Justice Africa

1C Leroy House, 436 Essex Road
London N1 3QP, UK
www.justiceafrica.org
email: ja@justiceafrica.org
tel: +44 (0) 207 354 8400

Concept Note

HIV/AIDS as a Societal Systems Challenge

This is an overview concept note for the seminar on the HIV/AIDS epidemic as a societal systems challenge. It assesses the characteristics of HIV that make it a special threat to human society, analyses how a high-prevalence generalized and protracted HIV/AIDS epidemic threatens the social fabric of a poor country, examines what is being done now, and asks what might be done differently and how.

1. Introduction: An Example of a Systems Approach

Many governments and international organizations speak of 'fighting' AIDS. However, the metaphor and model of a 'war on AIDS' is rather more challenging than simply the task of mobilizing human and financial resources. Successfully fighting a war is an intellectual activity as well as a material one, beginning with defining the enemy and the nature of the conflict. If we are to take the metaphor—and indeed the task—with the seriousness it deserves, we need to ask ourselves what it means to 'fight a war against AIDS.' We can take as a guide the thinking of the army officers, former guerrilla fighters, who began the Ethiopian Defense Force's AIDS program in 1996.

Confronted with the threat of an AIDS epidemic in the ranks, the army command asked themselves, what sort of an enemy is HIV? What sort of war are we going to fight? What is the enemy likely to do to frustrate our activities? In short, without theorizing it, they analyzed the HIV/AIDS epidemic in the same way that they analyzed the challenges

One of the first insights was that if we are to conceive as AIDS policy as a 'war', it is a guerrilla war. HIV is not an external enemy across the border, but rather an invader that has already overrun the national territory, which requires a 'people's war' to resist and ultimately expel it. A second insight is that war is the continuation of politics by other means, which means—as in a liberation war—designing a strategy for political mobilization first, and making military organization and operations ancillary to that. Hence, 'waging war on AIDS' is not just a matter of deploying human and material resources and making speeches calling for effort and sacrifice, but is a systems change.

In the case of the Ethiopian army, this entailed several unconventional actions. One of these was convening discussion and assessment groups at all levels of the military command, to analyze the threat and deliberate on responses. Another was making all

Alex de Waal is a Director of Justice Africa and a fellow of the Global Equity Initiative, Harvard University

soldiers responsible for the actions of their immediate peers, specifically in ensuring that they practiced safer sex when going together on rest and recreation. A third, following on from the political mobilization analysis, was an implicit categorization of the target population into the 'leaders' (to be worked with), the 'masses' (to be encouraged, but who can be expected to follow the leaders) and the 'spoilers', to be coerced if necessary (armies do not shirk using measures that human rights activists might find unacceptable). The program is widely regarded as successful. Our basic point is not to argue that it should be replicated, but to emphasize that this AIDS program, at least in its early manifestations, drew inspiration from an internal model that was close to complex systems management, rather than conventional AIDS responses. It is precisely this kind of approach that needs to be considered if we are to move to new methods for 'fighting' AIDS.

2. The HIV/AIDS Endemic as a Systems Change

There are several ways of analyzing the HIV/AIDS epidemic as a systems challenge. This briefing paper will suggest three:

1. The advent of HIV/AIDS can be analyzed in an ecological framework. This draws attention to the scale of the shift in the human-viral ecology, and the co-evolution of HIV and certain social forms and processes.
2. The social systems implications of the epidemic can be analyzed using the lens of its impact on human life expectancy, and through that on the pillars of social and economic functioning that are based upon the expectation of a 'normal' lifespan.
3. The advent of HIV/AIDS in a poor society can be seen as an increase in the cost of sustaining life, and thus as a change in the energy balance of societies that are already energy-constrained.

1.1 The Ecology of HIV/AIDS and Human Populations

The human immuno-deficiency virus has found and exploited a particular niche in the ecology of Homo sapiens, such that it is able to co-evolve with human populations in a manner that allows for the indefinite reproduction of both virus and human host, at a high prevalence while retaining its 100% lethality. Let us spell out what this means.

Certain features of HIV, including its mode of transmission, indicate that it cannot be expected to follow the 'normal' pattern for epidemics of infectious diseases, which decline over time, due to the adaptation of the host, the evolution of the pathogen towards lower virulence, or both. Unusually for a pathogen, HIV can theoretically attain and sustain 'saturation' level in a population over an indefinite period even while retaining 100% lethality.[1] It can do this because, (a) the period of infective latency provides sufficient opportunity for onward transmission before the host becomes incapacitated and (b) this same period allows humans to reproduce, and thus sustain the human population and avoid a population collapse. A long-term saturation of a human population (the optimal evolutionary outcome for the virus) is consistent with that human population

[1] 'Saturation' refers to the high probability (say, 90%) that any particular individual will contract HIV during her or his lifetime. This is roughly equivalent to 35-40% adult prevalence.

sustaining itself in the limited sense of maintaining its numbers. This scenario is disastrous in terms of human development and quality of life.

Thus far, medical and behavioral interventions have had disappointingly modest impacts on the course of the epidemic. Small-scale projects often appear to demonstrate encouraging results for HIV control. However, national HIV prevalence rates have rarely fallen. One reason for this discrepancy may be that a generalized HIV/AIDS epidemic unleashes its own secondary, structural impacts. It exacerbates poverty, inequality (including most importantly gender inequality), poor educational achievement, and social distress. These have all been identified as structural factors that contribute to a high risk of HIV in a society. The virus is therefore creating feedback loops at a population level, that in turn create the very conditions for the virus to reproduce. The clearest example is children orphaned by AIDS: we can expect them to have lower literacy, higher poverty and less socialization than their peers, and thus be at increased risk of contracting HIV. Micro-projects often succeed in creating bubbles of relative structural beneficence within which individuals can escape these feedback loops. But elsewhere in wider society, immiseration and the creation of HIV-favorable environments continues.

Rather than detailing each of the feedback mechanisms, here it is sufficient to note that these act at all levels of social functioning. They range from the adverse effects of orphaning on educational achievement to the increase in crime and disorder to be expected from a demographically unbalanced population that includes a proportionate excess of young adult males. A growing literature documents these impacts, and although there is good evidence for short-term 'coping' by affected households, this rarely provides more than a reprieve. Although the statistics for plunging life expectancy, children orphaned by AIDS, and increasing poverty are shocking, there is no quantitative enumeration of the impacts of the HIV/AIDS pandemic that does justice to the way in which it serves as a systemic insult to severely affected societies. These societies may function in a systematically different manner, and will follow different trajectories to those that have escaped high prevalence HIV/AIDS epidemics.

The relationship between the different levels of cause and effect of HIV transmission are represented in figures 1 and 2. Figure 1 distinguishes the different structural levels of causation. Figure 2 includes some additional causal linkages. And figure 3 (borrowed from Alan Whiteside) shows the results of one exercise in mapping out all the identifiable causal linkages.

1.2 HIV/AIDS, Life Expectancy and Social Functioning

The generalized HIV/AIDS epidemics that are striking much of eastern and southern Africa have already caused something unprecedented in modern history, namely a drastic and hard-to-reverse drop in adult life expectancy. Whereas a generation ago, young adults in sub-Saharan Africa could expect to live into their sixties and beyond, today's teenagers in the worst-hit countries can expect to die in their thirties or forties. This truncation of adult longevity is not only an immense tragedy, but also a threat to social, economic and political functioning. It is not merely setting back socio-economic development by many decades, but also setting those processes of change along fundamentally different trajectories.

Low adult life expectancy means a crisis of social reproduction, reflected in the failure of parents to live to see their children into adulthood. The crisis of orphanhood in sub-Saharan Africa can be seen as a symptom of this long-term structural crisis.

It also indicates structural economic dysfunction, as lower expectations of future life feed through into lower savings and investment rates, and higher consumption. Clearly, these basic economic indicators will be affected by a host of other factors, but the influence of reduced adult longevity points consistently in one direction. The sum total of economic changes implied by the HIV/AIDS epidemic has been described as 'running Adam Smith in reverse.'

The functioning of social, administrative and political institutions is based upon individuals establishing careers that span several decades, during which they build up experience, judgment and networks, as well as accruing formal qualifications. With shorter careers, we would expect it to become more difficult to sustain complex institutions, implying the progressive degradation of institutional capacity—akin to 'running Max Weber in reverse.'

Note that in this analytical frame, the fact that it is HIV causing the truncation of adult longevity is entirely incidental. The same effects could be brought about by any other cause of death. This points us to the way in which HIV/AIDS interacts with other diseases (especially TB and malaria) and may also interact with malnutrition to cause lower life expectancy.

1.3 HIV/AIDS and the Societal Energy Balance

A third analytical model is drawn from the observation that HIV infection in the individual, and the HIV/AIDS epidemic in society, makes increased demands of physical energy and economic effort, simply in order to sustain life. The individual living with HIV requires more and better nutrition, in addition to medicine and health care. Society needs to expend resources on caring for the sick and bringing up orphans. This is reflected in the increased consumption levels (and lower savings/investment) in badly-stricken societies.

The increased cost of sustaining life becomes particularly critical when there are other concurrent threats to lives and livelihoods, such as drought or economic downturns. The interaction between HIV/AIDS and these other shocks and stresses has been shown to create destitution and hunger.

This framework of analysis cries out for complex systems analysis. The study of livelihoods and coping strategies of poor and vulnerable households, especially during times of stress, shows that entire livelihood systems need to be analyzed as holistic frameworks, in which the disruption of one element has consequences throughout. For example, one of the characteristic patterns during severe food crises is that affected households resort to coping strategies including migration to preserve the basis of their livelihoods, but the social and ecological disruption that follows from these strategies creates conditions in which infectious diseases spread more rapidly. Unlike the ecology

of ‘traditional’ disasters, which are marked by a disruption and then a return to an equilibrium similar to that which existed beforehand, the stress caused by HIV/AIDS is long-term and structural. We need to examine, therefore, whether it implies a new and different equilibrium, or a fluctuation between different steady states, or ongoing turbulence.

A comparison with the Indian Ocean tsunami disaster reveals important differences and similarities. The tsunami is a sudden shock that has created tragedy, trauma and economic downturn, but it can be expected that there will be a return to some form of normality and equilibrium in the affected countries. It is possible that there will be greater resilience as a result of early warning systems and flood defenses. Hence, the disaster has not fundamentally changed the ecology of human life in the affected areas. A second important point highlighted by the tsunami is the importance of planning for low probability but high impact events. Until December 2004, an Indian Ocean tsunami early warning system was seen as a luxury, because these events are so rare (in comparison with the western Pacific for example). It took 150,000 lives lost for this to be regretted.

3. HIV/AIDS Response Systems

Responding to the HIV/AIDS pandemic demands systems thinking and policy innovation on a radical scale. If we examine the full range of causes and effects of HIV infection, we have the pattern shown in figure 1.

Most interventions to date are focused at the top of this pyramid, trying to influence biological or behavioral factors. They are also linear, in that they usually focus on one specific set of causal linkages at a time. However, deeper structural factors (nearer the base of the pyramid) are likely to be at least as important, as are the interactions between the different elements and levels. It seems probable that the conventional interventions are likely to succeed only when other structural factors are also favorably aligned.

Designing a systems response to HIV/AIDS is inherently problematic. We face three sets of challenges:

a) The pure science challenge of modeling what is happening, and understanding how the human-viral ecological framework has changed. The transformations that are occurring are intrinsically complex and unpredictable, and made additionally difficult because of the capacity of the virus itself to evolve, and the epidemic to take on new patterns. This is not only an immense challenge for health systems analysis (because the prevention and treatment of HIV/AIDS are complicated), but a challenge for how to sustain and scale up health systems in societies that are simultaneously undergoing transformations partly related to the structural impacts of the disease itself. Policy outcomes of this exercise will include planning for further into the future, and identifying and monitoring some of the indicators of societies plunging into different ecologic systems, including the low life chances trap.

b) The applied research challenge of properly understanding and measuring the efficacy of interventions. Current goals and benchmarks to measure progress in

combating HIV/AIDS tend to be crude and linear, and there is much fruitless debate over the efficacy of specific interventions (e.g. the controversy over A and B versus C). A holistic, systems and evolutionary approach will enable the development of finer measurement tools. Again, this is an intrinsically difficult task, because policymakers demand simplicity and measurable results within timeframes that are dictated by political schedules (e.g. elections).

c) The policy challenge of designing decision-making processes that can adequately capture the breadth of issues and length of time period involved in overcoming HIV/AIDS. The fact that the HIV/AIDS epidemic is an event on an evolutionary timescale, and that effective human responses to it will yield results over a span of a generation or more, makes it extremely difficult to design, implement and stick with interventions. (In this respect, responding to HIV/AIDS is comparable to designing policies to mitigate climate change.)

In the meantime, we may be missing opportunities for making existing responses more effective, either by linking them to structural interventions, identifying overlaps and interstices between them that can provide fertile group for innovative interventions, and identifying hitherto unacknowledged constraints on their success.

4. What Might We Do Differently, and How?

To begin to answer, or to begin to identify a way to begin to answer, the question is the goal of the seminar. The work of the seminar is bounded by the assumptions that core participants are familiar with. These are, one, local national and international strategies to fight HIV/AIDS, and two, complex adaptive systems approaches to managing complex phenomena such as corporations, ecosystems, social systems, human physiology, and interactive networks. Examples of strategies to combat AIDS and a brief description of complex systems management approaches will be provided in advance of the seminar.

Core participants will be asked to develop brief contributions to the issues, of about one page (maximum two pages). These ideas will be presented briefly, discussed and amplified, at different points in the agenda. A rapporteur will cover the discussion. The organizers will prepare a synthesis of the seminar which will be available one week later.

The seminar will consist of 12-15 core participants and invited parties. Because of time constraints only limited interaction outside the core participants will be possible. The agenda will be available beforehand.

Figure 1: Structure of causal links in HIV/AIDS system

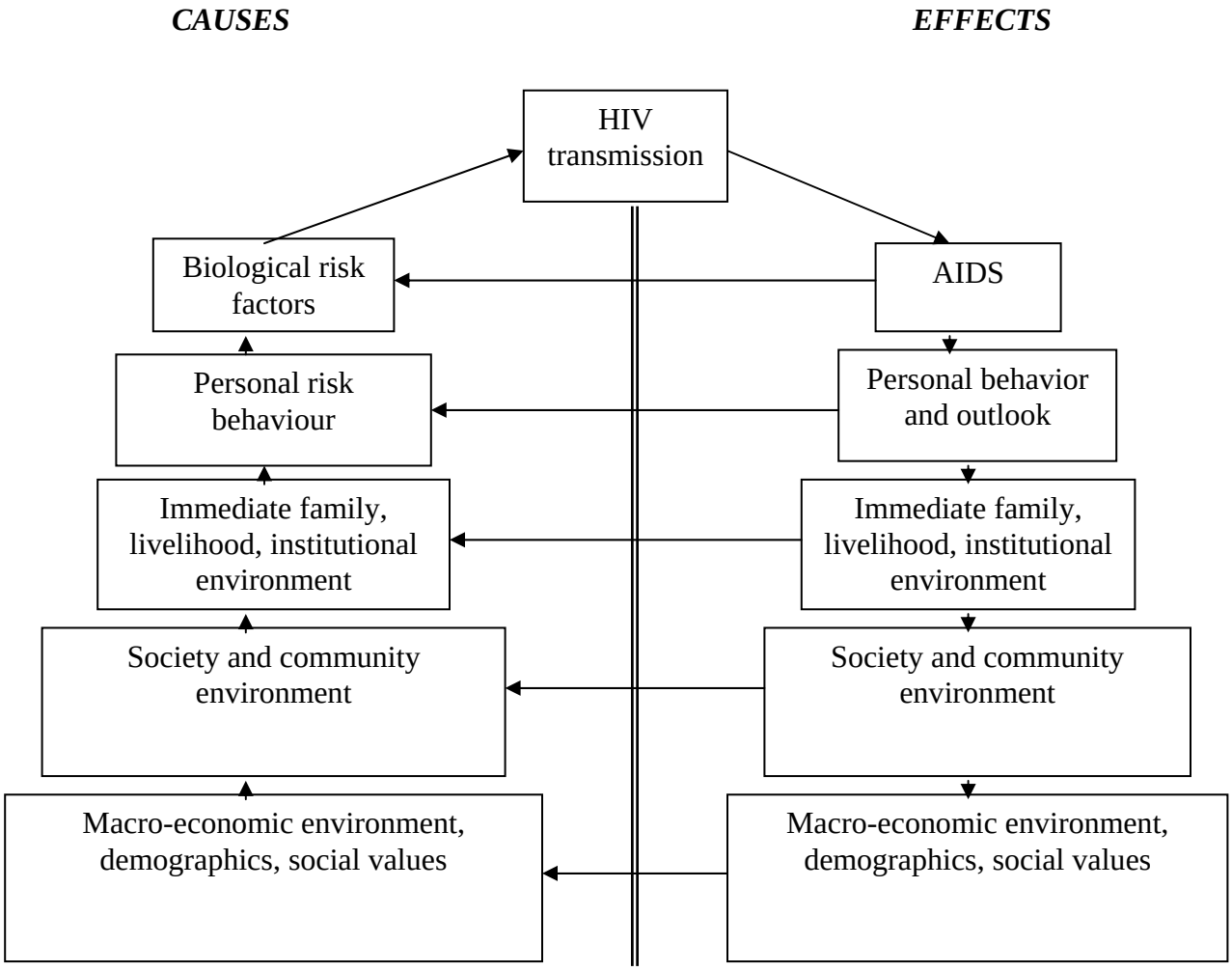

Figure 2: Complex structural of causal links in HIV/AIDS system