	18.8	3,100,000	240,000	320,000	1,200,000
Swaziland	220,000	33.4	120,000	15,000	16,000	63,000
Togo	110,000	3.2	61,000	9,700	9,100	88,000
Uganda	1,000,000	6.7	520,000	110,000	91,000	1,000,000
United Rep. Of Tanzania	1,400,000	6.5	710,000	110,000	140,000	1,100,000
Zambia	1,100,000	17.0	570,000	130,000	98,000	710,000
Zimbabwe	1,700,000	20.1	890,000	160,000	180,000	1,100,000
Total sub-Saharan Africa	24,500,000	6.1	13,200,000	2,000,000	2,000,000	12,000,000

Source: Data is available at http://www.avert.org/subaadults.htm. AVERT (AVERTing HIV & AIDS), an international AIDS charity, completed this chart, which is based on data collected at the end of 2005. Statistics for Liberia are not included because available data was incomplete.

the "politics of scarcity" (Watkins et al. 2006), or the institutionalized public policy, investment, and resource-management decisions that restrict "access to the infrastructures that provide water for life and livelihood" (Watkins 2006b).[17] These restrictions do not universally apply. In Kenya, for example, where, because of HIV/AIDS, the current life-expectancy for women is forty-eight years (World Factbook 2007), the Royal Nairobi Golf Course "has sprinklers operating on a 12–hour-a-day basis," and, Watkins observes, "right next to the seventh green, you have [former Kenyan President Daniel] Arap Moi's house, which has a swimming pool and a very green lawn" (Watkins 2006b). Rather, the restrictions apply disproportionately, if not exclusively, to Africa's poor, the people lacking the wherewithal to organize politically and demand change. Policies governing these restrictions reflect varying legislative and judicial strategies that postcolonial African states began pursuing in the 1960s to concentrate economic power in the hands of indigenous African elites who replaced retreating European imperial admininstrators. As Native Ghanaian, Associate Professor of Economics at American University, and President of the Free Africa Foundation George Ayittey crudely puts it: "In [postcolonial] African pork-barrel politics, elite barracudas absconded with the bacon, leaving the people to starve" (Ayittey 2000, 591). And, I would add, to thirst.

There is no question that the illicit economic and political engineering that took place during Africa's period of decolonization to vest authority in African elites provides the proper context for comprehending the exigencies of sub-Saharan Africa's current water crisis.[18] Throughout this period, policies implemented under the guise of land reform made new land acquisition the near-exclusive domain of urban elites. As economist Sam Moyo explains, land-administration reforms during Africa's decolonization were supposed to operate "within a neoliberal conception of good governance, focusing on the decentrali[z]ation and democrati[z]ation of land institutions, to enhance land administrative efficiencies, broad based representativity of local structures of land control and civil society participation in land administration, within a framework of introducing formal and statutory law in the land management systems" (2002, 15–16).[19] Instead, he continues, land reforms became "critical sites of electoral political struggles," the ends of which enriched African elites and exacerbated the social, economic, and political plights of the continent's poor (4, 1). The rural poor suffered still more under new land-tenure regimes as "mismanagement of land resource, deforestation, soil erosion, and inappropriate land use" (Bashaw 2005, 4) led to persistant shortages in food production, famine, and insufficient access to other natural resources, such as water.

Today, most of rural sub-Saharan Africa continues to lack the infrastructural facilities and delivery systems needed for consistent, viable agricultural production. Most poor people operate in "totally privatized water markets" (Watkins 2006b) that are dominated by companies with direct links to Africa's heads of state and ministers. While it is true that open markets enabled some parts of sub-Saharan Africa to experience economic growth throughout the 1990s, the greater part of the region has witnessed a steady decline in its annual gross domestic product (McAuthur et al. 2004).[20] Five percent of this decline in rural regions directly extends from the diversion of women's labor away from agriculture while they spend many hours walking long distances to collect water (Watkins et al. 2006). In addition, the availability of water in areas that are not drought-prone remains closely monitored by the state.

Based on an assessment of available national- and microlevel household data, the authors of the *Human Development Report* were able to map grave disparities in water-connection rates among 20 percent of Ghana's richest and poorest households. At about 60 percent, Africa, on the whole, has one of the lowest water-connection rates among all developing regions (Watkins et al. 2006). In Ghana, however, the connection rate for the richest 20 percent is a little more than 85 percent, while the rate for the poorest 20 percent is not quite 10 percent (Watkins et al. 2006). In countries where poor residents have taken it upon themselves to intervene and tried to destroy the corporation-constructed blocks that prevent water from flowing into their homes, the government has responded by sending armed security guards to shut off the water (May 2000). Such results, as Benjamin Richardson has argued, indicate that "decolonization has tended to perpetuate imperialism," with "postcolonial elites readily consecrat[ing] colonial boundaries" and obfuscating "issues of substantive social and economic transformation" and development throughout sub-Saharan Africa (Richardson 2000, 6–7). To Ayittey, these results signify the need for radical reform in both the political and socioeconomic basis of African governance (Ayittey 2000, 589). To others, they signal a call to the world's richest nations to heed the effects of weak, corrupt, and failing African states on their most vulnerable constituencies (Rice 2006, 5–7).

The immediate effect of privatized market control of water is that millions of poor people throughout sub-Saharan Africa receive less than half the minimum amount of daily clean water required to meet their basic drinking, cooking, cleaning, and sanitation needs. Where access to clean water is severely restricted, poor people resort to using water in "ditches, rivers and lakes polluted with human or animal excrement or used by animals" (Wat-

kins et al. 2006, 5). In these areas, Watkins morbidly observes, "you can smell the sanitation crisis in the air. . . . Lacking any alternative, people defacate into plastic bags which are thrown into ditches. Raw sewage is everywhere. It is in the noxious black liquid that floods through people's homes when it rains, in the refuse heaps that children play in, and in the dusty lanes that pass for streets. It is also in the water that people drink" (Watkins 2006a). Every day, women in rural sub-Saharan Africa traverse the interconnected sociopolitical, economic, environmental, and public-health perimeters of sub-Saharan Africa's water crisis. Women are responsible for the agriculture and cultivation needed for their communities' daily food supply. "In most parts of Africa," avows one critic, "women consider farming for food as part of what makes them women and gives them a gender identity" (Gladwin et al. 2001, 178). In addition, cultural mores require women to bear both the physical and the socioeconomic burdens of locating and securing clean water. As Watkins explains, "Millions of women and young girls collect water for their families—a ritual that reinforces gender inequalities in employment and education. Meanwhile, the deficits in water and sanitation undermine productivity and growth, . . . trapping vulnerable households in cycles of poverty" (2006a, v).

Water scarcity and the gender inequality, unsanitary conditions, and cycles of poverty it perpetuates exacerbate the plights of rural women still more because, as Watkins notes, these women have little to no authority over the water they collect.[21] They "travel huge distances" but "lack the political voice needed to assert their claims to water" (2006a, vi). Disenfranchisement in this instance illuminates a third debilitating blow that restricted access to natural resources deals women in rural sub-Saharan Africa. The distances they travel to reach limited clean water multiply compromise their health, subjecting them to acute trauma, such as heat stroke and dehydration, and increasing their risk of exposure to chronic, life-threatening diseases, such as HIV/AIDS.

In their daily search for clean water, women in rural sub-Saharan Africa literally and symbolically walk the social, economic, and geographic paths along which, scholars argue, the HIV/AIDS epidemic can be mapped. In villages, where "conditions of migration and employment" create what Ezekiel Kalipeni et al. characterize as "a two-way flow of people that help facilitate the HIV/AIDS exchange" (2002, 60), they are likely to encounter men returning to their rural communities after working in the city. Anne Akeroyd classifies the type of work these men engage in as high-risk for HIV/AIDS exposure. As she explains, either "danger and accidents are integral" to the job and, thus, "expose workers to blood and to medical risks of transmission," or the

work forces men "to live in single-sex settings, either on a seasonal basis or because of local recruitment problems or industry policies" (Akeroyd 2002, 92–93). In the former capacity, which includes military service, mining and industrial jobs, road haulage, and other driving work, Akeroyd finds that "accidents are not uncommon" and, thus, "present dangers of exposure to blood and bodily fluids, or involve the need for blood transfusions, injections, or operations after accidents." In the latter capacity, such as fishing and mining, short- or long-term separation from "their families or regular sexual partners . . . expose[s] them to sexual opportunities and temptations" (92–93). In short, many of the men rural women encounter in their quest for clean water may have had an accident on the job or unprotected sex that exposed them to HIV/AIDS. These women may be these men's wives. Or, like commercial sex workers in the city, they may be motivated to proposition the men in exchange for money needed to purchase clean water. Whatever the case, their risk of exposure to HIV/AIDS is facilitated by their search for clean water.

To date, only a handful of scholars have explicitly correlated the water crisis in rural sub-Saharan Africa to incidences of HIV/AIDS among rural women.[22] The potential for misinterpretation of the causal link is, perhaps, high, especially given the abundant misinformation about HIV/AIDS's modes of transmission (Johnson et al. 1994). In addition, controlling for "considerable variation on the ground, in households, and in communities across space and over time" (Murphy et al. 2005, 265) has presented challenges even to the most rigorously conducted field studies of exogenous factors that have been extensively examined in relation to the disease, such as income, education, food production, nutrition, housing, and labor (Benki et al. 2005; Clover 2003; De Vogli 2005; De Waal and Tumushabe 2003; Mtika 2001). The United Nations Children's Fund maintains, however, that women's (and children's) "exposure to HIV/AIDS is principally caused by the lack of protection from human rights abuses" (1990). And the water crisis in sub-Saharan Africa is, without doubt, a human rights issue. If empirical research consistently demonstrates that "poor acess to basic human needs" such as "shelter, food, healthcare, and education" (De Vogli 2005, 107–108) increases one's chance of exposure to HIV/AIDS, then the water crisis in rural sub-Saharan Africa must also be framed as a factor discretely impacting women's vulnerability to HIV/AIDS infection. Accordingly framed, the junction between the water crisis in sub-Saharan Africa and the vulnerability of rural women to HIV/AIDS infection marks an issue of environmental justice. Thus, the water crisis has the potential to become a powerful capacity- and coalition-building tool

that can channel much-needed resources into HIV/AIDS awareness-raising, prevention, and treatment.

"We've Got to Create Markets": Practical Solutions to Global Crises

According to Figure 1, since 1996, funding for HIV/AIDS-related research and programming has exponentially increased, from $292 million in 1996 to over $8.2 billion in 2005. Yet, as the Joint United Nations Program on HIV/AIDS (UNAIDS), the most ambitious multinational force confronting global health crises today, recently reported, current funding for HIV/AIDS does not come close to meeting the need. In the years ahead, UNAIDS concludes, "needs will increase more rapidly than the money raised" (UNAIDS 1990). To compensate for this problem, UNAIDS has lobbied for the development of a comprehensive, international plan for generating and securing the availability of funds for HIV/AIDS research enhancement, treatment, and educational programming. Relatedly, during the 2006 global summit The End of AIDS, various stakeholders argued for the need to diversify the industry profile of HIV/AIDS so as to step up research, treatment, and prevention measures.

We need "massive investment in new tools and innovation so that we can actually get to" infected people, said Dr. Rowan Gillies, international president

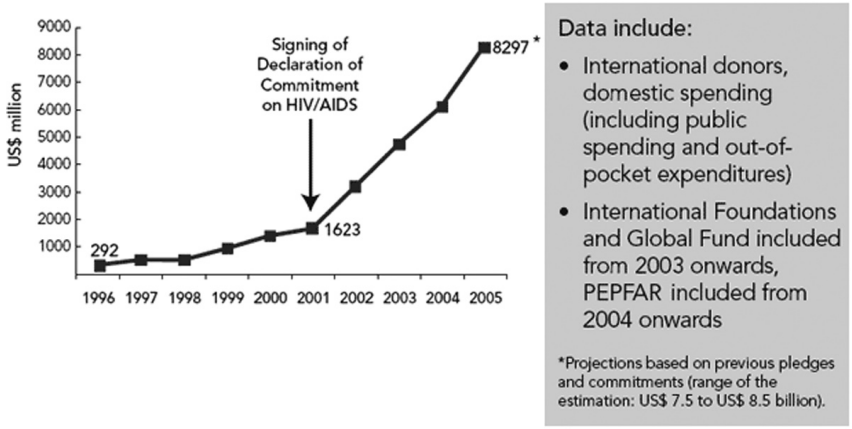

Figure 1. Estimated total annual resources available for AIDS, 1996–2005. This figure was produced by the Joint United Nations Program on HIV/AIDS, the United Nations-initiated global fund to fight AIDS and is available at http://www.greenfacts.org/en/aids/index.htm#5.

of Doctors Without Borders. What we need, said Thembi Ngubane, an HIV-infected South African Youth AIDS Activist, is "more education programs . . . and for those people who are infected to . . . have access to medication." We "need investment in distribution and the medical professionals [who] diagnose, monitor, and treat" the disease, maintained Pfizer CEO Hank McKinnell Jr. "We cannot keep up with the treatment needs, unless we also look at [HIV/AIDS] comprehensively and focus on prevention," said Helene Gayle, president of CARE. "We've got to create markets," declared former President Bill Clinton. Particularly in areas where there are no networks, "you have to have a real commitment to go out there not only to [provide] the medicine but to [provide] the awareness, the prevention, and then the network to provide care, which incidentally gives you benefits beyond AIDS" (*The End of AIDS* 2006). The ancillary benefits to which President Clinton alludes anticipate the socioeconomic advantages that are likely to inure to the benefit of the masses when local, state, and national governments, in addition to private industries and foundations, commit the resources needed to fight the disease. This is, perhaps, the sort of comprehensive effect President Clinton expected the United States to give impetus to in sub-Saharan Africa when he endorsed the African Growth and Opportunity Act (AGOA) in 2000.

A strategy for promoting economic development and political reform in sub-Saharan African countries, which, among other things, "significantly reduce[d] trade barriers to the U.S. market for goods imported from Africa," the AGOA, according to President Clinton, was supposed to provide for a "stronger, stable, prosperous Africa" (McCormick 2006, 359). Africa would then be to the United States "a better economic partner, a better partner for security and peace, and a better partner in the fight against drug trafficking, international crime, terrorism, the spread of disease and environmental degradation" (Clinton 1998). While the AGOA has recently come under attack for failing to address nontariff barriers to trade under U.S. and international trade law (McCormick 2006, 366–76), it seems to have provided the conceptual blueprint according to which a number of nonpartisan U.S. organizations, with close ties to U.S. industries, operates in fighting the HIV/AIDS crisis in sub-Saharan Africa.

Among these organizations are the Clinton Global Initiative, cosponsor of *The End of AIDS*, and the RED Campaign. In 2006, Gap, Inc., operator of some of the most-recognized name brands in the world, and a partner in the RED Campaign, selected a video produced by women residents of Nata, a Botswanan village of five thousand people, to include in its RED Campaign advertisements.[23] The video, titled *Village of Hope*, features a

Botswanan woman who, every morning, opens the Nata Clinic with singing. In Nata, nearly 50 percent of all pregnant women are HIV-positive.[24] The Nata Clinic provides these women and other infected villagers free antiretroviral therapy drugs, which, just a few years ago, were not available in Botswana. The efforts of organizations like the Clinton Global Initiative and the RED Campaign to raise the profile of HIV/AIDS have succeeded not only in channeling much-needed private funding into the country but also in convincing the Botswanan government to annually allocate $100 million dollars, half of the country's health budget, toward fighting the disease. Fixed spending of this order requires political commitments, which, in turn, affect policy. Such policies have broad-ranging health and economic benefits, as more HIV/AIDS-infected women receiving reliable treatment return to the Botswanan work force (Sachs et al. 2004).

Collaboration of the sort that exists between the RED Campaign and the Botswanan government is of crucial importance, also, because it provides a framework for affirming the conceptual and practical relevance of equitable resource distribution in countries with high rates of HIV/AIDS infection. At the outset, *Village of Hope* puts front and center the demographic priorities of the global fight against HIV/AIDS: an infected African woman, who, laboring through song, inspires and galvanizes a sick community composed primarily of African women and children. Her voice at once announces and symbolically endorses the goals of the clinic, reminding listeners (and potential investors) of the prerequisites needed for wide, successful implementation of HIV/AIDS medical and educational services in remote, indigenous African communities. As a widely respected medium within the community, her voice signifies, as well, a conduit through which innovative strategies for raising awareness about HIV/AIDS might flow.

Imagine, for example, this same woman singing, in one frame, to open the clinic and, in another frame, pausing to take a glass of water, and, in yet another frame, pausing before drinking the water; or, better still, turning an empty glass upside down. A caption or voice-over describing the relation between the HIV/AIDS and water crises would follow. With glass in hand, this woman would lend the sort of visual weight to the twin injustices of HIV/AIDS and water scarcity that Yesterday's dry, gutteral cough invests in the scene to which I earlier alluded. More importantly, it is an image that could encourage water distributors throughout the world to become active in fighting both crises, bringing much-needed relief to rural women in sub-Saharan Africa.

Old Conclusions, New Benefits: Seeing Women in Rural Sub-Saharan Africa as Agents of Change in the Water and HIV/AIDS Crises

The conceptualization of environmental justice came about some twenty-five years after the culmination of the U.S. Civil Rights Movement, the alleged progenitor of environmental justice as theorized and practiced today (Melosi 2000, 14). 2007 marked the twenty-fifth year since the naming of HIV/AIDS. If environmental justice historiography is a reliable indicator, the timing is ripe for the paradigmic shift this essay proposes. HIV/AIDS is an infectious disease transmitted through the exchange of bodily fluids—blood, semen, and breast milk—normally during sexual intercourse or intravenous drug injection, but also through pregnancy, breastfeeding, and blood transfusions, in parts of the developing world. Transmission of HIV/AIDS is influenced by factors that cannot be explained in a purely biomedical framework. Effectively responding to the epidemic has meant broadening the context within which it is understood, assessed, and remediated.

This essay has argued that, when properly framed, the HIV/AIDS epidemic, in both local and global contexts, emerges as an issue of environmental justice. In sub-Saharan Africa, the spread of HIV/AIDS is inextricably linked to policies put in place as European empires exited the continent and African elites rose to power throughout the 1960s and 1970s. As a result of these policies, one of the most unevenly distributed natural resources in sub-Saharan Africa is clean water. Rural women bear the greatest burden of this injustice, because they are responsible for securing clean water and insuring that everyone in their communities receives its benefits. Fulfilling this obligation economically and socially disadvantages women and makes them vulnerable to HIV/AIDS infection, among other health-care problems. Policies that explicitly provide for the equitable distribution of natural resources are needed to solve the broad-ranging public health, social, economic, and political problems that HIV/AIDS creates not only for women in rural sub-Saharan Africa but also for millions of other women throughout the world who lack the political authority to demand justice and accountability.

It is not a revolutionary idea to advocate, as this essay has done, giving due regard to the impact of environmental policymaking on the health and well-being of women in rural sub-Saharan Africa. Throughout rural sub-Saharan Africa today, many international and indigenous organizations are working to combat both the HIV/AIDS epidemic and the water crisis.

However, currently, these efforts run parallel to, rather than in coordination with, one another. Reframing HIV/AIDS as an issue of environmental justice brings into relief the interconnectedness of the epidemic and the water crisis. It also gives sharp relief to the need to coordinate efforts aimed at remedying both crises.

Both in theory and in praxis, environmental justice has historically sought related ends, exposing, among other things, the racial and class politics of the placement of toxic waste facilities and landfills in poor/minority communities; the interrelations among lead poisoning, mold inhalation, and poor children's cognition and predisposition to asthma; and the impact of prolonged exposure to pesticides on migrant field workers (Blodgett 2006; Emenius et al. 2004; Jacobs and Nevin 2006; Munn et al. 1985). For some time now, too, women's distinct contributions to defining and facilitating environmental justice around the globe have been critically affirmed (Bullard 1993; Verchick 1996). The discursive interstices that remain between environmental justice and HIV/AIDS demonstrate, however, that innovative thinking about how best to achieve the goals of environmental justice and end both the HIV/AIDS epidemic and global water crisis can never be out of order.

I want to conclude, therefore, by identifying important outcomes that can extend from framing HIV/AIDS as an issue of environmental justice. First, the imperatives giving rise to the environmental justice movement in the late 1970s amplify (Bullard and Johnson 2000), laying the foundation for innovative public- and private-sector engagement at the intersection between natural-resource distribution, HIV/AIDS, and black women's health. At this junction, an international plan for HIV/AIDS treatment and prevention can emerge. This plan would, by necessity, be anchored in well-defined strategies for interdisciplinary, multi-industry coalition-building around environmental policymaking that can mitigate the risk factors associated with women in both the United States and abroad.

Second, an international framework for affirming the agencies of women in monitoring progress in HIV/AIDS treatment and prevention can be established. Evidence shows that, when informed, women of color throughout the world are quick to organize and act in their own best interests as well as the best interests of their children, families, and larger communities. In fact, in sub-Saharan Africa, most indigenous organizations committed to fighting HIV/AIDS were founded by African women and are led by African women. The African Women's Development Fund (AWDF) and Women Fighting AIDS in Kenya (WOFAK), for example, are NGOs that target women and girls who

either are HIV-positive or are at risk of infection. WOFAK's mission is to equip African women and girls with the knowledge and resources needed to make healthy eating and lifestyle choices so as to improve the quality of their lives, if they are living with AIDS, or to prevent them from becoming infected. The organization operates by training female "community leaders," whose roles are much like that of the songstress in *Village of Hope*, in that they provide direct instruction, counseling, and care to other women and children in their communities who are affected by HIV/AIDS. Like WOFAK, the AWDF works to prevent and treat HIV/AIDS among women and children. The AWDF does this by channeling financial resources directly into local, national, and regional organizations in Africa that are both led by African women and promote the social, economic, and political equality of African women. In *The End of AIDS*, CNN Correspondent Jeff Koinage reported that "each week, more than five hundred HIV-positive mothers and their children" go to Botswana's Baylor's Children's Clinic "for their check-ups and free" antiretroviral therapy drugs. These numbers project an image of women in search of health care that compares with the long lines of women and children dramatized in *Yesterday* and the communities of women served and empowered by WOFAK and the AWDF. Collectively, these images paint a picture of sub-Saharan African women's concern for their own and their children's well-being. Botswana Minister of Health Sheila Tchlou best captures the apparent sentiment driving these women: "it is at [the] individual level to say [HIV/AIDS] is a problem for myself. This is a problem for my family, for my community, for my society, and I'm going to insure that I prevent HIV" (*The End of AIDS*). Providing women in rural sub-Saharan Africa with the knowledge and resources needed to connect their daily struggles with HIV/AIDS to the politics of water scarcity equips them to fight both injustices in their communities.

Finally, strategies for expanding the HIV/AIDS research arena to accommodate the need for sustained contact with women in communities and households throughout rural sub-Saharan Africa can be developed. Such contact strengthens rapport and encourages reciprocity between international and indigenous relief efforts. Reciprocity provides for the acquisition of specific, relevant insight into local standards of communication and care so that necessary adjustments in HIV/AIDS prevention and treatment programming can be made. Reciprocity also encourages larger appreciation of, and participation in, the strategic planning that must take place at local, national, and global levels to funnel water and many other vital resources into these women's communities.

Endnotes

1. The human immunodeficiency virus, or HIV, is a retrovirus, a single-stranded RNA virus that produces reverse transcriptase by means of which DNA is produced and replicated. Upon replication, HIV infects and destroys helper T cells of the immune system. The marked reduction in the number of T cells is diagnostic of Acquired Immune Deficiency Syndrome, or AIDS.

2. Biomedical and public-health literature on HIV/AIDS is too vast to cite, as it dates back to the early 1980s, when medical and public-health authorities had not yet named the disease. The body of literature on the disease's cultural, social, and geopolitical ramifications is also large, although studies that place the disease in nonscientific contexts did not begin to emerge until the early 1990s. Representative examples of early nonscientific research on HIV/AIDS would be Treichler (1992, 1999), Singer et al. (1997); and Catalán et al. (1997). More recent examples include Trickett and Pequegnat (2005), Gibney et al. (2006), and Rodlach (2006). Of course, the bottom line about HIV/AIDS is that anyone, anywhere who engages in unprotected sex or injects drugs with a needle runs the risk of contracting the disease. In parts of the developing world, some people still run the risk of infection when receiving blood transfusions, and many mothers continue to infect their children during pregnancy or breastfeeding. The point of this essay and other research on HIV/AIDS that extends beyond "purely" biomedical frameworks, however, is to demonstrate how and why some people are at greater risk of infection than others.

3. The presentation of sub-Saharan Africa as a discrete geographical entity in this essay is not intended to deny that the area consists of a diverse range of people and cultures both within and between the forty-two continental and six island nations that comprise the region. In addition, it must be duly noted that each country in sub-Saharan Africa had distinct colonial experiences and that the impact of the HIV/AIDS epidemic throughout the region has not been uniform. In comparison with eastern and southern regions, West Africa has relatively low HIV/AIDS rates (Oppong and Agyei-Mensah 2004). Nonetheless, as Gordon points out, "there are enough similarities in the African colonial and postcolonial experiences to support some generalizations" (1999, 534), and Oppong and Agyei-Mensah agree with the central premise of this essay, which links patterns of HIV/AIDS infection throughout sub-Saharan Africa to what they describe as "the spatial distribution of vulnerable social groups and societal restructuring through gender-segregated labor migration," a process that places west African women and children at disproportionate risk of infection (2004, 70). This essay focuses on the disease's impact on women of sub-Saharan Africa; its proposed strategies for intervention can also benefit infected and at-risk men and children throughout the region.

4. This essay contributes to the large body of scholarship on the impact of HIV/AIDS among rural sub-Saharan African women by directly connecting questions of natural-resource distribution and environmental justice to disproportionate rates of infection among indigenous women. The majority of scholarship on women and HIV/AIDS in rural sub-Saharan Africa has focused on the disproportionate burdens women assume as primary caretakers of infected family members and orphaned children. See, for example, Piwoz and Bentley (2005).

5. Subsistence agriculture is a method of farming that produces enough food for day-to-day living and yields little to no surplus. This method is most prevalent in regions with

limited to no irrigation infrastructure, such as sub-Saharan Africa. The success of this type of farming depends almost exclusively on stable rainfall patterns during the growing season (Verhagen et al. 2004). See also Lyons (2004, 176–79), where the impact of capitalism on sexual networking patterns within and between East African rural communities is discussed.

The paradox of disproportionately high rates of infection within urban East African communities, where most people have advanced knowledge about the modes of HIV/AIDS transmission, is discussed in Zulu et al. (2004, 169–73).

6. Malaria and tuberculosis (TB) remain the most pervasive diseases in sub-Saharan Africa, despite the availability of inexpensive, highly effective drugs to treat them. Every year, nearly two million people in the developing world die of TB and more than one million die from malaria. See *The Global Fund Annual Report* (2005).

7. The Clinton Global Initiative is "a non-partisan project of the William J. Clinton Foundation." See http://www.clintonglobalinitiative.org/NETCOMMUNITY/Page.aspx?&pid=346&srcid=346.

The RED Campaign is "a business model" collaborative among American Express, Apple, The Gap, Motorola, Emporio-Armani, Converse, and the Global Fund that underwrites the distribution of highly active antiretroviral drugs among people with HIV/AIDS in sub-Saharan Africa. The RED manifesto is available at http://www.joinred.com/manifesto.asp.

8. Among the most important strategies for addressing HIV/AIDS that respondents in *The End of AIDS* identified was tailoring interventionist programming to the cultural needs of targeted regions and individuals. As President Clinton succinctly put it, "I think we should let each country's culture define what we do in the area of prevention."

9. *Yesterday* (2004) was written and directed by Darrell James Roodt, the South African writer/director perhaps best known for directing *Sarafina!* (1992) and *Cry, The Beloved Country* (2003). *Yesterday* was an official selection for the 2004 Toronto International Film Festival and the 2004 London Film Festival. It was nominated for a 2004 Academy Award for Best Foreign Language Film and a 2005 Independent Spirit Award for Best Foreign Film. It received the 2004 Human Rights Film Award at the Venice Film Festival.

10. Stigma and HIV/AIDS has been given wide critical attention. Notable works include Schoepf (2004); Kohi et al. (2006); Wynia (2006); and Jewkes (2006). In *The End of AIDS*, Billy Roedy, the vice chairman of MTV Networks, said that "stigma is really the insidious part of" HIV/AIDS and "we have to find a way to crack it. We haven't cracked it yet." President Clinton stressed the importance of understanding the stigmatization process as a means of remedying the threat HIV/AIDS-infected individuals perceive stigma poses to them: "If I stigmatize you for any reason, . . . it's about me not you. Stigma is never about the people who are afflicted with HIV and AIDS; it's about the fears of other people."

11. See Barany et al. (2001, 2004); Okoth and Ogola (2002); Ogola et al. (2000). We now know that HIV/AIDS cannot be transmitted via wastewater. However, in the early years of HIV/AIDS-related research, much critical attention was given to exploring this possibility. See, for example, Johnson et al. (1994). In addition, studies have shown that the already-damaged immune systems of HIV/AIDS infected people are further comprised when exposed to toxic water (Obi et al. 2006).

12. *The End of AIDS: A Global Summit with President Bill* addressed the most-effective strategies for ending the HIV/AIDS crisis among an audience that included CNN medical correspondent Dr. Sanjay Gupta; former President Clinton; representatives from the

pharmaceutical industry, entertainment industry, mainstream media, and faith-based and not-for-profit organizations; and HIV/AIDS-infected people. McKinnell offered this comment in responding to Gupta's query about the quality of life for a person currently living with HIV/AIDS.

13. The Centers for Disease Control and Prevention reports that between 1985 and 2004, the most recent year for which national surveillance data is available, AIDS cases among African Americans increased from 25 to 49 percent of all AIDS cases in the United States.

14. This point is worth noting given the vast number of nongovernmental organizations dedicated to promoting HIV/AIDS awareness and prevention and providing affordable treatment to racial minorities and the economically disadvantaged, including the African AIDS Initiative International (http://dubois.fas.harvard.edu/research_projects/African_aids_initiative.html), the National Minority AIDS Council (http://www.nmac.org), and the Black AIDS Institute (http://www.blackaids.org).

15. For the history of the environmental justice movement in the United States, see U.S. EPA, "Basic Information: Background"; Bullard and Johnson (2000); Kibert (2001); Melosi (2000); and McGurty (1997). For notable early studies of environmental injustice, see Cole (1992) and Bullard (1994). For the principal legal underpinnings of U.S. environmental justice, see Title VI of the Civil Rights Act of 1964, which says that "no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance"; The Civil Rights Restoration Act of 1987, which amended Title VI to mandate that recipients of federal aid comply with Title VI's nondiscriminatory requirements in all activities, not just those directly supported by the federal government; and Executive Order No. 12898, which President Clinton signed into law in 1994, identifying environmental justice as a national policy applicable to low-income majority and minority populations. The National Environmental Policy Act (NEPA) is also an important law to understand in the context of environmental justice, because NEPA requires federal agencies engaging in activities that significantly affect the quality of the human environment to formally assess the environmental impact of these activities (see http://www.epa.gov/compliance/nepa/index.html). For insight into environmental justice movements and developments in an international context, see McDonald (2002); GlobalAware Independent Media; and Thompson (2004).

16. Indeed, the CDC maintains that women with HIV may soon outnumber men with HIV, if new HIV infections continue at their current rate worldwide. See *HIV/AIDS and Women*, available at http://www.cdc.gov/hiv/topics/women/print/affecting.htm.

17. The water crisis that Watkins et al., describe affects most of the developing world. This essay focuses on its particular impact on sub-Saharan Africa, where, according to Watkins et al., "coverage rates are lowest" (2006, 5).

18. Although a discussion of this phenomenon falls outside the scope of this essay, I would be remiss if I did not note that these illicit activities also account for the genocide taking place throughout the continent of Africa today.

19. Moyo is among a large number of critics who have addressed the impact of Africa's decolonization on land policies. Extensive scholarly attention has also been given to the period of Africa's so-called economic liberalization during the 1990s. This process, largely influenced by World Bank/International Monetary Fund policies, sought mostly to reform

the management of Africa's land-tenure systems, encouraging African governments to open their markets to provide both sureties to small farmers and opportunities for foreign investors to acquire title to land in Africa. See Madavo and Sarbib (1997) and Yoshida (2002).

20. McAuthur et al. point out that the growth that certain regions of Africa experienced during the 1990s actually reflected a zero sum gain, because the "growth recovered ground lost during the 1980s" (2004, 117).

21. Considerable scholarly attention has been devoted to assessing the effects of gender inequality in sub-Saharan rural and urban settings on women's knowledge of the modes of transmission of HIV/AIDS and sense of sexual authority. Results are mixed, with some critics finding women in rural areas less knowledgeable about HIV/AIDS and sexually subservient to men and urban women highly informed about HIV/AIDS and sexually autonomous. See, for example, Susser and Stein (2002, 142–43). Other studies have found rural and urban women equally stymied by structural and cultural inequalities between the sexes. See, for example, Norr et al. (2004).

22. Throughout the *Human Development Report*, Watkins et al. (2006) correlate the global water crisis to the HIV/AIDS pandemic. As previously noted, allusions to the water crisis in sub-Saharan Africa are made in *The End of AIDS*. And Obi et al. (2006) directly link the two crises without naming their correlation an issue of environmental justice.

23. The brands are Gap, Banana Republic, Old Navy, Forth and Towne, and Piperlime. See generally http://www.gapinc.com/public/About/about.shtml.

24. Statistics available at The Nata Village Blog, http://natavillage.typepad.com/my_weblog/2006/03/about_nata.html.

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