

The Beijer Institute of Ecological Economics

DISCUSSION PAPER

Beijer Discussion Paper Series No. 200

HIV/AIDS – The True Tragedy of the Commons? Exploring the effects of HIV/AIDS on Management and Use of Local Natural Resources

Ingela Ternström. 2005.

HIV/AIDS – The True Tragedy of the Commons?

Exploring the effects of HIV/AIDS on Management and Use of Local Natural Resources*

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Abstract

This paper provides a first exploration into the potential effects of HIV/AIDS on the management and use of local non-agricultural natural resources (e.g. forests and grazing land). The main hypothesis is that HIV/AIDS affects the use and management of local natural resources not only via an increased demand for them as a source of food and income, but also via a disruption of the social control mechanisms that govern their use. A number of links between the direct effects of HIV/AIDS (such as reduced labour force and loss of leadership and traditional knowledge) and the institutions (rules, norms, traditions) that govern the use of local natural resources are examined. The main conclusions are that this is an alarmingly under-researched area, and that there is a serious risk that HIV/AIDS will become the true Tragedy of the Commons.

* A draft version of this paper was presented at the Workshop on Infectious Disease at the Ecological and Environmental Economics Programme, the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy, comments from participants are gratefully acknowledged.

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1 INTRODUCTION

The AIDS epidemic started in the mid 80's in Africa – it has since then developed into a global crisis. According to UNAIDS/WHO (2004), 38 million people were living with HIV in 2004 and 20 million had died. Of those infected, the largest proportion lives in sub-Saharan Africa (SSA). There, the proportion of the adult population that is infected ranges from 10 to 40 percent. HIV/AIDS is different from other diseases and causes of death in that it targets mainly the productive part of the population, leaving the young and the old to care and mourn and to take on the tasks of providing food and governing resources.

Initially HIV/AIDS was regarded as a health problem. However, the pandemic is increasingly recognized to have much wider implications, on all levels of society. Dramatic decreases in the size of the labour force are documented in e.g. Southern Africa as productive capacity is lost, not only to death and illness but also to caring and mourning. Rural households suffer doubly as infected urban relatives move back to the villages: income from remittances is lost and the burden of care increases. Meanwhile, medical bills, funeral costs, etc. increase. The economic consequences are dramatic. For the rural population, the solutions so far include a shift to less labour intensive, but also less nutritious, crops - which further decreases productivity; an increased dependence on gifts and loans - which places the social fabric of affected communities under severe stress; and an increased use of alternative sources of food and income – which increases the pressure on local natural resources.

These are the primarily short-run effects of the HIV/AIDS pandemic. What will happen in the long run? How will the social fabric of norms, rules, traditions and customs be affected by the pandemic? What happens when village leaders die and the transfer of local traditional knowledge is lost? When children are forced to take on their parents' tasks? When agricultural production decreases due to a reduced ability to supply labour and purchase fertilizers? When the pressure on local natural resources, such as wild foods, medicinal plants and firewood, increases further? Such resources are often used in common by many people, with intricate webs of rules, norms and traditions governing their use and ensuring long-term sustainability. Will these intricate webs survive the challenges, or will there be extensive resource deterioration? Will HIV/AIDS become the True Tragedy of the Commons?

The purpose of this paper is to make a first exploration into the effects of HIV/AIDS on the management and use of local non-agricultural natural resources, such as forests and grazing land,

with a focus on how HIV/AIDS affects the institutions (rules, norms, traditions) that govern their use. A further purpose is to put this topic on the agenda of researchers, policymakers and aid organisations.

2 RELATED RESEARCH

There is by now a large literature on HIV/AIDS and food security. De Waal and Whiteside (2003) introduced the term *New Variant Famine*, which together with papers by Gillespie (1989), Barnett and Blaikie (1992), Brown et.al. (1994), Rugalema (2000), Barnett and Whiteside (2002), Haddad and Gillespie (2001) and others contributed to the view of interdependency between HIV/AIDS and food security. This view has contributed to an increased research and a resulting large number of empirical studies on HIV/AIDS and food security (see Gillespie and Kadiyala (2005) for an extensive overview). However, few studies focus on non-agricultural local natural resources, and even fewer touch upon the institutional aspects of managing them.

Campbell et.al. (2002) and Serra and Zolho (2003) provide recent evidence that non-agricultural local natural resources are important sources of food and income for rural people in southern Africa, and especially so in times of duress (Pattanayak and Sills 2001, and Loibooki et.al. 2002). Often, local natural resources are managed as common-pool resources, with a limited group of users and a well developed set of rules regulating their use (see e.g. Ostrom 1990). As in the literature on common-pool resources I refer to these rules, which may take the shape of traditions, customs, and norms etc., as institutions. There is a large literature on common-pool resources, but a lack of attempts at incorporating the effects of HIV/AIDS. Another rapidly growing strain of research is studying resilience of social-ecological systems (see e.g. Berkes et.al. 2003). This literature treats ecosystems and their human users as one system, using the term resilience to refer to the magnitude of disturbance that can be absorbed before the system changes its structure (Gunderson et.al. 2002). Here, too, there is a need to incorporate the effects of HIV/AIDS – both as a short-term shock and as a long-term factor that changes the adaptability of the social part of the system.

One of the most commonly stated effects of HIV/AIDS on local natural resources is that the reduced labour force, although varying among societies (Mather et.al. 2004), increases the demand for other sources of food and income, such as firewood, wild fruits and vegetables. FASAZ (2003), in a survey of 770 Zambian households, found that increased collection of fuel wood and wild foods had contributed to decreased soil fertility and increased deforestation.

Barany et.al. (2005), based on case-studies in six communities in Malawi and Mozambique, found numerous interactions between HIV/AIDS and forest resources, such as an increased demand for and decreased availability of medicinal plants used in traditional remedies.

Of the studies that do discuss the effect on local institutions, most use the term institution as synonymous to organisation. One exception is NAADS (2003), a study of 631 smallholder households in Uganda, which includes evidence that while some new institutions have emerged, several others, e.g. mutual assistance networks, have collapsed and that coping strategies are eroding.

There is a dearth of research regarding the more long-term effects of HIV/AIDS on the institutions governing the use of local natural resources. Morton (2003) speculates about the effects of HIV/AIDS on collective-action among pastoralist societies and is one of the few studies that touch upon the effect of HIV/AIDS on institutions that regulate collective decision-making. Mather et.al. (2004) comment on the need for further research on the interactions between households and communities and how HIV/AIDS may affect social networks, as these can be very important in times of stress. In their conclusions, Gillespie and Kadiyala (2005) point to the need for research that captures the local dynamics of impact and response, particularly among households and communities that show resistance and resilience. They comment that resilient community institutions can provide the space and opportunity for people to secure their livelihoods and food and nutrition.

There is, however, an increasing awareness that gives hope that these issues will receive some well-deserved attention. FAO identifies “Structural impacts and woodland resources (i.e., use, management, and governance)” as being one of four key elements of the relationships between the impacts of HIV/AIDS, livelihoods and forest resources (Barany et.al. 2005).

2.1 Putting natural resources on the HIV/AIDS map

Barnett and Whiteside (2002) describe HIV/AIDS as a long-term crisis, made up of four waves: The first is the wave of HIV infections; the second opportunistic diseases; the third, 5 to 8 years later, consists of AIDS illness and death; the fourth and final wave is the impact on households, communities and nations. The main effects of HIV/AIDS on local natural resources are likely to result from the impact on communities and households during the second, third and fourth wave of impact. Loevinsohn and Gillespie’s (2003) oft-cited figure captures immediate and wider causes and consequences of HIV/AIDS on different levels or scales, moving from micro biology to the micro, meso and macro environments. They predict that HIV/AIDS may, for example,

affect community institutions in the meso environment and lead to institutional breakdown in the macro environment. In terms of their framework, the effects of HIV/AIDS on local natural resource use and management are effects of the impacts on knowledge at the micro environment, livelihoods and community institutions at the meso environment, and institutional breakdown at the macro environment.

3 LINKING HIV/AIDS AND LOCAL NATURAL RESOURCES

The main hypothesis in this paper is that HIV/AIDS affects the use and management of local natural resources not only via an increased demand for food and income from them, but also via a disruption of the social control mechanisms that govern their use. To test this hypothesis, a number of potential links between HIV/AIDS and local natural resources will be examined. As this paper is a first exploration into the effects of HIV/AIDS on local natural resource management, the examination of these links will at this stage be exploratory.¹ In the analysis, I combine knowledge about how local natural resources are managed by groups of interdependent users, with what is so far known to be some of the effects of HIV/AIDS. While some of the links affect the “demand-side” of resource use, others affect the way resources are managed. Similarly, some links work through changes in the valuation of the resources, and some via the institutional structure. At the end of the section, a table summarises and categorises these effects.

3.1 *Reduced labour force...*

As discussed above, HIV/AIDS is having a negative effect on the size of the labour force. This has decreased agricultural productivity and production, resulting in reduction of cash incomes and direct consumption of agricultural products. Furthermore, the reduced labour force at farm-level has resulted in a shift to less labour intensive crops. As these crops are also less nutritious, this contributes to a further decrease in productivity and hence production. Apart from agricultural labour, there is also a decrease in the amount of skilled labour and thus in cash incomes from wage-earnings and remittances. The reduced labour force, via reduced cash incomes and harvests, results in:

3.1.1 ... increased demand for local natural resources

Empirical studies already show that the demand for local natural resources increases in affected communities. Hence, this research question is already being addressed and answered. The

¹ The author is applying for funding to test these linkages empirically.

increased demand is a result both of the reduced agricultural production and of the reduced cash incomes. For example, wild foods are used to complement agricultural produce, firewood is collected to give cash income, and medicinal plants are collected both as a substitute for purchased medicines as cash is lacking, and as a source of cash income.

3.1.2 ... and pressure on social networks

When cash income and agricultural production decreases, there is also an increased dependence on loans and gifts from friends and relatives; that is from within the social network. However, when the mutuality of exchanges becomes skewed because the affected individual can not repay the favours received, the social networks are put under stress. If these social networks break down, as they according to for example NAADS (2003) have started doing, there are at least two links to local natural resources. The first is to further increase the demand for local natural resources, to cover for the loss of gifts and loans from other parties of the social network. The second is to remove some of the interdependencies among individuals using the local natural resources. Often, people depend on each other in many aspects of life in a village society, not only for resource use and management but also, for example, for emergency loans in times of temporary duress. If one or more of these sources of interdependency disappears, there is less scope for reciprocity. If the social network's function as a source of emergency gifts and loans is disrupted or disappears, the possibility to punish wrongful behaviour in other areas of interaction with exclusion from emergency help is also decreased. Hence, if the social networks are disrupted, the cost of going against the accepted rules for how to use the local natural resources decreases.

3.2 Decreased life expectancy

The average life expectancy at birth has decreased dramatically because of HIV/AIDS. But perhaps even more importantly, the individual life expectancy changes when a person becomes infected, and so does the life expectancy of the affected individual's children. Hence, the expected benefit of using local natural resources in a sustainable manner decreases as a result of HIV/AIDS, thus removing or lowering one of the barriers to resource depletion.

3.3 Loss of key persons

In traditional societies, as in other groups of human beings, different individuals have different roles, and some are more crucial in the management of common resources than others. However,

such key persons are equally, if not more, likely to be infected by HIV. Several recent studies confirm that leaders play a crucial role in local natural resource management, see for example Ternström (2004 and 2002) and Folke et.al. in Berkes et.al. (2003). It is often the leader's task to organise joint maintenance efforts, punish rule breaking, solve conflicts, take the initiative in adapting rules to changing environments etc. When leaders are lost due to AIDS, the effect is both that the present set of rules governing the use of local natural resources are less well enforced, and that the adaptation of these rules to the new needs and capacities of the resource users is delayed or not made. Furthermore, there may also be an indirect effect of the loss of key persons as these tend to be crucial in several areas of interaction among the people in a village. If there is one village leader who is responsible for many areas of cooperative efforts, many areas of village life will be affected by the loss of this person. Thus, not only the institutional structure but also the level of production in e.g. irrigated agriculture, and hence the demand for local natural resources as a complementary source of food, may be affected.

3.4 Loss of traditional knowledge

HIV/AIDS hits people in the productive ages hardest, thus removing those most intensively involved in food production and resource management. As these people die, knowledge about sustainable methods for using local natural resources and knowledge about alternative sources of food may be lost. Furthermore, these are the people that have been involved in maintaining both the resources and the rules for their management. Thus, not only information about how to use for example wild foods may be lost, but also information about sustainable harvesting methods and information about which rules are efficient for keeping the use of the resources at a sustainable level.

3.5 Changes in customs

There is rather extensive evidence of changes in customs related to how HIV/AIDS affected individuals are treated by their societies. This includes for example widow inheritance and inheritance of property, stigmatisation of infected people, denied access to common resources, and land-grabbing by relatives of widows. Some of these changes have direct effects on the use of local natural resources, such as exclusion of affected individuals. Others may have an indirect effect, again either via a changed demand for local natural resources, via a change in the relative costs and benefits of using them, or via changes in the institutions governing local natural resource use. Land grabbing is a clear example of the first indirect effect: As widows lose their

land, one of the options to them is to turn to other local natural resources for food and income. Often, there are children, sometimes both own and orphaned, in widow-headed households, making the added pressure on local natural resources substantial.

When affected people are stigmatised, they are excluded from more or less substantial parts of the social network. As with disturbances to the social network, this decreases the scope for punishing unaccepted behaviour in other areas of interaction. Stigmatisation or exclusion from social interactions is sometimes used as a punishment or threat to achieve rule-conformance in common-pool resources management. If a person has already been stigmatised or excluded, the threat of this happening if they misuse local natural resources is obviously no longer effective.

Finally, an aspect that has more far-reaching effects is the potential repercussions that changes in these customs and norms have on other traditions. If we see customs, traditions and norms as an intricate web of control and support mechanisms for individual and group behaviour, the effects of starting to pull at one or a few strands of this web are potentially enormous.

3.6 Relocation and demographic changes

That HIV/AIDS causes demographic change is an undisputed fact. There is a large variation in death rates among age groups, with people in productive ages being the most susceptible to infection. Thus the remaining population to a large extent consists of young and old individuals. Secondly, there is a trend of infected people moving from cities to their rural relatives as they become too ill to manage by themselves. Thirdly, households that have become landless, for example because of land-grabbing or orphaning, are moving. Hence, there is a demographic change in the groups of individuals using the resource as well as a change in membership in the user communities due to in- and out migration. The changed demography implies changes in the age, gender and status composition of users, something that is likely to affect the harvesting and management of the resources: There may be changes in the preferred product to be harvested, the way it is harvested, and the way the institutions for governing the resources are adhered to. In-migration and increased movement of landless people implies that people with other sets of norms and traditions enter pre-existing groups of users. This may lead to conflicting views on resource management, and subsequent deterioration of institutions (see for example Ternström 2002 and 2004).

A different aspect of the changed demography is the loss of knowledge of how to achieve successful cooperation in the use of common resources. Again, as the people in productive ages

are lost to HIV/AIDS, the young and the old that remain may not be as skilled in working together.

The direct effects presented above and the indirect effects they may result in are summarised in the table below.

Indirect effect	Increased demand	Efficiency of resource use	Changed cost/benefit structure	Changed institutions	Efficiency of resource management
Direct effect					
Decreased labour supply	3.1.1		3.1.2	3.1.2	
Decreased life expectancy			3.2		
Loss of key person	3.3		3.3	3.3	
Loss of traditional knowledge		3.4		3.4	3.4
Changes in customs	3.5		3.5	3.5	
Relocation and demographic changes				3.6	3.6

Table 1: Summary of linkages between HIV/AIDS and local natural resources.

So far, the literature deals mainly with the indirect effects of the first two columns. The effects summarised in the other columns are so far almost entirely unexplored, addressing them would require detailed mapping of social networks and institutions, and how these have changed over time in response to HIV/AIDS. The final column includes only the linkages as discussed above; of course, taking the argument one step further would imply putting a mark for all the linkages in the final column.

4 CONCLUSIONS AND RECOMMENDATIONS

Analyses of existing empirical studies show that local natural resource use is intensified and social structures are modified as result of HIV/AIDS. The literature on common-pool resource management and on resilience clearly shows that sustainable resource use is dependent on a well-functioning institutional structure, which is embedded in the social structure. Linking these sources of knowledge strongly indicates that HIV/AIDS is affecting the institutions that control local natural resource use.

The explorations in this paper have shown that there are a number of different ways in which HIV/AIDS may affect local natural resources use and management. Some of these work via changes in the demand for the resources, some via changes in the cost/benefit structure of using the resources, and some via changes in the institutional structures governing their use and management.

The literature review shows a lack of attempts at examining these links. When the indirect effects of HIV/AIDS on local natural resources are taken into consideration it is often the demand for other sources of food or income as substitutes for agricultural production that is discussed. In some other studies of non-agricultural local natural resources, the focus is on their function as provider of natural medicines and alternative farming methods. There are also studies focussing on links from local natural resources to HIV/AIDS, for example by discussing how they can be used to improve nutrition.

In conclusion, at present the focus is mainly on how HIV/AIDS affects the demand side of local natural resources use - the management and governance aspects are still largely blank areas. However, one glance at the literature on management of local natural resources is enough to show that this is an area that desperately needs attention if populations already engulfed by disaster are to have any chance at avoiding serious degradation of their natural resource base.

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