

HIV/AIDS and Environment: A Manual for Conservation Organizations on Impacts and Responses

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July 31, 2013



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AFRICA BIODIVERSITY COLLABORATIVE GROUP

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Cover Photo:

Bibiane, a member of a WWF-supported association, the Women's Health and Conservation Society, Mambale, East province, Cameroon. WWF helps the women find sustainable sources of income and to sell their goods for a fair price. Bibiane has harvested her first honey from the beehives she was given by the project.

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DEDICATION

To the late Henri Nsanjama, who first encouraged the Africa Biodiversity Collaborative Group to examine the linkages between HIV/AIDS and the environment and to identify ways to improve conservation and the lives of those who dedicate themselves to wildlife..

Acknowledgments

We gratefully acknowledge support from the John D. and Catherine T. MacArthur Foundation for early work by ABCG on the links between HIV/AIDS and conservation, which created the building blocks for this manual. Generous support from Johnson & Johnson to WWF-US's population-health-environment program enabled us to continue this work, and support from USAID's Biodiversity Analysis and Technical Support to ABCG enabled us to produce this manual. The manual was produced by World Wildlife Fund-US on behalf of ABCG.

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We would like to thank everyone who has helped ABCG and WWF on this issue over the years. The late Henri Nsanjama was the first person to recommend that ABCG learn about the linkages between HIV/AIDS and the environment. This led to a series of meetings between ABCG and the health sector where Ishrat Hussain of USAID provided important background information and shared resources. Kara Page, Denise Mortimer, Jon Anderson, Greg Booth and several others supported early work on this topic. ABCG members from African Wildlife Foundation, Conservation International, International Union for the Conservation of Nature, Jane Goodall Institute, The Nature Conservancy, Wildlife Conservation Society, WWF and World Resources Institute were always supportive of this effort and have shown leadership on this issue. In order to better understand the impacts of HIV/AIDS on conservation, we contracted Dr. Jane Dwasi to interview African partners who were assessing impacts and implementing coping strategies.

Through a Humphrey Fellowship, Daulos Mauambeta shared his experiences and wrote case studies about his cutting edge work to mainstream HIV/AIDS into the activities of his organization, the Wildlife and Environment Society of Malawi. Since then, Daulos has been a tireless champion for this issue in Malawi, Africa and globally.

In September 2002, ABCG organized a workshop in Nairobi with support from WWF-EARPO and The John D. and Catherine T. MacArthur Foundation. We brought together the partners that Jane Dwasi met to share their stories. David Elkins of The Futures Group gave the opening talk on AIDS—it was the first time that many people heard the subject discussed so openly, as the stigma of HIV/AIDS and talk of sexual relationships was limited at that time. Since that meeting, ABCG has continued to work on four key issues: 1) impacts of AIDS on the conservation workforce, 2) changes in natural resource use as a result of AIDS 3) changes in land use, 4) impacts of conservation on HIV and AIDS; with a central concern for the role that the conservation community could play in addressing the impacts of HIV/AIDS.

Additional thanks to Freddy Manongi, Jason Bremner, Melissa Thaxton, Marc Barany, Christine Holding Anyonge, Doug Williamson, Elin Torell, Tim Quinlan, Su Erskine, Robert Layng, Shaun Martin (for linkage to the Humphrey Fellows program), Lorena Aguilar, Dawn Bell, Barbara Meier, Lesley Greyling, Indjassa Germain Himbalaya, and Lori Hunter.

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Executive Summary

This manual aims to raise awareness of the linkages between HIV/AIDS and the environment, and provide guidance to conservation organizations on actions they can take to reduce the impacts on their organizations, the local communities they partner with, and the environment.

THE PROBLEM

The HIV/AIDS epidemic is having serious impacts on biodiversity conservation and natural resource management, particularly in sub-Saharan Africa.

Impacts on conservation organizations include:

- **Loss of human capacity:** this seriously affects institutional memory, continuity of programs and operations, and achievement of conservation goals. Conservation staff are particularly vulnerable if they spend time away from their families, where they are more likely to practice risky behavior.
- **Loss of investment in training:** This is particularly serious in Africa, where conservation capacity is already limited.
- **Loss of staff time:** There is increased absence from work when staff members care for their family members with AIDS, attend funerals, or are sick themselves.
- **Diversion of conservation funds for AIDS costs:** Many conservation organizations are covering the costs of medical expenses and other costs, reducing funds for conservation work.
- **Decline in morale:** Successive bereavement saps morale and enthusiasm from even the most committed employees, slowing productivity.

Impacts on communities, natural resource management and land use include:

- **Increased use of natural resources:** As AIDS-affected rural households lose salary earners and agricultural labor, many are turning to natural resources as a safety net; these uses of natural resources such as bushmeat, firewood and wild foods may not be sustainable and can pose a long-term threat to communities and their wellbeing.
- **Loss of leadership and capacity for community-based natural resource management:** Community-based natural resource management (CBNRM) programs become increasingly vulnerable as communities lose leadership and capacity, and AIDS-related issues such as caring for the sick or adapting family livelihoods take priority over participation.

- **Loss of traditional knowledge:** The middle generation is most active in land and resource management; if these adults die prematurely, their traditional knowledge of natural resource management and local farming systems is often lost.
- **Impacts on women:** Women are particularly affected by AIDS, and many natural resources managed by women are in higher demand because of AIDS, such as wild foods and fuelwood. As poverty deepens in AIDS-affected households, women may be forced into prostitution, and are often powerless to negotiate safe sex.
- **HIV spread through natural resource extraction:** Occupations such as fishing, logging and trade of natural resources which take men and women away from home often result in higher HIV infection rates.
- **Changes in farming practices:** When agricultural labor is lost and household incomes decline, households often farm more extensively with fewer inputs. This can result in more environmentally damaging techniques including increased use of fire.
- **Land tenure and land grabbing:** In some societies, when the male head of the household dies, the widow and children cannot inherit his land. Land-grabbing results in loss of livelihood base for the immediate surviving family members, and sometimes subsequent land use is not sustainable.
- **Future security and conflict** may also be affected, as children orphaned by AIDS grow up with little indigenous knowledge, weak attachment to the land and resources, and poor education. There is a high risk of over-exploitation of resources. Having a large proportion of young adults in the population with no sound livelihood base can threaten peace and security, with the risk of civil unrest.

WHAT CAN BE DONE TO REDUCE IMPACTS?

Conservation organizations can take action to protect our staff, the communities we work with, and the natural resources and biodiversity we aim to conserve. We can't stop the HIV/AIDS epidemic, but we can play an important role in reducing its impacts.

Actions in the workplace include:

Develop a workplace HIV/AIDS policy: Workplace policies help both employers and employees in conservation organizations. They set a foundation for HIV/AIDS awareness, prevention and care programs; provide a framework for practices within the organization; express standards of behavior expected of all employees; inform employees of what assistance is available through work; ensure confidentiality; guide supervisors and managers on how to manage HIV/AIDS issues; and can help mainstream HIV/AIDS into conservation activities.

Overcome stigma and avoid discrimination: Promote open discussion about HIV/AIDS and treat employees fairly.

Promote HIV/AIDS awareness and prevention: Ensure that all staff members understand how HIV is and is not transmitted, and how to prevent transmission. This is often done through a peer education system. Develop a condom distribution system in the workplace, including in field sites and vehicles. Include rubber gloves in first aid kits.

Encourage voluntary counseling and testing: Encourage employees to have HIV tests, with pre- and post-counseling so they understand the nature of the test and its implications. People are more likely to have tests if they can have access to treatment if needed. It is important that tests are voluntary.

Promote wellness programs: Work with the health sector to promote wellness programs at work; this may be extended to staff's family members.



Figure 1. Park guide and family Serengeti.
Photo: © Nancy Gelman.

Transfer affected staff to less labor-intensive positions: When staff whose jobs involve physical exertion develop early stages of AIDS and are less able to work, transition them to less labor-intensive positions such as desk jobs or part-time jobs if possible.

Post staff near their families: Whenever possible, post staff with their families so they are less likely to practice risky behavior.

Encourage staff to make wills: In many countries, existence of a will enables surviving family members to inherit property more easily and allocate any pension and/or benefits.

Try to maintain institutional memory: Document important decisions, meetings, management systems, research and monitoring results and ensure that more than one staff member has good working knowledge of plans, programs, projects, systems, donor relations, etc., to reduce the impact of losing a key staff member.

Integrate HIV/AIDS in funding proposals: Some donors are willing to cover the costs of integrating HIV/AIDS into conservation programs.

Mainstream HIV/AIDS into all organizational activities: HIV/AIDS needs to be addressed on all fronts, ranging from awareness, prevention, treatment and wellness, to staff housing, work assignments and training, to working with local communities on CBNRM, design of conservation programs and activities, and land policy initiatives. Undertake an assessment of existing and likely future impacts, and develop a strategy for action.

Training strategies

Adapt conservation training programs to reduce risk of HIV transmission: Incorporate awareness and prevention at the start of courses and part of all orientation programs in training institutions, and supply condoms. When sending employees away from home, provide training on HIV/AIDS prevention and provide condoms.

Use innovative training approaches and more short courses: Adapt training approaches to reduce HIV transmission during training: e.g. distance learning, web training, and e-learning. If possible, increase the number of people who receive training in order to create a broad skill base in staff who may have to take on new responsibilities. Train junior staff in leadership skills, and mentor them when they first take them on.

Rebuild community conservation capacity: Provide training and mentoring to rebuild community conservation and natural resource management skills lost due to AIDS. Include groups such as orphans, youth, elderly, women and men, with appropriate activities given people's changing circumstances.

Integrate HIV/AIDS in training curricula: Incorporate HIV/AIDS aspects in training curricula for natural resource managers, including changes in natural resource use due to the disease and mitigation strategies. Host special short courses on AIDS and the environment.

Promote HIV/AIDS prevention, treatment and care at training institutions: Use signs, displays, posters, articles and prevention materials to foster awareness, tackle stigma, provide testing, give counseling and offer care to students, staff, faculty and neighboring local communities through college health clinics. Provide condoms discreetly throughout training facilities.

Community action

Improve community health: Improve community access to healthcare, including HIV and AIDS services and information (this is usually done in partnership with the health sector). Improve water supplies, sanitation and hygiene to reduce risk of opportunistic infection in people living with AIDS; and improve indoor air quality through improved energy practices to reduce acute respiratory diseases.

Support management of medicinal plants: Enhanced management of wild stocks of medicinal plants, promoting sound harvesting techniques, improving the extraction of active ingredients; and cultivating medicinal plants domestically when feasible.

Ensure food security and nutrition: promote kitchen gardens and use of nutritious crops, promoting non-labor-intensive methods that young and old people can use, as

well as those in the early stages of the disease. Promote sustainable use of nutritious wild foods.

Promote access to microfinance: seek opportunities for small loan programs for distribution in local communities.

Conserve indigenous knowledge: Document indigenous knowledge of local land and resource use. If there is no older generation, mentor the youth and help them apply the knowledge.

Seek alternatives to unsustainable resource use: Work with communities, especially those located close to national parks and protected areas, to promote biodiversity conservation awareness and find appropriate economic, protein, nutritional, and medicinal alternatives.

Develop sustainable natural resource-based micro-enterprises: Seek opportunities with low labor requirements to relieve environmental pressures and support AIDS-affected communities (e.g., honey production, agroforestry, ecotourism).

Establish community funds to promote alternative livelihoods: Provide microfinance for communities to tackle HIV and AIDS, develop small-scale enterprises and develop demonstration projects.

Empower women: Support women's leadership and strengthen their capacity for resource management by promoting women's groups and providing training. Arrange access to microfinance for women so the household can better withstand shocks and develop microenterprises. Improve access to family planning and peer support. Support education of girls and women. Strengthen women's rights to land and other essential resources.

Support survivors so they can stay on their land: Encourage adults to write wills when appropriate, so widows and children can inherit the property and land. Promote education for all children—including girls and AIDS orphans—so they can have better opportunities when they get older.

Scaling up responses

Advocate for action

Look for opportunities to advocate for more action among the wildlife conservation community. For example, a resolution on HIV/AIDS was passed at the 2004 World Conservation Congress in an effort to scale up the response. It requested that the International Union for the Conservation of Nature (IUCN) highlight the disease and the problems it causes, promote solutions, and take action. However, in 2013, a huge amount of work remains to be done. Advocate for more action!

Encourage champions to speak out about HIV/AIDS

Support peer champions who often need reinforcement to effectively influence others. Develop national and international networks of champions to help to spread the word and stimulate action and maintain their activities over the long haul.

Pilot new approaches to reduce conservation impacts

Try out promising ideas; we are still learning about best approaches and where to focus most effectively. Document results!

Share experiences and best practices

Communicate with other organizations what does and doesn't work regarding the linkages between HIV/AIDS and conservation. Share interest and coping strategies through on-line resources such as www.abcg.org.

Collaborate with other sectors

Work with the health, development, agriculture and labor sectors. The conservation community cannot and should not fight this battle alone; we need to take part in a multisectoral approach on HIV/AIDS.

Advocate for better policies and strategies

Advocate for better policies where appropriate, such as inheritance policies for land and resource rights.

Encourage donors to fund integrated HIV/AIDS activities in conservation programs

Express interest in undertaking integrated programs; encourage donors to fund multisectoral approaches to HIV/AIDS.

Conclusion

The conservation community cannot rely solely on the health sector for solutions to HIV and AIDS: it needs to engage actively with partners in a multisectoral approach to reduce impacts. This includes measures to try to maintain our capacity, reduce transmission in the areas where we work, and reduce impacts on natural resources and land use. We cannot afford to ignore HIV/AIDS in these parts of the world if we are to achieve our long-term conservation goals. And experience has shown that the sooner action is taken, the more effective it is.

Introduction

WHY THIS MANUAL?

Is AIDS really a crisis for the conservation sector? Common questions are: ‘Why should we care? – AIDS is a health problem that the health sector should deal with. Does AIDS really affect wildlife conservation and conservation organizations?’ However, experience over the last two decades shows that AIDS has many insidious and negative impacts on the environment, and indeed is affecting every sector through its tragic and wide-reaching impacts on families, societies and economies, particularly in Africa. The health sector does not yet sufficiently address the impacts of AIDS on the environment. They still might not understand the linkages. Thus the involvement of the conservation sector is needed to make sure these issues are covered.

Impacts on the environment are mainly through loss of conservation capacity and changes in use of land and natural resources. All sectors are affected by AIDS, but the conservation sector is particularly vulnerable because:

- Conservation staff are often posted to remote areas without their families, where they may be more susceptible to contracting and/or spreading the disease
- Certain natural resource extractors are at higher risk due to the nature of their work, for example fishermen and timber loggers (see Chapter 3 for a full discussion of this issue)
- AIDS affects the way that people use land and natural resources, often leading to damaging and unsustainable practices such as the illegal over-hunting of wildlife for the bushmeat trade (see Chapter 3).

Yet there are actions that can be taken to reduce adverse impacts, both to help maintain conservation capacity in organizations and communities, and reduce unsustainable land and resource use. Further, natural resources can help AIDS-affected households develop alternative livelihoods that are sustainable and non-labor-intensive.

The importance of taking action was recognized by the conservation sector when a resolution on HIV and AIDS was passed by the IUCN Members Assembly at the 2004 World Conservation Congress in Bangkok, Thailand. Sponsors of the motion included ABCG members African Wildlife Foundation and the Wildlife Conservation Society as well as the Wildlife and Environment Society of Malawi and Ezemvelo KZN Wildlife, South Africa. The resolution recognized the impacts of the AIDS epidemic as well as the linkages between it and the environment, and recommended promotion of awareness and prevention, developing appropriate policies and procedures and finding solutions to unsustainable harvesting of natural resources. It also requested the Director General of IUCN to work with its members to highlight the issue and facilitate information exchange and implementation of solutions.

This manual aims to raise awareness of the linkages between HIV/AIDS and the environment, and provide guidance to conservation organizations on actions they can take to reduce the impacts on their organizations, the local communities they partner with, and the environment.

WHO IS THE MANUAL FOR?

This manual is designed primarily for:

- Human resource staff in government and non-governmental conservation organizations
- Project leaders and senior staff in natural resource management, conservation, environment and protected area agencies and NGOs
- HIV/AIDS peer leaders and champions in the conservation sector
- Community leaders working on natural resource management programs
- Staff of academic institutions training conservation workers
- Private sector nature tourism operators
- Staff of international conservation organizations.

We hope it will also be useful for others, including donors funding conservation work, and health, agriculture and development personnel interested in supporting and collaborating with the conservation sector.

WHAT DOES THE MANUAL COVER?

The manual provides background information on the origin of HIV, the nature of AIDS and the AIDS epidemic. It outlines the links between the disease and the environment, both on conservation capacity and on use of land and natural resources, showing how gender and poverty have a strong influence through a series of complex linkages. It then describes actions that can be taken to reduce impacts, to help maintain conservation capacity in organizations and local communities; to reduce unsustainable practices as a result of AIDS; and support AIDS-affected communities through alternative livelihoods based on sustainable natural resource use or other low-labor-intensive approaches. Finally, it outlines further needs for learning, collaboration and scaling up. It draws heavily on the work of several conservation organizations and programs working in this field, mainly in sub-Saharan Africa, and illustrates a wide variety of experiences.

The manual is **not** intended to provide comprehensive information or guidance on HIV/AIDS—there are many excellent publications that already do this. Instead, it teases out the linkages

between the disease and the environment, and provides specific guidance for the conservation sector. It provides many references to more detailed publications and to tools on the disease and health sector responses.

The manual can be used for:

- Developing and implementing HIV and AIDS workplace policies in conservation organizations
- Implementing activities that integrate HIV and AIDS issues in conservation and natural resource management projects
- Designing courses at universities and training institutions on HIV/AIDS and conservation impacts and responses
- Promoting natural resource based activities to assist AIDS affected communities develop alternative livelihoods
- Scaling up existing efforts for greater reach.

This manual is a companion volume to WWF's *Healthy People, Healthy Ecosystems: A manual on integrating health and family planning into conservation projects*, a broader document which covers many aspects of population-health-environment approaches. This manual goes into much more detail on HIV and AIDS.

HOW TO USE THIS MANUAL

Chapter 2 provides background information for all conservation audiences. In addition:

For **human resources staff**, we recommend chapters 3 and 4, on organizational impacts and responses.

For **conservation project and program managers**, we recommend chapters 3 and 5, on HIV/AIDS-environment linkages, and on ways to integrate HIV/AIDS responses into conservation programs.

For **HIV/AIDS champions** in conservation organizations, we recommend that you select the chapters and sections most relevant to you, including sections on stigma, communication and efforts to scale up. This manual includes an educational flyer that may be distributed at conferences, along with condoms, for participants

For **health specialists**, we recommend chapter 3 on the linkages between HIV/AIDS and the environment, to provide a greater understanding of the issues the conservation sector is grappling with, and the section in chapter 5 on collaboration.

For **development professionals**, we recommend chapter 5 on livelihoods and alternatives with special attention to actions needed for local communities, women and orphans. Assistance for AIDS-affected communities is especially needed in areas adjacent to national parks and protected areas where the impacts to biodiversity are greater.

For **food security, nutrition, and agricultural experts**, we recommend chapter 5 that deals with the linkages with natural resources and need to improve access to food and appropriate agriculture for AID-impacted communities.



Figure 2. Government health worker Frank Mputa prepares to collect a blood sample from a local woman during a voluntary counseling and testing day in the Tanzanian village of Nyarubanda. Photo: © Jackie Conciatore/JGI

Background on HIV and AIDS

WHAT IS HIV?

HIV stands for “human immunodeficiency virus.” It is called “immunodeficient” because the virus attacks and weakens the immune system, the body’s mechanism for protecting itself from diseases. HIV infects people and creates a deficiency in their immune system. In other words, HIV causes Acquired Immune Deficiency Syndrome, AIDS (Granich and Mermin, 1999). HIV originated as simian immunodeficiency virus (SIV) in chimpanzees and certain monkey species in West and Central Africa, likely jumping into the human population through bushmeat hunters who were infected when they came into contact with the blood of the wildlife that they killed. (The term “bushmeat” refers to the illegal and unsustainable over-hunting of wildlife for meat and income.)

Viruses are common and people become infected with them numerous times over their lives. Viruses cause the common cold, measles, mumps, and the flu. Viruses are different from bacteria, which cause such diseases as tuberculosis or cholera. Most bacterial infections can be effectively treated with antibiotic medicines, such as penicillin or tetracycline; viruses cannot be similarly treated. Viruses can best be contained by prevention. In addition, some viruses can be contained by a vaccine, like measles. At the time of writing there is no vaccine for HIV.

The HIV virus belongs to a family of viruses called *retroviruses*. A **retrovirus** is an [RNA virus](#) that is replicated in a host cell via the enzyme [reverse transcriptase](#) to produce DNA from its RNA genome. The DNA is then [incorporated](#) into the host's genome by an [integrase](#) enzyme. The virus thereafter replicates quickly throughout the body as part of the host cell's DNA. HIV may be transmitted from one person to another through body fluids such as blood, semen, vaginal secretions or breast milk. Section 2.3 “How Feasible is Prevention,” addresses transmission in further detail. (Card *et al.* 2007)

HOW DO WE FIGHT HIV INFECTION?

It is more difficult to fight HIV than other viruses not only because of the speed with which it infiltrates the hosts’ genetic material, but also because there is a long delay between the time a person is infected and begins to show symptoms of the disease. This quality of the HIV virus is shared with a subfamily of retroviruses called *lentiviruses*. *Lenti* means “slow” (Anderson, 1992).

Thus, because of its biological make-up, fighting HIV after it infects the human body has until recently been impossible. There is no cure for HIV but today, most infected people can be kept alive for years if they take the proper medicines regularly. These medicines are of two types: those that work against HIV directly, by preventing the virus from duplicating and destroying

immune cells, and those that work against the illnesses that people get after HIV weakens their immune systems. The main problems with these medicines are that they have to be taken for life, they can cause side-effects that make a person sick, and they are expensive. Also in some places the drugs still might not be accessible. Sometimes the medicines don't work at all because they were started too late or the infection is resistant to them. Work is ongoing to find a vaccine against HIV, to prevent infection, but if success is achieved, it will be a long time in the future. For all these reasons, preventing infection is the only way to stop it.

HOW FEASIBLE IS PREVENTION?

Prevention of HIV infection is feasible because it is a fragile virus that cannot live very long outside the body. It is unlike other viruses that can be spread casually from person to person, for example, by coughing, sneezing or touching. HIV can only be spread from infected persons to those uninfected through people co-mingling their bodily fluids, such as blood, semen, vaginal fluid or breast milk. Thus, HIV can be transmitted by having unprotected sex—anal, vaginal or oral—with an infected person; by receiving a transfusion of HIV-contaminated blood or coming into contact with infected blood in other ways; by sharing skin piercing instruments, tattoo needles, drug injecting syringes and needles, or razor blades, with an infected person; or by an infected mother to her baby during pregnancy, delivery and breastfeeding. The virus is not transmitted through coughs or sneezing, tears, water, shaking hands, hugging, casual kissing, or from a toilet seat, drinking fountain, doorknob, dishes, food or mosquitoes and other insects (CDC 2010).



Figure 3. Photo: © Judy Oglethorpe/WWF-US.

Internationally-accepted measures for individuals to avoid infection and prevent HIV transmission focus on changing sexual and illicit drug-taking behaviors, but also include others, namely:

- Abstain from unprotected and casual penetrative sex
- Delay the age of initiation of penetrative sexual activities
- Use latex condoms when one or both partners have HIV or their HIV status is unknown
- Get regularly tested for HIV if sexually active
- Avoid illicit drugs and sharing of contaminated needles, syringes or other sharp instruments
- Get tested for sexually-transmitted infections (STI) and treat STIs immediately
- Test women for HIV who are planning to get pregnant or as soon as possible after becoming pregnant
- Early initiation of anti-retroviral therapy
- Voluntary medical male circumcision (VMMC)
- Refrain from breastfeeding infants after having tested positive for HIV
- Avoid transfusions of blood that have not been tested for HIV

In some cases, drug therapies can also prevent HIV transmission; in others, they can reduce the risk of infection, *viz.*:

- Provide a combination antiretroviral prophylactic course of drugs to pregnant women who test positive for HIV to prevent transmission to the newborn during delivery,
- Provide antiretroviral therapy to victims of sexual assault,
- Provide antiretroviral therapy following blood exposure in an occupational setting.

DEMOGRAPHIC IMPACT OF AIDS

Advances are continuing to be made in treating people infected with HIV and in controlling the spread of the epidemic. New cases of HIV are declining in all regions of the world as the result of changes in behavior and improved availability and uptake of treatment. It is especially good news that there was a drop in 2010 in new HIV infections among children, reflecting the increasing coverage of services to prevent mother-to-child transmission. Average years of survival of those infected are also increasing because of the enhanced levels of antiretroviral therapy coverage and efficacy. Countries are also improving the accuracy of their estimates of HIV prevalence over time through surveillance systems and population-based surveys. However, Sub-Saharan Africa is still the region most heavily affected by HIV, where about 68%

of all people living with HIV live (UNAIDS 2011). South Africa has an estimated 5.6 million people living with HIV—more than any other country in the world.

New infections are decreasing. Incidence of new HIV infections has declined in 22 sub-Saharan countries by more than 26% since 1997, the height of the epidemic (UNAIDS 2011). Deaths due to AIDS are decreasing as well, thanks to increased access to HIV prevention, treatment, care and support (UNAIDS 2011). Providing education and resources is essential to continuing these trends.

Box 1. Global Summary of the AIDS Epidemic

December 2011

Number of people living with HIV at the end of 2010

Total 34 million [31.6–35.2 million]

People newly infected with HIV in 2010

Total 2.7 million [2.4–2.9 million]

AIDS deaths in 2010 Total 1.8 million [1.6–1.9 million]

(The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information. 2011 UNAIDS Epidemic Update)

Overall population growth and changes in the age structure reflect underlying patterns of mortality and fertility. Population growth depends on net fertility rates (or “natural increase”, meaning births minus deaths at a specific time)¹; life expectancy depends on mortality rates. Mortality and fertility in the developed world are low and declining; fertility is below replacement levels and their populations are aging. (The United States is the exception in the developed world; its fertility rates are approximately at replacement levels but its immigration rates are increasing (CIA 2012, Batalova and Terrazas 2010). In most of the least developed countries, mortality is either stagnant or increasing, for a variety of reasons, while fertility is still high. Developing country populations are youthful and for the most part, aging is expected to be only moderate into the second half of the 21st century. In the countries highly affected by HIV, 62 in total, mortality is increasing and expected to remain high. Leading researchers in HIV and AIDS epidemiology, demography and related areas ² who model data from these highly affected countries (forty in Sub-Saharan Africa, five in Asia, eleven in LAC, four in

¹ International migration also affects population growth, and more so in countries with decreasing fertility rates.

² UNAIDS Reference Group on HIV/AIDS Estimates, Modeling and Projections, 2007 AIDS Epidemic Update. This Group assesses the most recent published and unpublished work drawn from research studies in different countries. It also reviews advances in the understanding of HIV epidemics, and suggests methods to improve the quality and accuracy of the estimates.

Europe, one in North America, one in Oceania), find that HIV has reduced life expectancy by more than 20 years and skewed the natural age distribution. (UNAIDS, 2007)

Box 2. Life Expectancy at Birth for the World, the Major Development Groups and the Major Regions, 2005–2010 and 2045–2050

<i>Major area</i>	<i>2005–2010</i>
World	68
More developed regions	79
Africa	55
Asia	69
Eastern Europe	70
Latin America and the Caribbean	74
Oceania	64

(UN, 2012)

The more developed regions of the world attained a life expectancy of 76.5 by 2005-2010, 11 years higher than in less developed regions and 22 years higher than in the least developed countries. The gap among these groups is expected to narrow but not disappear by mid-century when life expectancy in the more developed regions is predicted to be 82.4, in the less developed regions, 74.3, and in the least developed countries, 67.2. Three-fifths of the latter group consist of countries highly affected by HIV and AIDS.

Reducing death rates due to AIDS would increase life expectancy at birth by approximately three years in Central and West Africa, by more than five years in East Africa and more than 14 years in Southern Africa (UN 2012).

East and Southern Africa is the most heavily affected region in the world. In Southern Africa (including Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe), life expectancy fell from 62 years in 1990-1995 to 49 years in 2005-2010 and is not expected to regain the level it had in the early 1990s before 2045 (WPP, xii). About 34% of all people living with HIV lived in the 10 countries of Southern Africa in 2009 (UNAIDS 2010). In countries where HIV prevalence is lower, increases in life expectancy between 2005 and 2010 have slowed as a result of the increased mortality (e.g., 2 years in Cambodia and the Dominican Republic; 1 year in Ukraine; 1.3 years in India; 2 years in the Russian Federation) (WPP, p. 16 2006 Revision). Though the epidemic continues, it has slowed slightly in recent years, likely due to increased detection and treatment. New infections in the region fell from about 2.2 million in 2001 to 1.8 million in 2009. Treatment can save lives: from 2004-2009, AIDS-related deaths declined by 20% in Sub-Saharan Africa (UNAIDS 2010).

The natural age distribution in many highly affected countries has been greatly skewed by HIV, with potentially perilous consequences for the transfer of knowledge and values from one generation to the next. (UNAIDS, 2007) For example, in East Africa, between 1985-90, those aged 20-49 accounted for 16% of total deaths, but by 2005-2010, the rate will have increased to 29%, thereby reducing the cohort of those in their prime working and parental years. (WPP, 2006.)

HIV/AIDS REQUIRES A MULTI-SECTORAL RESPONSE

HIV/AIDS is not just a health issue, even though the health sectors of affected countries are bearing an extraordinary burden in the face of the epidemic. HIV/AIDS is a development issue because its negative effects are felt throughout countries' different sectors. Among these, the epidemic has cut labor productivity and undermined economic growth, depleted the numbers of teachers and graduation rates, produced thousands of orphans and contributed to famine where farm workers have been hard hit. AIDS does this by increasing mortality and morbidity rates among age groups that are societies' most productive members (UNDP HAPCO and Ethiopia Country Office, n.d.). Instead of being the bulwarks of economies' production and societies' rearing of future generations, those afflicted die or can become dependents themselves. Over the course of the epidemic, they have made extraordinary demands upon social services and family support. In response to the resulting rates of untimely deaths and disability, countries, communities and families have been obliged to reallocate their resources to cope. Such reallocation is reducing national economic growth and per capita income in some of the world's poorest countries.

Throughout the HIV/AIDS epidemic, a global consensus has developed that in order to avoid the worst effects, countries must adopt a multi-sector response to HIV/AIDS. This requires formulating policies and strategies and implementing programs to prevent, treat and mitigate the disease throughout their productive and social sectors. "Mainstreaming HIV/AIDS" is the term coined to mean bringing the disease "... to the center of the development agenda" (UNDP HAPCO and Ethiopia Country Office, n.d.) in order address its effects in a coordinated, multi-sector way. There is an acknowledgement that governments, NGOs, the private sector, local communities and individuals all have a role to play.

POVERTY AND GENDER DISCRIMINATION ARE CAUSE AND EFFECT OF THE EPIDEMIC

While recognizing that increasing poverty is a result of the HIV/AIDS epidemic, it is also an underlying cause in the complex of countries' social and cultural dynamics that have and continue to fuel the spread of the disease. Globally, 90 percent of new HIV infections occur in poor countries and two-thirds of them are in sub-Saharan Africa (Lukas 2008). Socioeconomic

vulnerability predisposes people to undertake high risk behaviors. It prevents them from having access to medical care to treat opportunistic infections, to use ARVs, to maintain good nutritional status, hygiene and sanitation. This is the situation that describes increasing numbers of women in highly affected countries, particularly sub-Saharan Africa.

Almost half of the HIV positive people in the world are women (UNIFEM 2008). In sub-Saharan Africa, “AIDS has a woman’s face” (Kofi Anan 2002): in 2007, three out of every five adults living with HIV were women (UNAIDS 2007) and young women ages 15–24 were more than three times as likely to be infected as young men (UNAIDS, 2006). In Africa and other highlight affected countries, tackling poverty and gender inequality are central to controlling HIV (Kim and Watts, 2005, cited in Lukas 2008).

Why is this the case? The majority of HIV infections are sexually transmitted and the degree of women’s susceptibility to infection is both biologically driven and directly related to their social status relative to men. Poverty exacerbates both susceptibilities.

Women, especially young women, are vulnerable to HIV infection passing through the mucosal cells of the vaginal lining. Poor reproductive health status, the presence of sexually transmitted infections in either sexual partner, increases women’s risks of HIV infection. (Hope, 2007)

In traditional societies, where poverty is pervasive, women are rarely able to negotiate safe sex, even within marriage. Condoms are not seen as acceptable means of birth control among couples in many countries. Sex outside of marriage and sex before marriage is sanctioned for men but not for women; thus husbands often infect their wives. In some cultures and religions, men may also have multiple wives, which may increase the exposure and spread of disease. Also more men than women contract HIV through illegal drug use, and if a women’s husband is a drug user, she is likely to become infected.

The high HIV risk for adolescent girls is the result of another complex of factors having to do with social and cultural attitudes about the relative value of girls versus boys. Girls are often excessively protected by their families, to the point of being socially isolated to preserve their virginity for marriage. Families under-invest in their education and encourage them to marry young, frequently as children, to men much older. Young married girls are susceptible to violence by older males, particularly sexual violence.

Young girls who come from poor families and are not married are often pressured to provide income for their families and are thereby put in risky situations where men can prey upon



Figure 4. Photo: © Chris Bene /WorldFish

them. For example, this happens frequently in private homes where young, uneducated girls find jobs as domestic laborers. Transactional sex is common in many African cultures and can develop in such situations. This involves the giving of gifts, money or material goods, in exchange for sex. Girls accept such gifts for a variety of motivations, poverty, desire for possessions or social status, validation of worth (Luke, 2003; Weissman, 2006). The resulting relationship is rarely one in which the girl is able to negotiate safe sex.

Even if women are not themselves directly HIV infected, they become the major caregivers for those suffering from HIV infection or resulting opportunistic infections. Women are also most likely to take care of orphans upon the death of an adult family member (Monasch and Boerma, 2004). Females who lose their husbands to AIDS, and thereby become heads of households, are usually poorer than before or in comparison to households headed by men. This is because of gender discriminating laws concerning inheritance, ownership of land and access to credit, and lower levels of women's education relative to men. In too many cases, poverty forces women into the sex trade (UNIFEM, 2009).



Figure 5. Mother and child from a fishing community by Lake Victoria. Photo: © International AIDS Vaccine Initiative.

Impacts of AIDS on the Environment

INSTITUTIONAL IMPACTS

Loss of capacity in conservation organizations

Conservation requires a highly trained workforce to cover many different responsibilities ranging from policy and conservation planning to research, management, community conservation, tourism, veterinary work, administration, monitoring and evaluation, law enforcement, communications, social marketing, outreach and public relations. And as conservation scales up to work at larger scales and faces ever more complex threats from local to global levels, the workforce needs additional skills in areas such as wildlife crimes, climate change, energy, infrastructure, extractive industries, agriculture, health, governance, security, and of course diplomacy and advocacy.

Yet conservation capacity faces a huge threat from AIDS, particularly in sub-Saharan Africa. Many well-trained and experienced conservation leaders, and technical and operations staff have been lost to AIDS, in government, nongovernmental organizations, communities, the private sector, academic institutions, and donor organizations. For example, between 2001 and 2010, the Wildlife and Environmental Society in Malawi lost 11 staff members to AIDS-related deaths; at the end of this period it had a staff of 52 (Mauambeta *et al*, 2010). A national fire awareness program in southern Africa lost 10 of its 12 extensionists (Gelman *et al*, 2005).

In Southwestern Uganda, studies on community-based natural resources management (CBNRM) have recommended the need to maintain institutional memory lost through AIDS-related deaths by documenting management decisions, meeting minutes, management systems and research results (Tumwin, 2007)

Why are some conservation staff at extra risk?

Conservation personnel are particularly at risk when stationed in remote areas far from their families and communities where they are more likely to engage in risky behaviors. In some countries protected area staff are based remotely for 11 months at a stretch and are allowed only one month of annual leave to see their spouses and families. In these remote areas there may be

no access to HIV/AIDS information or condoms, and staff are more likely to practice risky behaviors. From a survey of conservation organizations in South Africa and Zambia (Cash and McCool 2007), and informal discussion with conservation staff in several different African countries (Gelman et al. 2005), sexual interactions with prostitutes, women in local communities, tourism concessionaires and colleagues can increase due to lack of entertainment, boredom, loneliness, stress, excessive use of alcohol and buildup of sexual tension.

The 2006 Ethiopian Demographic and Health Survey found an HIV rate of 3% among men who slept away from home six or more times in the year, compared with less than 1% for those who never slept away, or who did so less than six times (Ethiopia Central Statistical Agency, 2006)

Many conservation organizations are predominantly staffed by men, with a minority of female employees who are generally in more junior posts with less pay. These female employees are frequently supervised by men, and may find it difficult to avoid unwanted sexual relations, or to negotiate for safe sex.

Conservation staff who travel often, such as drivers, community conservation personnel, and people attending training programs and workshops away from home, may be more likely to engage in risky sexual behavior and may contract and add to the spread of HIV. Conservation staff working in rural areas can be carriers of the virus to otherwise isolated communities, thereby increasing the risk of HIV transmission between staff and community members. Law enforcement personnel, such as park guards, may feel as if they have extra power in the community; if supervision and discipline of these personnel are inadequate, they can sometimes force local women to engage in sex if they cannot pay fines for petty offences. The practice of rotating law enforcement staff within and between conservation areas to reduce risk of corruption and broaden their conservation experience can also lead to an increase in HIV transmission (Gelman et al. 2005).



Figure 6. AIDS workshop group photo.

Photo: © Nancy Gelman.

Box 3. Kasungu National Park, Malawi

In the 1980s and 1990s, management of Kasungu National Park in Malawi operated from a main camp and five outlying posts, each of which had a team of game scouts living onsite, away from their families, patrolling sections of the park for a month at a time. They had one break a month from their duty stations on payday, when they were provided with transport to Kasungu Boma. When scouts showed up for the ride back, many had been drinking and some were accompanied by women they had met in bars. The consequences unfolded a few years later. Between 2000 and 2006, Kasungu National Park lost 17 middle managers and junior scouts to health-related deaths—a staggering 22 percent loss of its workforce (Kumchedwa 2007). Conservation capacity in Kasungu is now too weak to manage the whole park, and poaching has escalated, leading to the decline of large mammals such as buffalo and elephant. In total, Malawi's Department of National Parks and Wildlife (DNPW) lost 80 park and reserve staff during that period (see Table 1) (Kumchedwa 2007).

Table 1. Health-Related Staff Losses in Malawi's National Parks and Game Reserves between 2000 and 2006

Protected Area	Number of staff deaths							
	2000	2001	2002	2003	2004	2005	2006	Total
Lengwe National Park	1	3	5	1	4	3	1	18
Liwonde National Park	0	2	0	0	0	1	0	3
Kasungu National Park	5	2	2	2	1	2	3	17
Nkhotakota Wildlife Reserve	1	3	0	2	2	2	1	11
Nyika National Park	1	3	2	6	3	1	1	17
Vwaza Marsh Wildlife Reserve	0	1	0	0	1	1	1	4
Lake Malawi National Park	2	2	2	0	4	0	0	10
Total	10	16	11	11	15	10	7	80

What are the impacts?

Conservation staff ill from opportunistic infections of AIDS are often unable to perform their jobs properly. Affected park guards may not be strong enough to patrol protected areas adequately and this decline in law enforcement effort can result in increased illegal activities. Absenteeism from work also occurs when staff care for family members with AIDS and attend funerals of relatives, friends and colleagues. In addition, AIDS can cause a decline in morale as successive bereavements sap spirits and enthusiasm for work, and ultimately affecting productivity (Simon *et al.* 2000).

AIDS affects institutional leadership and vision through loss of institutional memory and continuity of programs and operations, and can greatly reduce organizations' ability to achieve conservation goals. Conservation organization work with many partners (including local communities, government agencies, NGOs, donors, universities and the private sector) to achieve their goals. Partnerships take time to build as the development of trust and sound personal working relationships are essential. AIDS can threaten partnerships due to loss of key staff. Conservation funding can also be impacted if donor relationships lapse and obligations are unfulfilled.

The workload of healthy human resource staff is significantly increased in organizations affected by the epidemic. Staff with AIDS are often sick and don't work for extended periods, yet it may not be possible to recruit replacements while they are still on the payroll, especially in government agencies.

Financial costs of AIDS to conservation organizations

AIDS has significant financial costs for conservation organizations that are often unanticipated and unbudgeted. There is a huge financial loss in training investment when highly qualified staff die; Ph.D. and Master's studies in the U.K. and U.S., for example, can cost up to \$60,000 per year (including tuition and living expenses). Training new staff or re-training existing personnel to fulfill new roles is very costly. For example, The College of African Wildlife Management, Mweka, Tanzania, for tuition charges US\$2,875 per annum for Tanzanian students and US\$6,175 per annum for international students for advanced and postgraduate degrees in wildlife management (College of African Wildlife Management 2010/2011). A 10-month certificate course in natural resource management at Southern African Wildlife College in South Africa costs about US\$7,272 (60,000 Rand) (SAWC 2011).



Figure 7. Mweka College of African Wildlife Management entryway sign.

Photo © Sean Southey

In addition, AIDS can divert limited conservation funds for medical expenses, sick leave, terminal benefits and funeral costs. Some protected area authorities (such as Ezemvelo KwaZulu Natal Wildlife, Meier 2003) hired additional personnel such as occupational health nurses and social workers to provide increased services to staff, or have contracted health clinics to provide services.

Tourism can provide substantial long-term financing for protected areas (Mulholland and Eagles, 2002). Since many national park systems and indeed national economies depend on

tourism for foreign exchange and financial viability, AIDS can pose a severe threat. Tourists may be afraid to visit areas with high HIV prevalence, and react badly to being served by visibly sick employees. In addition, increased absenteeism and loss of employees can reduce the quality of visitor services (B. Meier per. com. 2003). Tourists are known to exhibit more risky behavior while traveling, including casual sex, and drug and alcohol abuse which are associated with increased risk of HIV transmission (Forsythe 1999).

Box 4. Impacts of HIV/AIDS on tea harvesters in western Kenya

A cost analysis of tea harvesters in western Kenya showed that those with HIV/AIDS produced significantly less than healthy workers. Those with HIV/AIDS:

- were absent from work 31 days more on average per year
- spent 22 more days on 'light duty' positions
- harvested 35.1% less tea in the final year (Fox *et al* 2006)



Figure 8. Local community members are employed at the Budongo ecotourism site. Photo: © Jennifer Croft /JGI.

IMPACTS OF AIDS ON COMMUNITY CAPACITY

Loss of leaders and champions, impacts on community institutions

Communities practicing community based natural resource management (CBNRM) are being seriously affected by AIDS in parts of sub-Saharan Africa. Many respected leaders and champions in natural resource management have been lost to the disease. In some cases local institutions governing natural resources are breaking down, which can make it more difficult for communities to follow through on resource and land use management plans. In addition, healthy community members may have less time for sound resource management if they have to care for the sick and refocus livelihood strategies on immediate survival.

Box 5. Local institutions break down

The Namibian Association of CBNRM Support Organizations (NACSO), an umbrella organization of non-governmental organizations (NGO) supporting CBNRM, reports that loss of life as a result of AIDS deeply affects communal conservancy leadership, management and institutional memory. One conservancy recently lost a staff member who had worked with the program and international NGO staff since 1993. This individual had served as a pioneer in the organization and was deeply involved in many aspects of the conservancy management. The loss was deeply felt (Berger 2010).

Impacts on indigenous knowledge

Knowledge of how to harvest natural resources sustainably, and how to farm and practice agroforestry, is being lost. In many families the middle generation—parents—is incapacitated or dead; grandparents are too old to work; children are either burdened with extra duties or orphaned. Due to this generational gap, traditional knowledge is not being passed down; a generation of orphans is growing up without understanding how best to work the land and use resources sustainably. This lack of adequate training often results in the unsustainable use of resources (see section 3.3).

Abnormally high HIV risk for some natural resource extractors and traders

Harvesting and trading of certain resources brings a higher risk of HIV infection, particularly if the labor process requires men or women to travel away from home overnight or for extended periods of time. This applies to migrant fishermen in many parts of Africa (See Box 7) (Bishop-Sanbrook and Tanzarn 2004; Torell et al. 2006).

It is likely that logging in remote areas is also resulting in the spread of HIV, for example in the Congo Basin, as new roads open up access to hitherto isolated forest-dwelling communities and loggers and truck drivers move in for months or years at a time. Structuring logging activities so that families can accompany loggers could help to slow the spread of HIV (CIFOR, 2006).

Box 6. Charcoal traders in Mozambique

In Maputo, Mozambique, women charcoal traders are reported to be at high risk of contracting HIV (Dava 2006). Population growth in Maputo has increased demand for charcoal where over 90 per cent of Mozambique's population depends on charcoal and firewood for energy. This growth has resulted in depletion of woody vegetation around the city, and charcoal is now coming from further afield in neighboring provinces. Charcoal trading is traditionally a woman's job, while men are responsible for producing it in the field. Female charcoal merchants must now travel further to find charcoal, sometimes staying away for a week at a time, and sleeping in railway stations and improvised shelters. Transport is scarce, and often women have to negotiate using sex to secure transport for charcoal; this is rarely safe sex using condoms.



Figure 9. WWF Cameroon poster "Le SIDA Existe!".

LINKS BETWEEN NATURAL RESOURCE USE AND HIV/AIDS

Impacts on natural resources

Poverty and AIDS are closely related in Africa, in part because the disease affects economically active age groups, and households with sick family members often lose salaries and agricultural labor. In order to cope, rural households often have to sell assets, including draft animals and land, reducing their future productive capacity (Barnett and Whiteside 2006). The poor are particularly vulnerable as they have less of a cushion against shocks and because low nutrition speeds the progress of the virus, shortening the time that people can be productive. When rural households lose the ability to continue with their traditional agricultural livelihoods, they often turn to natural resources as a safety net (Africa Biodiversity Collaborative Group 2002). The additional harvesting of natural resources for subsistence, however, is not always done in a sustainable manner. In part, this is due to the increased amount harvested or a change in harvesting practices, which may not allow for adequate re-growth. At the same time, CBNRM institutions that ensured sustainable management are breaking down, and indigenous knowledge including traditional taboos are being lost.

Box 7. Fishing & HIV/AIDS

Fishermen spend time away from home, in conditions which are often lonely, dangerous, and physically taxing, in a masculine subculture where women are marginalized. Spells of hard physical work are interspersed with periods of spare time in ports, waiting for the next sailing. When they sell fish or are paid by the boat owner at landing sites, fishermen gain cash which is easily spent on alcohol and sex. Often, condoms are not available, and HIV and AIDS-awareness is low (Bishop-Sambrook and Tanzarn 2004). Sometimes, fish are bartered directly for sex. Some women compete intensively with each other to obtain the catch for small-scale processing and sale on local markets (Gordon 2005), while others may barter sex for fish to feed their families (Dwasi 2006). In this way, HIV is spread along coastlines of lakes and oceans of Africa. HIV prevalence rates are exceptionally high among some fishing communities. For example, Kissling et al. (2005) found that prevalence rates for fisherfolk were 20.3% in the Democratic Republic of Congo, 30.5 per cent in Kenya, and 24 per cent in Uganda; these rates were respectively 4.8, 4.5, and 5.8 times higher than in the general population. In Kenya and Uganda, this incidence was higher than for truck drivers, and the Kenya study suggested that the rate there was even slightly higher for fisherfolk than for sex workers. Yet rural fishing communities rarely have access to good prevention, treatment, and care services.

Fuelwood: Fuelwood consumption often increases for a number of AIDS-related reasons. Heavy fuelwood consumption is reported for funerals, and since the number of funerals has greatly increased in recent years, there is an increased demand for firewood in some areas (See Box 8). Fuelwood consumption also increases when rural households are nursing AIDS patients, needed for cooking safe, nutritious meals and for boiling water to make it safe to drink. Fuelwood is also essential for preparing hot compresses, heating water for bathing and sterilizing utensils for patients, as well as providing warmth for those who are ill and suffering (Gebert *in press* in WHO 2006). Again, this increased consumption puts added stress on local forests which are often not able to sustain higher levels of extraction.

Use of firewood also aggravates health problems. Smoke from indoor wood fires in rooms that are not properly ventilated contributes to respiratory problems (Gerbert N. *in press* in WHO 2006), particularly serious for immune-compromised AIDS patients. Pneumonia is the most common serious infection among AIDS patients and can be fatal (CDC2007).

In some cases the alternative livelihoods that AIDS-affected households develop necessitate more fuelwood. Barany et al. reported that some households turned to beer brewing and food vending as alternative livelihoods, and their fuelwood consumption increased for these activities (Barany et al. 2005).

Box 8. Firewood consumption at a Malawi funeral

The Wildlife and Environment Society of Malawi calculated that over nine tons of firewood were consumed because of one death in central Malawi. Linda Chibweza of Chiuzira Village, T/A Tsabango, Malawi, had been married for thirteen years and had six children when she fell ill in 1998. Her husband, a painter, soon married another woman and sent no support home. Linda was bedridden for three years, while her mother and children nursed her and kept her warm by a wood fire; she died in 2001. People said she had died of the Government Disease, *Matenda a boma*, AIDS. During the period of her sickness, Linda’s children resorted to selling firewood and charcoal to earn a living since Mr. Chibweza, a husband and father did not provide for the family. The wood consumed was for the following purposes:

Fires to keep visiting mourners warm as they slept outside the funeral home at night	2.0 tons
Wood burned to heat water for grave diggers to wash	0.5 tons
Wood to cook funeral meal	1.5 tons
Firewood used to bake bricks to build a tomb:	2.5 tons
<u>Wood to brew beer and cook for those who congregated:</u>	<u>2.5 tons</u>

Total: 9 tons

Timber:

High adult mortality rates in the worst AIDS-affected countries contribute to a greater demand for coffins (see Box 8). While in countries with abundant timber this may not cause such a problem, countries with only little forest remaining, such as Malawi, can be heavily impacted.

Wildlife and Bushmeat:

In Malawi, AIDS is believed to cause an increase in illegal hunting of wildlife in certain national parks and protected areas, as it is often less labor intensive to set wire snares and trap animals for consumption and commercial sale than to farm. Also AIDS-impacted children may not have learned how to agriculture from their parents so they instead set wire snares. In Maasai Mara, wildlife scouts have found that the ages of the poachers have been decreasing as the more young men around the age of 15 have been poaching then in the past. They believe that this is due to AIDS as these young men are setting snares to catch animals to sell as bushmeat in order to earn income (Kariuki, 2011). There are anecdotal stories of organized crime involving vulnerable AIDS-affected youth in the illegal commercial bushmeat trade.

According to the Bushmeat Crisis Task Force, bushmeat is the illegal and unsustainable over-hunting of wildlife for food and income. Bushmeat applies to all species of wildlife used for meat. Species killed for bushmeat range from elephant; giraffe, gorilla; chimpanzee and other primates; zebra, antelope; crocodile; porcupine; bush pig; cane rat; pangolin; monitor lizard; guinea fowl; etc. Bushmeat is illegal when it includes: illegal methods of hunting (wire snares, unregistered guns); illegal species (endangered, threatened, or protected); it is taken from protected areas; and when unsustainable offtake is for commercial trade or non-commercial uses (BCTF 2013). The commercial bushmeat trade has caused local extinctions and declines of many wildlife species and the economic, cultural and ecosystem services they provide (BEAN 2013). The loss of wildlife impacts livelihoods and limits future opportunities and access to benefits from wild animals (BEAN 2013).



Figure 10. Photo: © Corinne Staley /Flickr

Box 9. Timber consumption for coffins

In Malawi, for example, it was unusual to find a ready-made coffin before the 1980s. However, in the mid-2000s, coffin workshops were common with coffins sold along roadsides. Many coffin workshops have been concentrated near the two main hospitals, Queen Elizabeth Central Hospital in Blantyre and Kamuzu Central Hospital in Lilongwe, which averaged 20 and 25 deaths, respectively, each day, a high proportion of them AIDS-related (Sakala pers. comm.) One coffin maker, Chanache Coffin Workshop, sold between 2,000 and 3,000 coffins each year from just two shops near these hospitals. Fortunately, coffin makers no longer seem to be selling as many coffins as they did a few years ago (Kristof 2012). However, the impacts on tress and forested areas are important to consider. Coffins in Malawi are made of softwood and hardwood—the former from pine plantations, and the hardwood from valuable indigenous trees such as mahogany from natural forests. Hardwood coffins are much preferred if families can afford them, and hardwood timber has become very scarce in part due to rising demand. Hardwoods now come mainly through illegal logging in forest reserves, sometimes in collusion with forest guards—and degradation in forest reserves is a serious conservation problem (Mauambeta, pers. comm.).

It has also become easier to poach in some protected areas, because AIDS has reduced the capacity of wildlife authorities for law enforcement due to illness, death, or absence to attend funerals (Mauambeta 2003). A study in the Kanungu district of Southwestern Uganda found that some people had begun to rely on forest resources in Bwindi and Queen Elizabeth National Parks; often they resorted to poaching wildlife because they were too weak to continue farming and needed access to food and income (Tumwine 2007). In the early 1990s, many fishermen in

the Rakai District of Uganda died of AIDS, and fishing was taken up by young, unskilled youth who had little knowledge of sustainable fishing methods or techniques (Tumwine 2004).

Traditional healers sometimes recommend traditional cures of soups, meat, or oil from certain wild animals, increasing the illegal bushmeat trade (Matiru, V. & Osur, J. 2008). In South Africa, hunting and consumption of wild meat has been found to be more common among highly vulnerable children (those from families that have been affected by AIDS) than least vulnerable children (McGarry 2009). Also in South Africa, a belief that turtle eggs cure AIDS has led to communities around the marine reserves in Kwazulu Natal to increase collection of the eggs—both for their consumption and sale (Matiru, V. & Osur, J. 2008)

Wild foods:

Collection of herbs, wild vegetables, and insects was found to increase in Bushbuckridge, South Africa, as AIDS-affected families looked for alternative food sources (Hunter et al. 2005). In South Africa, research revealed that children living in AIDS affected households in central KwaZulu Natal supplemented their diets using wild foods such as birds, rodents, wild fruits, and tubers (Shackleton et al. 2006). One woman from Bushbuckridge, South Africa, commented that after the loss of her household's primary wage earner, her family depended more on wild foods because they could not afford to purchase food: "Locusts are now our beef." (Hunter et al. 2005)

Medicinal plants:

There is increased use of medicinal plants to treat opportunistic infections associated with AIDS, such as thrush, shingles, diarrhea, and coughs (Barany et al. 2005). This is very common in remote rural areas, where access to modern health care is often inadequate or even completely lacking, though demand is also increasing from urban areas for traditional 'natural' cures (UNDP 2004). For example, in Kenya where ARV drugs are provided for free, traditional medicines are more expensive and are thus only used by those with extra money (Matiru, V. & Osur, J. 2008). Overharvesting is particularly prevalent for medicinal plants in parts of sub-Saharan Africa. While most people are harvesting these plants for domestic consumption, the burgeoning trade in medicinal plants is also contributing to an increase. Commercial collection is conducted both by local people and by outsiders. Many of these commercial harvesters have no indigenous knowledge of how to harvest without damaging the plants (Barany et al. 2005). Wild

Box 10. Wild Honey Harvested for Medicinal Use

Many herbal medicines are bitter, and in Tanzania honey is often used to make medicines more palatable. When mixed with other ingredients, honey is also used to treat colds, coughs, to clear sinuses, treat loss of hair and cure stomach ache. Daily use of honey is said to strengthen the immune system. Forests and other natural areas provide the best environment for beekeeping, and without adequate conservation may make beekeeping more difficult (Bashemererwa and Mwakitwange 2009).

stocks of many medicinal plants are being seriously depleted; however this aspect has been severely neglected by conservation programs.

Box 11. Conservation status of medicinal plants

In a 1998 report, TRAFFIC International conducted a study of the trade in medicinal wildlife in east and southern Africa. Researchers found that over 100 indigenous plant species and 29 animals species were identified as conservation or management priorities at a national level—that is, they had parts that are harvested in a destructive manner, and are either slow-growing, traded in large volumes, sold at a high price, or are scarce. Examples of conservation priorities include:

- African Cherry (*Prunus africana*)
- Aloe (*Aloe sinkatana*)
- Dugong (*Dugong dugon*)
- African Wild Ass (*Equus africanus*)
- African Rock Python (*Python sebae*)

(Marshal, 1998)

Other forest products:

Research in Mozambique and Malawi found that households that had lost family members also used an increased amount of other forest resources, including thatch and materials for making mats and baskets (Barany et al. 2005). Bamboo and reeds from Bwindi National Park in Uganda are used to transport the sick and dead from hospitals (Matiru, V. & Osur, J. 2008, Dwasi 2002). In Kenya, forests are often used to graze livestock and manure is collected which can be used for fuel or compost (ibid).

Impacts on land-use

As households lose labor and are forced to seek alternative ways of supporting themselves, changes in land use often occur. In some cases family survivors will abandon areas, moving away to live with extended family. In this case there may be a temporary regrowth of natural vegetation in the land left behind, but this is likely to be short-lived in countries where land is scarce, such as Kenya and Malawi. Often others will move in, including people who may not have the local indigenous knowledge to manage the land in harmony with nature. In Malawi, a survey found that families affected by AIDS are not as able to maintain contour ridges in

gardens, and as a result, soil erosion increases which eventually leads to reduced food security (Mauambeta, 2003).

Use of fire:

Poverty and fewer hands on the farm have also been linked to an increased use of fire to clear land (Jurvelius, 2003). In the Caprivi region of northeast Namibia—an area with two national parks—fires have increased since 2003 as AIDS orphans and remaining family members use fire as a cheap, labor-saving method to clear agricultural land (Jurvelius pers. comm.). Uncontrolled fires destroy forest foods and building materials; they can also have adverse impacts on protected areas and community conservation areas, especially if they occur at the wrong time or frequency for the management regime of the affected place. Many of the orphaned youth are inexperienced in fire management and are unaware of these potential impacts (Sigriswill, 2004).

Land inheritance:

In many African countries and societies, widows and orphans cannot inherit land, and may lose their right to use and access land and other natural resources if the male head of the household dies before them. After the death, surviving family members may be dispossessed through land grabbing relatives; this can include ‘guardians’ of orphans (Drimie 2002). Even if national laws allow for female inheritance, they may not be enforced, for a number of reasons. As in other sectors, the capacity of government and traditional land administrative systems is being affected by loss of staff to AIDS. There is a risk that institutional memory is lost, and remaining staff are challenged to cope with the increased workload (ibid.). In some African countries, customary law governing traditional inheritance overlaps with and sometimes contradicts national laws on women’s inheritance rights, and national law may not be enforced because of lack of capacity, and because women are often not aware of their rights (Strickland 2004). As poverty deepens, widows and older daughters may have to turn to transactional sex to support the family. It is often impossible for them to negotiate safe sex even if condoms are available. This greatly increases their risk of contracting HIV or passing it on (Fleischman and Morrison 2003). In some cultures, there is a practice of widow inheritance by the brother of the deceased that also can spread the disease (Topouzis 1998).

HIV/AIDS, gender, poverty and natural resource links

There is very little documented about ways in which environmental degradation influences the spread of HIV, but it is very likely that environmental degradation and overuse of natural resources is deepening poverty, and resulting in an increase in the spread of HIV (*e.g.*, women charcoal traders in Maputo).

Many of the impacts on land and natural resource use outlined above have gender links through the roles of women in ensuring household wellbeing and the resources they use for

this; the commercial activities they engage in such as charcoal and fish trading; and the laws relating to women and land. Rural women who play a large role in management of certain natural resources are often disproportionately affected by the AIDS epidemic since they are major care givers, and the resources they manage are often in greater demand (*e.g.*, water for washing the sick; wild food plants to supplement their diet; fuelwood to cook, boil water, and keep invalids warm; and medicinal plants to treat side-effects of AIDS).

When women are forced to find alternative livelihood strategies due to loss of income when they or other family members can no longer work, they often turn to these resources for domestic use as well as for sale. As stocks of firewood, medicinal plants, and other resources decline, women's work increases, as they are forced to spend more time and work harder to collect and carry resources home. This is occurring at a time when women are often financially less secure, less healthy, and have a lower level of nutrition due to the effects of AIDS.

At the same time as demand for resources is increasing, women's traditional resource management and governance systems often come under strain as they have

less time to participate in natural resource user groups and enterprise co-operatives.

Traditional controls over resource use are breaking down in some areas and forest product collection has become a free-for-all. Girls' education is adversely affected, as more girls stay at home to nurse the sick and cope with the household. This has implications for future natural resource management. (Oglethorpe and Gelman 2008).

NATIONAL SOCIAL AND ECONOMIC IMPACTS

It is very likely that the effects of AIDS on natural resources will intensify. The epidemic proceeds in four waves: 1) HIV infection, 2) the onset of opportunistic diseases, 3) illness and death, and 4) social and economic disruption at household, community, national, and international levels. Affected countries have not yet fully felt the third wave, or advanced far into the fourth (UNAIDS 2006a). These countries, however, will soon experience social and economic impacts, including erosion of human capital in every sector that will last for years. Workforces will be seriously limited: Namibia's agricultural labor force is predicted to drop by over 25 percent by 2020 (International Labor Organization 2004). Many countries are already struggling to keep schools adequately staffed and sustain police forces and armies (whose HIV rate is often higher than the national average, see Box 12). Against this background, the number of orphans grows, with a predicted 18.4 million by 2010 in sub-Saharan Africa (Lamprey et al 2006).

Box 12. HIV/AIDS and uniformed services

Uniformed services, including park and forest guards, have a particularly high risk of HIV infection and transmission compared to the general population. During peacetime, occurrence of sexually transmitted infections (including HIV) is 2 to 5 times higher in uniformed forces than in the general population, and in times of conflict can be much higher. Multiple factors influence this exceptionally high rate, including the following:

- *Age of personnel:* Most fall into the age bracket that is most vulnerable to infection.
- *Encouragement of risk-taking:* This line of work is particularly risky, and often promotes risky activities.
- *Attraction of sex workers:* Camps for uniformed services can attract sex workers.
- *Time away:* Service often includes extended time away from family, leading to the need to diffuse loneliness, stress and the build-up of sexual tension (*UNAIDS, Fact Sheet No.3*)

The impacts for humans and wildlife of increased infection can be great. For example, Kasungu National Park in Malawi lost 17 staff members between 2000 and 2006—22% of its 2000 workforce level (Kumchedwa, 2007). As a result, poaching has increased in the park, leading to a serious decline in several species.



Figure 11. Armed game ranger leading a walking tour by the Masai River. Photo: © Shankar S./Flickr

HIV/AIDS AND CLIMATE CHANGE

Climate change is likely to exacerbate many of the linkages between conservation and HIV/AIDS. Already, climate change is altering weather patterns in many parts of the world including temperature and precipitation, and the frequency and intensity of extreme weather events will increase as climate change advances. While little concrete evidence is available as yet, the following types of synergistic interaction between climate change and HIV/AIDS are likely in relation to the environment:

Impacts on natural resources.

As climate change advances, the distribution and abundance of many plant and animal resources will change, as changing conditions affect the survival and competitiveness of local species. In places where key natural resources decline, resource-dependent households and communities will suffer. This is likely to affect households that depend on natural resources as a safety net when other forms of livelihood such as employment and agriculture are affected due to AIDS. Other resource species may appear or become more abundant to offset this, but local people may not have the traditional knowledge to use them, or may not have access to markets for them.

Declining food security and nutrition.

Climate change will increasingly threaten food security. In addition to impacts on wild foods, it is causing geographical shifts in crop suitability. Yields are also affected by changing rainfall patterns including increased frequency of drought in some areas, and increasing pest problems when conditions become more favorable for pest species. Livestock can also be affected, for example by drought, disease and increased temperature. All this can increase food insecurity and adversely affect nutritional status—in addition to the effect of AIDS on food production (e.g. AIDS has been found to amplify the effect of drought on child nutrition in Southern Africa, Mason et al. 2005). For those already infected with HIV, declining food security and malnutrition further debilitate the immune system,



Figure 12. Photo © Rachel Neugarten

which makes people more susceptible to malaria, TB, and other opportunistic diseases (Thornton et al. 2006).

Loss of traditional knowledge.

As climate variability increases, rural communities in many parts of the developing world are using traditional knowledge to adapt: for example, using drought-resistant crop varieties as rainfall patterns become more erratic. When AIDS results in loss of traditional knowledge about locally adapted seeds and varieties, a region's ability to prepare for a changing climate can be impaired, and can result in increased demands on institutions dealing with risk reduction and disaster response (Suarez 2008).

Increased drought and water stress.

Besides affecting nutrition, declining water supplies can have direct impacts on the ability to care for AIDS patients who require extra water for washing and are more likely to become sick from drinking unclean water.

Decreasing capacity to adapt to climate change.

Capacity is a major factor determining people's vulnerability to climate change, and their ability to adapt to it. On an individual and household level, AIDS reduces adaptive capacity and hence increases vulnerability to climate change impacts. On a national level, AIDS is affecting the ability of countries to address climate change due to loss of qualified staff and institutional knowledge. Suarez et al. (op. cit.) examined the combined effects of AIDS and climate change on capacity for disaster management, and found that AIDS threatens to vastly overstretch the capacity of disaster management institutions in southern Africa, at a time when the demand for their services is growing due to climate change. Also, climate change puts remaining staff at greater risk because in times of disaster more frequent, longer trips are needed by field staff engaged in disaster relief, increasing the chances of risky sexual behavior. Similarly, extension workers promoting climate change adaptation will require more regular visits to the field as climate change advances.

Increasing migration:

Although predictions differ widely, UNDP reports that by 2050 there will be 200 million 'climate migrants' worldwide—people forced to move for a variety of reasons related to climate change (e.g. flooding, drought, increased storm severity, and elevated sea levels leading to loss of land or salinated drinking water) (UNDP, 2007). With many more people on the move, there is a heightened risk of spreading HIV. Migrants are generally at higher risk of contracting HIV as they are one of the most vulnerable groups in a society—their vulnerability stemming from poverty due to lack of home and land, as well as lack of stable access to education and health services. In addition, migration can separate families and couples, leaving women and children

to fend for themselves; these women may have to turn to unsafe prostitution. Due to their mobility and lack of home-base, migrants are more difficult for health organizations or agencies to reach with services for education, prevention, treatment and counseling (Global Unions undated).

Disproportionate impacts on women and the poor.

Similar to HIV/AIDS, climate change often has disproportionate impacts on women and the poor. Dwindling water supplies due to climate change particularly affect women, whose workloads may significantly increase if they have to fetch water from further away—and in AIDS-affected households, this is on top of the extra need for water. Women may also have a higher risk of rape and possible HIV infection when further away from home collecting water (Suarez op. cit.). Declining incomes from farming and fishing due to climate change may possibly drive some women into sex work and increase HIV infection rates (United Nations Population Fund 2009). In Malawi, it is not uncommon for girl children to be married off early in times of drought, usually to older men who may have had numerous sexual partners, which may expose the girls to HIV (Suarez op. cit.). Poor and marginalized people are often most vulnerable to climate induced changes in their ecosystems, as they have least capacity to withstand climate shocks such as drought and recover afterwards (Bapna et al. 2009). Capacity of households often declines if they become affected by AIDS, making them more vulnerable to climate change.



Figure 13. Coping with climate change in Malawi. Photo: © CIDSE.org

What can conservation organizations do in the workplace?

WORKPLACE POLICIES AND PROGRAMS ARE ESSENTIAL

Addressing HIV/AIDS must be considered in the planning for the routine operations of organizations and both employers and employees have a stake in finding appropriate responses. A body of experience has been building around the world of ways to address HIV/AIDS in the workplace from which conservation organizations can learn and build upon. Employee groups have been working with employers to develop policies and programs which address both sets of interests, and while there are inevitable conflicts between these sets of interests, there is a preponderance of agreement internationally about the content of workplace policies and programs. There is no particular sequence of which should come first, the policy or program; but if a long period of time is required to formulate and approve a policy, it would be preferable to implement a prevention program directly, without waiting for completion of the formal policy process (Rau 2002).

Box 13. Mt. Elgon Conservation Program: an example of an HIV/AIDS Workplace Program

Covering three national parks in Uganda—Mathjako, Painupe and Mt. Elgon—the program is responding to loss of staff due to AIDS through sensitization and medical intervention. Management staff attends workshops focusing on HIV/AIDS in the workplace and in the community, and passes on the information to other staff members. Medical services, including counseling and voluntary testing services, are provided by The AIDS Support Organization (TASO). Finally, education about the disease and behavior change modifications is provided to staff, along with free condoms. The program has seen an increase in demand for condoms, the number of people requesting voluntary testing and counseling, and demand for HIV/AIDS awareness programs, as well as decreased mortality rate of staff members in the last three years (Tumwine, 2007)

4.2 HIV/AIDS WORKPLACE POLICIES

An HIV/AIDS workplace policy is a tool to be used by managers, supervisors and employees in confronting the disease in the workplace. It should set a foundation for establishing prevention

and care programs, offer a consistent framework for managers and supervisors to refer to in dealing with employees, establish standards of behavior for all employees, spell out what assistance the organization will offer to prevent the disease and support those afflicted with it. A written HIV/AIDS policy is preferred over an unwritten one or one which lumps the disease into the category of other life-threatening diseases like cancer. This is because HIV/AIDS differs from other diseases in that it is fatal if untreated and carries with it a unique social stigma. It also specifically affects people during their most productive working years.

Organizations should communicate their HIV/AIDS policies with donors, sub-grantees, implementing partners, and local government and agencies. The disease has no boundaries and in high prevalence countries, no organization is exempt from its effects. Organizations that reach out to others to establish policy and program linkages ultimately draw strength from collaboration and establish themselves as leaders in social responsibility.

Box 14. Developing organizational policies in Namibia

As an initial step in their HIV/AIDS program, the Namibian Association of CBNRM Support Organizations (NACSO) developed an HIV/AIDS workplace policy that could serve as a model for member organizations in designing their own policies. Member organizations participated in developing the NACSO policy document, which included language on non-discriminatory work environments, working conditions to limit the spread of HIV, and access to quality information and education. NACSO then facilitated the development and tailoring of workplace policies for member organizations and by 2009 eleven of the fifteen member organizations had formalized HIV/AIDS policies. NACSO, along with member organizations, worked with communal conservancies to develop HIV/AIDS policies that would provide guidelines for mainstreaming prevention, care and support into the conservancy workplace; by 2009, 19 conservancies finalized policies. While developing a policy is an essential first step, support from leaders in an organization or agency is key to implementation and efficacy of the document. Continued education, outreach and mentoring by NACSO to organizations and conservancies can help motivate peer educators in the face of organizational apathy (Berger, 2010)

HIV/AIDS policies for organizations share basic principles that have been recommended by international groups, such as the International Labor Organization (ILO), United Nations Joint Programme on HIV/AIDS (UNAIDS), International Confederation of Free Trade Unions (ICFTU) and business coalitions such as the Global Business Council on HIV/AIDS, The Federation of Kenyan Employers, the Thailand Business Coalition on HIV/AIDS, the UK-based Business Exchange on AIDS and Development and the US National Leadership coalition on AIDS. Key principles from the ILO Code of Practice and various trade groups for inclusion in HIV/AIDS workplace policies include the following:

- Recognition that HIV/AIDS is a workplace issue because it threatens productivity, the welfare of employees and their families, and ultimately the welfare of local communities
- Active discouragement of discrimination against and stigmatization of workers on the basis of their real or perceived HIV status
- Encouragement of proactive efforts to advance gender equality in the workplace as a way to prevent sexual coercion and exploitation, which can result in increasing rates of HIV infection in women
- Maintenance of a healthy and safe work environment in conformity with national regulations and negotiated agreements to reduce on the job transmission of HIV
- Encouragement of dialogue among employers, workers and government to promote HIV prevention, AIDS care and peer support where such opportunities exist
- Rejection of mandatory HIV screening of existing employees or applicants for jobs or trading opportunities and encouragement of employees to obtain voluntary and confidential HIV tests
- Adherence to strict confidentiality of employees' HIV status
- Continuation of employment is not to be dependent on workers' HIV status
- Prevention of HIV is possible and is to be pursued through strategies that are culturally sensitive and appropriately targeted
- Communication of the HIV/AIDS workplace policy to employees in simple and clear language
- Provision of affordable health services to all workers, regardless of their HIV status and formation of support groups for HIV infected workers and their families
- Giving employees paid time off to be circumcised (if they are men) or to take their sons/husbands/male partners (if they are women) to be circumcised
- Giving employees paid time off to attend medical appointments



Figure 14. A health worker operates a solar powered charging station in Watreso, Ghana. Photo: © Energy for All 2030



Figure 15. Supplying the public with free condoms in effort to prevent the spreading of HIV. Johannesburg, Gauteng Province, South Africa. Photo: © Martin Harvey / WWF-Canon

HIV/AIDS WORKPLACE PROGRAMS

Prevention should be at the core of any organization’s HIV/AIDS workplace program. A conservation organization can begin prevention actions by examining the way it carries out its core business and finding ways to make changes that reduce the risks of HIV infection. Since the largest risk factor for conservation workers is the long periods of time spent in field work, away from their homes and spouses, altering travel schedules, or providing some housing for spouses near field sites, among other alternatives, are possible solutions to reduce the length of time conservation workers spend away from their families. Making such changes could also open up the conservation field more to women, which by altering the predominantly male make up of field staff, could reduce risk factors associated with sexually transmitted infections (STI) and HIV transmission. Some may argue, however, that this change could negatively impact women staff members, as they may frequently be junior to the men that they work with.

Prevention Education

Apart from considering these “environmental factors” as part of an organization’s prevention program, educating the workforce about HIV/AIDS should be a staple component of it and can take a variety of forms. Prevention should address the basics of how HIV is transmitted and how it is NOT transmitted, actions to take to prevent infection, the importance of treating STIs and tuberculosis (TB), how to find and use counseling, testing, treatment and care resources in the organization and the community, the definition of responsible sexual behavior in the workplace, and importantly, the organization’s HIV/AIDS policy. Supervisors and managers should be able to provide additional information related to prevention that allows them to handle individual employee’s questions and concerns about themselves or a co-worker.

HIV/AIDS prevention education can be delivered through specific stand-alone programs and integrated into ongoing education programs in the workplace. Most obviously, it should be a component of the health care delivered through employer supported clinics and health services delivered through private or public facilities that are a part of employees’ health benefits. As noted, HIV/AIDS prevention education can also be incorporated into existing training programs with employees and management: at orientation, regular meetings, skills-updating sessions, and so on. It can also be incorporated into informal methods of communication at the workplace, e.g., on billboards in lunch rooms, permanent AIDS displays and through e-mail updates. Stand-alone programs could include peer educators, co-workers trained to carry out a variety of HIV/AIDS education and other prevention activities, such as condom distribution, leading group discussions, conducting support groups.

Special lectures or presentations by individuals or NGOs working in HIV/AIDS can also be sponsored by employers or employee groups and delivered during the workday. Health educators recommend sponsoring a variety of complementary educational activities and channels for prevention messages in order to have the maximum impact on behavior. Educational materials are now available from national and international sources making it unnecessary for enterprises to create their own.



Figure 16. HIV/AIDS testing campaign in Arusha, Tanzania. Photo © Rémi Kaupp /Flickr

Box 15. Redesigning training programs

The Southern African Wildlife College, created to educate and train students in environmental conservation, has taken great strides to address the importance of HIV/AIDS awareness. Each training program incorporates HIV/AIDS training and is a fundamental element in the community environmental education program. Recently, the College formally added HIV/AIDS awareness training to all certificate and diploma courses, which requires students to develop appropriate workplace policies. In addition, the College provides educational resources (posters, pamphlets, booklets, discussions, etc) to disseminate information.

(www.wildlifecollege.org/za)

Condom distribution

Proper use of latex condoms is an effective means of preventing HIV infection as well as most other STIs. Condoms should be made available freely and easily to both men and women in the workplace as an important part of an organization's prevention program. Proper use of condoms should be included in educational programs. It is also in an organization's interests to work with local governments and private sector retail outlets in surrounding communities, to make sure condoms are available in the market and affordable.



Figure 17. Condom and HIV/AIDS information distribution at the SCB-Africa Section Meetings, Arusha, Tanzania in 2011. Photo: © Natalie Bailey/ABCG

Box 16. Condom availability at Training Centers

The College of African Wildlife Management makes condoms available in highly-trafficked areas of campus, including the mail area, men's and women's toilets and the campus medical dispensary. Other institutions make condoms available on library shelves to ensure privacy and easy access.

STI treatment

STIs are common health problems among adults, and increase susceptibility to HIV and its transmission through sexual activity. Alone, STIs increase absenteeism and medical care costs when left undetected and untreated. Thus it is in the interest of employers to provide medical coverage for STI detection and treatment for employees and their partners, as part of an HIV/AIDS prevention program.

Voluntary Counseling and Testing (VCT)

VCT is an important component of HIV prevention as it is an important step in reducing the spread of infection and getting help for people who are HIV-positive. In addition, people who want to know their status are more often than not motivated to learn about the disease in order to protect themselves and their partners. Testing should often be voluntary, and people should never be manipulated into taking the test. There are some situations where testing may be necessary, however, such as in field sites where workers must be vaccinated against yellow fever, which may not be recommended if someone is HIV-positive (WHO 2011). People taking the test should be informed in advance about what the test is and what the findings mean and the results must be guaranteed to be confidential. Thus, in order to be done properly, VCT requires counseling before and after testing, whether the results are positive or negative for HIV infection. While VCT can be conducted within organization-operated clinics, it usually is not for a variety of reasons including confidentiality and expense.

Support, care and treatment

Organizational assistance for HIV infected employees can take the form of providing access to support groups either in the workplace or the community, through paid time off or allowing a flexible work schedule. Such groups provide a variety of psychological medical and social

functions for HIV positive individuals, up to and including end of life support. Some organizations provide direct financial assistance to infected workers for these services; others cooperate with employee groups to raise external funds to provide access for these services.

Box 17. Revising human resource systems to adapt to changes in capacity

Zambia Wildlife Authority

The Zambia Wildlife Authority (ZAWA) re-assigns HIV infected Wildlife Police Officers if they are no longer able to continue with the physical demands of tracking poachers in remote forest areas. Staff members are moved to lighter duties, such as guarding the park entrance, cooking, and patrolling the field camp. Managers at ZAWA report that there has been a 'substantial increase' in individuals assigned non-patrol positions, in numbers beyond those actually needed for those jobs (Rosen et al, 2006).

Infected individuals are especially susceptible to opportunistic infections because of their compromised immune systems. TB is especially common and requires either prophylaxis or treatment; fortunately, for TB, the required drugs are inexpensive. On the other hand, anti-retroviral therapies (ART) to sustain the lives of HIV positive individuals can be expensive and can be complicated to continue over a lifetime. Depending on the geographical location, ART may be available without charge through public or private facilities. Ultimately, organizations have to make their own decisions about supplying ART to infected workers and review the costs of the drugs and their administration.

In summary, a comprehensive HIV/AIDS workplace program should contain a common set of elements which have been identified over more than a decade of international experience, (Rau 2002) viz:

- Openness of all levels of management to understanding how HIV is transmitted and what can be done to reduce risk
- Management and employee support for responsible sexual behavior among all members of the enterprise to remove sexual coercion, harassment and intimidation of women in the workplace
- Employee education and widespread dissemination of information in the workplace about ways to prevent HIV transmission, and identification of community sources for additional information and services

- Widespread and free access to condoms in the workplace and advocacy for their availability in the community
- Access to STI diagnosis and treatment
- Access to voluntary, private counseling and testing (VCT) for HIV
- Access to treatment for HIV and associated diseases, such as tuberculosis (TB)
- Access to community support and home-based care services

Few enterprises have the resources to enact a comprehensive HIV/AIDS program as outlined above; the vast majority of institutions implement such programs through cooperation with communities, government and other organizations. However, even if services could be provided from a single organization's resources, the response to the spread of HIV cannot be similarly contained. Collaboration among employers, employees and the wider society is necessary to stem the rate of infection and care for the infected.



Figure 18. Photo: © R. Zurba /USAID.

Box 18. Promoting awareness, prevention and care programs in the workplace

Wild4life

In east and southern Africa, Wild4life is working with conservation organizations like the Wildlife Conservation Society to establish comprehensive programs to educate, test, and counsel conservation staff, their families, and surrounding communities about HIV/AIDS. By working with established conservation organizations, Wild4life has been able to extend the program's reach to remote areas, while keeping costs low. Wild4life identifies immediate voluntary testing as their key to success, with 95% of pilot participants being tested and 100% of those found HIV positive beginning treatment. Wild4life has plans to expand these programs by scaling up efforts with current partners and beginning to work with new partners. (www.wild4life.org)

NACSO

In addition to facilitating HIV/AIDS policies, the Namibian Association of CBNRM Support Organizations supports peer educators in member organizations and conservancies to educate others in methods to integrate prevention and support into regular duties. Peer educators use communication materials such as pamphlets, posters, videos, dramas and radio shows to educate others and facilitate action in organizations. In addition, information corners in many offices are stocked with educational materials and condoms.

In addition to training peer educators from partner organizations and conservancies, NACSO's HIV/AIDS Unit was asked to train staff from a number of government ministries. While the trainings helped to increase knowledge and collaboration between those ministries and HIV/AIDS organizations, a major challenge was lack of strong support from upper management to mainstream HIV/AIDS programs into institutions.

Kenya Wildlife Service

In a unique partnership, the Kenya Wildlife Service (KWS) and Family Health International (FHI) work with junior and senior park staff, as well as their families, to educate and train on HIV/AIDS. With funding from the Centers for Disease Control and FHI, Kenya Wildlife Service has an HIV/AIDS coordinator and conducts educational seminars, workshops, and campaigns. In addition, the KWS wildlife enforcement training school includes training on HIV/AIDS awareness.

KwaZulu Natal Wildlife

KwaZulu Natal Wildlife implements a comprehensive HIV/AIDS policy for staff members through the organization's Wellness Committee. The committee consists of three nurses and a social worker, and focuses on a number of activities, including:

- *Medical wellness management*—for early detection and referrals if needed
- *Peer educator training* -supports those affected and educates others
- *Basic education*—prevents HIV spread, addresses discrimination and stigma
- *Condom distribution*—educates on use of female and male condoms
- *Voluntary testing*—for early detection
- *Voluntary counseling* -supports and assists with estate planning and wills

WHAT WILL IT COST TO IMPLEMENT A WORKPLACE PROGRAM?

The costs of developing and implementing a workplace policy and program vary but can be estimated by monitoring indicators of the HIV/AIDS situation among employees, especially for a small or medium sized organization (FHI, p.24). This involves tracking worker absenteeism, employee turnover, use and costs of medical and other employer provided benefits before and after putting an HIV/AIDS policy and program into place. Changes in the trends of these indicators are important to monitor over time because it may take 5-10 years after infection for a person's health to deteriorate and for absenteeism and increased use of medical care to start. The real costs of a workplace program net out the benefits realized in terms of preventing new cases and keeping existing workers productive with proper treatment and care. Evidence abounds of the effectiveness of prevention efforts. The rate of businesses adopting care and treatment programs also attests to the private sector's recognition of the economic benefits of these programs. Having an HIV/AIDS policy is also ethical and could be considered as one of the costs of doing conservation.

Box 19. Costing institutional impacts

In 2005, researchers conducted a study of the cost of AIDS related deaths for the Zambia Wildlife Authority (ZAWA). The majority of ZAWA staff are Wildlife Police Officers, spending 15-25 days per month away from family on patrol, and thus are at high risk of HIVinfection. Looking at recent deaths, the researchers were able to infer that the AIDS related mortality rate for ZAWA staff was 3.1% (exceeding the national average), with death accounting for up to 80% of all employment terminations. The cost to ZAWA from these deaths amounted to 9.7% of the agency's total annual labor budget. Those who died as a result of AIDS averaged 124 days of service on their third to last year, 97 days their second to last year, and only 63 days during their last year of service.

Costs associated with AIDS related deaths include:

- Productivity loss due to illness
- Funeral arrangements and attendance by other staff
- Vacancy and interviewing for newly-open position
- Reduced productivity due to inexperience of new hires
- Supervisors' time to train the replacements

The researchers also found that providing treatment to affected staff members was cost effective, in addition to a strong prevention and education campaign.
(Rosen 2007)

Beginning with actions in the workplace that cost little

Visible leadership by senior management within an organization must precede everything else and can involve the following activities, among others:

- Appoint a focal person who reports directly to senior management and is responsible for implementing the day to day actions of an HIV/AIDS program
- Form an employee-management committee to facilitate and gain consensus about the HIV/AIDS policy and program
- Include HIV/AIDS prevention messages in the orientation of all incoming employees and sub-contractors
- Provide routine training to supervisors about HIV/AIDS prevention, to include identification of sources for voluntary counseling and testing
- Place updates of workplace programs as they unfold on the agenda of senior managers' meetings and require that the managers update all employees periodically
- Communicate regularly with other organizations, businesses, and government about programs for prevention, treatment and care of HIV-infected individuals
- Develop an organization-wide policy and distribute it to all employees

Box 20. Role of Organizational Leadership on HIV/AIDS in the Conservation Workplace

The CEO and President of one international conservation organization made a pledge to their staff that they would personally get tested for HIV annually. This pledge signaled an openness to discussing HIV/AIDS issues inside the organization, addressed of the stigma of testing and showed the power of leadership in motivating staff to get tested. The organization also implemented a full AIDS workplace policy tailored to each country where it operated, so that voluntary testing, support, care and treatment were available and were in line with national labor laws and health care support systems.

Source: African Wildlife Foundation

Employee representatives form another critical pillar, along with senior management support for early actions to address the threat of HIV/AIDS in the workplace. Employee representatives can engage in the following activities:

- Work with management to develop an HIV/AIDS policy and communicate it effectively to all employees and sub-contractors
- Monitor management's adherence to company HIV/AIDS policy, agreements with employees and any national and regional laws
- Get managers to discourage social acceptance of high risk sexual and drug using behaviors
- Motivate employees to pay attention to HIV prevention information and take advantage of voluntary counseling and testing resources
- Encourage men and women to come together to understand and talk about the risks of HIV/AIDS infection
- Discourage discrimination and stigma associated with HIV and AIDS infection among employees
- Regularly share updates and new information to keep the issue fresh so that employees and leadership are regularly reminded of the importance of the issue.

What can be done in programs with local communities?

IMPROVE COMMUNITY HEALTH

There are several ways that conservation organizations can help to improve community health in the face of AIDS. These include facilitating access to healthcare, improving water supplies, and supporting better management of medicinal plants. Other activities such as improving food security, nutrition, livelihoods and resource use, which also contribute to community health, are covered in this section.

Improve community access to healthcare, including HIV and AIDS services and information

In remote areas of developing countries where conservation organizations work, local communities often have little or no access to basic health services. This includes lack of HIV and AIDS awareness and prevention work, let alone access to voluntary counseling and testing, or anti-retroviral treatment.

Integrating better healthcare access into community conservation programs provides a very important social service and helps to maintain community capacity for conservation. It also builds community buy-in to conservation. It is essential that this is done in close collaboration with government health structures and programs; the health work may be undertaken by government and/or by a health NGO. Health partners can use conservation project structures and facilities to gain quicker and cheaper access to communities. HIV/AIDS work can be done in conjunction with providing other basic health care. In areas with high natural population growth rates and large, unmet needs for family planning, HIV/AIDS programs can be combined with family planning using the same service delivery.

Detailed guidance on integrating health into conservation projects and the many benefits of this approach is provided in the manual *Healthy Communities, Healthy Ecosystems: A manual on integrating health and family planning into conservation projects* (Oglethorpe et al. 2008).

Case studies on improving access to services

Case study 1: Mainstreaming HIV and AIDS into the Communal Conservancies in Namibia

The National Association for Community Based Natural Resource Management Support Organizations in Namibia (NACSO) has responded to the HIV and AIDS crisis by mainstreaming its response into its support to the development of communal conservancies in Namibia. In communal conservancies, local communities govern and benefit from their wildlife and other natural resources through activities such as ecotourism, handicraft production sale of live animals, production of meat for local consumption, and sport hunting, to improve livelihoods in remote rural areas. Conservancies now encompass over a tenth of Namibia's population who live in some of the most remote and marginal parts of the country where health services are scant. Namibia has one of the highest HIV prevalence rates in the world (17.8 percent in 2008; Ministry of Health and Social Services 2008), and some of the highest prevalence rates are in regions with active conservancies. Katima Mulilo in Caprivi region had the highest rate at 31.7 percent, and in Erongo region, Walvis Bay was at 21.4 percent. Prevalence rates in Caprivi for women from 25 to 49 years of age were as high as 40.3 percent.



Figure 19. Namibia HIV/AIDS awareness gathering.

Photo: © Judy Oglethorpe /WWF-US.

The Namibian Association of CBNRM Support Organizations has been successful in integrating HIV/AIDS education into conservation work due to the shared value between conservation and health organizations of community based rural development. The CBNRM philosophy of local empowerment and capacity building goes hand-in-hand with the activities needed to educate and support communities impacted by AIDS. Conservancy staff can act as legitimate and effective facilitators for introducing innovative programs. Education on HIV/AIDS can be easily incorporated during field work, village and women's group meetings, and training of tourism and lodge staff (Berger 2010).

Case study 2: Helping the health sector to reach male audiences on HIV/AIDS

Working through natural resource user groups enables the health sector to reach different demographic groups, including men who are normally less accessible for health organizations. In the Kiunga Marine National Reserve in Kenya, health partners promoted HIV and AIDS-awareness and prevention through fishermen's groups as well as with youth and women's groups. Working through WWF, the Ministry of Health ran mobile clinics to remote areas on the mainland and the islands of the reserve, providing a range of integrated health services including voluntary counseling and testing, basic health services, and family planning. The project also covered improved water supplies, sanitation and hygiene, including on fish landing beaches managed by men through beach management units. Since fishermen are a particularly vulnerable group to HIV infection, accessing them through existing beach management groups helped the health sector to develop trust and get messages across much faster than if they were attempting to do this alone (Stolton and Dudley 2010)

Case study 3: Taking advantage of existing community outreach structures in conservation organizations

The Jane Goodall Institute (JGI) began addressing HIV/AIDS in communities near conservation areas in 2005. Using previously-established volunteer community based development agents (CBDAs), JGI was able to easily and successfully integrate HIV/AIDS into its activities and reach target audiences. The agents, who had previously worked on family planning outreach, had already gained the trust of villagers. With additional information and training in home-based care, CBDAs are able to address HIV/AIDS in the communities. In addition to educational outreach, JGI provides mobile counseling and voluntary testing services to 24 focus villages (Macharia, pers. comm.).

Case study 4: Reaching remote and mobile communities in Northern Kenya

In northern Kenya, the Community Health Africa Trust (CHAT) and Nomadic Communities Trust (NCT) specifically target remote rural communities that are highly underserved by traditional health services. These sister organizations provide door-to-door assistance through use of mobile clinics. The CHAT clinic reaches 25 rural sites each month in the Laikipia region by Land Rover, while the NCT clinic in the less accessible Samburu region employs camels for

transportation to 19 villages. The organizations focus on training local residents as health care workers and gaining support from community leaders to encourage more locally-driven healthcare.

Together, CHAT and NCT have assisted in establishing over twenty support groups for people living with HIV/AIDS. In collaboration with relevant Government Ministries, CHAT & NCT provide supervision to Community Based HIV/AIDS Counselors who test and identify HIV+ individuals, and help initiate support groups.

Source: Community Health Africa Trust 2013

Case study 5: Population, Equity, AIDS, and Coastal Environment (PEACE) Program, Saadani National Park

The PEACE program in Tanzania includes projects that focus on behavior change in the communities surrounding Saadani National Park. Due to the fishing industry, in particular the many migrant fishermen drawn to the area, these coastal communities are particularly vulnerable to HIV infection. The program's projects include condom social marketing, facilitating development of community HIV/AIDS action plans, and interactive theater. The PEACE program partners with a local theater organization to raise community awareness about the threat of HIV/AIDS through drama performances and dance. The skits address a range of social issues linked to the epidemic, including forced marriages of girls, particularly with fishermen and other temporary inhabitants, and the importance of testing and discussion of AIDS between couples. The performances are interactive, allowing the audience to suggest ways to solve the problems presented, and encourage discussion of how AIDS affects their community.

Source: Guidelines for Mitigating the Impacts of HIV/AIDS on Coastal Biodiversity and Natural Resource Management (Torrell, et al. 2007)

Improve water supplies, sanitation and hygiene

People living with AIDS need to avoid possible sources of infections, including water-borne diseases.

Water supplies:

Conservation organizations can help by working with communities to improve water catchment management, bringing water supplies closer to settlements, and improving water quality. Water supplies can be provided near settlements by sinking wells and installing hand

pumps, building rainwater catchments and tanks, and installing gravity flow water supply systems. Water quality can be improved by filtering, purifying or boiling water in the household, and by improving catchment management. Maintaining or restoring natural vegetation cover can play a key role in protecting local water quality, as well as helping to increase dry season flows and reduce flash flooding. Keeping livestock out of water bodies is also important.

Provision of water close to the home greatly eases women's burden—in many societies they are responsible for collecting water, and also bear the burden of nursing the sick. AIDS patients often require more water, for example for washing, which increases the burden of collecting water.

However, it is very important to consider environmental impacts of improving water supplies. For example, in arid and semi-arid zones where water is scarce, provision of water may attract more settlers and livestock, and result in environmental degradation and livelihood impacts. USAID (2007) provides guidance on environmental impacts assessment of water supplies and sanitation. It is also important that improved water supplies are part of a larger, comprehensive program, including for example livelihood productivity and family planning, or there may be a risk of undermining the long-term well-being of target communities (Gibson and Mace 2006; Oglethorpe and Mauambeta 2008).

Sanitation:

Many integrated projects working on HIV/AIDS and environment integrate improved sanitation, mainly by promoting the construction and use of latrines. It is important to site latrines away from wells and streams to avoid contamination, design them properly with adequate ventilation, and keep them clean (see Conant and Fadem 2008 for further guidance).

Hygiene:

This includes promoting hand-washing and use of soap, as well as food hygiene such as cooking meat thoroughly, keeping food covered and reheating leftovers before serving. It is important to take local cultural practices, motivation and resources into account.

Improve management of medicinal plants

Medicinal plants play a very big role in treatment of opportunistic infections such as tuberculosis, mouth and throat sores/rashes, skin rashes, diarrhea, fevers, and other sexually transmitted diseases, and are particularly important in areas where people do not have good access to modern medicine including anti-retroviral treatment. Chapter 3 outlined how medicinal plants are being overused in many parts of Africa in response to the AIDS epidemic.

Medicinal plants can be managed more sustainably in various ways; many of the following activities are drawn from Barany et al. (2005).



Figure 20. Guide pointing out medicinal herb *Lavageria macrocarpa* used for fevers & malaria. Korup National Park, Cameroon. Photo: © Edward Parker / WWF-Canon

Improved management of wild stocks of medicinal plants:

Improved management of medicinal plants, as well as many other resources, often requires strengthening communities' resource tenure and governance systems, so that communities have control over their natural resources. This includes the power to exclude or limit harvesting by people from outside the community, as well as regulating harvesting by their own members. There may be a need to develop management strategies and create or strengthen community associations, depending on national and local policies. Steps should be taken to avoid elite capture of medicinal plant resources. If traditional healers' associations exist, they need to be closely involved. An early step is to identify priority species used in the treatment of opportunistic infections and management of AIDS-related symptoms, and the threats to them. Emphasis should be given to any species that are being evaluated in medical trials. However, this can be a complicated issue because of the secrecy around medicinal plant use in many parts of the world, since traditional healers are very understandably anxious to protect their indigenous knowledge and livelihoods. Nevertheless, if their livelihoods are threatened through bad extraction practices by inexperienced harvesters, there may be scope for collaboration over sustainable harvesting methods in conjunction with improved governance.

Sound harvesting techniques:

Besides limiting the quantity of medicinal plant material harvested, training should be provided on sound harvesting techniques which cause less damage to the plants, and enable them to survive and produce more material for harvesting in the future.

Extracting active ingredients:

Efficiency of extraction of the active ingredients can also be improved, for example by preparing tinctures rather than grinding and boiling up plant parts, making better use of the material that is harvested. Medicinal plant use may be of great interest to the health sector and may provide an opportunity for information exchange, dialogue and potential support.

Monitoring:

Monitoring of the status and trends of medicinal plant stocks is critical for management, and indicators of species scarcity and impacts of harvesting techniques will need to be developed. In Namibia, communal conservancies are using their medicinal plants and monitoring the impact of harvesting by incorporating medicinal plants into the 'event book' monitoring system developed by NACSO (Kurz 2007).

Domestic cultivation:

Where feasible, medicinal plants can be cultivated near to the home, taking pressure off wild stocks and reducing the time spent collecting in the wild. The latter is particularly important for people living with AIDS who may not have the strength to walk long distances to find plants, and for women who have many other household tasks including nursing the sick. More work is needed on methods of cultivation.

The area of medicinal plants and AIDS has been largely neglected by academics and the conservation community, possibly because of intellectual property rights issues. However, there is huge need to do further work on this.

Box 21. Medicinal plants and the Tanga AIDS Working Group

Working in the Tanga region of northern Tanzania, the Tanga AIDS Working Group (TAWG) uses indigenous knowledge of medicines to treat opportunistic infections associated with HIV/AIDS. The group was founded on a partnership between medical doctors, and traditional healers who had treatments for AIDS-related opportunistic infections. TAWG works out of the regional hospital, and acts as a referral center for patients looking for HIV testing, counseling, or treatment. The group is involved with a number of activities across the Tanga region, including:

- Homecare visits to HIV/AIDS patients and their families where staff monitors the health of patients, administers traditional medicines, and provides counseling services
- Management of a Community Health Infrastructure and Care Center located in the main town that provides HIV/AIDS education and awareness programs by nurses, counselors, and community educators
- Facilitating community to community exchanges involving healers, people living with AIDS and medical staff to provide care and alternative income generating opportunities (Tanga AIDS Working Group 2012).

Improve indoor air quality

Consumption of firewood may increase when rural households are nursing AIDS patients, as outlined in Chapter 3. Unfortunately smoke from indoor wood fires in rooms which are not properly ventilated contributes to respiratory problems—especially among immune-compromised AIDS patients. Therefore, more efficient, cleaner household energy practices can help families affected by AIDS as well as those not affected by the disease to live a healthier life. One long-tested approach is the use of fuel-efficient stoves, preferably coupled with improved ventilation. This reduces exposure to smoke, helps to alleviate pressure on forests, and saves women time and work (Gebert (undated) in Rehfues 2006). Fuel-efficient stoves are promoted by many conservation and development organizations: for example, by WWF in the Spiny Forest of Madagascar, the Goma area of Democratic Republic of Congo, and the Terai Arc forest in Nepal. Biogas technology is even better since no firewood is burned, but it involves a higher capital investment initially. These technologies to reduce fuelwood consumption also help to conserve or restore the environment, reduce the time and work that women spend collecting fuel, and the funds that poor households spend on fuel.

FOOD SECURITY, LIVELIHOODS AND SUSTAINABLE USE OF NATURAL RESOURCES

Improve food security and nutrition

People living with AIDS need good nutrition to help them stay healthy, and also to withstand side-effects of anti-retroviral drugs. Yet households are frequently forced to change their food strategies because of AIDS. Promotion of low-labor forms of sustainable agriculture for use by women, grandparents, and children is important. Establishment or improvement of kitchen gardens can significantly improve household diets.

Box 22. Household and community gardens and AIDS in Western Kenya

A recent study in Western Kenya found that household and community gardens can help households who have lost labor and income due to AIDS, through enhanced nutrition for infected individuals and potential income from surplus harvest. Community gardens, often found in schools or clinics, can also be a great way to produce food for orphans, vulnerable children, and the elderly coming from AIDS-affected families.

In addition, these gardens provide increased genetic diversity through local and heirloom varieties of crops. The study's author warns, however, that increased dependence on small plots of land could be detrimental to soil quality. If households cultivate too intensively, without the addition of nutrients or allowing for fallow time, the soil could become too degraded and lead to erosion (Murphy, L. 2008).

Box 23. Supporting urban agriculture

Encouraging small-scale agriculture in cities and towns can be a good way for people living with HIV/AIDS to increase their nutrition and income. The practice caters to those with limited energy who cannot travel far and makes use of unused areas in a community or pots around the house. Urban agriculture can include a variety of products, including fruits and vegetables, ornamental plants and small animal husbandry. In Ethiopia, AIDS-affected households that perform urban agriculture indicated that it has positively changed their lives, giving them the ability to send children to school, providing nutritious food, and even providing a form of psychotherapy. As one urban agriculturist explains, working in the garden "gives me the feeling of worth and takes my mind away from negative thinking" (Tassew, F. 2008)

Diversification

Diversifying production is important. For example, in Malawi and Zambia, the WorldFish Center is promoting an integrated aquaculture-agriculture approach, which is yielding promising results. Fish raised in ponds are fed farm and kitchen waste; the fish provide income and a vital source of protein; and the ponds can provide water for crops during dry periods, and sediment for fertilizer (WorldFish Center 2007).

Agroforestry

Agroforestry can play an important role in crop and livelihood diversification. It enhances food security through improving soil fertility; produces nutritious foodstuffs (including fruits, berries, leaves) that can boost the immune system and help protect against opportunistic disease; includes medicinal trees and other products that can help treat opportunistic infections; provides income generation opportunities that are not labor-intensive; offers a safety net of subsistence and income (e.g. firewood for consumption and for sale, animal fodder, potentially high-value tree products, building and thatching materials). In addition, it marks ownership of land which may provide greater security of land tenure in some countries. One big disadvantage is the labor requirement which is high in the early stages of converting to agroforestry, though it often declines in later years. If agroforestry systems are set up when labor is still available (for example during the phase when the prevalence rate is increasing but before the death rate rises), benefits can be harvested many years later when labor supplies have dwindled due to AIDS (Villareal *et al* 2006).

Box 24. Use of wild foods by vulnerable children

Surveys and interviews conducted in South Africa show that collecting wild foods to supplement diets of rural children increases according to their vulnerability from HIV/AIDS. Traditionally, rural children depend on family networks to provide adequate food and resources, but with the increase in HIV/AIDS, these networks are deteriorating. Often, wild foods are the only food source available, and children collect them to supplement both diet and household income: berries are collected in South and southern Africa, tamarind fruit in West Africa, and roots for making beer in Zambia. Collecting wild foods can provide additional benefits for vulnerable children, such as contributing to emotional support through peer interaction, encouraging feelings of empowerment, and providing opportunities to play and have fun. In addition, collecting can contribute to indigenous knowledge systems through trans-generational communication. Children are also the primary harvesters of insects, which are widely consumed across Africa as a dietary supplement. In the Limpopo province in South Africa, children walk up to 6km to reach productive grasshopper territory, and create innovative tools to catch the insects. Unlike large sources of protein, insects are more accessible to vulnerable children because they require lower inputs in collecting skills and materials.

Children in this study did not select specific species, but instead randomly harvested any animal that came their way. The majority of animals and birds harvested by the children are common species and not threatened at this time. The author cautions, though, that some children are moving away from subsistence use of wild foods to extraction for commercial gain, which increases the amounts of resources extracted and leads to unsustainability (McGarry, 2008).

Improve livelihoods and foster sustainable use of natural resources

Households often have to make fundamental changes in their livelihood strategies when family members succumb to AIDS. Many fall back on natural resources as a safety net. It is important to find solutions that build livelihood security on a sustainable basis, avoiding erosion of the natural resource base that could spell disaster for households and the environment. If resources are being used unsustainably, there may be ways of reducing use by developing alternative livelihoods, or using the resources more efficiently.

When conservation organizations help AIDS-affected communities develop new livelihood strategies, activities should not require intensive labor. In Malawi, the Wildlife and Environmental Society of Malawi assisted with activities such as bee-keeping, guinea-fowl rearing, fruit-tree planting, and indigenous fruit-juice production. The Society found that it was difficult to identify AIDS-affected households due to the stigma associated with the disease, so it offered opportunities to all households in a given community (Mauambeta 2003).

Alternative income and protein projects are needed for communities located near national parks and protected areas where impacts to biodiversity are greater. Opportunities for protein alternative projects such as piggeries, goat husbandry, fish production and free ranging chicken can help AIDS-impacted communities while reducing impacts to wildlife caused by the illegal and unsustainable bushmeat trade. Development and health initiatives must replace unsustainable reliance on wildlife.

Box 25. Expanding new sources of income in Namibia Communal Conservancies

In Namibia the communal conservancy program is boosting incomes of rural communities through activities such as photographic tourism, safari hunting, and live game sales. Women play an active role through handicrafts production and other activities (Weaver 2007). Several conservancies are now receiving income from natural resource-based activities, and many households are significantly better off than before (ibid.).

Box 26. Developing alternative livelihoods strategies for vulnerable groups

When the Population Equity, AIDS, and Coastal Environment program in Tanzania first conducted a conservation threats assessment of the area surrounding Saadani National Park, HIV/AIDS was identified as an important factor. Households affected by HIV/AIDS illness and death were found to be more likely to use natural resources unsustainably for food and income. In the Saadani area, this includes use of mangroves for fuelwood and overharvesting of fish. The loss of healthy mangrove ecosystems is detrimental to coastal livelihoods, as they serve as nurseries for juvenile fish and are used by beekeepers as places to set hives. The PEACE program worked with individuals vulnerable to HIV/AIDS—women, fishermen, and youth—to encourage alternative livelihoods that align well with conservation objectives. Examples include milkfish culture, the construction and sale of fuel-efficient stoves, and small scale restaurants that cater to locals and tourists. These alternatives are particularly good for households affected by HIV/AIDS because they can increase income while being low in labor and time costs.

Source: Guidelines for Mitigating the Impacts of HIV/AIDS on Coastal Biodiversity and Natural Resource Management (USAID, PRB, U-RI)

Promote access to microfinance

Poor families are among the most vulnerable to HIV/AIDS, as they have few strategies to cope with the economic impacts of the disease. Microfinance is designed to fight poverty by

strengthening the economic position of households at or below the poverty line. It provides small loans or savings services for people excluded from the formal banking system. In the right environments, microfinance can fight poverty by broadening poor people's economic choices; and diversifying household income. It can make households less vulnerable to downturns in the economy or personal or health set-backs, and can smooth income flows throughout the year. In addition it can strengthen the economic position of women so that they can take greater control of decisions and events in their lives; and help to build household assets (e.g. houses, business equipment and land); and allow poor households to accumulate safe but flexible cash accounts to draw on when needed.

Microfinance is most useful to households before they are deeply affected by AIDS. At an early stage, households can still make use of loans and can still save money. At this point, microfinance services play an important role in strengthening households' economic safety net to draw upon in the later stages of AIDS. Through its focus on women, microfinance may also play a role in reducing vulnerability to HIV/AIDS by keeping women and their daughters out of high-risk behaviors based on economic necessity and empowering them to make their own decisions.

Once AIDS gains a foothold in a household, microfinance can primarily support the productive activities of non-sick family members—those who care for the family's sick and for any orphans living with the family. The greater the ability of the household to maintain an income stream during this period, the more likely it is to withstand the economic devastation of the disease without selling land or other assets, taking children from school, or breaking up the family. Finally, after AIDS sweeps through a family, survivors—often grandparents and older children—must rebuild the economic base of the remaining household. As these individuals become prepared to take on the tasks and risks of entrepreneurship, there may be a role for microfinance to support these efforts. Microfinance institutions may have to change their conditions to allow more flexibility for households affected by AIDS (UNAIDS 2001).

Box 27. Savings and credit for vulnerable groups

The URI-led Pwani Project works with existing Saving and Credit Cooperative Societies (SACCOS) in the Pangani District to improve livelihoods and increase access to credit among people living with AIDS, commercial sex workers (CSWs), orphans and widows. Those living with HIV/AIDS often lack the funds to buy the minimum number of shares needed to join a SACCO. However, working through the VMACs, the project helped five SACCOS expand their savings and credit services to HIV/AIDS vulnerable groups. The VMACS helped pay for the initial shares and vouched for the new members. The SACCOS consider widows and women living with HIV/AIDS as priority recipients for support, as these women are among the most vulnerable to the impacts of HIV/AIDS. The SACCOS, which typically have 50-100 members, aim to include at least 20 in the HIV/AIDS vulnerable community.

A strategic and flexible loan can make a big difference for a household starting to develop an alternative livelihood after the loss of a family member.

Foster preservation and use of indigenous knowledge

In order to preserve indigenous knowledge about natural resources, farming and land use, AIDS orphans and youth should be mentored in indigenous practices to ensure that knowledge is passed on. Grandparents or older members of a community may be able to help with this. Where possible, practices should be documented—they have often developed over several generations, and are likely to be very valuable to the next generation of users as it struggles to take up where the last one stopped abruptly.

EMPOWERING WOMEN AND ORPHANS

Conservation organizations can help vulnerable groups by assisting and empowering them in the course of their work. This section focuses specifically on two particularly vulnerable groups: women and orphans.

Women

Chapter 2 outlined why women in traditional societies are often particularly vulnerable to HIV/AIDS. In many rural areas they are often also major natural resource managers. Research from the International Center for Research on Women (ICRW) shows that programs focusing on women can be successful in reducing HIV infection, while also improving the lives of their families and communities (ICRW 2012). Activities which reduce the incidence of very early marriage, and protect girls and women against sexual coercion and violence are very important (Global Coalition on Women and AIDS 2006).

Women's resource management programs:

Conservation organizations can work with women on developing natural resource management programs that improve women's and the household's wellbeing, and empower women. Resource management activities can raise women's economic and social status if they are based on sound governance, recognize women's rights, and enable them to actively participate in decision-making and income-generating activities. This in turn can increase their bargaining power in marriage and the family, as well as outside in the community and in markets. Their vulnerability to HIV infection can be reduced through their ability to negotiate safe sex within marriage, and reduce the necessity for transactional sex. Women's resource management programs should be carefully designed so that it is feasible for them to participate,

including flexible timing to fit in with household chores and provision of care for dependants and family members with AIDS.

Women's groups:

Establishing or strengthening women's groups often provides opportunities for women to collaborate together on resource management, teach each other new approaches, and gain mutual support. Women's groups can also provide a safe environment to learn more about HIV/AIDS and discuss issues related to the disease.

Improving access to family planning:

Improving access to family planning so that women can have the number of children they want, and space them, is also a huge factor in women's empowerment, by improving maternal health and enabling them to play a greater role in economic and governance activities, as well as helping ensure better health and education for their children.

Girls' education:

Educating girls helps to empower the next generation of women. In several countries in southern and eastern Africa, WWF runs a girls' education program which supports school education of girls from poor families and orphans in conservation areas, helping girls to develop future careers, and empowering girls and women to play a greater role in decisions about natural resource governance.

Box 28. Women and fisheries in Kafue Flats, Zambia

A project in the Kafue Flats in Zambia is exploring ways to empower communities engage in fisheries—and women in particular—to take steps to reduce the further spread of HIV as a result of fish trading. Increases in fish prices have attracted migrant fishermen and traders into the area, resulting in greater competition for fish among fish traders. Women traders were resorting to sex for fish in order to secure supplies. Local committees are developing 'by-laws' to regulate external trade, guarantee minimum fish supplies for local women traders, and to prohibit 'fish for sex' deals (Merten and Haller,2007).

Microcredit for women:

If women can access the resources they need to set up and run independent businesses, they depend less on sexual transactions as a means to a livelihood. However, in many African countries, women are much less likely to be able to access credit than men (FAO n.d.) because of barriers to obtaining conventional credit, including illiteracy and lack of collateral such as land. Programs that help women to obtain loans for agriculture or natural resource activities can greatly improve household livelihoods and reduce poverty. In addition to access to credit, other financial services such as savings schemes are important to women to ensure their livelihoods are as secure as it is possible to be in this environment of increased risk. For example, in the Republic of Congo, the National AIDS Committee and FAO/UK Department for International Development Sustainable Fisheries Livelihoods Programme developed savings schemes for vulnerable women and girls in fishing communities (FAO 2005).

Strengthen women's rights to land and other essential resources:

Women who have access to, ownership of, and control over, land and other assets are better able to avoid relationships that threaten them with HIV, and to manage the impacts of AIDS.

While land inheritance is a complex issue, it is important to advocate for policy reforms in countries and cultures where women cannot inherit land, to strengthen women's rights and lessen their dependence on marriage as the only route to gain access to land and other resources they need in rural life.



Figure 21. Women empowerment through skill building. Photo: © UN Women Gallery /Flickr

When good policies and legislation

exist, it is important to push for sound implementation, and ensure that statutory and customary laws work together, in harmony, to protect the rights of women. Training on their responsibilities is often needed for civil servants, police and judges, and funding is needed for legal aid services and groups that can help women make land claims. Community education and awareness campaigns are needed to promote greater understanding of women's legal

rights, and bring traditional authorities and leaders on board. In countries where women can inherit land, men should be encouraged to make wills (Strickland 2004; Global Coalition on Women and AIDS 2006).

Box 29. Case study: Gender, HIV/AIDS, and Community Based Conservation in Namibia

The Namibia Communal Conservancies program provides strong support for women: they receive the majority of the conservancy income, and also the majority of conservancy employment. Participation by women in conservancy governance has greatly increased in recent years, with women now comprising 35 per cent of communal conservancy committee members in 2007. Nearly all conservancy treasurers are women, who have proved more reliable than men. Women have been provided with training, including communication skills, to enable them to participate more effectively in community forums (C. Weaver pers. comm.).

The Integrated Rural Development and Nature Conservation (IRDNC), one of several conservancy support organizations, successfully incorporates HIV/AIDS programming into conservation activities. The Caprivi, where IRDNC works with local conservancies, has been hard hit by HIV; in 2004 over 47% of pregnant women were reported to be HIV positive (Ministry of Health, Social Services 2005) (the national average was just under 20%). It is estimated that 80% of households are female-headed, partly as a result of the AIDS epidemic. Since 2003, IRDNC has been integrating HIV/AIDS training, workshops, and support into its regular activities with community members, with a particular focus on women. Activities include:

- Helping members of female craftmaker groups get tested for HIV
- Finding grants to pay school fees for almost 60 vulnerable girls, many whom are AIDS orphans
- Discussing various medicinal plants and their uses (tree bark and roots), often to relieve side effects of AIDS. Through discussion of availability, use patterns, and harvest area, facilitators can make sure that women can access the plants while making sure they are not overexploited
- Training in crafts for women who typically use the extra income for medicine, clinic visits and education
- Training craftswomen on the sustainable harvesting of craft resources

The HIV/AIDS activities of IRDNC have been particularly successful because they are integrated into existing conservation programs. Trainers were already well known and respected in the community, and women's groups provide a safe environment for women to discuss and ask questions about HIV/AIDS that helped to promote understanding and develop common approaches to the problems. The programs have also been successful because of their focus on gender and encouragement of female support systems (DeMotts 2008).

Orphans

Support to orphans is important to help improve lives; reduce unsustainable management of land and resources; and contribute to a secure future.

Orphans' management of natural resources:

Conservation organizations working with local communities can help to train and mentor orphans in traditional resource management, to preserve indigenous knowledge and help ensure livelihood security when they grow up. They can seek non-labor intensive approaches that are appropriate for orphans to use.

Education:

Conservation organizations working in AIDS-affected communities can help promote education for orphans, including girls. This often involves collaborating with education organizations. Support can include paying school fees and other costs. It may be necessary to create special conditions for orphans to attend school - for example, flexible study hours for girls who have domestic responsibilities. Safety of girl students should also be ensured between home and school, and at school. The Jane Goodall Institute (JGI) currently financially supports 25 orphans to attend secondary school. The orphans, many from AIDS-affected families, are given trainings in HIV/AIDS prevention. In addition, JGI is working with the orphanage to ensure all of the children are tested for HIV (Nelson, pers. comm.).



Figure 22. Orphans.

Photo: © USAID

Using natural resources to support orphans:

Natural resource programs can support orphans in kind or through a share of revenue. For example, in Namibia, some communal conservancies plan to donate a percentage of tourism revenues to orphan programs; to collect funds for orphans at tourist camp sites; or to allocate a proportion of their huntable game quotas for orphan soup kitchens (Kurz 2007). At Lake Edward in Uganda, local fishing-crew associations and beach-management units donate a proportion of their day's catch to support the education of orphans (FAO 2005).

Box 30. Holistic approaches to vocational and life skills training among vulnerable youth

The Wilderness Foundation created a program for vulnerable youth in the Eastern Cape of South Africa, the Umzi Wethu Training Academy for Displaced Youth, which provides a holistic approach to vocational and life skills training. Capitalizing on the growing ecotourism sector in this important biodiversity area, the Academy prepares vulnerable youth—the majority of them impacted by AIDS through loss of family members—for work in this sector. The one-year program provides a nurturing environment combined with experience in wilderness, vocational training, internships, and mentoring. Upon completion, participants are guaranteed job placement as rangers, nature guides, or cooks for wildlife tourism establishments. The program has proved a great success, with 85% of the first forty graduates employed; there is good potential to replicate this approach elsewhere in Africa (Umzi Wethu 2007).

BUILDING LOCAL CAPACITY AND LEADERSHIP FOR HIV/AIDS ACTION PLANNING

Most, if not all, countries burdened with a significant HIV infection rate have national plans for responding to the crisis. The plans outline how to prevent further spreading of HIV/AIDS and how to assist those who have the disease. Taking a multisectoral and nested approach, some plans rely heavily on local level (village and district) engagement and action. However, local capacity and commitment are often insufficient to fulfill the obligations. Conservation organizations can help by supporting capacity building and leadership strengthening for HIV/AIDS action planning at village and district levels.

In Tanzania, the University of Rhode Island's (URI) Coastal Resources Center is working with UZIKWASA, a local nongovernmental organization, to implement a unique program to strengthen the Village Multisectoral AIDS Committees (VMACs). UZIKWASA works with the VMACs to develop and implement HIV/AIDS action plans. The approach is highly participatory, involving village meetings and more informal methods, including Theater for Development (TFD). The action plans outline steps to confront the root causes of the spread of

HIV. They also include sections that address how to help vulnerable groups, such as orphans, widows, People Living with AIDS (PLWA), the elderly and those physically challenged/disabled.

Through the URI project, UZIKWASA broadened the VMACs to include wider representation of influential village leaders (e.g. businessmen, youth leaders, religious leaders, etc.). To reflect the breadth of the committees, project leaders changed the name of VMACs to Leadership Coalitions. UZIKWASA mentored and coached the village Leadership Coalitions, helping them to think through their operations and to determine how to change village power and gender imbalances.

This participatory, bottom-up planning model strengthened the capacity of VMACs to lead the coordination of village HIV/AIDS control activities and empowered villagers to plan for and implement their own HIV/AIDS control activities. On their own initiative, some villages have created community-based support structures for the most vulnerable groups, including mobilizing external funds from public and private sources for HIV/AIDS-related activities as well as other development projects benefitting their villages.

Gender and leadership

After a period of implementation, UZIKWASA realized that the best-performing villages were those with good leadership. A review of the HIV/AIDS action plans highlighted the fact that most lacked a gender component. Because gender inequity plays a significant role in the spread of HIV/AIDS and village development at large, the team decided to develop a gender and leadership strengthening program.

VMACs and community members have worked to identify gender and leadership challenges, discuss and develop intervention measures and develop action plans, which they will implement at the community level. UZIKWASA developed a mentoring and backstopping scheme, and the team routinely collects data on a set of gender indicators that measure the impact of the strengthening program. To encourage learning, UZIKWASA also launched a best VMAC competition and exchange visits between well-performing and lesser-performing VMACS.

Box 31. Case study from Sange, Tanzania

The Sange village VMAC—proud winner of the Pangani “Best VMAC Competition”—is implementing an HIV/AIDS action plan. The plan identifies a number of issues, including low condom use, multiple/concurrent partners, parents’ lack of ethical behavior with their children, superstitious beliefs, stigma and other HIV/AIDS risk-taking behaviors. The VMAC uses the village’s theatre group to create awareness and mobilize behavior change. The committee singled out stigma as the most dangerous issue in need addressing. Learning from the experience of one VMAC member who is living with HIV, the committee developed a program to support people living with HIV (PLWH). The VMAC provided emotional and financial support to the member and used her to mobilize other PLWH to reveal their status and help educate their community together to improve the lives of PLWH. Today, eight PLWH have joined the group and five have received various types of livelihoods support, including the initial deposits needed to join the SACCOS.

Communications to address behaviors that exacerbate the spread of HIV/AIDS

Improving community access to HIV testing and health care and providing information about HIV/AIDS prevention and condom use is essential, but it is also important to address community behaviors and perceptions that exacerbate the spread of HIV/AIDS. For example, a woman might know that using a condom will prevent the spread of HIV, but if she is in a situation where she is not able to negotiate safe sex, the knowledge alone will not help. In this situation, it is important to communicate and educate the local community not only about condom use, but also about the underlying beliefs that make women unable to negotiate safe sex. These are deeply rooted gender roles and beliefs that can be sensitive and difficult to openly discuss.

The Pwani Project, funded by USAID and implemented by the URI Coastal Resources Center in collaboration with UZIKWASA in Tanzania, works to prevent HIV/AIDS and to promote behavior change among fishing communities through interactive theater, community radio and other information/education/communication (IEC) materials. These include posters, calendars, comic books and leaflets. The behavior change campaign tackles real-life issues/scenarios that contribute to the spread of HIV. Themes include HIV/AIDS risk-taking, leaders’ abuse of power, gender rights violations and parental roles. The target audiences are mobile fishermen, government leaders and families. Problem behaviors addressed include unsafe sex, early forced marriage, teacher/pupil sexual relationships, gender-based violence and lack of respect for the opposite gender, beginning in childhood. This communications campaign is called *Banja Basi*. An exact English translation is difficult, but an approximate meaning is “spit it out” —i.e., “do not be silent about problems around you.”

The *Banja Basi* communications campaign is successfully inspiring people to speak out about problems related to the identified themes, and communities are taking to task those who are poor leaders. That said, it is easier to blame problems on someone else rather than taking some responsibility to help change the behavior or situation. Thus, the latest campaign, which began in 2012, focuses on inspiring individual community members (parents, leaders, teachers, etc.) to take action. The second phase of the campaign is referred to as "*Banja basi...Halafu?*" It translates roughly to "*Speak out, then what next?*" and urges individuals to first speak out and then take action.

Looking to the future and scaling up

The previous chapters demonstrated why conservation organizations should engage on HIV/AIDS issues and how they can and have implemented successful HIV/AIDS workplace policies and programs. However, much more work needs to be done to scale up and mainstream HIV/AIDS awareness, policies and programming across conservation efforts throughout Africa. Some of the key elements include identifying and empowering champions within organizations, sharing lessons learned and appropriately funding this work.

CHAMPIONS

Conservation organizations should encourage and support people who are willing to be HIV/AIDS champions. HIV and AIDS continue to be a very sensitive issue, surrounded by stigma and discrimination. Champions from NGOs, government agencies, wildlife and natural resource training institutions, local community leaders and peers who are willing to break the silence, speak out, and catalyze action, all make a big difference. This includes men, women, and youth - peer champions have been found to be very effective. These remarkable and dedicated people can often achieve even more with support—for example, to reach broader audiences with their messages.

Box 32. Daulos Mauambeta, Champion of HIV/AIDS issues in Malawi

After seeing that AIDS was impacting the staff of the Wildlife and Environmental Society of Malawi (WESM) and their activities, Mr. Daulos Mauambeta (the former WESM Executive Director) took the initiative to mainstream HIV/AIDS and conservation into his organization's programs. As a result of his efforts, WESM promotes awareness on HIV/AIDS for its staff and with the local communities that it works on through community-based natural resource management (CBNRM). As a pioneer and champion on the HIV/AIDS and conservation issue, Mauambeta speaks regularly at international conferences (e.g. World Parks Congress in South Africa, World Conservation Congress in Thailand, Society for Conservation Biology-Africa in Tanzania) to share his experiences. He has authored many papers in conservation journals and the popular media to promote information about the impacts of the disease on the conservation workforce, natural resource use, and changes in land use. Mauambeta is a great advocate on the need for the conservation sector to take action to deal with the impacts of AIDS and to implement coping strategies. In addition to his professional work efforts, Mauambeta has taken personal strides to address HIV/AIDS in his home village of Chiuzira, Malawi. Through fundraising and personal contributions, he has built the Chiuzira Orphan Care Centre to look after AIDS orphans and their caregivers. Mauambeta's activities and personal initiative are truly inspirational. He shows that AIDS champions can make a big difference by implementing innovative actions, opening dialogues, addressing stigma, sharing lessons learned and fostering real change.

LEARNING

More learning is needed on the linkages between the environment and HIV/AIDS, and on integrated approaches that tackle HIV/AIDS through natural resource management and conservation. There has been some scattered research on the linkages, but given the scale of the problem and the role of the environment in possible solutions, it is not nearly enough. There is an urgent need for more—especially research to quantify the impacts of AIDS on land, natural resources, environmental institutions, and gender connections.

We also need more information on what conservation sector approaches work, as well as approaches that have not worked so well. There are some hubs of information, such as the Africa Biodiversity Collaborative Group (www.abcg.org), WorldFish Center, and the Food and Agriculture Organization. More pilots are needed of interventions focusing on HIV and AIDS and environment including gender perspectives, in the field and at policy level. Armed with these results, we will be better equipped to refine responses, and scale up successful approaches through policy interventions, outreach, training and cross-sectoral collaboration.

Box 33. Learning and sharing—IUCN and University of Washington

IUCN and IPPF in partnership with the University of Washington and support from The International Development Research Centre (IDRC-CRDI) developed the publication “Interactions between HIV/AIDS and the Environment: A Review of the Evidence and Recommendations for Next Steps” (https://cmsdata.iucn.org/downloads/hiv_aids_and_environment_1_2.pdf) in 2010. Dr Susan Bolton and Anna Talman investigate the linkages and research to date by reviewing 177 relevant papers, reports, studies and other materials. The previous 10 years had seen an increase in the awareness of and interest in the complex interactions among population, health and the environment (PHE) and even more recently, an increase in awareness of linkages between HIV/AIDS and the environment, which could be considered as a subfield under the umbrella of PHE. In their report they present a multi-scale framework to highlight important social, economic, and environmental factors that increase HIV transmission and exacerbate its burden on the environment. They discuss how this burden then feeds back into the hierarchical structure of the model to sustain risk factors for HIV/AIDS, resulting in a cycle of transmission that they term the HIV/AIDS syndemic.

MAINSTREAMING AND SCALING UP

In areas that are already seriously affected by HIV/AIDS, or have the potential to become affected, it is very important to mainstream HIV/AIDS into conservation plans. At the same time, we need to do this in partnership with others through multisectoral responses, as outlined in Chapter 2. HIV prevention and support to people living with HIV and AIDS requires an approach which links health to poverty alleviation, the promotion of gender equality and human rights, and focuses on the role of education, transport, health, food security, agriculture, economic development, and environmental issues. Strong partnerships are needed among health, development, human-rights, and environmental organizations to promote sustainable rural development for healthy communities living in healthy ecosystems.

We need to scale up efforts across Africa and beyond, to make a larger contribution to combating HIV and AIDS and its linkages to the environment and gender. The World Conservation Congress in 2004 passed a resolution urging the International Union for the Conservation of Nature (IUCN) and environmental institutions to take action. Implementation of the resolution is urgently needed in order to reduce the impacts of AIDS on human wellbeing, to reduce environmental degradation due to AIDS, and to help support those who are affected to gain sustainable livelihoods. In turn, this should help contribute to longer term security and sustainability.

FUNDING FOR HIV/AIDS AND CONSERVATION ACTIVITIES

Initially it was generally very difficult to find funding for work that integrated HIV/AIDS into conservation activities. Many donors provided funds in single streams that did not encourage cross-sectoral work. Now, with the recognition of the complex linkages and the importance of taking a multisectoral approach, coupled with the fact that the conservation sector is well placed to reach remote communities that the health sector struggles to reach, it is somewhat easier to obtain funds.

Box 34. Funding for NACSO

During its first two years (2003-2005) the Namibian Association of CBNRM Support Organizations' (NACSO) HIV/AIDS program was funded by the US State Department and the Global Fund. In 2005-06 it was funded by USAID through the World Wildlife Fund's LIFE (Living in a Finite Environment) program, and in 2007 PEPFAR funding became available first through USAID, and then from PACT. All funds were administered by the Namibia Nature Foundation.

Following an evaluation by PACT, the program entered a new era in 2009 with the introduction of a behavior change communications (BCC) approach to prevention. This approach was piloted in two regions (Caprivi and Erongo) for six months, halting funds to other regions in the meantime. This adjustment in priorities caused disruption in other conservancy programs, impacting morale and sustainability of activities. Some of the NGOs involved found other funds for their HIV/AIDS work. For example, the Nyae Nyae Development Foundation of Namibia acquired approximately US\$ 11,140 for HIV and AIDS activities between 2007 and 2009 from the European Union and the Namibia Nature Foundation's small grant fund while the Nyae Nyae Conservancy, like many other conservancies, provided contributions in kind with meat from the "own use" hunting quota for workshops (Berger 2010).

Box 35. Wildlife and Environmental Society of Malawi (WESM)

When, in 1999, the Government of Malawi launched a national HIV/AIDS response, the Wildlife and Environmental Society of Malawi (WESM) realized how important addressing the epidemic was to the organization's mission. Fortunately, several development partners who provided funding for conservation programs also saw the need and helped WESM create a separate budget line for HIV/AIDS activities and supplies such as publications, meetings, producing awareness materials, and holding rallies. The German Agency for Technical Cooperation (GTZ) allowed WESM to allocate 5% of budget support to AIDS activities, while OXFAM approved the use of 7.5% of funding support. In addition, WESM was able to partner with organizations which provided HIV/AIDS services. For example, the Wildlife Utilization Raises Community Standards (WURCS) organization used extra finances to support AIDS affected families and orphans in villages around Lake Malawi National Park (Mauambeta, 2003)

CONCLUSION

Everyone can take action on HIV/AIDS and conservation linkages either individually by getting tested, by discussing issues with conservation colleagues at all opportunities and by getting HIV/AIDS and conservation linkages on meeting agendas at all levels, ranging from local community discussion to international conferences. When meetings are organized, the “AIDS and Conservation Travel Awareness Flyer” can be circulated and condoms can be made available in toilets and in meeting bags, as was done at the 2007 International Congress of the Society for Conservation Biology in Port Elizabeth, South Africa.

The AIDS epidemic is seriously impacting conservation and every institution can play a role. We cannot forget about this issue as other conservation themes get attention and priority. Condom distribution must continue, orientations and refreshers on HIV/AIDS must continue until a cure is found and treatment is available to all.

HIV/AIDS and Conservation ~

What's the link?

Conservation organizations in Africa are losing educated and skilled employees and communities are losing champions due to AIDS, for example:

A national conservation NGO in Malawi with a staff of 50 has lost 7 highly educated employees (14%) due to HIV/AIDS since 1994.

- ⌘ HIV/AIDS threatens protected area and natural resource management:
 1. Loss of human capacity, skills, knowledge
 2. Changes in community demand for and use of natural resources
 3. Diversion of conservation funds for AIDS associated costs
- ⌘ Illness and death of staff mean:
 - higher absenteeism, lower productivity, higher recruitment and training costs, loss of skills and experience
- ⌘ Illness and death in families mean:
 - loss of labor, lower wage remittances and, in turn, greater reliance on natural resources (bushmeat, medicinal plants, charcoal-making)

Useful resources:

- ⌘ www.abcg.org
- ⌘ www.afr-sd.org/environment/environmentproducts.htm
- ⌘ www.fao.org/forestry/site/hiv-aids/en

Source: Erskine, Su, Tim Quilan, Judy Oglethorpe, Nancy Gelman, and Daulos Mauambeta. 2004. *AIDS and Conservation Awareness (Travel Insurance) Flyer*. ABCG.org. <http://frameweb.org/CommunityBrowser.aspx?id=2276&lang=en-US>.

TRAVEL TIP

Travel insurance for free ...
use a condom when having
sex



1. Get information

You **can** contract HIV from:

- having unprotected sex with someone who is HIV+
- sharing needles with someone who is HIV+
- receiving blood containing the HIV virus during a blood transfusion

You **cannot** get HIV from:

- sharing food or cutlery with someone who is HIV+
- sharing toilet facilities with someone who is HIV+
- shaking hands, hugging or kissing someone who is HIV+

2. Protect yourself

⌘ Using a condom during sexual intercourse can protect you from contracting both HIV & other sexually transmitted infections.

- ⌘ www.unaids.org.za
- ⌘ www.nu.ac.za/heard
- ⌘ www.smartwork.org

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