



Establishing Linkages
between
HIV/AIDS and the Environment
in Tanzania

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LIST OF ACRONYMS

| | |
|-------------------|--|
| AIDS | Acquired Immuno-Deficiency Disease |
| ARV | Anti-retroviral |
| EIA | Environmental Impact Assessment |
| EIPS | Implementation Support Programme |
| EMA | Environmental Management Act |
| ESRF | East Africa Research Foundation |
| GDP | Gross Domestic Product |
| HIV | Human Immunodeficiency Virus |
| ILO | International Labour Organization |
| IUCN-EARO | The World Conservation Union east African Regional Office |
| IPPFAR Region. | International Planned Parenthood Federation, Africa |
| JECA | Joint Environmental Conservation Association |
| NBS | National Bureau of Statistics |
| NEP | National Environmental Policy |
| NHIF | National Health Insurance Fund |
| MKUKUTA | Poverty Alleviation Strategy (Mpango wa Kuboresha Uchumu na Kuondoa Umasikini Tanzania) |
| MOH | Ministry of Health |
| NBS | National Bureau of Statistics |
| PLWA | People Living with HIV/AIDS |
| PMTCT | Prevention of Mother to Child Transmission (of HIV) |
| STD | Sexually transmitted Diseases |
| TACAIDS | Tanzania 0390 TD 0336 336086lic |

EXECUTIVE SUMMARY

Introduction

IUCN has been implementing environmental programmes in many parts of

herbal medicines for the treatment of opportunistic infections and changing in the pattern of farming by HIV and AIDS infected and affected families. Increased demand for bee honey for food and medicine has been observed while excessive extraction of timber is also caused by increased demand for coffins.

There a high and an ever increasing dependency on natural resources base in addressing HIV/AIDS and related health and social problems in Tanzania. During the village meetings in Rufiji District, community members could not hide their interest in participating for the infected people, increase use of timber for making coffins and general interest in conservation for sustainable use of natural resources. The study also identifies existing information on initiatives carried out in Tanzania to establish the linkages between HIV/AIDS and environment.

environment, but have not generated the evidence base to warrant use or translation into practice and/or policies. It is this paucity of knowledge and skills in linking HIV/AIDS with environment; and in effectively managing such links, that has generated the intent of this joint initiative between World Conservation Union (IUCN EARO) and the International Planned Parenthood Federation, Africa Region (IPPFAR).

IUCN has been implementing environmental programmes in many parts of Eastern Africa, including the Mt. Elgon area in Uganda and Rift Valley in Kenya, eastern Sudan and southern part of Tanzania. These sites provide useful insights into how they view the link between environment and HIV/AIDS. Similarly, IPPFAR, through its Member Associations in Uganda, Kenya, Ethiopia and Tanzania have also been implementing a HIV/AIDS prevention, treatment and care programme.

IUCN and IPPF-AR, therefore, endeavours to understand the importance of environmental assets and knowledge in the management, control and prevention of HIV/AIDS in Eastern Africa (Uganda, Kenya, Tanzania, Ethiopia and Sudan). The objective of this consultancy was to establish existing information/knowledge on the link between environment and HIV/AIDS.

1.2 Methodology

The consultants worked as a team in undertaking a basic desk study in Tanzania to generate information and assess the existing information on the influence and the linkage between HIV/AIDS an

things food, health, income, security, culture, social relations and social capital. On the other hand, HIV/AIDS was viewed to be connected to health, income, culture and social relations. Hence the linkage between HIV/AIDS and

natural resources. The economic importance of natural resources in Tanzania¹

3.0 HIV/AIDS STATUS IN TANZANIA

3.1 Overview

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to ensure that financial and management support to fight the epidemic is available.

Results from the 2003-04 data indicate that Tanzania faces a mature, generalized HIV epidemic. 7% of Tanzania Mainland adults are infected with HIV. Table 2 shows that HIV prevalence among women is higher (8%) than among men (6%). Among the 1.4 million people living with HIV/AIDS, 70.5% are 25 to 49 years old, and 15% are 15-24 years. In young women aged between 15 to 24, there is an HIV prevalence rate of 3.8%, which is significantly higher than the 2.8% prevalence rate among young men in the same age group. Other populations at high risk for HIV infection include people in prostitution, miners, police officers, prisoners, people in the transport sector and the military.

Table 1: HIV Prevalence by Age, Tanzania 2003-04

| Age | Women | | Men | | Total | |
|-------|------------------|---------------|------------------|---------------|------------------|---------------|
| | HIV positive (%) | Number tested | HIV positive (%) | Number tested | HIV positive (%) | Number tested |
| 15-19 | 2.1 | 1,255 | 2.1 | 1,181 | 2.1 | 2,416 |
| 20-24 | 6.0 | 1,134 | 4.3 | 984 | 5.2 | 2,066 |
| 25-29 | 9.4 | 1,093 | 6.8 | 756 | 8.1 | 1,949 |
| 30-34 | 12.3 | 795 | 11.5 | 705 | 11.9 | 1,499 |
| 35-39 | 11.7 | 656 | 11.3 | 597 | 11.5 | 1,253 |
| 40-44 | 9.8 | 470 | 12.3 | 402 | 10.9 | 872 |
| 45-49 | 5.8 | 363 | 6.7 | 359 | 6.3 | 722 |
| Total | 7.7 | 5,753 | 6.3 | 4,994 | 7.0 | 10,747 |

Like other countries in East Africa, the epidemic in Tanzania has remained stable in recent years, but there has been a recent increase in HIV prevalence among older age groups, with the HIV prevalence rate among women between 30 to 34 ages reaching 13%. Age- and sex-specific prevalence of HIV shows that women are more highly affected at younger ages as compared with men. Except for ages 15-19, at which prevalence for both men and women was 2%, prevalence

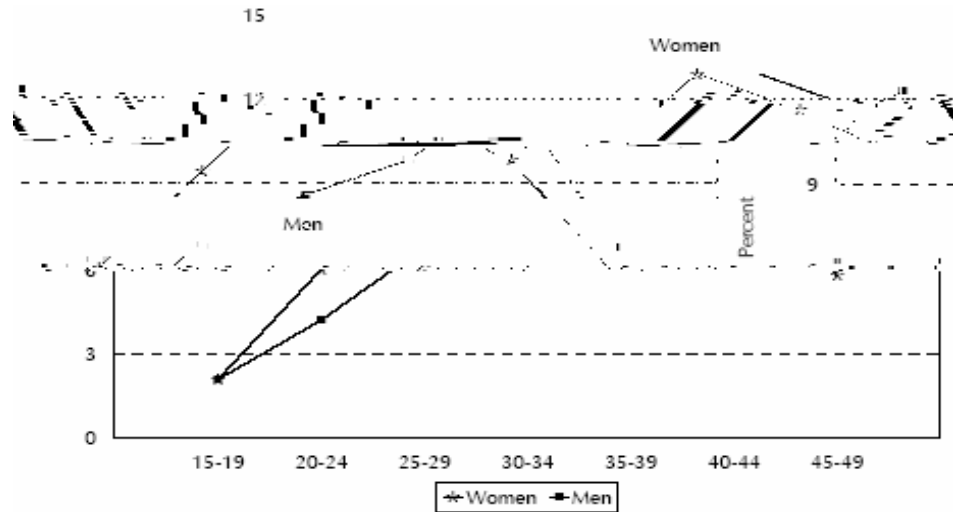


Figure 1: HIV Prevalence by Age Group and Sex

As Table 3 shows, for both sexes, urban residents have a significantly higher risk of HIV infection (11 %) than rural residents (5 %). Prevalence among urban women is 12 %, compared with 6 % for rural women; prevalence among urban

| Number tested | Background characteristic | Women 15-49 | | Men 15-49 | | Total Percentage HIV positive |
|---------------------------|---------------------------|-------------------------|---------------|-------------------------|---------------|-------------------------------|
| | | Percentage HIV positive | Number tested | Percentage HIV positive | Number tested | |
| Residence | | | | | | |
| 3,276 | Urban | 12.0 | 1,771 | 9.6 | 1,505 | 10.9 |
| 7,471 | Rural | 5.8 | 3,982 | 4.8 | 3,490 | 5.3 |
| Region | | | | | | |
| 556 | Dodoma | 4.2 | 296 | 5.7 | 260 | 4.9 |
| 425 | Arusha | 5.7 | 231 | 4.8 | 194 | 5.3 |
| 489 | Kilimanjaro | 7.3 | 281 | 7.4 | 209 | 7.3 |
| 426 | Tanga | 6.4 | 282 | 3.2 | 191 | 5.7 |
| 343 | Morogoro | 6.7 | 288 | 4.0 | 282 | 5.3 |
| 10,311 | Wahai | 10.3 | 149 | 7.35 | 200 | 10.3 |
| Region (continued) | | | | | | |
| | 12.2 | 660 | 9.4 | 582 | 1,242 | Dar es Salaam |
| | 3.5 | 141 | 3.6 | 116 | 257 | Lindi |
| | 7.1 | 179 | 7.7 | 150 | 329 | Mtwara |
| | 6.4 | 234 | 7.4 | 198 | 432 | Ruvuma |
| | 13.4 | 278 | 13.3 | 238 | 516 | Iringa |
| | 15.2 | 372 | 11.5 | 311 | 683 | Mbeya |
| | 4.2 | 155 | 2.1 | 140 | 294 | Singida |
| | 9.5 | 233 | 4.7 | 210 | 444 | Tabora |
| | 6.4 | 155 | 5.5 | 146 | 301 | Rukwa |
| | 2.1 | 239 | 1.9 | 181 | 420 | Kigoma |
| | 7.6 | 460 | 5.3 | 423 | 883 | Shinyanga |
| | 3.5 | 293 | 3.9 | 254 | 546 | Kagera |
| | 7.0 | 468 | 7.5 | 415 | 883 | Mwanza |
| | 2.8 | 149 | 2.2 | 135 | 284 | Kayunga |
| | 2.0 | 144 | 1.9 | 144 | 288 | Manyara |
| Education | | | | | | |
| No education | | | | | | |
| 48 | 566 | 5.3 | 1,694 | 5.6 | 1,926 | 5.3 |
| 7.0 | 2,950 | 7.9 | 6,030 | 8.8 | 3,080 | 7.9 |
| Employment | | | | | | |
| Currently working | | | | | | |
| 4,121 | 8,641 | 7.7 | 6,570 | 6.7 | 13,211 | 7.2 |
| Wealth quintile | | | | | | |
| | 2.8 | 1,030 | 4.1 | 807 | 1,837 | Lowest |
| | 4.6 | 1,016 | 4.3 | 950 | 1,966 | Second |
| | 6.8 | 1,073 | 4.3 | 962 | 2,035 | Middle |
| | 10.9 | 1,135 | 7.7 | 1,008 | 2,142 | Fourth |
| | 11.4 | 1,499 | 9.4 | 1,267 | 2,766 | Highest |
| Religion | | | | | | |
| | 8.6 | 1,742 | 6.1 | 1,477 | 3,219 | Muslim |
| | 8.4 | 1,847 | 7.6 | 1,673 | 3,520 | Catholic |
| | 6.8 | 1,669 | 5.6 | 1,301 | 2,971 | Protestant |
| | 5.1 | 445 | 4.1 | 510 | 955 | None |
| Total | | 7.7 | 5,753 | 6.3 | 4,994 | 7.0 |

The HIV epidemic shows strong regional variation (Figure 2). Overall, the regions with the highest HIV prevalence are Mbeya (14%), followed by Iringa (13%) and Dar es Salaam (11%). Regions with low HIV prevalence are Manyara and Kigoma (2%). Overall, seven regions show HIV prevalence levels below 5%. In many regions, women have higher prevalence of HIV infection than men. In Pwani region, the prevalence of HIV infection among women is almost three times that of men, and prevalence among women is twice that of men for Tanga, Singida and Tabora Regions.

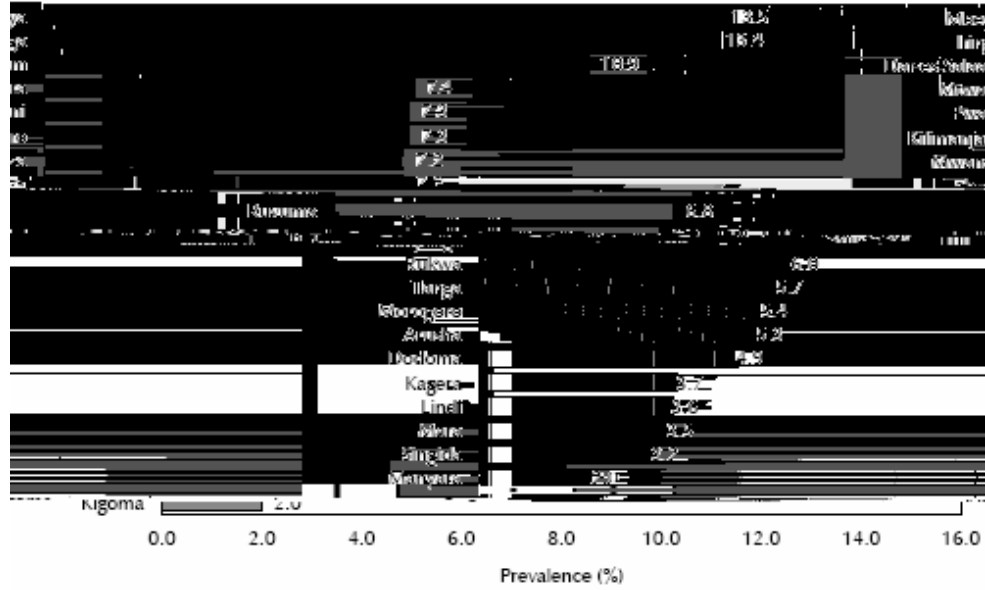


Figure 2: Prevalence of HIV by Region

HIV prevalence increases with the level of education. Overall, those who have completed primary school and those with at least some secondary education have a higher HIV infection rate (8% each) than those who have either no education or only some primary school (5% each) (Figure 3). Prevalence of HIV is 9% for women with some secondary education and 7% for men with some secondary education.

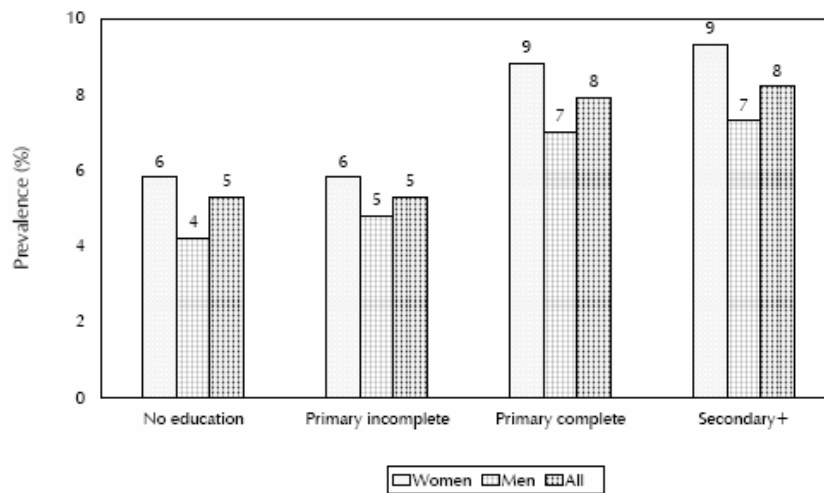


Figure 3: Prevalence of HIV by Level of Education

The HIV/AIDS situation by 2007 is illustrated by Box 2.

Box 2: HIV AND AIDS ESTIMATES IN TANZANIA

Number of people living with HIV:

1,400,000 [1,300,000 -1,500,000]

Adults aged 15 to 49 prevalence rate:

6.2% [5.8% - 6.6%]

Adults aged 15 and up living with HIV:

1,300,000 [1,200,000 – 1,400,000]

Women aged 15 and up living with HIV:

760,000 [710,000 – 810,000]

Children aged 0 to 14 living with HIV:

140,000 [130,000 – 150,000]

Deaths due to AIDS:

96,000 [86,000 – 110,000]

Orphans due to AIDS aged 0 to 17:

970,000 [850,000 – 1,100,000]

Source: Epidemiological Fact Sheet on HIV and AIDS, 2008

3.2 HIV/AIDS in Workplaces

There is little difference in HIV prevalence by employment status, except that men who are not currently working have a lower level of HIV infection (4%) than working men (7%). The data also show a gradual increase in HIV infection with increasing wealth quintile for both women and men. Overall, the rates rise from 3% among those in the lowest quintile to 11% among the wealthiest quintile (TACAIDS, National Bureau of Statistics, and ORC- Macro, 2005).

Hence, HIV/AIDS is a major threat to the world of work. It is affecting the most productive segment of labour force and reducing earnings imposing huge costs on enterprises in all sectors through declining productivity, increasing labour costs, loss of skills and experience. In addition, HIV/AIDS is affecting fundamental rights in the workplace, particularly with respect to discrimination

and stigmatization aimed at workers living with HIV/AIDS. Absenteeism resulting from HIV/AIDS and its opportunistic diseases, frequent sick leave or excuse duty; direct costs of funeral, transport costs for dead employees and rural homes. All these have negative effects on employees and employer.

Successful business relies on a productive labour force. Where the number of AIDS death continues to rise, business will be gravely affected. Some studies have projected losses of up to 56% of annual profits for selected companies in sub-Saharan Africa as a result of HIV/AIDS pandemic (Loewenson,1999; Roberts et al.,1999) Companies incur many expenses when employees and their families succumb to AIDS. Absenteeism soars as workers grow weak, attend funerals, or tend to ailing relatives. Productivity becomes reduced because of their absence or body weakness while working. The pool of available labour shrinks when they die. Health care costs rise since companies have to pay for treatment directly or through higher medical insurance costs. Life insurance premiums, disability benefits and pensions, recruitment and training of new workers to replace disabled or dead employees while covering burial costs and death benefits, all add to the financial pinch of affected companies.

3.3 Gender and HIV/AIDS

Social and economic deprivations along gender lines are particularly important in Tanzania, where aggregated data show that women are at a considerable social disadvantage. Interventions that do not recognize this reality run the risk of reproducing and entrenching existing gender inequalities.

3.3.1 HIV testing multi-sexual partners

HIV/AIDS in Tanzania is mostly transmitted through unsafe heterosexual relations. In polygamous marriages one infected partner can spread HIV to all others. Efforts covering long distance drivers and sex workers could be complicated by the sheer definition of who is a sex worker? Most drivers' regular sex lovers finally pass as second wives, hence using condoms and birth control may no longer apply. So in cases where a driver has a second wife on border posts HIV spread is faster. A death or loss of job of one driver may mean multiple orphan

eating and child care. Coupled with stigma that is associated with HIV/AIDS refraining from breast feeding may not be an easy matter. Wives, children and grand children in a polygamous marriage eat together. A new mother is expected to breast feed the baby even as she takes hot porridge meant to stimulate milk flow.

3.3.3 Marriage, reproductive health and sexual rights

Teenage marriages and in traditions where women have limited rights over their future husbands expose couples to infections, including HIV contraction. HIV testing before marriage in situations like “**chagulaga maye**” among the Sukuma is very limited. “**Chagulaga maye**” is a traditional festival involving dancing and singing at the end of which young men chase the girls. A girl will choose a husband out of the group that surrounds her. One criterion for choice is the size of the herd of cattle a man is ready to give in bride price. She is expected to choose the highest bidder.

4. POLICY AND LEGISLATIVE ENVIRONMENT

There are many policies on environmental management, including the National Land Policy (1995), Industrial Policy (1996), Agricultural and Livestock Policy (1997), Fisheries Policy (1997) et cetera. This section will, however, only discuss policies and legislations that are specific to the ao3i1ng the Natle S

- Reduce infant and maternal morbidity and increase life expectancy through the provision of adequate and equitable maternal and child health services, promotion of adequate nutrition, control of communicable diseases and treatment of common conditions;
- Ensure that health services are available and accessible to all urban and rural areas;
- Move towards self sufficient in manpower by training all the cadres required at all levels from village to national level.
- Sensitise the community on common preventable health problems.
- Promote awareness in government and the community of large that health problems can only be adequately solved through multi-sectoral cooperation.
- Great awareness through family health promotion that the responsibility for ones health rests squarely with the able-bodied individual as an integral part of the family.

These objectives have to be achieved through Primary Health Care (PHC) which is the central element of health promotion aiming at coordinated action by all concerned, e.g. health and health related sectors local authorities, industry non-governmental and voluntary agencies, the media and the community at large.

4.1.3 Workplace HIV/AIDS Prevention Policy in Tanzania

TACAIDS and other stakeholders developed the National Policy on HIV/AIDS in November 2001. All sectors in Tanzania are required by the HIV/AIDS policy and

4.1.5 National Environmental Policy, 1997

Tanzania has promulgated the National Environmental Management Policy (NEP) in 1997 and other sector specific policies, which provide the policy guidance on how its environment and natural resources will be sustainably managed. The role of National Environmental Policy, 1997 includes the following:

- i. Developing consensual agreement at all levels for the challenge of making trade-offs and the right choices between immediate economic benefits to meet short term and urgent development needs, and long term sustainability benefits;
- ii. Developing a unifying set of principles and objectives for integrated multisectoral approaches necessary in addressing the totality of the environment;
- iii. Fostering Government-wide commitment to the integration of environmental concerns in the sectoral policies, strategies and investment decisions, and to the development and use of relevant policy instruments which can do the most to achieve this objective;
- iv. Creating the context for planning and coordinating at a multisectoral level, to ensure a more systematic approach, focus and consistency, for the ever-increasing variety of players and intensity of environmental activities.

In finding solutions and tackling these problems the NEP outlines its overall objectives as:-

- i. to ensure sustainability, security and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety;
- ii. to prevent and control degradation of land, water, vegetation, and air which constitute life support systems;
- iii. to conserve and enhance our natural and man made heritage, including the biological diversity of the unique ecosystems of Tanzania;
- iv. to improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians and aesthetically pleasing surroundings;
- v. to raise public awareness and understanding of the essential linkages between environment and development, and to promote individual and community participation in environmental action;
- vi. to promote international cooperation on the environment agenda, and expand our participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programs, including implementation of Treaties.

Challenges and problems identified in the NEP as well as the overall objectives have informed the enactment of the Environmental Management Act, 2004.

4.1.6 The Environmental Management Act, 2004

The Environmental Management Act (EMA) was passed by Parliament in November 2004, assented to by the President in February 2005 and became effective in July 2005. EMA is a framework Act that overrides all current legislation related to environmental management. EMA builds on the National Environment Policy's vision of a consistent and coherent environmental management framework. With a view to facilitating the implementation of EMA, VPO-DoE initiated the formulation of the EMA Implementation Support Program (EISP).

4.2 International Policies and Conventions

The country's response to the HIV/AIDS epidemic has been designed not only on the basis of national priorities but also with the recognition of the regional and international commitments to the achievement of Millennium Goals and the Declaration of Commitment on HIV/AIDS made by the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) in June 2001, including its goals, strategies and indicators. Tanzania also implements the ILO requirement of Workplace Health and HIV Programme (URT, 2004a).

More recently though, it is the initiative by the G8 countries who reiterated at the UN General Assembly World Summit in September 2005 their commitment to supporting developing countries and Africa, in particular, towards realization of the internationally accepted benchmark of universal access to prevention, treatment and care by the year 2010 for people in need. With this commitment, National and the International Community are aiming to provide essential package of programmes and services so as to cover at least 80% of the population in need to reduce significantly the threat of HIV.

5. ESTABLISHING LINKAGES BETWEEN HIV/AIDS AND THE NATURAL ENVIRONMENT

5.1 An Overview

HIV/AIDS is aggravated by poor environment. AIDS blossoms when opportunistic diseases set in and immunity breaks down. Poor environment leads to epidemics. Sanitation and waste management systems are poorly designed and operated, hence risks to tuberculosis, malaria, and typhoid. Malaria cases were five times those of HIV in 2002. Malaria is reported to have killed more than 10 million people in the past 40 years and yet most parasites are immune to malarial drugs. A 191% increase of Tuberculosis was also reported in Tanzania. WHO reported Tanzania as ranking 4th among 22 high TB burdened countries in the world (Werema, 2006). Mosquito nets and natural herbs have thus increasingly been promoted for the cure of malaria.

Amongst the factors and behaviors mentioned by many authors as encouraging the spread of HIV/AIDS include social environments such as exposure to globalization, electronic media that distort local culture and values (MoE, 2006), and distorted beliefs and information on HIV/AIDS and STDs. Others are gender violence, outdated cultural practices that promote early marriages, and traditional practices such as forced or arranged marriages (Kashuna et al. 2004).

Puja (1990) reports that 40% of students in Sharbaan Robert and Ihanja Secondary Schools' chief source of knowledge and information was from books and magazines. Today it would be from the internet. The study also found out that 12% and 16% of students, respectively, were consuming alcohol and that 56% of the girls supported use of contraceptives while 67% of them confided in their mothers everything, except sex related issues. Puja (ibid) called for reproductive and sex education, population education, and responsible parenthood as pivotal in schools.

A safe domestic water supply and sanitary environment is a precondition for healthy living. A safe domestic water supply and sanitary environment is a precondition for healthy living. There has been an increase in the use of

improved sources of drinking water in rural areas since the 1990s. In Dar es Salaam, however, the proportion of households using improved water has fallen in the same period. In spite of the overall improvement, nearly half of the households in Mainland Tanzania and over half of rural households still use drinking water from sources that are considered unsafe, hence a need to accelerate rate of improvement by the year 2010 (R& AWG, 2002).

About 70% of Tanzania population is reported to get water from a private water point, 18% from a neighbour and 10% has water within their houses. 49% do not pay for water services while 33% pay cash, 9% pay bills, while 6% pay water vendors (URT, 2007). About 57% rural and 21% of urban households have unsafe water from wells, rivers, streams and ponds (URT, 2005).

Only 42% of rural households have access to improved water sources compared to 88 percent from Dar es Salaam, and 84% in other urban areas. While the overall difference in access to improved water supply between urban and rural areas is high, available information from some of the district provide further evidence about the depth of disparity. There are several districts in which fewer than 10 percent of rural households have access to improved water supply. These include: Sikonge, Igunga, Kishapu, Liwale, Mkuranga, Rufiji and Mafia. There are some difficulties in extending water supplies in these districts: Liwale and Sikonge have very low population density, salinity is an issue in Mkuranga, and fluoride is a problem in Kishapu (R & AWG, 2005).

In arid areas such as Ushiroombo in Shinyanga Region and Newala in Mtwara Region water is collected from shallow pools below rocks and by rainwater harvesting from iron roofed houses with gutters, but also from backcloth tree aerial roots during a rain shower as in Ukwaheri, Iringa. In arid Usangu Plains holes are dug near pools after rains in an attempt to sieve muddy and green water. The sieved water, though clearer, is not colourless.

Most communities share their water points with domestic and wild animals, making it unsafe for consumption. Overall, access to and use of improved toilets, defined as flush toilets or improved ventilated pit latrines, is very low. Even though a high proportion of households have a latrine, in most cases this latrine is not improved and may be unsanitary and unsafe. On average, fewer than 5% of households have access to improved toilet. The highest access is in urban areas, and highest in Moshi Rural and Urban Districts (36%).

There is a close link between water supply, sanitation, hygiene practices and waterborne diseases such as cholera. The spread of cholera in particular is influenced by the interaction of all the three factors. It is for this reason that cholera outbreaks are pertinent "outcome indicator" reporting on the environmental change emerging from the combination of water supply, sanitation and hygiene promotion initiatives. Since the first major officially reported cholera epidemic in Rufiji, 1977-78, cholera is reported to have spread to most regions of

the country. Tanzania reports cholera outbreaks almost every year. In some regions like Dar es Salaam, cholera can be considered endemic.

Cholera transmission shows a seasonal pattern, generally with a larger proportion of cholera cases being reported during the rainy seasons October to December and March to May. Over the years 2002–04 reports of cholera cases have persisted throughout the year and it is clear that the total number of annual cases reported has also increased.

Diarrhoea is another leading childhood illnesses, and is closely associated with poor sanitation and hygienic household practices. Adequate sanitation at household and community level (including schools) should reduce the prevalence of diarrhoea. The 1999 TCRHS data shows a somewhat higher prevalence of diarrhoea in rural areas compared to urban areas.

Salim (2002) reports that not a single town or city in Tanzania has sewage treatment facilities and that waste from these towns and cities is discharged untreated into the environment mainly into coastal waters via local sewer networks and rivers. He further reports that 15% of Dar-es-Salaam residents are connected to the city sewer that was built in late 1950's the city. He reports that the city had 8 oxidation ponds of which only 4 (at the University of Dar-Salaam, Kurasini, Vingunguti and Mikocheni) were in working condition. Over 80% of the population in Dar es_Salaam, he further reports, use pit latrines and septic tanks which naturally overflow or are forced to do so (**Kutapisha**) during the rains contaminating the water sources and increasing health risks in the neighborhoods. The Zanzibar sewage system dates back into 1920's and serves about 18% of the population. He recommends that tourist hotels and industrial plants should have their own site treatment and facilities. Guidelines should be developed on the design and construction of wells and pit latrines with a view to reduce pollution.

Other studies report that 78% of the household use pit latrines in the rural areas, and 69% of households still use traditional pit toilets in the urban areas. 15% of households in rural areas have no toilet facilities at all. The above situation indicates that there was a low acceptability of Ventilated Improved Pit latrines (VIP) introduced in a feasibility study by USAID in 1983 as a means of reducing disease and other consequences of human waste disposal in densely populated low income multi ethnic communities.

5.2 Direct Linkages

5.2.1 Increase in the Use of Herbal Remedies

The impact of HIV and AIDS on the workforce has pushed health seekers towards traditional healers because they are cheaper and easier to access. The

greatest challenge facing the health sector in Tanzania is inadequate human resources to deliver quality health services to the Tanzanian population. Structural adjustment policies and HIV/AIDS have greatly reduced the health-sector workforce.

extracting natural resources result into heavy destruction of the very natural resource base as experienced in sectors of mining and forestry.

Lumbering and logging, for example, though done by small scale operators, can lead to deforestation and yet generate no or little income for the local community. In the mining sector small scale gold mining sites such as Mgusu in Geita, excessive river use leads to water pollution by mud and mercury. Mercury is locally used to separate gold from mud. Small scale miners operate on bare feet, and in the background are food vendors using the muddy mercury polluted waters (Madulu et al., 2007). Meanwhile, nearby forest resources are in danger of being encroached for expansion of mining, settlement and collection of forest products.



Photo Plate 1: Defforestation of Mugusu Forest and Pollution of River water with Mercury

STIs and HIV/AIDS result from unsafe sexual relations most of which are carried to individual miner's villages as most male and female miners usually leave their permanent spouses and sex partners behind. Some of the children born during the periods of mining are



Photo 2: Short time sexual intercourse brothels.

Heavy use of grass, poles and sedges for house and kraal construction in livestock communities are not only a threat to their own environment but also to new places. In Ikwiriri, for example, residents building and farming practices are more environmental friendly than that of in-migrating livestock keepers from Usangu. The outcome is that the natural environment in Ikwiriri may suffer damage due to heavier tree and grass destruction by the in migrating livestock keepers. However, use of this resource even when abundant, requires adult muscular energy which may get lost in cases of HIV/AIDS infection.

5.2.3 Effect of HIV and AIDS on use of bee products for food and medicine

Tanzanians have been using honey as a vital medicine for centuries. Herbal medicines are known for their bitter taste. Traditional healers have been using honey to give such medicines good taste. Scientists today have also accepted honey as a ram ban medicine for all kinds of diseases. With HIV and AIDS pandemic, PLWA make the best use of honey to prevent them from contracting opportunistic infections.

Honey from small bees (known as **imyana** in Kinyakyusa tribe) when mixed with cinnamon and taken with lukewarm water can cure common and severe cold, cures chronic cough, and clears sinuses. When mixed with cinnamon and hot oil, honey restores loss of hair and cures stomach ache. Daily use of honey and cinnamon strengthens the immune system.

Honey is commonly used for food by communities. Conservation forests offer the best environment for bee keeping, hence giving communities around them the motive force to participate in conservation activities.

5.3 Indirect Linkages

5.3.2 Women and Resource Use Rights

Some women's rights and opportunities have been copied from colonial systems and through feminist movements rather than them developing systematically. For example, women were given the right to vote and the right to be consulted over the custody of childr

With limited technology most women spend enormous time and energy in food preparation and processing such as pounding cereals and cassava. Small scale production such as oil presses, local beer/wine brewing, and honey making is an

Observations from Umwe Kaskazini village in the Coast Region revealed increase in high risk behaviour amongst young women in the village as a result of increased timber processing and trading from Ngumburuni Forest Reserve. The completion of the bridge that connects the Coast Region with southern regions of Lindi and Mtwara, respectively, over the Rufiji River has attracted an influx of traders from all over the country who were attracted by its huge potential in natural resources, including timber and fish produce. The increased trading activities boosted local businesses, including hotels and guest houses. It is also because of the increase in trading activities that Umwe and other villages surrounding Ngumburuni Forest Reserve became more exposed to HIV and AIDS and other sexually transmitted diseases. (**Box 3**).

Box 3: Increase in Trading Activities and Exposure to HIV and AIDS

feature. Poor technologies limit fishermen on the near shore waters. Over fishing is resultant of poor fishing gears such as beach seines, dynamite fishing, and using fish poisons.

Distance fishing has increased susceptibility of people to HIV and AIDS and other sexually transmitted infections. A situation analysis and impact assessment of HIV and AIDS in the tourism sector in Zanzibar² observed shift in ownership of land opening to the sea from local to foreign investors and investment companies. Uncontrolled fishing activities by large foreign fishing boats have forced local fishermen to travel as far as Tanga Region in the mainland for fishing. The long stay in foreign land forced Nungwi men to have sexual relationships outside their marriages. It is not uncommon for Nungwi men to marry in the foreign lands and bring home their wives. Nungwi women accuse wives who join their families from foreign lands for the spread of HIV and AIDS and other sexually transmitted infections.

6. EXISTING INITIATIVES AGAINST HIV/AIDS

6.1 Overview

Initially, HIV/AIDS was perceived as a health problem and the response was left to the Ministry of Health alone to respond to the pandemic. This major drawback was dealt with by the establishment of the Tanzania Commission for AIDS or TACAIDS in 2001. Other strategies were of disease prevention in nature, including use of condom campaigns such as by **Ishi** programmes and mainly targeting the livelihoods considered more vulnerable to unsafe sex such as long distance drivers and commercial sex workers.

Emerging socio-cultural conflicts based on religious beliefs, reproductive health and sexual rights, including environmental unpreparedness for condom disposal, created huddles in condom use. Lack of inadequate disposal (pit latrine, burning) facilities and knowledge, condom disposal has created environmental problems and is seen as obnoxious refuse thrown anywhere which some children unknowingly pick and use as toy balloons. I C - 1 3 . 5

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cross cutting issue in all sectors, including Local Government in that up to the grassroots levels there are HIV/AIDS committees.

disease. They will die of Tuberculosis, pneumonia, meningitis, diarrhea, or whatever ruined their immune system first (Johanna 2001 in Wills 2002).

The notion that Africa cannot provide treatment for those with AIDS is, therefore, beginning to change; although intervention strategies for elimination of HIV/AIDS still will require sound cultural ideology.

6.3 HIV/AIDS and Environmental Health Initiatives

Awareness of counseling and prevention of HIV/AIDS, including environment health programmes to combat opportunistic diseases that are associated with HIV/AIDS such as Malaria, TB, Cholera, Bilharzias, and STIs, have been initiated at local government and donor supported projects. Such initiatives include the Pangani Hydropower Project - PULIS- Initiatives which has been conducting community awareness campaigns, lobbying and advocacy, research and training through involvement of Village Health Workers (VHW) and Traditional Birth Attendants (TBS). Other interventions have included improved environmental sanitation for combating STIs, HI/VAIDS and other opportunistic diseases through construction of VIP latrines, voluntary testing for HIV, improved maternal health care, improving access to bed nets and condoms. Bottom up approaches applying participatory community techniques are also used.

Awareness on HIV/AIDS, Environment and the Linkage between the two was enhanced in communities by NGO interventions through the support of the Foundation for Civil Society (FCSO) Interventions. The activities ranged from creation of awareness, prevention and mitigation for HIV/AIDS and Environment. For example, the Nzega Women's Association claims to have reduced HIV/AIDS associated stigma by giving the elderly insights on HIV/AIDS in their project titled "**Kuwafunza Wazee Kuhusu UKIMWI/VVU**".

The linkage between HIV/AIDS and environment was realized in Kisarawe after training in HIV/AIDS by Kabenze Development Trust Fund (KDTF). It was through this training that the local people recognized the link between HIV/AIDS and the need to protect water sources. In a KDTF organized workshop environmental conservation is a joint venture for local government leaders, politicians and communities.

Proper information on HIV/AIDS by Kigoma AIDS Campaign and Home Based Care (KACHIMBA) in Kigoma was reported by one traditional healer to have made him abandon use of inappropriate traditional practices in disease diagnosis and treatment. He reported that he had abandoned traditional use of amulets as prevention for ordinal illnesses.

Morals and values are among factors that are associated with HIV/AIDS in Tanzania and addressing them may require cooperation of the elderly to eliminate such practices as polygamy, and circumcision of both boys and girls.

Werema(2006) recommends that Tanzania has to abandon foolish traditions and also emphasize one man one woman. Umoja wa Wazee Morogoro (UWAMO) through FCS helped the elderly exchange information pass on knowledge and skills to other people with regards to marriage, land rights, religious and traditional practices.

Anti-sexual harassment and gender policies established by institutions such as the University of Dar-es-Salaam is an effort to address gender imbalance, inequality and inequity and discrimination in such institutions (University of Dar-es-salaam, 2006).

East African Community (EAC) has set up health, environment and natural resources as independent sectors within the Directorate of Productive and Social Sectors. Under health HIV/AIDS and Gender have been mainstreamed into all EAC Regional level policies, strategies, projects and programmes in all EAC organs and institutions. Sustainable environment management and economic utilization of natural resources has been established. This includes promotion of sustainable use and management of natural resources in order to conserve the environment. (Weggoro, 2008)

Local communities in IUCN and UMATI projects and the workshop participants acknowledged the close relationship between the existing environment and health and in particular HIV/AIDS. Before then they confessed that they had not internalized the inverse relationship between a clean and safe environment with HIV. They had not visualized how the environment could effect people carrying HIV develop AIDS through exposure to environment related illnesses, especially the top ten diseases that are responsible for breaking the immunity. They realized that most of these diseases are related to poor environment which was within their powers to control. They also realized that a destroyed environment, for example, with dirty water, pollution, deforestation, household food insecurity, bad fishing methods, lack of vegetables, et cetera, could render people with HIV more vulnerable to AIDS.

They noted that a safe and friendly environment is important for home based care givers of non-hospitalized HIV/AIDS patients. They resolved that closely working together both the environment and HIV/AIDS village committees had a lot in common and could kill lots of birds with one stone. That is that when setting local by-laws they could do so to encompass both environment and HIV/AIDS. They realized that their livelihood activities had an effect on the environment and consequently on health, including HIV/AIDS. For example, while gatherings and camps for seasonal fishing and traditional initiations could cause food insecurity, while

They needed to create general awareness on environment surrounding some traditions and beliefs such as embalming/washing of dead bodies, care of the sick including PLWA, traditional birth attendants, polygamy for HIV control.

Strategies to combat HIV/AIDS in Tanzania could not be any better than what the government of Tanzania presidents have done. That is, declaring HIV/AIDS as a national disaster and by launching a country wide campaign for HIV testing including recognition of traditional herbalist's roles and involvement.

Research has indicated that any action to prevent AIDS must take into account the unification of the people and that an overall uniform plan will not work. For example programme of AIDS control such as Tanzania Netherlands Project to support AIDS control in Mwanza (TANESA) needed to be situational, small scale. AIDS symptoms take long to identify, and cannot be addressed directly as a cause and effect correlation (Nko, 1995a and 1995b in Wilsen and Tanner 2002). Also in subsistence economy any action needs to have a built in reciprocal relationship. Help in these communities is not equitable to Christian charity. There has to be a pay off for individuals participating so that they are better off in some way as a result of their expenditure of time and money being involved.

Direct impacts of HIV/AIDS on biodiversity include an accelerated rate of extraction of natural resources due to increased dependence on wild foods and wildlife, medicinal plants, timber, and fuel wood. It also leads to decreased availability of labor due to sickness and death within the villages and among

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agricultural practices can destroy the environment. Furthermore, communities realized that environmental conservation was among the strategies for poverty alleviation. TEREPA initiated environmental conservation through alternative energy sources by tree planting for fuel wood and charcoal. Use of stoves using little charcoal hence reducing tree cutting was also promoted.

The Morogoro Women Focused Afforestation Project (MWAP) through FCS has promoted planting tree as wind breakers to combat repeated loss of school and house roofs through winds during the dry season.

The Tanga AIDS Working Group (TAWG) in Tanga Region, northeast of Tanzania, is an NGO composed of health professionals and traditional herbalists. The intervention has been in place in the last 17 years whereby a team of medical doctors have joined hands with the traditional healers in establishing cure for opportunistic infections caused by HIV and AIDS. TAWG has identified and put together more than six different regimes for treating opportunistic infections and prolonging life (herbal ARV). They use extracts from plants and trees from the region.

TAWG is combining modern voluntary counseling and testing methods with knowledge local healers have in treating opportunistic infections associated with HIV/AIDS. TAWG also collaborates with traditional healers to provide low cost treatment to PLWA. So far it has treated 4,500 AIDS patients with opportunistic infections using herbal medicines. Currently, it is treating 2,100 patients from six treatment centres. Some of the herbs used by TH are given in Table 4 below.

Table 3: Medicinal Plants and Trees Found in Tanga for Treating Some AIDS Associated Opportunistic Diseases

| Name of tree | Treatment |
|---------------------|--------------------------------------|
| Mohogoro | Increases appetite and reduces fever |
| Mkusu | Skin infections including rashes |
| Mvuti | Abdominal discomfort |

In Tanga people have a strong belief in traditional healers. This is further increased by the scarcity of medical personnel compared to traditional herbalists. For example, doctor to patient ratio in Tanga is 1:33,000 compared to TH to patient ratio of 1:156. Also most TH payments are in traditional reciprocity or payable in non-monetary terms such as chicken. The traditional healer-

Candida glabrata, *Candida tropicalis*, *Candida parapsilosis*, *Candida krusei* and *Cryptococcus neoformans*.

Traditional healers in Rufiji District, Coast Region use trees and plants found in Ngumburuni Forest Reserve to cure AIDS related diseases. Expert opinion from Mshamu Mohamed Mandai (70), a traditional healer from Umwe Kaskazini, identifies a number of trees that he and fellow traditional healers from the 7 villages around Ngumburuni Forest Reserve use for treatment of ailment associated to HIV and AIDS. The healers use extracts from the trees, some of which are shown in Table 5 below.

Table 4: Medicinal Plants and Trees and Their Treatment

| Name of Tree | Treatment |
|---------------------|------------------|
|---------------------|------------------|

6.6 HIV/AIDS and Conservation

On the other hand, HIV and AIDS have increased awareness of and appreciation of afforestation and conservation activities. Communities that are infected and affected by HIV and AIDS, medical doctors and other health service providers, traditional healers, conservation scientists and other stakeholders are becoming

7. CONCLUSION AND POLICY IMPLICATIONS

7.1 Conclusion

HIV/AIDS is aggravated by poor environment. AIDS blossoms when opportunistic diseases set in and immunity breaks down. Poor environment leads to epidemics. Sanitation and waste management systems are poorly designed and operated; hence risks to tuberculosis, malaria, and typhoid are multiplied. Malaria cases were five times those of HIV in 2002. Malaria is reported to have killed more than 10 million people in the past 40 years and yet most parasites are immune to malarial drugs. Mosquito nets and natural herbs have thus increasingly been promoted for the cure of malaria.

Amongst the factors and behaviors mentioned by many authors as encouraging the spread of HIV/AIDS include social environments such as exposure to globalization, electronic media that distort local culture and values, and distorted beliefs and information on HIV/AIDS and STDs. Others are gender violence, outdated cultural practices that promote early marriages, and traditional practices such as forced or arranged marriages.

Establishing linkages between HIV and AIDS in its maturity stage and the Environment is a new research area. There is surely much the communities and families are doing in trying to cope with the epidemic, including increased use of herbal remedies. More needs to be done to try and document best practices on the linkages between the two.

In the biodiversity conservation sphere, there is too much emphasis on preservation and protection compared to promotion of benefits to communities involved in the conservation initiatives. There is need to balance the act to allow the surrounding communities have visible short and medium term benefits. In the case of Ngumburuni Forest Reserve, for example, there is a strong feeling by the involved villages that it is the Municipal Council that is recouping all fees obtained from sale of forest products.

Misinterpretation of national policies by municipal and district authorities have adverse impact on the HIV/AIDS infected and affected families. The case of Ludewa District is cited whereby district officials in their bid to implement a newly formulated policy for the protection of water sources destroyed hundreds of hectares of maize and other crops. This left a numbers of families, including the HIV/AIDS infected and affected ones, with no food for the season. In addition, those who objected to their authorities' actions were fined heavily and one person was jailed. This increased the misery of the infected and affected family and did not contribute positively to the mitigation of HIV and AIDS.

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security and education. In fact, HIV/AIDS is resulting in a new social structure and dynamic that is affecting every person, organization and sector. One of these sectors is biodiversity conservation and natural resource management.

The well known impacts of HIV/AIDS are changes in land use (people are now more than ever relying on practices such as extensive farming that can damage wildlife and vegetation. Traditional knowledge of managing land is being lost as parents die before passing this to their children), loss of conservation capacity (of wildlife management in the conservation community) and an increase in natural resources as the ultimate livelihood safety net (in many areas, medicinal plants and wild foods are being over collected, bush meat hunting has increased and timber consumption for making coffins is causing deforestation). However, all this information is very anecdotal and the linkages between HIV/AIDS and Environment have not been well explored. A few sub-regional and national

- a) Generate information and assess the existing information on the influence and the linkage between HIV/AIDS and the environment through literature review (this will basically involve a desk study in Tanzania). The research will be based on secondary data sources, using desk research and literature review of existing publications, plans, reports and any relevant resource materials. The literature review will analyse and document researches, consultative meetings and other documents with related work on environment and HIV/AIDS;
 - Ø consult similar projects within the country who are doing similar work, noting their strategy, best practices or lessons learnt;
 - Ø Assess existing policy and legislative instruments on the linkages or any references in Tanzania and what has been the progress to-date of the government;
 - Ø Assess what knowledge of environmental and natural resources assets communities have in the management of HIV/AIDS;
- b) Present key research findings in the national workshops in the country;
- c) Produce a research report based on the outline given in the consultant Terms of Reference;
- d) Assist the communities participating in the national workshops in editing and writing of their one pager which captures their experiences on the link between HIV/AIDS and the environment,
- e) Assist the communities during the national workshop to put together community action plans outlining proposed future interventions that will form part of a larger proposal on the linkages between HIV/AIDS and the environment;
- f) Identify potential donors to fund the community action plans generated during the national workshops in Tanzania;
- g) Be ready to participate in the regional workshop that will draw together the experiences from the various countries.

Format of the report:

A Desk study report

- § Executive summary
- § Introduction (general situation on HIV/AIDS and natural resource use in Tanzania)
- § Content of the report (as per the TORs)
- § Conclusion and recommendations.


Outputs

- § Research report on the Tanzania study,
- § Community action plans.

Appendix 2: Traditional and local vegetables grown in a demonstration RESEWO garden.

Name of Plant



| | | | | |
|----|-------------|----------------|---------------------|---|
| 9 | Rozela | Roselle | Hibiscus sabdariffa |  |
| 10 | Viazi Vikuu | Yams | |  |
| 11 | Mlonge | Moringa | Moringa aloifera |  |
| 12 | Shubiri | Aloe vera | Aloe sp |  |
| | | | | |
| 14 | Mchicha | Amaranths | Araranthus gracilis |  |
| 15 | Kisamvu | Manioc/cassava | Manihoto esculenta |  |

Note: Traditional Vegetables are grown without artificial fertilizers and are expected to promote health especially for those in need, including PLWAS

