New Perspectives In Forestry Education
NEW PERSPECTIVES
IN FORESTRY EDUCATION

Edited by

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The Role of Forestry Education in Rural Strategies to Cope With HIV/AIDS in SSA

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ABSTRACT

The HIV pandemic is deeply entrenched in many countries and has had dramatic effects on rural livelihoods. In poor rural communities only a few people have access to treatment due to high prices of conventional medicine, poor health infrastructure and long distance to the health centres. The combination of the high incidence of HIV-related illnesses, high cost of treatment and the scarcity of health services in the rural areas have led to a greater dependence on the natural resources. Forest products are easily accessible to most people and their use has increased over the years. The higher mortality rate of adults has increased the demand for wood, in part to prepare food for increasingly frequent funerals, among others. The impact of HIV and AIDS on household labour has intensified the dependence on forest food products. This paper examines the role of forest education in response to HIV and AIDS, particularly in terms of food, herbal medicines and energy. It is based on the findings of different case studies that have been carried out in different parts of the world over the years. The paper shows that HIV and AIDS epidemic has increased the dependence of communities on forest resources and that the pandemic has environmental and natural resource management implications. Some forest policies and programme interventions that might help lessen the impact of the pandemic on natural resources and the role forestry education can play in the multi-sectoral response to HIV and AIDS have been highlighted.
26.1 INTRODUCTION

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) is currently one of the greatest threats to global development and stability. Since the emergence of the epidemic in the early 1980s, more than 60 million people worldwide have been infected HIV and over 20 million have died from AIDS. In 2004 alone, the global HIV/AIDS epidemic killed more than 3.1 million people, and an estimated 4.9 million acquired the HIV bringing to 40 million the number of people living with the virus around the world (UNAIDS, 2005). Sub-Saharan Africa (SSA) is the hardest hit region of the world (UNAIDS, 2003). The AIDS-related excess mortality has had a profound impact on the demographic composition of communities and households. By 2010, AIDS is projected to leave 20 million African children under 15 years of age without one or both parents (UNAIDS and WHO, 2002).

For a long time, HIV/AIDS was viewed purely as a health issue, yet HIV/AIDS has implications that reach far beyond health - including great impacts on natural resources, agriculture and food production systems. In its earlier stages, the HIV/AIDS epidemic was predominantly an urban problem, affecting more men than women, and those with relatively higher incomes. Now the epidemic has rapidly moved into the rural areas, hitting those who are least equipped to deal with its consequences. In SSA, most infected people live in the rural areas and HIV/AIDS has become mostly a rural problem (UNDP, 2002). With its largely rural-based economies, it is unlikely that the epidemic can be controlled without the effective support to natural resources and agricultural sector (du Guemy 1999). This sector is in a strong position to assist in both the prevention and mitigation of HIV/AIDS (Gari and Villareal, 2002).

There is therefore, need to recognize natural resources household based activities which are vital to food security in any developing country and which cannot be sustained if HIV/AIDS continues unchecked. Where availability or affordable access to food is lacking, the prevalence of HIV is also alarmingly high. This unfolding tragedy underlines the need to tackle rural development, food security and agriculture policies in concert with fighting the AIDS epidemic. The role of forestry education becomes therefore very relevant in helping the communities in rural areas to cope with HIV/AIDS in SSA.
26.2 THE CHALLENGE OF HIV/AIDS TO SUSTAINABLE DEVELOPMENT IN AFRICA

In Africa, HIV/AIDS is undermining progress towards sustainable development, leading to environmental exploitation and reversing many of the development gains of recent decades. By the end of 2006 there were an estimated 39.5 million adults and children living with HIV/AIDS, 24.7 million (63%) of whom are in SSA. Of the estimated 4.3 million new infections and the 2.9 million deaths from HIV/AIDS in 2005, 2.8 million (65%) and 2.1 million (72%) respectively were adults and children living in SSA (UNAIDS, 2006). One of the major causes is the desperate poverty and inequality experienced in the worst affected communities and countries. Poverty is a driver of HIV/AIDS and HIV/AIDS is a driver of poverty. It is a vicious circle. Where people are deprived of adequate health services, access to information about HIV prevention, and adequate nutrition and food security, conditions are set for HIV/AIDS to spread very rapidly (Oglethorpe and Gellman, 2004).

HIV/AIDS is devastating people’s lives and livelihoods, resulting in damaging environmental impacts. Desperate people are more concerned with meeting immediate needs through short-term environmental exploitation than with long-term sustainability. The environmental impacts are diverse and a cause for concern because surviving children, grandparents and spouses still have food and livelihood needs but must satisfy them from an increasingly impoverished resource base. A major environmental impact is that HIV/AIDS-affected families and communities tend to increase exploitation of local environmental resources. The need for alternative incomes in response to the loss of family breadwinners is leading to unsustainable levels of hunting, fishing, fuel wood gathering and charcoal production for income generation.

HIV/AIDS have serious impact on national economies and it is estimated that labour in the ten worst affected African countries will decrease by 26% over the next 20 years (FAO, 2001). Impacts on the agricultural sector are also grave, with dire implications for future local and national food security. It is estimated that around 7 million agricultural workers have died from AIDS since 1985 in the 25 most severely affected African countries, and that a further 16 million more could die from the disease in SSA within the next 20 years (UNAIDS, 2002). This will have devastating impacts on developing country economies and food security, especially the lives, livelihoods and food security of rural families and farming communities. Some countries in Sub-Saharan Africa like Botswana, Namibia and Zimbabwe are expected to have a deficit of more than 20% in their agriculture labour force by year 2020.
(Table 26.1). This will have a big impact on national economies taking into consideration that most of SSA are agricultural based.


<table>
<thead>
<tr>
<th>Country</th>
<th>Total Population</th>
<th>Agricultural labour force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namibia</td>
<td>-17%</td>
<td>-26%</td>
</tr>
<tr>
<td>Botswana</td>
<td>-30%</td>
<td>-23%</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>-23%</td>
<td>-23%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>-16%</td>
<td>-20%</td>
</tr>
<tr>
<td>South Africa</td>
<td>-27%</td>
<td>-20%</td>
</tr>
<tr>
<td>Kenya</td>
<td>-16%</td>
<td>-17%</td>
</tr>
<tr>
<td>Malawi</td>
<td>-17%</td>
<td>-14%</td>
</tr>
<tr>
<td>Uganda</td>
<td>-8%</td>
<td>-14%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>-7%</td>
<td>-13%</td>
</tr>
</tbody>
</table>

The epidemic is also undoing the progress made in life expectancy in SSA which would have been 62 years without HIV/AIDS but has now dropped to just 47 years (DFID, 2004). It is predicted that it may fall below 30 years by 2010 if current AIDS trends continue in Africa (DFID, 2004). HIV/AIDS is also undermining sustainable resource use and environmental conservation. Desperate people have few choices: they have neither the reason nor the ability to fulfil long-term objectives and are instead concerned with meeting immediate short-term needs for food, energy, water, medicine and incomes. The result: excessive exploitation of resources as a survival mechanism; breakdown of community sustainability activities; lack of maintenance of conservation infrastructure such as for soil and water; lack of time and resources to implement long term projects such as establishing woodlots. This exacerbates resource scarcity and food insecurity.

One of the most critical characteristics that makes HIV/AIDS unique from other illnesses is that it disproportionately affects the most productive people in society, the very people on whom so many others depend. The most affected age group is 15-49 years; the breadwinners in society and the people who have children depending on them and, in the extended family systems.

In the worst affected countries, it is killing a whole generation of the most economically active, leaving grandparents to care for grandchildren, or orphans to care for themselves. Households headed by grandparents, women and children are becoming increasingly common (Figure 26.1). The impacts are undermining food, nutrition and income security, thereby pushing
surviving people into livelihood strategies that may make them more vulnerable to contracting HIV themselves. In understanding how HIV/AIDS is affecting people and their livelihoods, it is important to know about the social, economic and environmental impacts of the epidemic so that projects and programmes addressing HIV/AIDS can take a broad, multifaceted and multi-sectoral approach to increase their effectiveness and sustainability.


26.3 ROLE OF FORESTRY IN MITIGATING HIV/AIDS

Most people are not aware of the extent of relations between the forest sector and the HIV/AIDS pandemic. There is need for people to be aware of the role of forests in contributing to livelihood responses to HIV/AIDS affected households. Education can play a significant role in creating this important awareness. The impact on the demand and supply of forest products at local, national and regional levels and the transfer of local knowledge on sustainable use of forests and non-wood forest products to the next generation is very important for sustainable forest management.

There is need to understand that one of the few coping mechanisms that poor households with limited options can employ when subjected to shocks and pressures of HIV/AIDS is turning to ‘freely’ available forest resources and other natural capital for subsistence and income. This may include adapting to
existing use patterns, intensifying use, adding new products to the portfolio, or engaging in the trade of products previously used primarily for subsistence or cultural purposes.

Forest ecosystems contribute to the diets and subsistence of forest dwellers. In increasingly market-oriented economies, they provide a significant portion of the food and medicines consumed by urban populations. Recognition that the sustainable use of forest resources is essential for local livelihoods and the well-being of national population provides a foundation for investment in conservation of forest biodiversity and its integration with objectives of poverty reduction, food security and disease reduction in development policies. It becomes very necessary to demonstrate more fully that forest biodiversity is indispensable for combating malnutrition and diseases of vulnerable populations.

Farming households affected by HIV/AIDS have labour shortages and are using various coping strategies (Engh et al., 2000; Egal and Vastar, 1999). The household health care represents 25 to 50 percent of the net annual income of most small farms in developing countries (UNAIDS, 2004). High prices of drugs and recent market orientation of health care systems limit access to medical treatment (Nnko et al., 2000; Farah, 2001). Individuals infected with HIV are recommended to eat more food as their bodies require more nutrients (FAO, 2001). Low-income and HIV/AIDS-affected households often rely upon tree and forest products to complement their diets (i.e. wild food plants, bush meat, nuts, leaves and roots). Forest foods are often good sources of micronutrients (vitamins and minerals which are essential for good nutrition and health) and are essential to HIV/AIDS affected households. As Table 26.2 shows that some fruits in the forest contain high amounts of vitamins and nutrients.
Table 26.2: Some Neotropical Fruits in Brazil that are Excellent Sources of Provitamin (Rodriguez-Amaya, 1996).

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Portion analyzed</th>
<th>α-carotene (µg/g)</th>
<th>β-carotene (µg/g)</th>
<th>β-cryptoxanthin (µg/g)</th>
<th>Other carotenoid activity in mixed foods (Retinol activity equivalents/100 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Mauritia vinifera</em></td>
<td>Pulp</td>
<td>80.5</td>
<td>360</td>
<td></td>
<td>γ-carotene, 37, b-zeacarotene, 5.9</td>
</tr>
<tr>
<td><em>Astrocaryum vulgare</em></td>
<td>Pulp</td>
<td>107</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Eugenia uniflora</em></td>
<td>Pulp</td>
<td>9.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Acrocomia makayayba</em></td>
<td>Pulp</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Bactris gasipaes</em></td>
<td>Boiled pulp</td>
<td>3.2</td>
<td>22</td>
<td>γ-carotene, 18</td>
<td></td>
</tr>
<tr>
<td><em>Malpighia glabra</em></td>
<td>Pulp</td>
<td>26</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mammea americana</em></td>
<td>Pulp</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Spondias lutea</em></td>
<td>Pulp and peel</td>
<td>1.4</td>
<td>17.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cariocar villosum</em></td>
<td>Pulp</td>
<td>1.2</td>
<td>4.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: By comparison, mango (*Mangifera* spp.) and papaya (*Carica papaya*) provide 38–257 and 25–150 retinol activity equivalents per 100 g, respectively (USDA-ARS, 2004).

Wild supplies of food comprise much more of the diet of subsistence populations than is often realized (Hoskins, 1990). HIV/AIDS affected households tend to attach more importance to forest product collection than non-affected households (Barany et al., 2005). Approximately 1,500 species of wild plants have been reported as being collected for consumption in central and West Africa (Chege, 1994). In some parts of Africa, diets based on staple grains depend largely on tree products to provide essential vitamins.
There are many trees that produce oil seeds, edible leaves and fruits that are rich in important vitamins and nutritional elements (Hoskins, 1990; Ogden, 1990). After the oil palm, the shea-butter tree (*Butyrospermum paradoxum*) has been reported as the second most important source of fat in African diets (FAO, 1995). In some areas, wild game from forests provides most of the protein eaten by rural populations (Bennett and Robinson, 2000). Dietary supplementation with forest and tree products can play an important role in community nutrition given growing evidence that malnutrition is a major underlying cause for the rapid expression of AIDS in Africa’s HIV-infected individuals (Enwonwu and Warren, 2001). There is evidence that agricultural labour and cash shortages amongst HIV/AIDS affected households have led to the reversion and increased consumption of wild foods, including fruits, nuts, leafy vegetables, fungi and protein sources such as bush meat and insects, (Kengni *et al.*, 2004).

Wild plants are a principal source of traditional medicines (leaves, roots, etc.) that may help to treat many of the symptoms of opportunistic infections that are associated with AIDS. Indigenous medicinal plants (including cultivated tree nuts and wild fruits) may also boost the immune system of HIV/AIDS patients. In SSA, health care is largely a forest-based service (Chege, 1994). Forests and trees are valued by agrarian communities for their supply of medicinal products (Hoskins, 1990), and plant-based remedies are used increasingly in the region to treat HIV/AIDS-related illnesses (Bodeker *et al.*, 2000).

Many households turn to traditional remedies to help ease some of the suffering of ailing household members, particularly from HIV/AIDS related opportunistic infections. These medicines may be collected by household members or purchased from traditional healers and medicinal plant vendors. Traditional remedies are often more affordable than conventional, western medicines, and consequently favoured (Kungu *et al.*, 2006). In Tanzania, the Tanga AIDS working Group is reported to treat AIDS patients with herbs prescribed by traditional healers (Hayman, 2001). At the Mefopla Centre in Cameroon, efforts to boost the immune system of AIDS patients involve indigenous medicinal plants with enzyme-rich food, including cultivated tree nuts and wild fruits (Kinyuy, 2001). Not only do forest and tree products directly contribute to nutrition and health, but they also contribute to the accessibility of food and health care by increasing household purchasing power. The growing demand for traditional medicines created by HIV/AIDS pandemic is likely to increase pressures on existing stocks possibly leading to scarcity in the future (Barany *et al.*, 2005).
26.4 TIMBER AND NON-TIMBER FOREST PRODUCTS AND HIV/AIDS

Trees, forests and woodlands provide materials for housing, roofing, and lighting. They also provide fuel wood which is essential for cooking, as well as drying and heating. Forests and trees also provide fibre, timber, fodder and mushrooms which can reduce expenditure and generate income. Timber and non-timber products may be used as a source of livelihood through value adding (i.e. handicrafts, furniture-making, and beekeeping). Perhaps one of the most important non timber forest products to household nutrition and health is fuel wood. In some regions of Africa, fuel wood comprises 61 – 86% of the primary energy consumption, with 74 – 97% of this consumed by households (Amous, 2000).

The availability of fuel often determines the nutritional values of meals (Egal et al., 2000), as cooking releases nutrients in grains and fibrous foods. HIV/AIDS affected households often increase their consumption of fuel wood, since they can no longer afford to purchase alternatives. A study carried out in Malawi revealed that households that had experienced the loss of a working aged adult were five times more likely to have increased fuel wood collection than non-affected households (Barany et al., 2005). The increased frequency of funerals also results in escalated demands for fuel wood and other traditional products associated with burials such as reed mats. In the long-term, this expanded use may have negative impact on the forest resources.

Home-based production and trading activities, often using traditional skills such as weaving, are frequently a ‘last resort’ option for income for widows, grandmothers left with AIDS orphans to care for, or even for orphans themselves. Shackleton (2005) reports that in Bushbuckridge, South Africa, at least 10% of mat weavers and traditional hand broom producers were elderly women with sole responsibility for their grandchildren. They had entered the trade for much needed extra income to pay school fees and purchase food. Case studies from across South Africa indicate that a significant proportion of female crafters head their own households (50-70%), with many of these women having been recently widowed. Similarly, selling woven products has been found to constitute an important coping strategy following illness and death in households in Mozambique, Malawi (Barany et al., 2005) and Uganda (Barnett & Haslwimmer, 1995).
26.5 CONCLUSION

With most people in African countries living in the rural areas, it is unlikely that the HIV/AIDS epidemic can be controlled without the effective support of forestry sector. Training in forest biodiversity and awareness creation on local knowledge can be one way to mitigate the effects of HIV/AIDS. A greater focus on timber and non timber products can help to promote food security and nutrition, medicinal relief, and income generation. Successful interventions to support the use of forest biodiversity for health objectives are likely to be multi-sectoral, multidisciplinary and problem focused. Diversity-based approaches to improving nutrition and health depend on the conservation and sustainable use of forest and other wild species and biodiversity.

There is need to formulate and implement effective training strategies by involving the participation and integration of the different stakeholders. At the national level, ministries responsible for environment, health and nutrition, agriculture, forestry, economic development, culture and education could create awareness of forest products within collaborative initiatives for fighting and controlling HIV/AIDS epidemics.

REFERENCES


