



Establishing Linkages
between
HIV/AIDS and the Environment
in Tanzania

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September, 2008

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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 Commission for AIDS
TASAF	Tanzania Social Action Fund
TAWG	Tanga AIDS Working Group
UMATI	Uzazi na Malezi Bora Tanzania (International Parenthood & Family Planning Association of Tanzania)
UNAIDS	United Nations
UNGASS HIV/AIDS	United Nations General Assembly Special Session on
URT	United Republic of Tanzania
VIP	Ventilated Improved Pit Latrine
VPO	Vice President's Office
WHO	World Health Organization
WWF	World Wildlife Foundation

EXECUTIVE SUMMARY

Introduction

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.

Methodology

This is a basic desk study in Tanzania undertaken to generate information and assess the existing information on the influence and the linkage between HIV/AIDS and the environment through literature review. The research was based on secondary data sources, using desk research and review of existing publications, plans, reports and any relevant source materials. The literature review, analysis and documentation of researches of related work on environment and HIV/AIDS in Tanzania were supplemented by consultative meetings with similar projects within the country, noting their strategy, best practices or lessons learnt.

Existing policy and legislative instruments on the linkages or any references in Tanzania were assessed, including what has been the progress to-date of the government in linking HIV/AIDS with the environment and what knowledge of environmental and natural resources assets communities have in the management of HIV/AIDS. Two visits, one to IUCN community projects in Ikwiriri in Rufiji District and one to UMATI youth project in Kibaha, were made. These were followed by a two and half days' workshop involving the community representatives from IUCN and UMATI projects in Ikwiriri, Rufiji District whereby key research findings were presented.

Establishing the Linkages

The established links in this study include shift from heavy reliance on health workers to traditional healers resulting from failure of the health system to respond to HIV and AIDS related challenges. Others include increase of use 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.

1.0 INTRODUCTION

1.1 Background

Sustainable use of biodiversity has significant links to human well-being and poverty reduction. More than 10 years after the 1992 Rio Declaration on Environment and Development, demographic trends, health epidemics and the pressing need to reduce poverty have strained natural resources and threatened to greatly diminish the world's collective biodiversity. These trends have serious implications not only for future poverty reduction and development, but also for the very health and well-being of the human population.

In Africa, millions of people depend heavily on the continent's genetic, species and eco-system diversity to support their livelihoods. This biodiversity contributes both directly and indirectly to human health and nutrition. The direct contribution of biodiversity is an invaluable source for medicinal remedies and applications whereas the indirect contribution is through ecosystem services for example, filter against toxic substances from the air, sequestering of carbon.

As a source of income, sustainable use of biodiversity allows communities and individuals to attain better health, shelter and nutrition. With the scourge of HIV/AIDS, there is a threat to sustainable use of these natural resources. According to UNAIDS, an estimated 34-46 Million people are currently living with HIV/AIDS. Approximately 3 million people died globally from AIDS in 2003, approximately 2.3 million in sub-Sahara Africa. The disease is impacting local and national economies, governance structures, agricultural production, food 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. There is also 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 increasingly causing deforestation.

However, all this information is very anecdotal and the linkages between HIV/AIDS and the environment have not been well explored. A few sub-regional and national consultations have taken place to relate HIV/AIDS with the

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).

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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 and the environment through literature review. The research was based on secondary data sources, using desk research and review of existing publications, plans, reports and any relevant source materials. The literature review, analysis and documentation of researches of related work on environment and HIV/AIDS in Tanzania were supplemented by consultative meetings with similar projects within the country, noting their strategy, best practices or lessons learnt.

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1.3 Conceptual Framework

In this study Environment was considered in terms of natural sources of goods and services that people depend on for a livelihood. It included amongst other

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 Environment meant mainly understanding how people manage resources and how a healthy resource base affects people, especially as far as relating it to the occurrence and impact of HIV/AIDS.

This management aspect can then be viewed at various levels; i.e. ground based experiences at the household and community levels; the middle levels that include cultural practices; health and environmental policies and finally the theories or rather the ultimate implications of the relationship between environment with HIV/AIDS that involve climate change; and the degradation of resources such as forests and marine resources.

2.0 NATURAL RESOURCE ENDOWMENT AND USE IN TANZANIA

Tanzania is a poor country with 18.7% of its population living below the national food poverty line and 37.7% below the national basic need poverty line (2000/2001). With 87% of the population living in rural areas poverty is an overwhelming rural reality. Poverty is one of HIV pre-disposing factor.

However, Tanzania has everything that nature can bestow. It is well endowed with abundant riches in terms of very fertile patches of land, water resources from rivers and lakes, and fabulous minerals. It is one of the richest depositories of minerals on the African continent; with minerals such as diamonds, gold, Tanzanite, Copper, bronze, aluminum, Uranium, Nickel, and natural gas.

Lakes, streams and rivers are found everywhere in this country. Two of the world's important fresh water lakes are found in Tanzania. These are Lake Tanganyika with about 250 species of fish and Lake Victoria, the largest in Africa and the second largest fresh water lake in the world. These lakes are habitat to various fish species which are not found anywhere else in the world, including the famous Nile perch (**Sangara**).

The Indian Ocean spans a greater part of the eastern border and provides maritime, recreation, and fisheries activities. Other natural attractions include Mt. Kilimanjaro, the crown of Africa, national parks such as the Serengeti, Ngorongoro and Mikumi, and game reserves teaming with wildlife such as the Selous. Tanzania is also blessed with large land space and a big human population in a peaceful political environment (Werema, 2006),

Most people in Tanzania depend on natural resources for their livelihoods. Natural resources are a major means of economic development for poor people and others. Industrialists and traders are increasingly becoming major users of

natural resources. The economic importance of natural resources in Tanzania¹ is summarized by the World Bank in the Box 1 below:

Box 1: Economic Importance of Natural Resources in Tanzania by Sectors

Forests provide:

- Employment to about 1 million people officially, and 5-10 times more unofficially and part time
- 10-15 % share of Tanzania's registered export earnings
- 2-3% of Gross Domestic Product (GDP) for officially recorded forest products
- 95% of Tanzania's energy supply through fuel woods
- App. 75% for construction materials
- 100% of indigenous medicinal products
- Potential for tourism, the pharmaceutical industry and carbon equation (carbon value estimated between 664 – 1,500 US\$, depending on source of information)

Wildlife provide:

- Annual hunting incomes to the Government estimated at 30 million US\$
- The leasing companies generate app. 9 million US \$ per year
- Annual illegal wildlife hunting (meat) value is estimated at 50 million US\$
- Well over 2/3 of the Tanzanian population eat wild meat, and for up 95% of the rural population is the most important animal protein source
- In the 90s more than 1,68 million birds, 521,000 reptiles, and 148,000 amphibians and 12,000 mammals were exported
- Tourism revenue earnings have grown on an average 30% annually, among others due to the attraction of wildlife.

Fisheries provide:

- Exports totaling 130 million US\$ in 2003, corresponding to more than 10 % of total exports
- The export value of Nile Perch totaled 100 million US\$ in 2003
- The number of artisan fishermen has roughly doubled since 1995, and reached close to 120,000 in 2003
- The number of foreign vessels in the marine fisheries has increased from 10 in 1998 to 170 in 2004.
- 9,5 billion Tanzania Shs (TZS) was collected in revenue in 2003-4

Source: World Bank, 2005

3.0 HIV/AIDS STATUS IN TANZANIA

3.1 Overview

First identified in the USA in 1981 and Uganda in 1982, HIV/AIDS has become both epidemic and pandemic. It is a global crisis that knows no boundaries. There is no intervening factor; human beings are the carriers (Willis 2002). AIDS constitutes one of the formidable challenges to development and social sector. Willis (ibid) reports that in recent years HIV/AIDS has centered on Africa South of the Sahara due to aggravating circumstances that favor the transmission of the virus including; internal political economy with its cavernous inequalities in economics, healthcare, disease and suffering. About 65-85% of HIV infected people are in Sub-Saharan Africa.

Wills (2002) further reports that in Africa, men and women were equally infected with 50% becoming HIV positive before age 25 with a similar percent dying before age 35. A dramatic increase in pre-marital sex of 15–19 year olds was experienced in between 1970's and 90's shooting from 4.6% to 25.6%. Rape and especially gang rape and early marriages to infected older men is considered part of the cause. Sex and marriage is more common among 15 year olds in East Africa than West Africa. Before introduction of anti-viral drugs, African victims were dying faster, in 4 years compared with a 10 year span in other countries. HIV/AIDS is number one killer in Africa and the Hispanic women and number four killer in white women. It is estimated that one in every 40 women in sub-Saharan Africa is infected with HIV. However, research indicates that 60%-80% of infected women have one and only one sex partner.

In Tanzania, the first three first AIDS cases were clinically diagnosed and reported in 1983 in Kagera Region. The first three cases were, however, followed by rapid spread of the pandemic, such that by 1986, all regions of Tanzania mainland had reported AIDS cases. The HIV/AIDS pandemic is an escalating world wide phenomenon, and by 2002, estimated 42 million people were living with HIV/AIDS. Additionally, 13,700 adults and children are becoming infected each day and by 2010, it is anticipated that an additional 45 million people will be infected (TACAIDS, National Bureau of Statistics (NBS), and ORC- Macro, 2005). It is further reported that Sub-Saharan Africa is the worst affected region with 28.5 million people living with HIV/AIDS. This epidemic is a serious threat to the country's social and economic development and it has serious and direct implications on the social services. In the absence of a cure the devastating impact of the epidemic is incomprehensible.

The issue of stigma and discrimination is a big challenge that needs to be addressed in the prevention and control of epidemic. In Tanzania, as in other countries in the Sub-Saharan Africa, stigma against HIV/AIDS remains very strong and plays a major role in fueling HIV infection. It is the responsibility of the government of Tanzania (through different government institutions, NGOs, etc),

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	
	Percentage	Number tested	Percentage	Number tested	Percentage	
	HIV positive		HIV positive		HIV positive	Number tested
15-19	2.1	1,235	2.1	1,181	2.1	2,416
20-24	6.0	1,153	4.2	903	5.2	2,056
25-29	9.4	1,093	6.8	856	8.3	1,949
30-34	12.9	793	8.6	706	10.9	1,499
35-39	11.6	645	9.8	588	10.7	1,233
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 for women is higher than for men ages 20-39 (Figure 1). At ages 40-49, the pattern reverses and prevalence is higher among men than women. Prevalence for both women and men increases with age until it reaches a peak, which for women is attained at age 30-34 (13%) and for men at age 40-44 (12%).

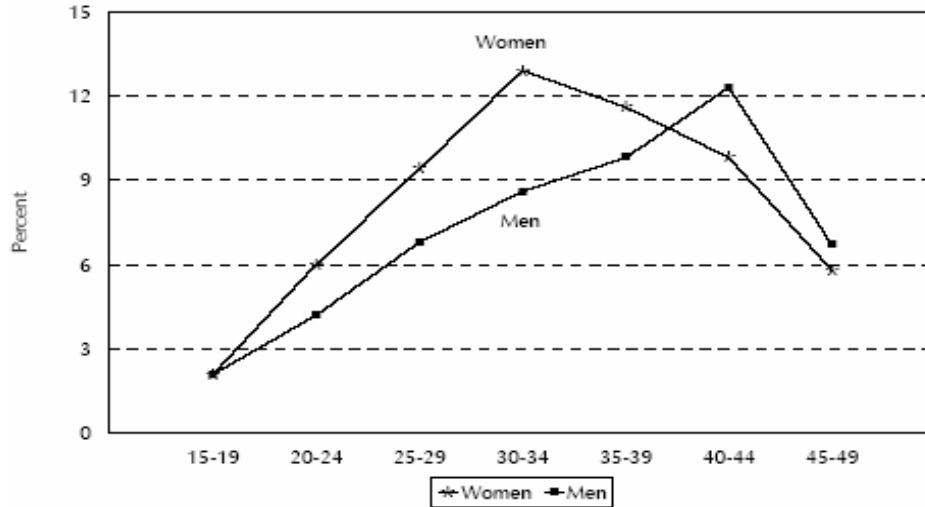


Figure 1: HIV Prevalence by Age Group and Sex

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 men is 10 %, compared with 5 % for rural men.

Table 2: HIV Prevalence by Background Characteristics, Tanzania 2003-04

Background characteristic	Women 15-49		Men 15-49		Total	
	Percentage HIV positive	Number tested	Percentage HIV positive	Number tested	Percentage HIV positive	Number tested
Residence						
Urban	12.0	1,771	9.6	1,505	10.9	3,276
Rural	5.8	3,982	4.8	3,490	5.3	7,471
Region						
Dodoma	4.2	296	5.7	260	4.9	556
Arusha	5.7	231	4.8	194	5.3	425
Kilimanjaro	7.3	281	7.4	209	7.3	489
Tanga	7.4	282	3.2	194	5.7	476
Morogoro	6.7	283	4.1	257	5.4	540
Pwani	10.5	149	3.9	139	7.3	288
Dar es Salaam	12.2	660	9.4	582	10.9	1,242
Lindi	3.5	141	3.6	116	3.6	257
Mtwara	7.1	179	7.7	150	7.4	329
Ruvuma	6.4	234	7.4	198	6.8	432
Iringa	13.4	278	13.3	238	13.4	516
Mbeya	15.2	372	11.5	311	13.5	683
Singida	4.2	155	2.1	140	3.2	294
Tabora	9.5	233	4.7	210	7.2	444
Rukwa	6.4	155	5.5	146	6.0	301
Kigoma	2.1	239	1.9	181	2.0	420
Shinyanga	7.6	460	5.3	423	6.5	883
Kagera	3.5	293	3.9	254	3.7	546
Mwanza	7.0	468	7.5	464	7.2	932
Mara	4.3	219	2.4	186	3.5	405
Manyara	2.0	144	1.9	144	2.0	288
Education						
No education	5.8	1,266	4.2	538	5.3	1,804
Primary incomplete	5.8	926	4.8	968	5.3	1,894
Primary complete	8.8	3,080	7.0	2,950	7.9	6,030
Secondary+	9.3	482	7.3	538	8.2	1,019
Employment						
Currently working	7.7	4,520	6.7	4,121	7.2	8,641
Not currently working	7.8	1,232	4.4	873	6.4	2,105
Wealth quintile						
Lowest	2.8	1,030	4.1	807	3.4	1,837
Second	4.6	1,016	4.3	950	4.5	1,966
Middle	6.8	1,073	4.3	962	5.6	2,035
Fourth	10.9	1,135	7.7	1,008	9.4	2,142
Highest	11.4	1,499	9.4	1,267	10.5	2,766
Religion						
Muslim	8.6	1,742	6.1	1,477	7.5	3,219
Catholic	8.4	1,847	7.6	1,673	8.0	3,520
Protestant	6.8	1,669	5.6	1,301	6.3	2,971
None	5.1	445	4.1	510	4.6	955
Total	7.7	5,753	6.3	4,994	7.0	10,747

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.

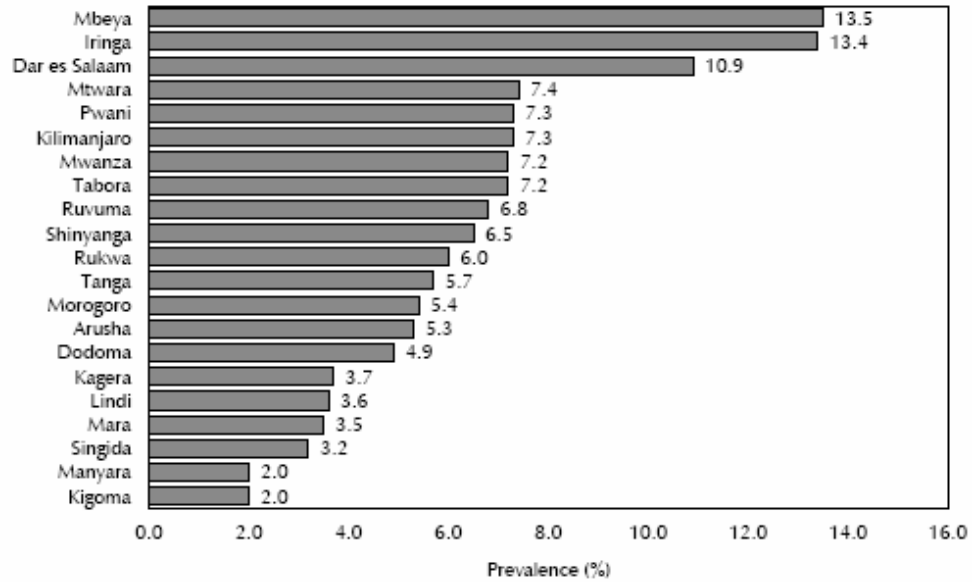


Figure 2: Prevalence of HIV by Region

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.

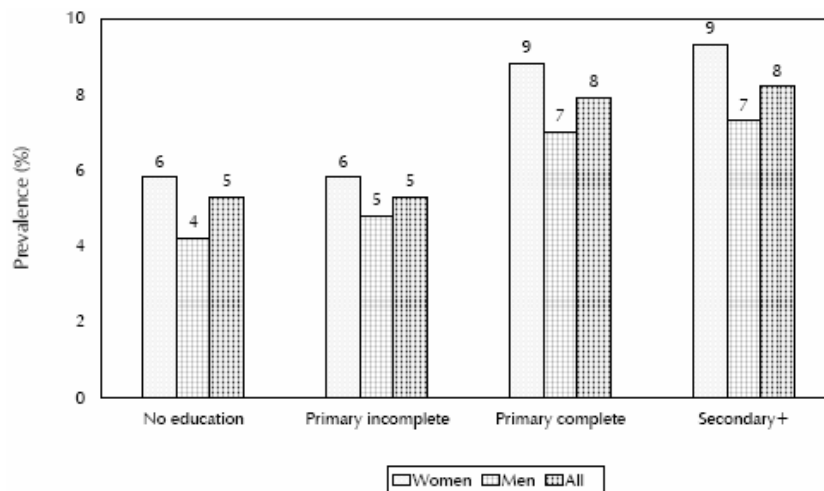


Figure 3: Prevalence of HIV by Level of Education

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 orphans and abandoned children at boarder posts/towns.

In Tanzania long distance drivers traverse across Kenya, Uganda, Zambia, Zaire, Malawi, Rwanda and Burundi borders and towns. Tracking drivers and lovers for HIV testing may be cumbersome, though it would be the most meaningful advocacy for a holistic approach to HIV/AIDS prevention and control.

3.3.2 Sexual and reproductive health culture

Breast feeding and breast milk is one way in which HIV/AIDS is spread. That is from an infected mother to child (PMTCT). In most societies there is communal

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 linking of HIV/AIDS and natural resources management.

4.1 National Policies and Legislations

4.1.1 National Strategy for Growth and Poverty Reduction

National Strategy for Growth and Poverty Reduction (MKUKUTA) is ambitious and aims at reducing poverty by 2010. (URT, 2005). Government structures (line Ministries and the respective accountable state organs) took the lead in mainstreaming the initiative, key actors such as employers in private firms/companies; public institutions, Civil Society Organizations and development partners are called upon to make HIV/AIDS their business. (URT, 1998; URT, 2005; UNAIDS, 2007). Environment and Natural Resources Management have been mainstreamed in the MKUKUTA. 14% of the targets in the NSGPR relate to environment and natural resource management.

4.1.2 Health Policy

The overall objective of the health policy in Tanzania is to improve the health and well-being of all Tanzanians, with a focus on those most at risk and to encourage the health system to be more responsive to the needs of the people. Therefore, the specific objectives of the Health Policy (1990) are:

- 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 strategy to mainstream HIV/AIDS in all sectors.

4.1.4 National Multi Sector Strategic Framework on HIV and AIDS

The 2nd National Multi Sector Strategic Framework on HIV and AIDS (2008 - 2012). The framework is a broad national strategic plan designed to guide the country's response to the epidemic. The framework calls for scaling up of comprehensive multi sector responses in prevention, treatment, and care and gender responsive impact mitigation efforts. The framework lists two cross cutting issues which are directly related to environment. These are the:

- Integration of HIV and AIDS in the long term poverty reduction strategy; and
- (b) Establishment of multi sectoral committee from across the board to facilitate coordination of response activities.

The National Communication Strategy for HIV and AIDS has a section on impact mitigation where income generation and other economic activities are defined as key ingredients to the creation of enabling environment for the infected and affected families to help.

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.

The NEP provides for the need to develop ways for encouraging a holistic multi-sectoral approach to environmental management by integrating environmental concerns in sectoral policies, strategies and decisions. In that way it creates the context for cross-sectoral planning and coordination.

The NEP articulates the concept of shared responsibility and distinct accountability for environmental management so as to inculcate collective responsibility in environmental management without blurring specific mandates and responsibilities that have been assigned to each institution.

That NEP is comprehensive and covers environmental mandates assigned to other sectors. Paragraphs 45 to 60 of the National Environmental Policy provides on Sectoral policies covering, among others, health, water and sanitation. This position is also reciprocated and reflected in sectoral policies by including paragraphs on environment management in general and specifically on the requirement of undertaking an EIA.

The NEP in its diagnosis of the state of the environment in Tanzania identified six major problems that require urgent attention. These are problems of:-

- i. Land degradation;
- ii. Lack of accessible, good quality water for both urban and rural inhabitants;
- iii. Environmental pollution;
- iv. Loss of wildlife habitats and biodiversity;
- v. Deterioration of aquatic systems; and
- vi. Deforestation.

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. According to the World Health Organization (WHO), medical doctor to patient ratio in Tanzania is 1:20,000. HIV and AIDS clients have shifted their attention to traditional practitioners who are more easily accessible. The ratio of traditional healer patient in Tanzania is said to be approximately 1:350.

HIV and AIDS has increased poverty and dependability on herbal therapy for the treatment of opportunistic infections and AIDS. With HIV and AIDS pandemic, the cost of drugs, including ARV and other health services, constitute a financial barrier to be accessed by the majority of poor people. The 3 x 5 national treatment programme for HIV and AIDS, for example, targeted at putting only 400,000 patients on ARV in its first 5 years. Logistics and infrastructural support for the programme and poverty on the side of clients have pushed more infected people to look for herbal remedy, as it is less expensive.

AIDS is devastating and for most, it is connected with evil and witchcraft. In rural areas witchcraft and witches are not easily identified for fear of harbouring evil feelings once known. However, witchcraft is easier discussed and identified as a causative effect of unexplainable physical illness in urban areas as it causes less trouble by naming people responsible as rivals in work, love and business.

There are plenty of medicinal plants in Tanzania of which 65% are trees. For example, in Tabora region alone there are over 200 trees of medicinal value that are used by poor families who revert to medicinal plants for remedies.

5.2.2 Use of Timber and Non-Timber Forest Products

AIDS has increased demand for timber and timber products. The AIDS pandemic has continued claiming lives of many Tanzanians of all ages, both in the rural and urban areas. Tanzania is a worshipping country where 50% of its people are said to be practicing Christians. Christians bury their dead in coffins which are made from timber. With increased death occurrences, coffin making has become a lucrative and competitive business, especially in the urban centres. Timber being the main input for coffin workshops, the growing coffin industry means more pressure on timber supplies, and if not guided could mean more destruction of forests and forest reserves.

At the household level, HIV/AIDS and its related poverty contributes to natural resources degradation. When HIV and AIDS infected and affected families and communities become desperate, lose energy and muscles for ploughing and heavy work, they resolve to less energetic and quick result farming practices and natural resource processing, including illegal fishing using smaller fishnets and dynamiting, poaching and unsustainable tree cutting. These illegal means of

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 Mgusu 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 abandoned and end up not getting schooling and end up in un-productive child labour and abuse. While development include better housing involving iron roof thatching, traditional grass thatching and heavy use of grass, tree poles may continue where poverty sets in due to death of bread winners.

Conservation programmes sometimes involve shifting people from one place to another. Cattle keepers such as the Sukuma and Maasai were shifted out of the controversial wetland of Ihefu in Iringa Region to Rufiji and Lindi. They moved with some of their traditions and cultures, such as heavy use of grass and tree poles. In the new environment they are reported to be devastating the grass and forest resource base. They also bring in wife inheritance and female genital mutilation traditions that are risky for HIV/AIDS transmission.



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

5.3.1 Impact of HIV/AIDS on Land Tenure and Use Systems

HIV and AIDS impacts have changed the pattern of farming and other livelihood activities. Agriculture is a backbone of Tanzania's economy. Agriculture is rain fed with about 70% using the hand hoe. The rest use oxen ploughs (20%) and tractors (10%). The seeds used are traditional and prone to pre- and post-harvest pests. Subsistence farming provides the peasants both food and cash crops. However, plantation farming of cash crops such as sugar cane, sisal, coffee, tea, and timber is carried out both by large companies and small scale farmers. Free range livestock keeping comprises local breeds of cattle and shoats, and domestic birds such as chicken and ducks.

Farming is mainly subsistent. Most activities employ muscle power and rudimentary tools and equipment for clearing and tilling the land, weeding, harvesting, and processing. Livestock keepers use beasts of burden such as oxen, donkeys, and mules as a helping hand. Decreasing and uneven soil fertility is solved through shifting cultivation and mixed farming. Women and children are a source of labour in agriculture. Hence the more wives and children a household has, the better for household agricultural production. However, this also means that large families need more food.

Challenges in agriculture include inadequate land, inefficient labour, soil infertility, pre- and post-harvest pests, and adverse weather conditions such as drought, floods, and unreliable rainfall.

HIV and AIDS devastate families by reducing productivity at the family level and beyond. When a man is hit by the disease, the responsibility to feed the family is left on the shoulders of the wife and children. Unlike men, women and young children do not have the muscle to plough and harvest food crops that take long to yield. They instead shift to crops that are drought resistant and fast yielding. These crops include cassava and sweet potatoes in the place of maize, beans and sunflower and other cash crops.

They also become more dependent on trees for charcoal, wild fruits and other forest products. In Uganda families devastated with HIV/AIDS replaced coffee as a cash crop that demand more intensive labour with other crops like bananas and cassava. Children become more a source of labour for livestock keeping, fetching water, firewood, and helping parents in other activities. Some of these activities can be the reason behind a child's non- or poor school attendance.

Robust muscle energy is required for food production, harvesting, processing, and household chores, water and wood and fetching. What this all means that if this labour force becomes physically weakened by disease, or in extreme conditions if they die, then the amount produced will not only be reduced or non-existent, the household will resort to other means of survival which may be detrimental to the environment and health as discussed below.

Households that have no beasts of burden have to use heads and comparatively can carry only one bucket of water at a time compared with oxen where a household can fetch water once a week. Families without cars or animals usually employ children's labour in such activities to fetch water.

Traditionally, families are respected because of their ability to produce food for their use and sustain stock throughout the cycle until the next harvest season. However, HIV and AIDS have impacted food production negatively. Instead of food stocks, the affected communities live on food hand outs from civil organizations. Food shortage makes affected communities and the nation socially and security-wise unstable.

Single crop farming is not practiced by local subsistence farmers in Tanzania. Single crops require in-puts for labour, fertilizers, pest control, even soil fertility. Mixed crop farming ensures some harvest of resistant crop and can be accommodated in varying soil fertilities. Likewise, mixed cattle and shoats kept in large numbers where possible and distributed amongst kin, relatives and friends ensures reciprocity and social capital in times of need.

Most communities have no safety nets and protection from ecological disasters that can drive families into famine and hunger and loss of property arising from adverse environmental conditions such as dry spells, drought, floods, poor or no harvests, loss of livestock and diminishing soil fertility. Most cope with chronic hunger as having been part of their lives.

Polygamy provides more labour from wives and children for cultivation, weeding harvesting. Most livestock keepers loan out their cattle to avoid loss. Relief services from government, international NGOs and churches have been another mechanism for coping with hunger. Others resort to hunting wild game and use of forest foods such as honey, roots, fruits and roots. Forest foods and products use is diminishing with more areas being reserved for national interests and gain as tourist reserves, sanctuaries and national and game reserves. Extensive bush burning also has led to extinction of some forest foods.

However, poor sanitary conditions for storage will not protect crops against post harvest pests. Also consumption will be higher and the crop may not suffice for the next harvest, especially if the rains come late or are inefficient. Food reserve is curtailed by losses of grain and even fish due to non-existence of better preservation methods in most homes and villages. Also solar energy is the main source for drying cereals and even fish hence in cases of excessive rain harvests are lost for lack of drying units. The National Milling Corporation (NMC), now defunct, had taken the role of food storage, and distribution.

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 children. However, the Marriage Law disallowed legal rights to polygamous wives. Well intentioned laws have been passed but without an institutional backup support or awareness training of women. Hence, a lot of the women are still having their social lives controlled by men (fathers, brothers, husbands and uncles) under customary law. Even then court rulings are pieces of paper that require social support to put into action. Hence, rights to education, political representation, property inheritance and ownership and use of land, houses, and livestock, including reproductive and sexual rights, tend to favour men over women (Wijsen and Tanner, 2002).

In practice the status of women has deteriorated since the onset of economic and social modernisation, although this is not due to deliberate and failure of political ideas and policies. This decline has been a result of social change. Initially, traditional family and inter (intra) family controls protected the position of married women. Some have had to support themselves. Employment is mostly in favour of men. Hence, unattached women have no rights to land. So once they are deserted by their men, they have no means to support themselves and their children, particularly if their parents are in similar difficulties over land. Without jobs, prostitution flourishes as their only means of survival. This is even made more difficult as Tanzania has no migrant records to pin down men who abandon wives and children (ibid).

Mbah (1979) argued that women in Tanzania migrate to towns in order to circumvent social customs regarding land ownership and inheritance rights that make them totally dependant on males and which render them landless if divorced or widowed. Further, Munuo (1970) summarizes the salient features of the Tanzania Marriage Act of 1971 and other related legislation pertaining to women's rights in marriage, inheritance. The study further observed the disadvantages of bride price in gender rights and recommended for eradication of the same.

Women and children participate in almost all activities, but most in household chores, including house cleaning, cooking, water fetching, and food preparation and taking care of children and the sick. Women in Africa spend between 12-25% and sometimes up to 50% of their energy fetching water. Fetching water is among chores that are time and energy consuming and yet have no economic gains. Water fetched by children and women on foot and head is not sufficient and water fetching may require more than one trip a day to the water source. Household chores can thus be a source of children dropping out of or non-attendance of school.

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 important source of income for households. However, most are labour intensive as the technologies are rudimentary.

Oil presses, as in palm oil production, require energy which in villages is supplied by big households hired labour. Manual palm oil extraction in Mwamgongo village, Kigoma, employs family and neighbours' labour input. Such labour will dwindle if the energetic youths become HIV/AIDS infected.

Tobacco curing is done in kilns using a lot of wood. Deforestation appears to be higher in areas which use wood for curing and food processing. WWF forest map of East African forests indicate more forest loss in Songea than in Rufiji. Illnesses such as Tuberculosis and pneumonia are closely associated with tobacco curing. Some of the labour is provided through neighbors and family. HIV/AIDS hit families will lose out and may starve through inability to process food and generate income.

5.3.3 Impact of Natural Resources Conservation and Migration on HIV/AIDS Prevalence

Livestock keepers including Maasai, Sukumas and Nyaturu, and Barabaig were shifted out of the Usangu Ihefu in 2006 to protect the Great Ruaha River and a game reserve. These have been distributed into diverse areas as Ikwiriri in Rufiji District and Nachingwea in Lindi District. These have shifted with their relatively bigger livestock herds and culture of house construction using a lot of wood and grass and also community farming in comparison with the local residents who use less grass or coconut fronds for thatching and cut less timber for house construction. The differing intensity of resource use by these immigrant livestock keepers may be a threat to the local inhabitants creating conflicts and competition for resource use.

Excessive extraction of natural resources, including fishing and timber, push local men away from their families, a factor that exposes them and their families to HIV and AIDS and other sexual transmitted infections. Increase in economic activities, including industrial exploitation of fish and timber by non local economic immigrants, pushes away indigenous men, hence exposing them to adverse economic hardship. Women in such communities become more exposed to HIV and AIDS by engaging in sexual activities with the migrants in return for small financial support.

HIV and AIDS has caused loss of manpower needed for conservation and forestation

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

“Lady, here we had a timber factory belonging to some Somalis. They had so much money. Every morning they were marrying our daughters. And then they began dying; dying like flies. No one was spared. Finally the factory itself had to close. And in the streets things became worse. No one could ask others about it. Everyone was tending to their dead. Here in Muyuyu things are not bad yet, but in Ikwiriri, yoooh! We no longer allow our children to travel there!”... *(Translated from a quote from a member of AIDS Committee from Muyuyu village, Ikwiriri)*

5.3.4 Impacts of Abundant Coastal Resources on HIV/AIDS

Tanzania has vast marine and freshwater fisheries resources in the Indian Ocean, several great lakes such as Lake Victoria, Tanganyika, Nyasa, and several inland water bodies, rivers and tributaries. Harvesting of this vast resources is minimized by the artisanal nature of the fishery. It largely utilizes rudimental tools and equipment, such as dug out canoes, which are propelled by wind sails and wooden paddles. The equipment include among others basket traps, hand lines, gillnets such as two inch gillnets that are indiscriminate in fish catch. On average, only two fishermen participate in the activity per boat. The fisheries are thus prone to illegal fishing, using wrong gears, poisons and dynamite which ruin and/or deplete the fishing grounds. Illegal commercial fishing may go unnoticed due to inability to patrol deep waters within the 200 mile limit. The fishery is offset by insufficient and mostly inefficient extension staff, poor infrastructures for fish processing and marketing.

The fishing sector is artisanal using dugout canoes which are wind propelled paddles and wind musts instead of in or outboard engines. Planked dhows are few and too expensive for most fishermen. The gears largely include fishing traps made of plant material, hand lines and nets. Fishing on foot is also a common

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.

In response to HIV/AIDS the government in 1985 has established the National AIDS Control Programme Unit within the Ministry of Health and Social Welfare (MOHSW). NACP formulated a short-term plan and three 5 year medium term plans, the last of which expired in 2002.

In 1999 the then president of Tanzania, Mr. Benjamin Mkapa, declared the HIV/AIDS epidemic as a 'National Disaster'. Since then efforts against HIV and AIDS threat have been intensified throughout the country and considered as a

² A study on situation analysis and impact assessment of HIV and AIDS in the tourism sector in Zanzibar (2007), Zanzibar AIDS Commission

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

TACAIDS was established to provide the strategic leadership and coordination role of the national multi-sectoral response in addressing the HIV epidemic challenge. Subsequently, TACAIDS developed the National Multi-Sectoral Strategic Framework (NMSF) to guide response in all sectors in which goals and strategies have been identified for the period 2003-2007. The strategy also calls for the participation of as many sectors and players as possible.

On 1st December 2007 during the International AIDS Day a new strategy for 2008-2012 was inaugurated by TACAIDS. TACAIDS has also developed a monitoring and evaluation framework that will harmonize sectoral monitoring and evaluation efforts and monitor the impact of the epidemic and the effectiveness of the national response in all sectors.

In July 2007 the President, Mr. Jakaya Mrisho Kikwete, launched a country wide HIV testing campaign that aimed to reach 4,211,727 million people. The Minister of Finance and Economy, Mr. Mustafa Mkullo, announced that by the end of April 2008 the campaign had reached 4,211,727 or 101% and said that preliminary assessment showed that 4.6% (194,149) of those tested were HIV positive of whom 19.6% needed ARVs. About 450,000 PLWA are expected to benefit from ARVs by 2010 from Abbot Company.

All sectors in Tanzania are required by the HIV/AIDS policy and strategy to mainstream HIV/AIDS in all sectors. Private companies or business firms have in 2004 formed and launched their own AIDS Business Coalition in Tanzania (ABCT) to coordinate their segmented approach to curbing the HIV epidemic in the world of work, to assist each other and share best practices in combating HIV/AIDS (UNAIDS, 2007; Daily News 1/12 2007:14). The ABCT collaborates with experienced NGOs in designing workplace HIV/AIDS implementation strategies (URT, 2002c; URT-PHDR 2005).

Condom promotion and distribution, voluntary counseling and testing, PMTCT, in general and coverage of specific groups such as youths and schools (primary, secondary) with sex education and life skills and vulnerable group such as sex workers, long distance drivers, migrant workers, miners, prisoners, military, and refugees have been conducted through the electronic and other conventional media.

6.2 Creating Awareness and Sharing Knowledge

As in other countries heavily infected with HIV/AIDS, many people do not know when they got HIV, many do not know they have it and those who know do not tell anyone as they lie dying mainly because of the stigma associated with the

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, littering and poor sanitation could also lead to HIV/AIDS. Sited examples included circumcision and female genital cutting using shared and unsterilized blades.

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 conservation staff. There is also depletion of human capital through loss of traditional knowledge and skills (Tobey et al. 2005).

Tanzania has enough land, water resources, minerals, and can produce surplus food, income. Other than improving infrastructure, marketing, building farmers' capacity to manage, extension services is crucially needed both for health and environment.

6.4 Local Initiatives for HIV Prevention

In conservative societies like Zanzibar and other religious sects, HIV testing is conditional before marriage. Positive results have always created stigma and broken heart syndrome in PLWA. As Tausi Kiparara narrates below:

"I felt that if I touched someone I would infect them. When I found out that I was infected, it was a complete shock. My fiancé left me. Now things have changed. Muslim leaders in Zanzibar are leading the fight against HIV/AIDS. They know that it is not just one person's problem but everyone's to solve it. I met someone and married a month ago. My husband is HIV positive. We plan to have kids. I am educated so I know how to protect them..... I will save and by formula so that I do not breastfeed. When someone asks now I tell them that I am HIV positive. Everyone greets me and accepts me here."

(Plus news Global July 2007).

Also formation of social and economic groups such as “The HIV programme of Zanzibar Youth Advancement for Development Education and Sanitation - ZAYADESA” can be a breakthrough into “stigmatisation”. Through it Tausi has gained confidence, travels the world and has met her present husband with whom she plans to raise a family.

HIV infected people are exposed to frequent complications related to anaemia which is associated with various adverse outcomes. Through the Natural Resource Management projects, funded by CPRA, women from infected and affected families are given seeds free of charge and facilitated to set up vegetable gardens. Through them women have been able to improve household nutrition and generate income. The project has further supported the women to keep bees for honey which they use as medicine for the infected people and food for the whole family.

Women in the coastal areas of Pangani District in Tanga Region, seek cash income to support their households. New declining fish catches, reduced agricultural productivity, and husbands spending more money on alcohol and sex, have driven women in the coastal villages of Pangani to seek cash income to support their households. With severely limited access to education, employment, credit, and transportation, northern coastal women - married and unmarried, young and old - are increasingly turning to sex work, exposing them to a high risk of HIV infection. According to hospital records, the infection rate for HIV and AIDS is between 12 – 20 percent. “We risk dying of AIDS for the sake of our children”, a resident of Mkwaja village is reported to have said.

In Kigoma Region women are given information and training on HIV and AIDS prevention and natural resources conservation TACARE is a community based reforestation and education project for the Gombe Stream National Park in Kigoma Region, western Tanzania. The project seeks to arrest the rapid degradation of land in the region, promote reforestation, provide conservation education to the communities, improve skills, education and self esteem of women, curb soil erosion, provide primary health and public health care, provide AIDS education and family planning services.

Before the establishment and operation of the Jozani Environmental Conservation Association (JECA) the villagers in Zanzibar claimed that they were not aware of the environmental laws and policy governing forest conservation. Now through the FCS they do not only know the policy and rules but also the gaps and how to address them.

Tanzania Economic Revival and Environmental Protection Association (TEREP) in Shinyanga made communities realize the relationship between them and the environment. For example, they acknowledged that free range grazing and bad

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
Zingiri	Treatment topical ulcer for oral and vaginal fungus

Source: TAWG treatment chart

The drugs have been successful in treating opportunistic infections, including herpes zoster and resolve skin rashes and fungus. The herbal treatment is effective in associated conditions of HIV and AIDS, including reduction of fever, increase in appetite and weight gain. There are also herbal therapies that heal ulcers and stop diarrhoea.

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-medical doctor collaboration started upon realizing that people tended to visit TH before resorting to visit medical practitioners. The link was further strengthened after one Bongo Mizizi, a TH, recognized the similarity between infections that PLWA experienced and those he was treating. He asked to use his medicines on PLWA and soon the patients' appetites improved. They gained weight and suffered fewer infections.

Dr. Justin Nguma, an AIDS specialist with 20 years work experience, said. *"A lot of patients are getting relief from these medicines. We do not know exactly what these medicines may have that is providing this relief. But there is some research that is going on and before long we will know what it is."*

On the other hand, Helen Madaga, a 46 year old living with AIDS for 7 years had this to say: *"I started taking the herbs once I knew that I was infected. I kept on taking them for 6 months and they have helped me feel stronger. I now take them only when I feel infections coming in and I feel better. I don't care what is in them, but I have confidence in herbs. If I have problems like Malaria and there is a modern treatment I will use that. I have heard of Anti Retroviral (ARV) drugs but we do not have them, so we make do with what we have. They should make the traditional medicines easier to take, may be by making them into tablets because they are very strenuous, especially if we are traveling. Then they can also look like modern medicine."*

Dr. Mtullu observes that a barrier between TH and professional doctors has broken down because of TAWG. They are now sharing knowledge and skills. He further remarked: *"I am very happy the Ministry of Health (MoH) has recognized the TH's role and there is a Unit at the ministry which takes care of the interests of the TH in an effort to register them and come forward with medicines for research and development."*

Dr, Nguma further asserts that: *"If we continue to encourage them and work with them I see TH as partners in the development of vaccines and treatment for AIDS."*

Communities living in the district of Ngorongoro in Arusha Region use herbs to treat their diseases. A quantitative appraisal of herbal remedies of Batemi people of Ngorongoro lists 58 remedies from species of plants found in the Ngorongoro Conservation Area that are effective in the treatment of a number of primary health problems.

The Wapare people of northern Tanzania use herbs to cure fungal diseases, including those related to HIV and AIDS In Pare area of the northern Tanzania where plants are used by traditional healers, extracts from 6 plant species for effective treatment of oral candidiasis and fungal infections of the skin were collected and screened for their antifungal activity against *Candida albicans*,

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
Mwiru:	Herpes zoster (Kiswahili term: Tambazi) Boils (majipu) and other swellings and inflammation
Mkungu Mwali:	Ulcers and rashes
Mpatakuwa:	Meningitis (Kiswahili term: uti wa mgongo)
Mwezitabu, mnafigi/mfenesi and Mkabuli	Treatment of fever, loss of hair, loss of appetite

Source: Mshamu Mohamed Mandai, Traditional Healer from Rufiji District

6.5 Challenges Associated with Traditional Healing

Amongst the challenges reported in traditional herbal treatment include:

- increasing number of clients seeking services strain available resources; this may create pressure on the plant resource base requiring for conservation and cultivation of medicinal plants
- Bulkiness of treatment material (roots, leaves, bark of trees, etc)
- Inadequate cooperation between modern health systems and the traditional.
- Lack of adequate research on conventional evaluation criteria in treatment results.

While there is anecdotal evidence that traditional healers do bring relief to people infected with HIV/AIDS, there is no confirmation so far that any of these patients had been cured. Both the traditional healers and their patients, however, believe the patients are cured of the disease. Such patients can be a potential for spreading HIV on the belief that they have been completely cured of the HIV. Also the current knowledge that HIV has not yet found cure may be refuted and hence reduce abstinence among the non-infected people on the hope that they will be cured by the TH.

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 increasingly conscious of the importance of sustainable natural resources management. All these players are concerned about the continuous availability of herbal trees and plants to enable them continue treating HIV/AIDS related ailments and other diseases. It is thus that modern doctors and traditional healers from the Tanga AIDS Working Group are working with conservational stakeholders to promote planting of herbal trees.

In Rufiji District a joint project between IUCN and communities in 7 villages restrict indiscriminate harvesting of Ngumburuni Forest Reserve trees. Communities have enacted by-laws that allow traditional healers to extract materials, including roots, leaves and barks of herbal trees but not cutting them down altogether. For plants, the by-laws require them to ensure that whatever they take is left to continue growing. Traditional healers in Rufiji have to obtain special permission to collect and harvest such medicinal plants and trees. The Environmental Committee is responsible for giving such permits.

Household use of natural resources may not always be detrimental to the integrity of the environment. However, while most rural households use firewood and dried matter for their cooking, they produce and sell charcoal for cash in the urban centres. Tending to medicinal plants may provide an alternative income generating activity that will also reduce deforestation.

Horrill et al. (2001) and Wijsen and Tanner (2002) observe that people can draw on their own past and current experiences in order to cope with the intrusions into their lives and generate new experiences. This has been observed among the Sukuma of northern Tanzania whereby by creating the Sungusungu movement law and order have been maintained when the national government failed to do so. Similar experiences of local initiatives of communities and local NGOs were reported in Mtwara and Lindi Regions of southern Tanzania.

ESRF(2004) reports that the Local Government Reform Programme recognised the significant contributions made by NGOs in community development and also in addressing key national issues such as enhancing or promoting economic, environment conservation, social or cultural development, lobbying or advocating on issues of public interest and HIV/AIDS. It also reports on the growing trend for NGOs to partner with other stakeholders in community development such as TACAIDS, TASAF, CONCERN WWF and Action AID. IUCN is capturing this strength in its project villages in Ikwiriri.

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.

7.2 Policy Challenges

The impact of HIV and AIDS on the population has pushed health seekers towards traditional healers who 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. The medical doctor to patient ratio in Tanzania is 1:20,000. The ratio of traditional healers to patients in Tanzania is said to be approximately 1:350.

- An insurance system for the public has been established (the national Health Insurance fund NHIF established in 2001) but it has only 248,343 members and 3,877 registered facilities to serve members.
- HIV/AIDS policy emphasis is still on secrecy, awareness and rights. There is need to change ways of thinking and doing things generally to win the battle. There is need to set policies that interrupt the potential for spreading AIDS.
- The Policy is mute about the fight against the social and socio-economic malpractices that influence the spread of AIDS. Research indicates that there are many dirty illegal activities going on, especially in Dar-es-Salaam, Arusha, Kilimanjaro, Mwanza, Mbeya and Kagera.
- There are very poor services in terms of hygiene, sanitation and waste management, not only regarding blood transfusion, drawing of blood, and administering of injections, but also generally, which heightens the risks to HIV/AIDS opportunistic diseases such as tuberculosis, malaria, typhoid, etc.
- Awareness has been raised and continues to be raised by TACAIDS. What people have not raised is the courage to fight AIDS. Some are spreading it deliberately and consciously, while others are getting infected when they have the awareness. We need transparency and openness on announcing the causes of death (and illness).

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APPENDICES

Appendix 1:

Terms of reference for national consultants and facilitators to carry out national country studies and workshop in Tanzania

Background

Sustainable use of biodiversity has significant links to human well-being and poverty reduction. More than 10 years after the 1992 Rio Declaration on Environment and Development, demographic trends, health epidemics and the pressing need to reduce poverty have strained natural resources and threatened to greatly diminish the world's collective biodiversity. These trends have serious implications not only for future poverty reduction and development, but also for the very health and well-being of the human population.

In Africa, millions of people depend heavily on the continent's genetic, species and eco-system diversity to support their livelihoods. This biodiversity contributes both directly and indirectly to human health and nutrition. The direct contribution of biodiversity is an invaluable source for medicinal remedies and applications whereas the indirect contribution is through ecosystem services for example, filter against toxic substances from the air, sequestering of carbon.

As a source of income, sustainable use of biodiversity allows communities and individuals to attain better health, shelter and nutrition. With the scourge of HIV/AIDS, there is a threat to sustainable use of these natural resources. According to UNAIDS, an estimated 34-46 Million people are currently living with HIV/AIDS. Approximately 3 million people died globally from AIDS in 2003, approximately 2.3 million in sub-Sahara Africa. The disease is impacting local and national economies, governance structures, agricultural production, food

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 consultations have taken place to relate HIV/AIDS with 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 will 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 HIV/AIDS prevention, treatment and care programme.

IUCN and IPPF-AR will therefore endeavour 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 the consultancy

- a) To establish existing information/knowledge on the link between environment and HIV/AIDS;

Consultancy Process

This work will be undertaken by a team of two experts sourced from IUCN & IPPF. Out of the two experts, a lead team leader will be assigned by IUCN. IUCN will provide overall technical backstopping and coordination as required.

Specific tasks of the consultants for the National desk studies

The consultants will work as a team in undertaking the following tasks:

- 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;
 - consult similar projects within the country who are doing similar work, noting their strategy, best practices or lessons learnt;
 - 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;
 - 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.

No	Name of Plant			Picture of Plant
	Kiswahili	Kiingereza	Jina la Kisayansi	
1	Kishona Nguo	Black Jack	Bidens pilosa	
2	Mchicha Maua		Talinum portulacifolium	
3	Mchungu	Hare lettuce	Sonchus luxurians	
4	Mnafu	Black night-shades	Solanum nigrum	
5	Delega	Mlaba spinach	Basella alba	
6	Matembele	Sweet Potatoes leaves	Ipomea botatos	
7	Majani ya maboga	Pumpkin leaves	Cucurbita maxima	
8	Mgagani	Spider-plant	Gynandropsis gynandra	

9	Rozela	Roselle	Hibiscus sabdariffa	
10	Viazi Vikuu	Yams		
11	Mlonge	Moringa	Moringa aloifera	
12	Shubiri	Aloe vera	Aloe sp	
13	Mchaichai	Lemon grass	Andropogon citriodorus	
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

Appendix 3:

SN	Swahili /Vernacular	English	Region in Tanzania mostly used.
1	<i>Sukuma Wiki</i>	-	Iringa
2	<i>Lukufya</i>	-	''
3	<i>Mkunungu</i>	-	''
4	<i>Majani ya Magimbi Maji</i>	Yam leaves	''
5	<i>Majani ya Maharage</i>	Bean leaves	''
6	<i>Nyanyi</i>		''
7	<i>Mlenda</i>		''
8	<i>Lunyala</i>	-	Mahenge
9	<i>Kiwamba uwaghe</i>	-	Moshi
10	<i>Kuana</i>	-	''
11	<i>Saladi</i>	-	''
12	<i>Mchungu majani (mapana)</i>	-(Hare	''
13	<i>Mgagani</i>	lettuce)	''
		-	
14	<i>Ndulele changa (tura)</i>	-	Handeni
15	<i>Kibavi cha bguku</i>	-	''
16	<i>Milenda ya majani (3)</i>	-	''
17	<i>Milenda ya unga (5 types)</i>	-	''
18	<i>Mchicha pori (4 types)</i>	-	''
19	<i>Uyoga pori</i>	Mushrooms	Kagera
20	<i>Chikanda</i>	-	Songea