ICT FOR MITIGATING HIV/AIDS IN SOUTHERN AFRICA

STATES TO



ICT FOR MITIGATING HIV/AIDS IN SOUTHERN AFRICA

by Bert Geers and Sara Page

second edition

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The views and interpretations expressed in this report are the authors own and do not necessarily reflect those of The Swedish Program for ICT in Developing Regions, SPIDER.

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Foreword

In year 2001, I visited Peradeniya University in Sri Lanka on behalf of the Swedish International Development Cooperation Agency (Sida) to follow up an ICT project that involved connecting the university to the Internet for research collaboration. With support from Sweden, the university had built the at the time most modern backbone in Sri Lanka with connectivity to the Internet through the Lankan Education and Research Network (LEARN). At the end of the visit, the project coordinator showed me to a room at the faculty of dental sciences where dental surgeons together with IT researchers were developing methods for transmitting dental images and videos with maximum compression. The objective was to create an opportunity to [virtually] refer Sri Lankan patients to Japanese dental experts for consultation, guidance and a second opinion – sometimes in the middle of a dental treatment. This is an interesting example of how scarce resources and expertise can be shared and better utilized- the power of ICT can decrease distance and make medical knowledge and support available at a mouse click. For people living with HIV/AIDS the benefits of utilizing ICTs may go far beyond referral and consultation.

Social responses of fear, denial, stigma and discrimination have accompanied the HIV/AIDS epidemic from the very start. Discrimination has spread rapidly, fuelling anxiety and prejudice against those living with HIV/AIDS, as well as the groups most affected. The new ICTs offer those living with HIV/AIDS an opportunity for accessing medical information without disclosing their identity. More importantly, it offers those previously alone in their situation an opportunity to "make friends" with people in the same situation – a global support forum. The virtual meeting place is invaluable for someone prevented from talking about his/her situation "in the real world." The development of email, discussion groups and chatting facilities is shrinking the world and offering new opportunities to get in contact with people in the same situation.

SPIDER wants to strengthen the knowledge about ICTs potential for mitigating HIV/AIDS, as well as improving the situation for those living with the decease. It is our hope that this report will support that objective and that recommendations in this report are picked up for implementation by relevant agencies.

Afzal Sher

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome		
APPNCAN	African Network for the Prevention and		
	Protection against Child abuse and Neglect		
ARV	Anti-Retroviral		
ART	Anti-Retroviral Therapy		
ASO	AIDS Service Organisation		
BCC	Behaviour Change Communication		
CAPs	Community Access Points		
CBO	Community Based Organisation		
CNCS	Conselho Nacional de Combate ao HIV e SIDA		
FBO	Faith Based Organisation		
HIV	Human Immunodeficiency Virus		
ICT	Information and Communication Technology		
ICT4D	Information and Communication Technology for Development		
IICD	International Institute for Communication and Development		
NAC	National AIDS Council		
NACA	National HIV and AIDS Control Programme		
NGO	Non-Governmental Organisation		
NZP+	National Network of People living with HIV/AIDS		
PMU	Project Management Unit		
PLHIV	People living with HIV		
PLWHAs	People living with HIV/AIDS		
PSS	Psycho-social support		
RfP	Request for Proposal		
SAfAIDS	Southern Africa HIV/AIDS Information Dissemination Service		
SAPSSI	Salvation Army Psycho-Social Support Initiative		
Sida	Swedish International Development Cooperation Agency		
SPIDER	The Swedish Program for ICT in Developing Regions		
STI	Sexually Transmitted Infections		
TALC	Treatment Advocacy and Literacy Campaign		
ТВ	Tuberculosis		
UNAIDS	Joint UN Programme on HIV and AIDS		
VSO	Volunteer Services Overseas		
WSIS	World Summit on the Information Society		
YAZ	Youth Against AIDS Zambia		
YOHO	Youth Health Organisation		
ZARD	Zambian Association for Research and Development		
ZAMCOM	Zambian Media and Communication Institute		

There is growing evidence that Information and Communication Technologies (ICT) can be powerful tools that when managed effectively can strengthen the impact of health and development initiatives. Currently, the HIV and AIDS epidemic is among the greatest threats to development. While the impact of ICT on various development initiatives, such as education, has been documented, there has been limited research on the use of ICT to strengthen HIV prevention, care, and treatment interventions. Recognising this gap, the following study was commissioned by Sida in February 2005. It sought to explore:

- 1. How ICT can contribute to the empowerment of people living with HIV/AIDS; and
- How ICT can improve ongoing and planned HIV and AIDS programs in the southern Africa region.

The study was conducted in three southern African countries (Zambia, Botswana and Mozambique) and was carried out using a participatory approach in which stakeholders and beneficiaries of HIV and AIDS interventions have been asked to share their experiences, views, suggestions and ideas on how ICT can be used for mitigating HIV and AIDS.

All participants of the study emphasised that ICT would be useful in the mitigation of HIV and AIDS work. In particular, ICT were identified as tools for documenting and sharing information and best practices on HIV and AIDS, as well as improving their institutional capacity and effectiveness of their programmes. Participants suggested that ICT could be used to strengthen the quality and coordination of HIV and AIDS prevention, care and treatment programmes by:

- Creating a platform for vision building, planning, coordination, monitoring and evaluation among the stakeholder groups supporting a coordinated multi-sectoral response to HIV and AIDS;
- Providing access to vital information which can support individuals to shield against the worst effects of the epidemic;
- Rehabilitation of health delivery systems through the application of ICT for distance counselling and logistic support.

These suggestions indicate the need to build ICT capacity at all levels of society. However, participants noted that to use ICT for mitigating HIV and AIDS, basic conditions need to be set. These include:

- Availability of basic infrastructure such as media, tele- and/or data communication and electricity supply;
- Capacities in place for utilizing, operating and maintaining the applied technologies;
- Capacity development among target audiences (CBOs, NGOs and ASOs) who might be using the ICT;
- Capacity development on the production of accurate, relevant and contextualized information on HIV and AIDS and other health and development issues in local languages.

Based on the priorities defined by the stakeholders and taking into consideration the environmental context, it was recommended that the implementation of the following ICT interventions may strengthen existing local initiatives addressing HIV prevention, care, treatment and support:

- The establishment of Community Access Points (CAPs), which combine a tele-centre, local ICT service provider and HIV/AIDS knowledge centre. The CAP would develop links with local radio stations, health clinics and schools and provide connectivity to these organisations. The CAP would support with the provision of ICT resources and promote ICT skills development for these service providers.
- Develop and implement a system of distance consultation and improve logistic support for the distribution of drugs
- Support Research on 'expert' systems (a system which provides support to health workers to diagnose and treat clients) for health clinics
- Facilitate the process of awareness and vision building on how ICT can be used in HIV and AIDS work.

The proposed interventions vary in character; however all share the need to prove their positive contribution to programmes mitigating the impact of HIV and AIDS. Although evidence has been documented that ICT can be used for additional learning, and advocacy in other developmental chal-

lenges, little evidence has been documented on the use of ICT for HIV and AIDS prevention care and treatment. Therefore it is recommended that pilot projects of the proposed intervention are established for a maximum of three years. The pilot programmes will provide evidence (lessons learned and best practices) to support replication in the region. Depending on the outcome and impact of the pilot programs, decisions can be made to develop respective national programs.

The results of this study were initially published as a report for Sida, with recommendations of opportunities for strengthening the use of ICT in HIV and AIDS programmes. Recognising the value of the recommendations for all countries working on HIV and AIDS, the study was presented at the World Summit on the Information Society (Tunis, 2005), where it sparked discussion and debate among key stakeholders in the field of HIV and AIDS.

Two years on, this document represents the 2nd edition of the original study. The document describes the original methodology and results, but highlights updated information on the HIV and AIDS epidemic in southern Africa as well as presents revised recommendations on how ICT can be used to mitigate the impact of HIV and AIDS on the region.

Acknowledgements

The study team wishes to express their sincere thanks for the support received from all stakeholder organisations which did participate in the meetings in Lusaka, Gaborone and Maputo and which have been visited through field visits. Thanks also to Sida for allowing the study team to present the initial findings at the Sida training workshop in Nairobi held on February 17–19. Thanks to the University of Dar es Salaam and the team of volunteers supporting the Tsilitwa project for sharing their experiences with building ICT based capacities in rural areas. Finally, thanks to Karoline Beronius, Eng. Lars Glimbert and Dr. Afzal Sher from SPIDER and Mr. Bright Phiri, Sida Communications officer, regional office for HIV/AIDS for their vision, commitment and guidance delivered during the period the study was carried out.

Bert Geers Sara Page

Introduction

Information and Communication Technologies (ICT) are defined as any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning.

The range of ICT continues to broaden as new applications and technologies are introduced. However the use of ICT in developing countries remains limited in comparison with other regions throughout the world. According to the International Telecommunications Union, during the decade 1996–2006, the number of internet users increased from 74 people per million to 1,131 people per million and personal computer ownership has increased from 275 people per million to more than 808 people per million. The challenge is that the majority of these people live and work in the global north. According to ITU (2002), Africa (including North Africa) represents only 1.3 percent of global Internet users. In contrast mobile cellular telephone subscribers increased from 145 million in 1996 to 2685 million in 2006. Africa is an anticipated area of growth for cellular networks.

One of the goals of the Swedish Policy for Global Development is to contribute to the development of an environment supportive of poor people's own efforts to improve their quality of life. The spread of HIV and AIDS is recognized in this policy as one of the greatest threats to development in the present time and has been translated by the Swedish International Development Cooperation Agency (Sida) into a specific sector in the set up of its cooperation program. ICT for development cooperation has been defined to be another sector in this program; Sida views ICT to be an instrument that provides opportunities for people in developing countries to improve their quality of life. It is also seen as the main instrument for information and knowledge transfer both globally and within the countries.

In February 2005, a study has been commenced with the aim to explore the opportunities for using ICT in mitigating of HIV and AIDS in southern Africa. The study focused on the following questions:

- How ICT can contribute to the empowerment of people living with HIV/AIDS.
- How ICT can improve ongoing and planned HIV/AIDS programs in the region.

The study was implemented using a participatory approach, in which key stakeholders working in the field of HIV prevention, care, treatment and support, were invited to consultative meetings and asked to describe their experiences, views, suggestions and ideas on how ICT can be used to mitigate HIV and AIDS. The meetings were held in Zambia, Botswana and Mozambique. The participants represented HIV/AIDS services organisations, local government (represented by national AIDS councils and the Ministry of Health), the public health sector, NGO's, academic/research institutions, Community-based organisations, media, Faith-based organisations and people living with HIV/AIDS. Field visits and literature review were also conducted to collect additional data on the use of ICT in HIV and AIDS initiatives.

The research was funded by Sida and has been initiated by SPIDER (the Swedish Program for ICT in developing regions). The study team included Mr. Bert Geers from the Delft University of Technology, the Netherlands and Mrs. Sara Page from SAfAIDS (Southern Africa HIV/AIDS Information Dissemination Service), a regional HIV/AIDS service organisation with the headquarters located in Harare Zimbabwe. The research was conducted between February 2005 and May 2005.

Methodology

The study was implemented using a participatory approach, in which key stakeholders working in the field of HIV prevention, care, treatment and support, were invited to consultative meetings and asked to describe their experiences, views, suggestions and ideas on how ICT can be used to mitigate HIV and AIDS. The participants of the study represented HIV/AIDS services organisations, local government (represented by national AIDS councils and the Ministry of Health), the public health sector, NGO's, academic/research institutions, community based organisations, media, and faith based organisations. Finally, and perhaps most importantly, the networks of people living with HIV were included.

The core activity of the study comprised of stakeholder meetings held in Gaborone (Botswana), Lusaka (Zambia) and Maputo (Mozambique) in combination with field visits of the study team. The stakeholder meetings were a platform for:

- Reporting the extent to which ICTs are currently being used by the stakeholder groups;
- Bringing in ideas about how ICT can be used as instrument for mitigating the effects of HIV/AIDS;
- Giving suggestions how ICT could boost the performance of ongoing HIV and AIDS programmes, and
- Identifying the interests of the individual stakeholder groups in ICT, what role they could play and what capacities they could deliver in new, ICT based interventions.

For details (list of stakeholder groups and their representatives involved, discussions held and suggestions made during the round table conferences) see annex A: reports on the stakeholder meetings in Lusaka, Gaborone and Maputo.

In the stakeholder meetings, the participants were asked to give suggestions how ICT could be used in relation with the following themes:

- Prevention of the spread of Sexually Transmitted Infections (STIs), including HIV;
- Care (home care, health care and treatment) in relation with HIV/AIDS;
- Empowerment of people living with (or affected by) HIV/AIDS;

- Monitoring the epidemic and related research;
- Coordination and supportive services (such as dissemination of information) for HIV/AIDS campaigns, projects and programs.

The participants were asked to consider the core activities belonging to these themes as well as related supportive processes.

The process was open for participants to choose any point of departure.

Various areas have been identified which possibly could be supported by the application of ICT. As examples (using key words) the following areas are mentioned:

- Stigma and discrimination; relation to sex, discrimination and denial based on stigma;
- Cultural issues; polygamy, wife inheritance, traditional healers;
- Economic issues; poverty cycle;
- Information Gap; (lack of) means for dissemination, access, financial constraints, (lack of) connectivity, (lack of) quality and relevant content in local languages, low coverage of media; misinformation (frightening messages);
- Health delivery system; limited locations, no or not qualified skills, distances, lack of reference systems;
- Need for treatment literacy and community preparedness; no follow up and no connection;
- Concentration of NGOs and ASOs in cities, not in rural areas;
- Orphans/vulnerable children; impact and burden on women, burn out of care givers, livelihood support;
- Resistance; need behaviour change;
- Women; need access to info, need to negotiate sex, gender roles;
- Sexual abuse; to girls, families economic and traditional barriers;
- Commercial sex work; no care or education, safer sex, trafficking, active/passive, older men/younger girls, older women/younger boys;
- Best practices; (no awareness/info of) groups doing good work, need to share and exchange info, need to document;
- Monitoring & evaluation; funds available but little result, no M&E at all, no accountability;
- Weak education (whole) system; not efficient, also adult education

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- Legal/policy issues; to protect PLHIV, but little disclosure, to avoid transmission (and purposeful transmission); Bureaucracy red tape; everything political, time and resources, delays to approved programs, emergency versus delays, all paperwork but no action;
- Capacity in NGOs; duplication of activities, no planning;
- Misinformation: there is poor information about HIV and AIDS as a global issue. There are many myths and misconceptions that need to be addressed;
- Not enough info in local languages- many communities lack access to accurate information;
- Representation of PLHIV political will, need of mainstreaming of HIV/AIDS, religious leadership needed, PLHIV most become involved, Need more Disclosure- many participants cited the need for more role models who are living positively with HIV.

After collecting ideas and suggestions, the stakeholders were asked to prioritise the proposed interventions and to specify the components (such as coaching and training, content development and project management) in which a contribution could be delivered by the respective stakeholder organisation.

For translating the prioritized areas into realistic recommended interventions, the stakeholder meetings were followed by a literature review and study of relevant cases of best practices. Among others, the following cases have been studied:

• The rural community access pilot, Kibengwe, Tanzania.

In Kibengwe, a village in Tanzania west of the Victoria Lake, a telecentre has been set up. The village hosts the ward where the administration for four neighbouring villages is taking place. There is no telephone access yet and just recently, electricity to the centre was established. Several potential users of the tele-centre like the Ward office, NGO's and schools are present in the ward. Promoters of the project are: University of Dar es Salaam, Local NGO's, Local Government and the IICD. Telemedicine in Tsilitwa village, South Africa. The health post in the Tsilitwa village in the Eastern Cape province of South Africa has been connected through a wireless Ethernet (Wi-Fi) community network with a referral hospital approximately 20 km away. An ICT supported telemedicine application has been set up allowing the health post staff to consult the doctors in the hospital through text, voice and images through synchronous – and through store and forward communication.

Problem identification

HIV and AIDS in Southern Africa

The Sub-Saharan Africa remains by far the most-affected region with HIV and AIDS. According to UNAIDS (2007), it is estimated that 22.5 million [20.9 million–24.3 million] people living with HIV live in sub-Saharan Africa. This represents approximately two thirds (68 percent) of all persons infected with HIV globally. In 2006, an estimated 1.7 million [1.4 million–2.4 million] adults and children were newly infected with HIV. More than three quarters (76 percent) of global AIDS deaths occurred in sub-Saharan Africa.

Within the region, Southern Africa continues to be the epicentre of the HIV and AIDS epidemic. Currently 35 percent of people with HIV globally live in southern Africa (UNAIDS, 2007). The sub-region also accounts a third of new infections and reported AIDS deaths globally. In 2005, approximately 8 countries in southern Africa reported HIV prevalence rates of above 15 percent However, a recent report from UNAIDS (2007) confirms a significant decline in HIV prevalence in Zimbabwe and indicates a trend toward a stabilised HIV prevalence in other regional countries. Only Mozambique has reported an increase in prevalence from the previous reporting period. In Zimbabwe, the downward trend has been attributed to sexual behaviour change. Yet, as in most countries, the number of people living with HIV and AIDS remains unacceptably high.



Source: UNAIDS, 2007

For biological, economic and social reasons, women and girls are at the greatest risk for HIV infection and consequently make up an increasing proportion of the global HIV-infected population. Of the 17 million women living with HIV, 61 percent are women and girls living in sub-Saharan Africa. UNAIDS (2006) estimates that for every 10 adult men living with HIV, there are 14 adult women infected. In South Africa, young women (aged 15 to 24) are four times as likely to be HIV infected than young men. A key barrier to the HIV and AIDS epidemic is that women and girls have less access to relevant HIV information and health services.

In the three countries covered by the study, the HIV and AIDS epidemic is already having far reaching effects at health service settings. These include:

- Increased illness and demand for health care services among young and middle-aged adults and young children, leading to an overburdened, patient unfriendly and more costly health care system the three countries hardly can afford;
- Strong HIV-related increase in other diseases of public health importance, particularly tuberculosis, exacerbating the rising costs of health services;

At household and societal levels, effects of the HIV/AIDS epidemic are:

- Increased psycho-social stress on and disintegration of family structures;
- Increased death rates among young and middle-aged adults and children below the age of 5 years;
- Decrease of population subgroups within reproductive age;
- Increased sickness-related absenteeism in workplaces and reduced productivity;
- Loss of trained and skilled human resources in all sectors of the economy;
- A significant increase in orphaned children and increase in the demand for social welfare services to meet their basic needs;
- Increased burden of care place on women and elderly.

As cumulative effect, an increase in the number of urban and rural poor and the slowing down of economic development can be observed.

National and Regional Response to HIV and AIDS

National Governments and NGO's are trying to approach the problem from many angles using different types of interventions. However, stigma and discrimination of people living with HIV/AIDS present a barrier to access quality health care and treatment. It also minimises the possibilities for sharing experiences and seeking support from peers. In some cases, the stigma on HIV and AIDS is paralysing policy development and political decision on national level.

In the three countries within the scope of the study (Botswana, Mozambique and Zambia), national policies on HIV/AIDS have been put in place being the national response to the epidemic. In general the policies describe the role of the national leaders, involved ministries, private sector, nongovernmental and community based organisations, PLHIV and individual community members, in the national response for countering HIV/AIDS. The policies are used to guide all actors in HIV/AIDS prevention and care, policy-making, implementation and operational control and provide mechanisms for resource mobilisation and allocation, and monitoring and coordination of AIDS prevention and care activities. The overall objectives of these national policies are:

- The prevention of HIV/STI transmission;
- The reduction of personal and psycho social impact of HIV and STI;
- The mobilisation of all sectors, and of communities for HIV prevention and care;
- Provision of treatment and care for people living with HIV/AIDS;
- The reduction of the socio-economic consequences of HIV/AIDS and STI.

While there is neither a cure nor a vaccine against HIV which are effective, accessible and affordable, interventions for changes in social and sexual behaviour which include the control of STI and care remains a key focus of national policies on HIV and AIDS. Unfortunately, "In the absence of massively expanded prevention, treatment and care efforts, the AIDS death toll in Africa is expected to continue rising". The greatest impact of the epidemic, in new infections and deaths, is still to be expected. If current trends in the development of the epidemic continue, Africa will have 90 million infected people living with HIV/AIDS in the year 2015 of which Botswana, Mozambique and Zambia will get a significant share (UNAIDS, 2005). Since 2005, the regional emphasis has been focused on scaling up access to treatment and prevention services, yet challenges such as TB co-infection and stigma and discrimination of HIV and AIDS remain issues that need urgent attention.

Access to Treatment

Since 2003, there has been a steady improvement in the availability of treatment for people living with HIV (PLHIV). Initially, through the WHO's campaign to have 3 million people on antiretroviral therapy (ART), and then through the individual initiatives of national governments, access to ART has improved. In sub-Saharan Africa, the numbers on treatment rose ten-fold from 2003 to 2006, from 100,000 to over 1 million. This is equivalent to 23 percent of those needing treatment (UNAIDS, 2006). Civil society has contributed by supporting in community preparedness and improved treatment literacy. However, much more work is needed to ensure that countries in the region achieve universal access to treatment by the year 2010, as per the commitment signed by all member states at the UN General Assembly (June 2008). Despite the success and overall increase in access to treatment, few countries are reaching all the people in need of treatment. Figure 2 below represents the number of people receiving treatment, as well as the percentage of people receiving treatment with respect to all who are in need of treatment. Among the southern African countries, it is noted that Botswana is the only country which is currently reaching 90 percent of all those in need of treatment, while the majority of southern African countries are reaching less than 50 percent of all those in need of treatment.



Figure: Graphic representation of the number of people receiving treatment in various countries (UNAIDS, 2007)

The Southern Africa Development Community (SADC) together with its member states and civil society are trying to strengthen access to treatment using a variety of interventions. However, scarcity of qualified staff (particular in rural areas) inadequate infrastructure, long distances and mobile population and cultural beliefs present a number of barriers. Without major improvements to existing health care services, it will be impossible to scale up AIDS treatment and care. Although more effective services will help remove bottlenecks in drug production and supply, they depend on employing more doctors and nurses, establishing reliable and accountable supply chain management and reporting systems as well as improved promotion of available services.

Repositioning HIV Prevention

In 2006, the African Health Ministers declared 2006 the Year for Accelerating Access to HIV Prevention. Their decision was based on the need to address the escalating numbers of new infections. In many countries, HIV prevention programmes are not reaching the populations at highest risk for infection such as young people, women and girls, men who have sex with men, sex workers and their clients, injecting drug users, and ethnic and cultural minorities.

In 2006, a regional Think Tank Meeting was hosted by SADC and UN-AIDS to explore and analyse the dynamics of the epidemic within the region and to review research related to HIV prevention strategies. The meeting concluded that "high levels of multiple and concurrent partnerships by men and women with insufficient consistent correct condom use, combined with low levels of male circumcision are the key drivers of the epidemic in the sub-region" (SADC, 2006).

While HIV awareness in southern Africa is relatively high, those at risk of HIV infection may not know how to protect themselves using condoms or access prevention services such as treatment for sexually transmitted infections (STIs) or counselling and testing. Levels of knowledge about safer sex remain low in many countries. There is an urgent need to step up prevention efforts, while maintaining the treatment momentum.

UNAIDS recommends a number of essential programmatic actions for HIV prevention:

- 1. Prevent the sexual transmission of HIV
- 2. Prevent mother-to-child transmission of HIV
- 3. Prevent the transmission of HIV through injecting drug use, including harm reduction
- 4. Ensure the safety of the blood supply
- 5. Prevent HIV transmission in healthcare settings including both formal and informal settings
- 6. Promote gender access to voluntary HIV counselling and testing while promoting the principles of confidentiality and consent
- 7. Integrate HIV prevention into AIDS treatment services
- 8. Focus on HIV prevention among young people
- 9. Provide HIV-related information and education to enable individuals to protect themselves from infection
- 10. Confront and mitigate HIV-related stigma and discrimination
- 11. Prepare for access and use of vaccines

Twin Epidemics: Tuberculosis and HIV

At the beginning of 2005, extensively drug resistant tuberculosis (XDR-TB) was detected in KwaZulu-Natal and has highlighted the lethal combination of HIV and TB in South Africa, where an estimated 60 percent of TB patients overall are also HIV-infected. TB drug resistance has increased because of inadequate TB control, poor patient or clinician adherence to standard TB treatment regimens, poor quality drugs or inadequate drug supplies. People living with HIV are particularly vulnerable to developing drug-resistant TB because of their increased susceptibility to infection and progression to active TB.

The outbreak underscores the need to rapidly ensure prompt TB diagnosis and effective TB treatment for persons living with HIV in order to prevent drug resistance from developing and spreading. Access to TB culture and drug sensitivity testing must be improved, and effective infection control practices must be introduced in HIV care clinics to prevent the spread of TB. Programmes for HIV prevention, care and treatment need to be integrated with TB initiatives (UNAIDS, 2006).

Stigma and Discrimination

Stigma and discrimination of people living with HIV continues to present a barrier to HIV prevention and access quality health care and treatment. AIDS-related stigma and discrimination are major obstacles to progress and often exclude people who need help from being able to get it. Too often, people living with HIV and AIDS face abuse, exclusion and denial of care from their families, colleagues, friends and health care providers. Throughout the region, there remains hostility towards the people who are most vulnerable to HIV infection, including sex workers, injecting drug users and men who have sex with men.

As a region, member states are striving to meet the targets set at UN-GASS, 2005 for achieving Universal Access to HIV Prevention, Care and Treatment in Southern Africa. The key challenges they face include:

- Significant bottlenecks in the flow of strategic information on HIV and TB to service providers and communities responding to HIV and AIDS;
- Women has less access to HIV information and treatment services;

- Substantial 'brain-drain' of key health personnel limits the quality and quantity of treatment and care services in the region;
- Stigma and discrimination of people living with HIV create a barrier to relevant HIV information and treatment services;
- HIV and AIDS have placed a spotlight on marginalised populations. There is a need to ensure that they have a voice in regional and national debates on policies and programmes related to HIV prevention, care and treatment;
- With increased access to treatment, there is a need to ensure individuals and communities have access to relevant information on ART and TB treatment, with specific reference to strategies to promote adherence;
- Lack of mobilization of community structures including PLHIV;
- Small scale pilots or projects rather than country wide strategic programs;
- Lag in appropriate technologies to support scaling up, e.g. cheap simple CD4 counts -the medical test that evaluates the progression and impact of the disease on one's immune system.

ICT for mitigating the effects of HIV and AIDS

In developed countries, ICT plays a pivotal role in ensuring timely and speedy diagnosis as well as in improving and securing the quality of health care in most medical disciplines. ICT also offers the option of remote, distant delivery of an increasing number of public health care services, despite physical distances and time zones existing between patients and health care providers.

A similar statement can be made for education: advancements in ICT made the application of new educational concepts for distance learning, problem oriented learning, self- assessment, awareness raising and mass education possible. ICT can also be used as instrument for supportive processes such as financial management, student and learning program management, library information services management and human resource management strengthening the overall performance of schools and institutes of education.

ICT enhances access to and communication on HIV/AIDS information. Recent advancements in ICT in relation to public health, education and public (Internet based) networking provide a growing arsenal of instruments (in terms of ICT based interventions) for combating HIV/AIDS and for mitigating the effects of the epidemic. Ongoing and planned HIV/AIDS initiatives may be boosted by improving capacities for communication and information processing and dissemination through innovative use of ICT. The focus of these HIV/AIDS initiatives may vary from creating awareness and prevention to strengthening the provision of health care services and the setting up of research networks and resources for monitoring the epidemic.

Without the intention to be exhaustive, examples of possible ICT based interventions are given in Table 1:

Table1. Problem areas and possible ICT interventions			
Problem area	ICT based intervention	Resources to be put in place	Comment
Stigma on HIV/AIDS. Discrimination and isolation.	Empowerment of people living with or affected by HIV/AIDS by giving them means for communication with peers.	HIV/AIDS forums Content data bases (preferably in local language).	By giving people living with HIV/AIDS access to the Internet and specific services such as HIV/AIDS newsgroups and forums, data bases with contents on HIV/AIDS in the local languages, the people are able to share and exchange experiences with peers, social and health care workers and be in a better position to gain control over their life.
High incidence of HIV/AIDS infection.	Effective and efficient dissemination of HIV/AIDS infor- mation through distribution of ICT learning ma- terials at schools and community centers.	ICT based Learning materials.	Preventive education in local languages is a key factor in fighting HIV/AIDS. Attractive ICT based e-learning materials should be produced and should be made available at primary, secondary schools and community centers in the local languages.
Inadequate availability of drugs and infor- mation about drugs.	Global inventory database(s) and effective on-line ordering system.	Data base platform with up to date data bases maintained by the various institutions.	Only a tiny number of the people living with HIV/AIDS do have access to Anti Retro Viral (ARV) treatment because of, amongst other reasons, under developed logistics securing the availability of ARV drugs at supply points easily accessible by the population. ICT can be an effective component of a (redesigned) logistic chain for drugs supply.

Inadequate	Data collection	Thematic	A comprehensive and frequently updated
information on	and monitoring	Geographical	description of the HIV/AIDS situation and
HIV/AIDS	system.	Information	increased resources available on the
Incidence.		System (register	ground is a basic condition for effective
		for HIV/AIDS	and coordinated strategies to be
		attributes).	developed and implemented by the
			various stakeholder.

In addition, ICT are recognised as tools that can support the implementation of National Strategic Plans (NSP) on HIV and AIDS. For example, Peter Benjamin of Cell-Life (2005) advocates that ICT can assist in rolling out the NSP in South Africa by:

- Improving the efficiency of the 'back-office' of HIV/AIDS organisations, especially at community level
- Strengthening mass communication of prevention, treatment, anti-stigma and other HIV messages
- Supporting informatics in the health system, especially comprehensive record keeping and the capacity to provide care and treatment to HIV+ people, particularly in supplying ARV
- Monitoring and evaluating all aspects of the NSP
- Supporting the self-organisation of people living with HIV as well as allowing the voice of millions of infected and affected by HIV to be heard
- Proving a medium for research, advocacy and other forms of information sharing"

While ICT and new emerging technologies can provide support in the implementation of HIV prevention, care and treatment interventions in a number of areas, the initiative must be responsive to local needs and priorities and consistent with the available environment, infrastructure and capacity.

Currently, only modest use is made of ICT within the public sectors of the three countries and mainly limited to office automation (word processing, presentations, spread-sheets and e-mail), ICT based information systems supportive to administrative business processes (such as financial management, human resource management) and project management. The majority of ICT interventions within health and development work in Africa have used new low-tech solutions in combination with older technologies such as radio, television and print media. A limited number of the government organisations have developed and do host and maintain web pages (see: www.uneca.org/aisi/nici/africalocalgov.htm). The situation in the private sectors is not much different.

Organisations in Zambia, Mozambique and Botswana are facing the following obstacles in building the needed ICT resources and ICT based solutions:

- Lack of qualified and experienced ICT staff;
- Limited exposure of the society as a whole to advanced use of modern ICT;
- Under developed public ICT infrastructures such as the telecommunications network, national Internet segment and the electricity distribution network;
- Under developed ICT service industry;
- Financial constraints, limited budgets available (particular in case of Zambia and Mozambique);
- Lack of local contents in electronic format;
- Sickness-related absenteeism in workplaces and reduced productivity resulting in even more demanding requirements for continued training;
- Limited purchasing power of individuals. The cost of computers is still far beyond what the majority of individuals in developing countries can afford hampering the lifting of larger scale use of ICT within the private sector.

In general, the situation at the rural areas is even more difficult:

- Telecommunication services and electricity supply are often unreliable, unstable or not available at all;
- High illiteracy rate among the people living in the rural areas and language barriers preventing them to familiarize themselves with the benefits of information resources using international languages, in particular English.

Countering HIV and AIDS will require a well-coordinated multi sector approach and the active involvement of a large number of organisations from the public and private sector. This will add another complicating factor when using ICT for mitigating the effects of HIV/AIDS: the scope of some of the needed ICT solutions will span chains of organisations and thus will be by nature inter-organisational. An example is an ICT supported logistic support system for the supply and distribution of drugs. It will include almost all public and private organisations active in the whole health sector (pharmacies, health clinics, hospitals, ministry of health), suppliers of drugs, ICT service suppliers, transporters and others. The setting up of inter organisational information systems will require comprehensive planning, coordination and strong commitment of all involved organisations. It will be difficult and more complicated (but not impossible) in societies having limited ICT resources in terms of ICT expertise and experience. In the stakeholder meetings held, the ideas and suggestions presented by the participants were in general conceptual and not ready for direct implementation. No ready-made proposals were available on how to use ICT for mitigating the effects of HIV and AIDS.

No ideas were brought in how ICT could be used for strengthening the performance of the stakeholder organisation the participant(s) were representing. Ideas and suggestions were all oriented towards direct interventions. How to use ICT as organisational resource on institutional and national level was found to be a difficult to answer question and how to plan ICT an even more complicated issue.

In the meetings, long lists of ideas and suggestions have been brought in (for more information see annex A and B, reports on the Lusaka and Gaborone stakeholder meetings). The first two having been given the highest priority are worked out in detail in the following sections of this chapter. Based on these suggestions, the recommendations for using ICT for mitigating the effects of HIV and AIDS were drawn.

Priorities defined by the stakeholder groups are depicted in Table 2:

Table 2. Stakeholder priorities				
	Health delivery using ICT	Access to information in rural area	Vision building, training, monitoring and evaluation	
Botswana	High priority	No priority	High priority	
Mozambique	High priority	High priority	High priority	
Zambia	Highest priority	High priority	No priority	

Lusaka (Zambia) Workshop Priority 1: Strengthen the health care sector

In the stakeholder meeting held in Lusaka, Zambia on February 10, 2005 the highest priority has been given to interventions with the aim to:

- De-load the tremendous workload of health workers in the other sector;
- Improve the quality of services of the health sector;
- Make the health sector more accessible particular for people living in the rural areas.

It was felt that health care services have become very unfriendly and that rehabilitation of the health sector was urgently needed.

As main causes for the alarming situation within the health care sector in Zambia, are mentioned:

- The fast growing demand for health care services. The HIV epidemic continues to manifest higher mortality and morbidity for countries in the region, which places an increasing burden on already overstretched health care services. The gap between the demands and the available capacity is increasing rapidly;
- The lack of sufficient numbers of professional staff, particular in the rural areas;
- Inadequate training of professional staff;
- Lack of professional training capacity;
- Too large land areas to be covered by the individual health care units (health clinics, hospitals) or in other words: too little units, forcing patients to travel long distances for accessing appropriate health care services;
- Unawareness within the population about what services can be expected from the health sector;
- Limited financial resources available (on individual, organisational and sector level).

The following directions for rehabilitation have been suggested:

- De-loading of the health care sector by strengthening home care capacities. Provide PLHIV and people taking care for PLHIV with skills for optimal home care through media campaigns, workshops and training programs;
- Improve the communication within the chain health clinics referral hospitals with the aim to stop the increasing flow of HIV and AIDS clients to the hospitals;
- Provide health care staff with access to up to date and easy to understand information, preferably in the local languages;
- Improve the availability of drugs by improving the system for description, storage and supply of medicines.

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The following ICT based interventions were proposed:

- Support the setting up of e-mail communication links between health clinics and (referral) hospitals enabling health clinic staff to consult doctors and other medical professionals for backstopping purposes;
- Provide medical staff in health clinics, hospitals, laboratories and other with access to the Internet;
- Provide health clinics locally with data bases and/or intelligent information systems supporting health clinic staff in making a diagnosis and treatment plan for individual patients;
- Support the setting up of a logistic system securing the continued availability of AVR drugs at medical units such as the pharmacies, health clinics, hospitals etc.

Lusaka (Zambia) Workshop Priority 2: Access to information in the rural areas

The second priority in the Lusaka stakeholder meeting was given to the theme "access to information in the rural areas". It was felt that the poor living in the rural areas still remain unprivileged in terms of getting vital information which can help them to shield against the worst of the epidemic effects.

Main causes for not having access to information in the rural areas are mentioned:

- Lack of relevant and contextualised contents on HIV and AIDS issues in the local languages. Important and relevant messages being made public on national level often have little impact due to the use of international languages (English).
- Lack of basic infrastructure such as telecommunications and electricity supply. While Internet is growing rapidly in Zambia, there are virtually no users among the disadvantaged rural populations. Even when available, the effective use of the Internet is impeded by low literacy rates, low education levels and linguistic barriers.

The following directions for providing access to information in the rural areas have been proposed:

- New interventions should as much as possible make use of existing 'old' ICT infrastructures. For people living in rural Zambia, it is an older ICT -broadcast radio- that connects them to their community and to the world. Local radio stations are close to their communities, trusted and have intimate knowledge of their communities' problems and capacities. No other ICT does, or will in the foreseeable future, match the coverage radio does have at this very moment (>80 percent of the population);
- Provide the local (media) champions, such as the journalists of the local radio stations (in most cases volunteers from the communities), with access to the Internet and with the knowledge to make effective use of that access;
- Stimulate dissemination of information between the local communities and national and regional HIV and AIDS services organisations;

The following ICT based intervention was proposed:

• Support capacity building of local HIV/AIDS knowledge centres and local ICT service centres in the rural areas. The local ICT services centres should provide access to the Internet for the people living in the rural areas. Both capacities should be in the neighbourhood of a local radio station, health clinic and schools, provide these institutions with (Internet) connectivity and with contextualized content on HIV/AIDS.

Gaborone (Botswana) Workshop Priority 1: Behavioural change

In the Gaborone workshop, the theme "behavioural change" has been given highest priority. It was felt that the activities (such as media campaigns) carried out on various levels did not yet deliver the desired changes for countering the HIV/AIDS epidemic. Awareness levels about HIV and AIDS haven been raised and ignorance have been lowered, nevertheless measures put

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in places need to be boosted and additional interventions are needed to reduce the impact of HIV/AIDS on the society as much as possible.

In the Southern Africa region, Botswana is relatively well developed due to good governance, rich natural resources and the rapid economic development in the past years. Compared to most other countries in the region, it has a relatively well developed communication infrastructure (including a national Internet segment) and electricity distribution grid. Deployment of ICT at schools is actively promoted by the national government and most schools (primary, secondary and tertiary level) do have televisions, video sets and computers connected to the Internet available.

These relatively well developed technology infrastructures have not been optimally utilized for effective ICT based interventions. As main causes below are mentioned:

- Lack of vision and consensus on how ICT can be used as instrument for countering the HIV/AIDS epidemic;
- Lack of realistic plans for ICT based interventions. ICT have not been mainstreamed in the national policy on HIV and AIDS;
- Lack of qualified and experienced ICT staff;
- Limited exposure to advanced use of ICT within the society as a whole.

The following directions for intervention have been proposed:

- Support the process of vision building within the group of organisations involved (e.g. government, health sector, educational sector, HIV/AIDS organisations and NGOs);
- Organise training sessions on various themes, such as using ICT for project management, dissemination of information and content development;
- Support the process of building expertise and experience on the advance use of ICT through a pilot or test case.

Gaborone (Botswana) workshop priority 2: Strengthen the health care sector

The second priority of the Gaborone workshop has been given to strengthening the health care sector. It was felt that the health care sector in
Botswana has become very patient unfriendly and is on the edge of collapse. Particular in Botswana the growing demand for quality health services is hardly met by the capacities (especially professional health workers) available.

Another severe problem signalled by the workshop participants was the inadequate supply of ARVs. Botswana, extremely hard hit by the epidemic, is having a large portion of its population infected and only a tiny portion of the people living with HIV/AIDS do have access to ARVs. An urgent need exist to rehabilitate the present system for the distribution of medicines (in particular ARVs and drugs for HIV/AIDS related diseases)¹.

Mozambique Workshop Priorities: Monitoring and Evaluation, Health Care and Access to Information

The findings in Mozambique were not very different from the results of the stakeholder meeting in Zambia. Participants identified the need for greater access to quality, relevant HIV and AIDS information, in particular in Portuguese, as well as improved communication in the rural areas. Recommendations from participants emphasised a need to strengthen the radio and media systems by providing increased ICT infrastructure and capacity development.

Equally, participants identified the need to strengthen the health care system, by improving training of health care professionals and access to diagnostic and treatment protocol. Recommendations were made to develop the IT infrastructure and capacity development of health clinics.

The need to co-ordinate HIV and AIDS organisations as well as support a standardised system of monitoring and evaluation was also emphasised among Mozambican participants. It was recommended that a process of vision building be supported to bring together NGOs and government departments to establish a nation-wide process of co-ordinating the activities.

^{1.} Since the original field work of this study, Botswana has excelled in its delivery of HIV treatment. It is the only country in Southern Africa to achieve its targets in Universal Access to antiretroviral treatment. However, within the health care system, there remain changes with access to services, in particular in rural areas.

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Participants spread out their priorities among many of the activities. This was due to the fact that they felt that these activities should be implemented in an integrated manner.

Observations of the study team

From the ideas and suggestions raised by the participants in the workshops it can be concluded that countering HIV and AIDS will require an approach of concerted actions addressing areas such as prevention and education, care and treatment, empowerment of people living or affected by HIV and AIDS, monitoring and research. This will require optimal coordination of all involved stakeholders. With the national policies on HIV and AIDS in place a first important step has been made in securing this coordination. But, in order to make optimal use of ICT for mitigating the effects of HIV/AIDS, further efforts are needed. It will require translation of the national policies on HIV and AIDS into effective ICT based interventions. Required vision, expertise and experience on how to make this translation is lacking in Zambia as well as in Botswana.

A significant difference exists in the stage of development of the public infrastructures such as the telecommunication networks and electricity distribution grid in Zambia and Mozambique at one side and Botswana at the other side: in terms of development of these public infrastructures Botswana is much better off and better conditioned for developing and implementing more complex ICT based services, although external coaching and technical assistance will be required.

To bring vital information to the people in the rural areas in Zambia and Mozambique, it will be essential to boost communications capacities in the rural areas and to stimulate the development of contextualized content on HIV and AIDS, preferably by media champions in the local communities themselves.

In all countries covered by the study, strengthening the health sector has been given top priority. A strong consensus existed between all participants in the workshops that interventions are needed urgently. Areas for interventions mentioned were:

• Improve communication within the chain of organisations within the health care sector;

- Introduce ICT based applications supporting health care professionals in delivering services such as diagnosis and treatment plans;
- Rehabilitate systems in place for securing the availability of drugs.

Recommendations

Based on the ideas and suggestions of the participants in the workshops and observations of the study members, it was recommended that:

- For Zambia and Mozambique, focus support on the development of contextualized content on HIV and AIDS in local languages and bringing Internet based connectivity to the rural areas in combination with building the institutional capacities needed;
- For Botswana, focus support on research for and the development of relevant applications such as tele-consultation between health clinics and referral hospitals, logistic information systems for the supply of drugs and expert systems for diagnosis and treatment;
- Provide assistance to Botswana, Mozambique and Zambia in the process of vision building on how to use ICT for mitigating the effects of HIV and AIDS by facilitating a future search workshop;
- Make use of the expertise and experience gained in Botswana with the development and implementation of more advanced applications for the health sector at the time the required basic infrastructures have become available in Zambia and Mozambique;
- Stimulate the media groups and communication organisations in all three countries to get access to the Internet, which has become the main carrier of information on HIV and AIDS.

From these recommendations emerging from the stakeholder meetings, three key interventions were proposed. The interventions focused on 1) creating awareness and vision building for ICT intervention, 2) improving access to HIV information in the rural areas, and 3) strengthening health service delivery through the use of ICT. The proposed interventions are described in detail in the following chapters.

Proposed interventions

1. Creating Awareness and Vision Building for ICT Interventions With relatively well-developed public infrastructures, countries such as Botswana and South Africa are more ready to absorb more advance ICT solutions serving larger groups and different type of users. An example of such solution is a logistics information system for storage and supply of drugs (as described in previous sections). Other examples are: a HIV and AIDS monitoring, early warning and disaster control system, e-document delivery services (delivery of documents in e-format by e-mail on request) and data bases with medical records of patients. In countries such as Botswana and South Africa, larger part of the population can afford to make use of the Internet and can get access because of the larger number of access points commercially and in private use available. This situation is a basic condition for the successful setting up of Internet based information and communication services specific for PLHIV. Examples of such services are databases for frequently asked questions (FAQs), news and discussions groups and chat forums. Securing the anonymity of the users, such services can be helpful for taking barriers in communication with peers caused by stigma and discrimination.

In countries with greater access to ICT, such as Botswana, many more ideas for making use of ICT in HIV interventions were given. For example, ICT projects could be introduced at summer camps for children infected or affected by HIV. Another project could be to use ICT for improved advocacy on HIV-related policies. While more ideas seem possible because of existing infrastructure, the ability of those working in the field of HIV and AIDS, to translate the ideas into detailed ICT based services or interventions were limited.

In the case of Mozambique, participants clearly indicated that support is needed for improving the systems in place for monitoring and evaluation. A first step to be taken is to obtain consensus within the community of stakeholders about what standards and indicators should be used for monitoring and evaluation. Future search and vision building workshops can facilitate this process.

Although not indicated by the participants in the Zambian workshop, vision building with the aim to secure optimal coordination among stakeholder groups is necessary. This study was the first step in the search for effective ICT based interventions for mitigating the effects of the HIV epidemic. The urgency of finding effective answers for mitigating HIV means that this search should be continued. Key stakeholder groups should become more aware of the potential of ICT and obtain a realistic view on where it can be an effective tool, how it can improve efficiency and when its use should not be considered at all. Last but not least, efforts need to be made for mainstreaming ICT into HIV prevention, care and treatment programmes within the respective national policies.

It is recommended to have at least one workshop once a year on the use of ICT in HIV prevention, care and treatment. At the first workshop, it is recommended that the participants conduct a 'future search' which aims to:

- Identify common challenges among participating organisations and sectors (e.g. health, education, gender and communications);
- Answer the following questions:
 - Which of these common challenges should be addressed by a common approach
 - What ICT based interventions should support this common approach
 - What ICT based interventions should support sector (e.g.health, education, gender, communications) wide approaches;
- Translate the ICT based interventions into detailed action plans;
- Define the requirements of the ICT services to be put in place;
- Anchor these interventions in the respective national plans.

The audience of the workshop should consist of all stakeholder organisations involved in HIV prevention, care and treatment initiatives as well as the local ICT service industry (such as Internet providers, ICT training institutes and ICT consultancy firms). Following the future search workshop, sector specific workshops can be held with a sector (e.g. health and education) specific focus. Overall output will be enhanced awareness on ICT within the stakeholder groups, realistic levels of expectations, improved coordination amongst stakeholder groups, better control over investments made on ICT (for implementation and operations and maintenance) and finally, intensive and optimal use of services put in place.

2. Improving Access to HIV Information in the Rural Areas

In Zambia and Mozambique, most people living in the rural areas do not have access to vital information on HIV and AIDS. The following sections outline a project which aims to bring connectivity to selected communities in the rural areas, as well as build capacity at these communities for the production of information on HIV and AIDS in local languages. In terms of skills and expertise, this project requires expertise in HIV and AIDS management as well as expert skills in ICT.

The proposed project aims to establish community access points (CAPs) being small to medium sized tele-centres (a combinations of office centres and internet cafes). In addition, the CAPs should accommodate specific expertise on HIV and related areas (home and health care, treatment, empowerment). This can be accomplished through training for the CAP staff and by housing a modest library/resource centre. The design principles for the CAP will be as follows:

- Driven by local needs and user organisations;
- Effective use of local, national and regional developed contents;
- Using state of the art technology for low cost access and easy maintenance;
- Enlarging the tele-centre concept by multi points of access (through a peripheral network supported by the CAP);
- Demonstrating financial and managerial sustainability;
- Easy replicable for communities in rural areas interested in starting similar initiatives;
- Documented results, in particular locally produced content on HIV and AIDS for knowledge sharing.

The proposed CAPs should preferably be owned and operated by the local community. The CAP should basically meet the local demands for knowledge, communication and information. It is therefore important that the local users have a stake in the CAP and the peripheral network it will support. It will require the involvement of local government and local opinion leaders, being of high importance to shape the search for and production of useful content and to track the evolving needs over time. Local ongoing developments should be tapped in the operations of the CAP. To stimulate the optimal use by the community, the CAPs should offer a broad spectrum of on- and off line information services (including non HIV and AIDS related areas such as agriculture and education) plus photo-copying services, office automation facilities and access to email services and the Internet.

The CAPs should be set up in such a way that they will become an ICT services provider for other important entities within the local community (such as the local radio station, health clinic, schools and churches), providing a platform for local content production and dissemination of information and providing support for ICT based area specific applications (such as distance health consultation between health clinics and referral hospitals).

Belonging to the most vulnerable groups, the young people and adolescents are an important target group to be addressed on HIV and AIDS issues. This age group also holds a vital position because of the higher ability to adapt and in becoming role models and change agents within family groups and within the age group itself. For this reason is it recommended that the CAPs should (preferably) be set up within or at the compound of secondary (high) schools in the selected areas. Involvement of the student community should be stimulated for instance by giving them a role in the operations and maintenance of the facilities put in place and in the management of internet cafes in the time slots dedicated to this age group. It will also provide the student community direct access to and participation in initiatives such as the global teenager village.

Women and girls also represent a specific target group for the CAPs. Women, in particular married women are increasingly vulnerable to HIV infection. In a community, it is also women who shoulder the burden of care for people living with HIV/AIDS. Therefore, it is recommended that through partnership with women's groups and organisations (such as the WIDNET programme in Zambia or Genderlinks in South Africa), capacity building initiatives specifically targeting women are included in the operational plan. Time slots should be provided for these sessions to encourage women's participation in information and communication. In addition, a gender equity policy should be developed for each CAP site. It is proposed to select the locations for the first CAPs using the following criteria:

- Rural area that should be relatively highly populated;
- The location should be easily accessible by road;
- The location should be in the neighbourhood of a local radio station, health clinic and school (all within 1–5 km radius);
- Indication of strong commitment of the local community for supporting and using CAP services;
- The selected location should be connected to the electricity network.

A list of potential locations of CAPs can be found in annex B (Zambia) and annex C (Mozambique) using the availability of a local radio station as precondition.

The business model of the CAPs should be aiming at financial and technical self-sustainable situation on the longer term (3–4 years). Income generation in the start up phase (short and midterm: year 1–3) can be secured by a contract between the funding agency/regional PMU (described in the following chapter) and the CAP for delivering various services specified in a service delivery agreement between the CAP and the regional Project Management Group, PMU (output driven approach). These services can vary from: training of local content producers such as the local radio 'journalists', production and (radio) broadcasting of content on HIV and AIDS, health clinic service promotion, treatment, home and health care in the local language, provision e-mail/internet connectivity to community based and public organisations (such as the health clinics), hardware and software maintenance services, computer skills development programs and other.

The minimal staff requirement for the CAP in the smallest configuration is estimated to be 4 staff members. Training requirements are as follows:

- CAP: ICT service provision:
 - Training basic computer skills (operating system, office automation, e-mail, internet), all CAP staff members;
 - Local Area Networking, wireless communications, 2 CAP staff members;
 - System administration principles, 2 CAP staff members;

- Hardware maintenance, 2 staff members;
- CAP: HIV/AIDS knowledge navigation services:
 - HIV/AIDS awareness training, all CAP staff members
 - HIV/AIDS home care and treatment principles, all CAP staff members;
 - HIV/AIDS content development training, all CAP staff members;
 - Media (radio programming, campaigning) training, all CAP staff members;
- CAP: management and administration:
 - Basics business administration, 2 CAP staff members.

For developing the CAPs a two-phased approach is proposed: Phase 1 is dedicated to setting up of a limited number of CAPs followed by an evaluation after a three year period. During this initial phase, operations of the CAP will be secured by a contract between the funding agency and the CAP partnership. In parallel, the partnership should be supported to design a business plan based on the actual appreciation of services gained during the first phase of implementation. Dependent on the findings of the evaluation, additional CAPs can be set up, CAP services can be refined or new services can be included and best practices of business models can be implemented in a second phase.

3. Improving Health Service Delivery through Use of ICT

In the stakeholder meetings held in Zambia, Botswana and Mozambique high priority was given to the setting up of ICT solutions supportive to health delivery in rural areas (Zambia, Mozambique) as well as the urban areas (Botswana). The focus of the proposed intervention should not be restricted to HIV and AIDS, but should consider health service delivery in general. The following interventions are proposed:

• *Intervention 1:* Provide health clinics, referral hospitals and radio stations in the rural areas in Zambia and Mozambique with the capacity to connect to the CAPs with a minimal ICT infrastructure (when not available) and related basic training;

- *Intervention 2:* Design, develop and implement an ICT based application for tele-health consultation in Botswana;
- *Intervention 3:* Carry out problem identification and feasibility study for an ICT based logistic information system as part of a rehabilitated system for the distribution of drugs in Botswana. Depending on the outputs (in case of being desired and feasible), provide support for implementation;
- *Intervention 4:* Stimulate and support research on and the development of 'expert' systems for health clinics (all three countries).

In the following sections, the proposed interventions are described in more detail.

Intervention 1: Provide health clinics, referral hospitals and radio stations in the rural areas in Zambia and Mozambique connected to the CAPs with a minimal ICT infrastructure (when not available) and related basic training.

Through the proposed CAP projects, a limited number of health clinics and local radio stations in the neighbourhood of the CAPs will be provided with access to e-mail services. With these services in place, a first step can be made in developing working relations between the health clinic and the referral hospitals through e-mails communications, eventually followed in a later stage by the deployment of more advanced applications such as distance health consultation. To make use of e-mail access, the health clinics (and likely also the referral hospitals to which the health clinics are connected) need to be equipped with a minimal ICT configuration consisting of a PC, a voltage stabilizer, a printer, a (robust) digital camera and licenses for system and application software. Being less vulnerable to power supply breaks, a lap top computer is recommended. In addition, the staff users of the health care units need to be trained on basic computer use.

The health clinics and the referral hospitals are very much dependent on the radio stations for the promotion of their services. Lack of awareness in the rural areas about their existence, where to find them and what to expect from these health care units are some of the problems the sector is facing. For this reason it is proposed also to equip the radio stations connected to the CAPs with a basic ICT configuration consisting of a lap top computer, a printer, a power stabilizer and software licenses and to train the end users on basic computer use. As condition for receiving support, the radio station should actively promote the services of the respective health care units.

Intervention 2: Design, develop and implement an ICT based application for tele-health consultation.

If ICT based applications for distance health consultation prove to be effective, considerable benefits can be expected. As examples are mentioned:

- Quality of services delivered by the health clinics will improve and likely result in increased trust in and appreciation of the clinics by the people living in the rural area;
- Cost and time savings for patients, while the number of cases in which the need exists to travel to a hospital to see a doctor will go down;
- Better control by the referral hospitals over the inflow of patients coming from the rural areas;
- Increased motivation of the staff workers at the clinics and hospitals to cooperate. The application for distance health consultation will allow them to communicate at any time and at any place, shielding them from interruptions such as emergency calls.

Based on the Tsilitwa (South Africa) case, the basic requirements of the software application program for distance health consultation are as follows:

- Having an end user interface similar to an e-mail interface (while most end users will already be familiar with the e-mail concept);
- Multi modality: the application should allow that distance health consultations are conducted synchronously if both parties, power and network connections are all available at the same time. If not, the application should allow a store and forward approach. In that approach, data can be captured at any time and can be forwarded as soon as a connection becomes available;
- The application should support storage and transmission of text, voice and images;

- The application should accommodate record database organised per patient. Each record can contain text about the patient, voice mail and images of the patient;
- Privacy protection through password controlled access.

In addition, it is recommended to develop the software application program as open software program allowing free distribution of the program and its source code to other interested health organisations in the future.

For developing/obtaining the required application software, an iterative participative approach is recommended. In such approach end users are actively involved in the development of the system. Through their contributions and involvement, end users will be able to see how the system is going to benefit them already during the development cycle, making it more likely that the system is going to be used.

After selecting one or two cases (combinations of health clinics and referral hospitals interested in setting up an ICT based system for distance health consultations), a situation analysis should be carried out followed by problem identification, delivering the requirements for a first prototype. Through a cycling process driven by the feedback of the involved end users (from the clinics and the hospitals), the prototype can evolve to a mature system matching the demands of the end users. Because of the limited complexity of the system in terms of functionalities and technical details and the challenge of the iterative participative approach as learning experience, it is recommended to assign the task for developing the application to a student team coached by an ICT expert. Depending on the findings of the problem identification stage, the use of the pilot system developed in Tsilitwa as first prototype should be considered.

Intervention 3: Carry out a feasibility study for an ICT based logistic information system as part of a rehabilitated system for the distribution of drugs.

As in most countries the majority of people living with HIV are dependent on the public sector. Although needing special attention, no specific plan to roll out antiretroviral (AVR) therapy can be found in the national policy on HIV/AIDS. So far the capacities put in place for ARV therapy do not match desired levels resulting in a situation that only a portion of the people who should be on treatment are in fact receiving it.

In many countries, the present system in place for the distribution of drugs (especially ARV and drugs for HIV/AIDS related diseases) requires rehabilitation. Inefficient logistics and procurement strategies were mentioned as underlying causes. A study of the immediate short comings (and the underlying causes) of the present system is needed to identify how ICT can contribute to the desired rehabilitation. The study should focus on:

- Identification of all involved stakeholders, their role and interest in the process of procurement, storage and supply of drugs;
- Identification of policy directives and regulations in place (if any) for making drugs (especially ARV and drugs for HIV/AIDS related diseases) available through the private and the public sector;
- Description of the logistics chains and control mechanisms in the private and public sector for the distribution of drugs.

The Ministry of Health is responsible for health policies. In the national policies on HIV/AIDS, the ministries have been assigned the role of lead ministry in HIV/AIDS prevention and care. As such it is proposed to set up a joint study team consisting of two senior staff members from the ministry and two external consultants. The proposed approach should consist of a participative approach securing the active involvement of all stakeholder groups from the public and private sector fulfilling a role in the acquisition, storage and distribution of drugs. A variation on this activity would be to work with SADC (Southern Africa Development Community) to conduct a feasibility study on the introduction of an ICT-based system to monitor the production and distribution of ARVs in the region.

Intervention 4: Stimulate and support research on and the development of 'expert' systems for health clinics.

The use of 'medical expert' systems by (for instance) general practitioners has become a common practice in various countries. These expert systems, often consisting of a PC connected to the Internet running a specific application program, are instrumental in making a diagnosis and defining a treatment plan for individual patients in case of most common diseases. In some countries, the required treatment protocols are formulated and recommended by the association of general practitioners (for instance in the Netherlands) or by other medical societies.

All three countries lack sufficient numbers of professional, adequately trained health workers in the rural areas. Although expert systems must not be considered to be an alternative for training, the systems could be instrumental in lowering the workload of medical staff and in securing quality of delivered health care services by individual health workers.

If similar systems are used in one or more of the three countries covered by the study, is not known but also not likely. Lack of local content (protocols for diseases most common in Southern Africa) may be one reason for this, as well as is absence of data communication services in most rural areas. Because of the good experience with PC based expert systems in general and its promising character for application in more isolated areas, it is worthwhile to investigate:

- What efforts will be needed for obtaining the required contextualized content;
- What organisational capacities need to be mobilized (or put in place) for managing and maintaining the contextualized content;
- What is the needed infrastructure (in terms of ICT components), and
- What training (and training capacities) needs to be put in place.

For finding the answers to the aforementioned question, the following approach is suggested:

- Identify the organisation (e.g. association, union or other) representing the health care professionals working in the rural areas in Botswana;
- Identify organisations which may be interested in developing a protocol database with relevant content;
- Define a detailed plan for content development;
- Design and implement a first prototype of an expert system based on practices in Europe in consultation with the content developers through a student project coached by an ICT professional;

• Further develop the expert system to a system for operational use through a student project with coaching by an ICT professional.

Management framework

Overall project management framework

The proposed interventions require significant resource mobilisation. It is therefore recommended that a project management unit (PMU) be established. This group may consist of a local/regional organisation with an academic institution and/or funding partner. The tasks of the group would be to:

- Initiate approved interventions;
- Identify client/counterpart organisations;
- Participate in major decision making (such as: location of the CAPs)
- Contract implementation capacity (training, consultancy and coaching, project management);
- Bi-annual monitoring of ongoing projects;
- Evaluation of interventions (midterm and after completion);
- Secure optimal coordination with other ongoing initiatives through communication with the regional Sida communication officer;
- Reporting to appropriate co-operating partners;
- Implement adequate mechanism for information dissemination between the individual projects, implementing agencies and other relevant organisations (such as HIV/AIDS service organisations, NGO's and Faith Based organisations);
- Organise the workshops for vision building and training as proposed by the respective intervention making use of external workshop facilitators and trainers.

It is recommended that the PMU is established by contracting project management capacity from an existing regional HIV and AIDS service organisation.

Project management individual interventions

In Table 3 the project management capacities required for the individual interventions are depicted schematically

Table 3. Project management components				
Intervention	Project management by:	External capa- city needed for:	External capa- city contracted from:	Selection through
Community access points (Mozambique, Zambia)	Selected communities	 Coaching HIV/AIDS awareness building Training on content development 	Local NGOs (HIV/AIDS service organisations)	Tender: PMU will publish RfPs
		 training on radio campaigning 	Local media	Tender: PMU will publish RfPs
		 End user training ICT Training operations and maintenance CAP ICT components 	Local ICT service providers	Tender: PMU will publish RfPs
Intervention 1: ICT resources for CAP clients (Botswana)	Selected clients	 Installation of ICT components End user training 	Local ICT service providers (preferably the CAB)	Tender: PMU will publish RfPs
Intervention 2: Distance health consultation (Botswana)	Selected combinations pf health clinics and referral hospitals	 Development of distance health applica- tion through prototyping 	Coached by ICT expert	Identification by PMU
Intervention 3: Study logistic IS (Botswana)	Ministry of Health	- System analysis and system reengineering	Consultant	Identification by PMU

MANAGEMENT FRAMEWORK

Intervention 4: Expert system for health clinics	Association of health care professionals (?)	- Project management	Local NGO Medical specialist	Tender: PMU will publish RfPs
(Botswana)		- System development through prototyping	Coached by ICT expert	ldentification by PMU
Vision building and training (Botswana)	Ministry of Health	Workshop facilitation, Experts inputs	Consultant	ldentification by PMU

ICT is an important tool for mitigation HIV/AIDS. Without the use of ICT it would be difficult, if not impossible to address the epidemic in the region. In other words, without the application of ICT it will be difficult, if not impossible to bring vital information on HIV/AIDS to all levels of society. However, ICT are not a 'silver bullet' in the fight against HIV and AIDS, they must be combined with relevant programmes and policies to support HIV prevention, care and treatment.

Mitigating HIV and AIDS will require a multi-sectoral approach of concerted actions. The need exists to strengthen vision building, planning, coordination, monitoring and evaluation among stakeholder organisations in the countries studied. ICT can contribute to building the necessary platforms for communication and information exchange required. Planned and ongoing projects on HIV/AIDS are coordinated by national HIV/AIDS policies and plans (specifying the role of the actors involved), sector policies (e.g. health care, education and telecommunications) and priorities of funding agencies and NGOs. The identification and embedding of feasible and effective applications of ICT in these policies is requiring further attention for which technical assistance is needed.

The number of known best practices on how ICT can mitigate HIV/AIDS is limited. The need exists to develop and document pilots with the aim to gain lessons learned on how ICT can mitigate HIV/AIDS. Successful pilots should provide the foundation for structural solutions in a later stage, adopted by and embedded in the respective national policies of the society.

A paired combination of a top down approach (starting from vision building on national level) and a bottom up approach (starting from grass root level) of interventions for mitigating HIV/AIDS is strategic. The first approach will secure embedding in the national policies and plans in place but will require significant time before the impact can be felt. The already catastrophic dimensions of the epidemic indicate an urgent need to start interventions on grass root level, even with the risk of failure. It is essential that technological solutions are responsive to local needs and priorities and consistent with the available environment, infrastructure and capacity.

Key Recommendations

From the study, the key recommendations are as follows:

- There is an overall need to raise awareness, education and advocacy among African civil society and government on the value of ICT for strengthening the regional and national response to HIV and AIDS;
- Recognising the limited documentation and research on ICT and HIV/AIDS initiatives, it is recommended that the establishment of a network of CAP be established as a pilot programme;
- Using operational research and documentation, the project would aim to produce more evidence on how ICT can be integrated to strengthen HIV and AIDS programmes;
- All ICT interventions need to take into consideration the gendered nature of HIV and AIDS, and the barriers to ICT faced by women and girls;
- Interventions that strengthened ICT resources in communities through schools, health clinics and community media should be prioritised within development strategies;
- Evidence is growing that ICT is a powerful tool, yet there is a clear need for more research. It is recommended that research is conducted in this specific area.

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Annex A

Report on the stakeholders meeting in Lusaka, Zambia and Maputo

Field Report from Zambia, Botswana and Mozambique

Purpose of Study

The overall purpose of the study was to explore the opportunities for using ICT in the long-term mitigation of the HIV and AIDS epidemic in southern Africa. The study aimed to make specific recommendations on how ICT could improve the effectiveness and efficiency of HIV and AIDS prevention, care and treatment programmes in the region.

Specific Objectives

The specific objectives of the overall study were:

- 1. To survey, collect and analyse current literature on the use of ICT for development in southern Africa.
- 2. To explore the current ICT infrastructure in southern Africa (physical infrastructure and human resources).
- 3. To identify current programmes incorporating ICT in HIV and AIDS programmes and their challenges.
- 4. To explore future opportunities to enhance the use of ICT in HIV and AIDS programmes in a step-wise manner.

Methodology

To achieve these objectives, several research methods were used. A desk study and literature review was conducted on the current research and programmes related to ICT and HIV/AIDS in southern Africa. Stakeholder meetings were held in three southern African countries (Botswana, Zambia and Mozambique). The countries were selected to represent the diversity within southern Africa. The discussions involved 15–20 representatives from local CBOs, FBOs, NGOs, academic institutions, government bodies as well as ICT institutions and aimed to explore the perceptions of key stake-holders involved in current HIV and AIDS prevention, care and treatment work. The stakeholder discussions were followed by field visits to various organisations within Botswana, Zambia and Mozambique to source additional information, conduct informal interviews and evaluate current ICT infrastructure. The same methods were used in all the workshops.

After introductions of the participants and facilitators, the goal and objectives of the study were presented. Participants were then asked to identify and discuss key problem areas related to HIV and AIDS in their respective countries. Through participatory activities and group work, participants were asked to discuss the utility of ICT in HIV and AIDS programmes and to make recommendations on how they could be used in order to improve the efficiency of HIV and AIDS prevention, care and treatment programmes. Finally, participants were asked to identify organisations that are currently using ICT effectively in their programmes as well as suggest what role their organisations could have in an ICT programme related to HIV and AIDS. The following sections present the findings from the stakeholders discussions held in Lusaka, Zambia, Gaborone, Botswana and Maputo, Mozambique.

Field Report: Zambia

The stakeholders' meeting in Zambia was held on February 11, 2005 in Lusaka. In total, 20 participants attended (See Participants lists at end of report).

HIV/AIDS Problems Areas Identified

The first step in the participatory framework used in this focus group discussion was to identify the key problems related to HIV and AIDS. From their experience, participants were asked to identify the key problems specifically related to HIV and AIDS in Zambia. A number of problems were identified, however it was possible to cluster them into key problems. The problems identified are highlighted in Figure 3.



Discussion

As a large group, participants discussed the problem of access to HIV and AIDS information in the rural areas. Zambia has an extensive network of community radio stations. Volunteers manage the stations, which have been established by the churches or the community itself. It was suggested that if ICT were connected to the community radio stations, this could enhance the dissemination of HIV/AIDS information. Therefore participants suggested that the volunteers or media practitioners working for the community radio stations would need training in content development and ICT use.



Several participants highlighted existing groups/programmes, such as radio listening clubs (PANOS) and Farm community groups who can take the information a 'step further'. One participant suggested that using the radio should, "Not just be about listening...there should be a two-way communication. Need to hear what they are saying what are their views." The programmes such as radio listening clubs enhance dialogue by gathering a group of people to listen to specific programmes on the radio and facilitate discussion and document of the group's response to the ideas presented.

Through the discussion, the group identified the above model as a potential programme (see Figure 4). The concept is to establish an ICT resource centre in conjunction with a community radio station and health clinic. Volunteers in the radio station and radio listening clubs would be trained in how to use ICT to enhance their HIV/AIDS information content development. The ICT services and training would also be available for health professionals working at the clinic. The services could also be linked to the school and church networks that exist.

Group Work

To discuss all the problem areas identified, participants were asked to divide into groups and identify key stakeholders, potential interventions, required information resources and required communication resources for each of the identified issues. Each group reported back to the larger group. Below are the suggestions presented and the key points made in discussion with all participants.

1) Information dissemination to rural areas

There is a need to provide accurate and timely HIV and AIDS information in the rural areas. ICT present an opportunity that may increase access and availability of HIV and AIDS information throughout the rural areas in Zambia.

Key Stakeholders

- Media
- NGOs, CBOs, FBOs, ISPs, Information Specialists
- Trainers, IEC specialists
- Government
- Local/Traditional leaders
- Church/religious groups
- Artists
- Health Workers/Counsellors
- Donors

Interventions

- Radio and Video (need generators)
- Capacity building for community radio stations

- Training of local theatre groups in the use of ICT
- Involving already established group structures and community leaders
- Documenting local community driven interventions using ICTs (i.e. cameras)
- Translating and providing information in local languages
- Using visual aids (i.e. posters, video displays, charts)
- Addressing cultural issues that negatively affect the dissemination of information

Required Information Resources

- Radio and TV programmes, Documentaries
- Local databases (Internet, video sessions, mobile video shows)
- Publications
- Workshops
- Drama Performances

Required Communication Resources

- Audio/Video tapes, CDs
- Posters, fliers
- Voice recorders, cameras
- Computers, modems, VSAT
- Telephones
- Mobile vans

Comment and Discussions

There are a number of organisations that are already involved in the dissemination of HIV/AIDS information, including Family Health Trust, International Video Fair, ZAMCOM, Ministry of Education, National AIDS Council, Ministry of Communication, Communication Authorities, Society for Family Health, Family Health International, World Vision, ZNBC, PANOS, CIC, ANPP CAN and CRAIDS. Their experience and participation should be considered. There is an urgent need to provide accurate and timely information to the people infected and affected by HIV and AIDS. This will enable people to make informed decisions on their sexual and reproductive health.

2) Stigma and Discrimination

Key Stakeholders

- People living with HIV (PLHIV)
- Families/Communities
- Community based organisations
- Governments
- Civil society
- Faith-based organisations
- Donors
- Private Sector Workplace programmes

Interventions

- Films- events showing local and regional films
- Helplines (e.g. Champ)
- Anonymous Internet Portal
- IEC materials in local language
- Mobile Sound Tracks
- Use of Community Radio Stations

Required Information Resources

- Films
- Internet
- Workshops
- Discussion forums
- Information, Education and Communication
- Radio/TV
- Informal/ Peer-to-peer discussion
- Toolkit to reduce stigma
- Database

Required Communication Resources

- · Availability of infrastructure-computer, translators, receivers, radio
- Power (electricity)
- Trained human resources- role models and toolkits for training

Comment and Discussions

In general, participants agreed that the suggested interventions are feasible, however it was noted that there is a need to ensure that whatever is put in place enhances discussion (creating 2-way dialogue). For example, the films should not just be shown as standalone event, but should be combined with a facilitated discussion or distribution of other relevant materials. It was thought that the Internet portal would be ideal, but it would be difficult and not necessarily realistic, as it will still only reach a certain portion of the population. Participants emphasised that all suggested interventions should be self-sustaining.

Finances may be received from donors for scaling up, training and new materials, but there is a need to plan for how the services can be supported once donor funding is finished. One suggestion was to consider private sector advertising. However, there is a need to further consider how these interventions may be sustainable.

3) Advocacy/Transparency

Key Stakeholders

- Donors
- Gatekeepers (ZNAN/CRAIDS)
- Applicants

Interventions

A public forum for electronic standardised documents (i.e. applications, budget, criteria and reporting requirements).

Required Information Resources

- Forms
- Process
- Criteria
- Public Reports

Required Communication Resources

- Internet
- Email

Comments and Discussion

It was emphasised that there is a need to consider the infrastructure requirements and what additional skills training would be needed for this intervention. Participants had little to say about this intervention. Overall the feeling was that it would be helpful and is feasible.

4) Advocacy/Lack of Funds

Key Stakeholders

- Donors
- Applicants
- ISPs

Interventions

- NGO websites
- A regional clearinghouse for funding opportunities around HIV/AIDS
- Information exchange

Required Information Resources

- Public websites
- Bulletins
- Newsletters

Required Communication Resources

- Internet
- Email

Comments and Discussion

Through capacity building, NGO could learn to develop their own organisational websites. With a website, an organisation can enhances its legitimacy with donors as well as offer an opportunity to information exchange. For the clearinghouse of funding opportunities, there would need to be 'buyin' from the donors. Overall there is a need to consider who would take on the challenge of maintaining and supporting the initiative. Participants felt that the concept of a clearinghouse of HIV and AIDS materials and funding opportunities is needed. It is feasible, however the question of sustainability was raised. There would be need for a commitment for ongoing maintenance and support of the clearing-house.

5) Access to Treatment

Health clinics are isolated and there is a need to promote their services.

Key Stakeholders

- · Health professionals in clinics and hospitals
- Communities and Individuals
- Government
- NGOs
- Donors

Interventions

- Provide ICT connectivity between clinics and hospitals
- Provide offline applications

Required Information and Communication Resources

- Electricity
- Data/telephone communication link
- Equipment
- Training for staff using the facilities
- Backup services and technical support

Defining Priorities

Each participant was given 10 points and asked to rank the interventions presented according to the importance they would place on the intervention and the problem it is addressing. The results are as follows in Table 4.

The first priority for participants attending the focus group discussion was Access to Treatment, followed by Access to information and stigma and discrimination. The interventions related to Advocacy/Transparency and Lack of Funds was considered important but not necessarily the immediate priority. However, one participant indicated that the two, Advo-

Table 4. Defining Priorities	
Problem Area	Score
Access to Information	Total
4,3,3.5,3,3,3,2,2,2,2,3,2,2,2	36.5
Advocacy/Transparency	Total
0,1,1,1,1,2,1,0.5,2,2,1,1,1,1,1	15.5
Advocacy/Lack of Funds	Total
1,1,2,1.5,1,2.5,1,2,1,3,1,2,1,1,2	18
Access to Treatment	Total
4,5,3,4,4,2,4,6,4,2,2,2,5,3	52
Stigma and Discrimination	Total
1,1,2,2,3,3.5,3,1,3,1,2,1,2,1,2	28.5

cacy/Transparency and Advocacy/Lack of Funds are very closely related and if they had been considered as one, the weighting may have placed them higher in priority. It was also noted that Access to treatment also depends on adequate access to information in rural areas and a reduction in stigma and discrimination. However, for Zambia, the current priority is to strengthen access to treatment and ensure that people have adequate knowledge about the availability of the treatment, know how to use ARV drugs and how to provide support and care for people living with HIV and AIDS.

Defining Key Components and Potential Involvement

With each of the areas, participants were asked to determine the building blocks or essential components required for the specific interventions. In addition, they highlighted the areas where their organisations would be interested in playing a role. It is important to note that there were several organisations not present at the focus group discussion that may also need to be consulted and involved in any intervention to be established in Zambia. For example, the National AIDS council was not present however as the co-ordinating body of the National HIV/AIDS policy, it would be essential that they play a key role in any HIV and ICT intervention. Partic-

ipants were asked to indicate other organisations that they felt should be consulted. These organisations are presented in the following four tables.

Table 5. Access to Treatment		
Vision Building	Afya Mzuri, YAZ	
Policy Development	ZARD, NZP+, ANPPCAN	
Media content development	ZARD, TALC, YAZ, ZAMCOM, ANPPCAN, Africa Directions	
Training content development	Afya Mzuri, TALC, YAZ, ZAMCOM	
Protocol development	Afya Mzuri	
ICT training end users	NZP+, OneWorld Africa, Family Health Trust, Afya Mzuri, TALC, Kara, ZAMCOM	
Training ICT support staff	OneWorld Africa, Family Health Trust, TALC, ZAMCOM, ANPPCAN	
Management training	TALC	
ICT infrastructure (HW & SW solutions)	Family Health Trust, TALC	
ICT service development	Family Health Trust, TALC, ZBCA	
ICT resource management capacity	NZP+, OneWorld Africa, Family Health Trust, TALC, YAZ	
Project Management	ZAMCOM, SAFAIDS	
M&E	Afya Mzuri, ZARD, TALC, YAZ, Kara	
• VSO can supply human resources and professionals to local and national partners for specific partners		

Table 6. Access to Information	
Vision Building	Afya Mzuri, YAZ, OneWorld Africa, Family Health Trust, TALC, NZP+
Policy Development	Afya Mzuri, YAZ, ANPPCAN, TALC, NZP+, ZARD
Media content development	Afya Mzuri, YAZ, OneWorld Africa, ANPPCAN, ZAMCOM, Family Health Trust, TALC, NZP+, Africa Directions
Training content development	Afya Mzuri, YAZ, OneWorld Africa, ANPPCAN, ZAMCOM, ZBCA, TALC, ZARD
Protocol development	TALC
ICT training end users	Afya Mzuri, OneWorld Africa, ZAMCOM, Family Health Trust, TALC, ZARD
Training ICT support staff	Afya Mzuri, OneWorld Africa, ZAMCOM, Family Health Trust, TALC
Management training	Afya Mzuri, TALC, NZP+
ICT infrastructure (HW & SW solutions)	Family Health Trust, TALC, ZARD
ICT service development	TALC, ZARD
ICT resource management capacity	Afya Mzuri, TALC, NZP+
Project Management	ZAMCOM, SAFAIDS
M&E	Afya Mzuri, YAZ, Kara, Family Health Trust, TALC, NZP+, ZARD
VSO can supply human resources and professore specific partners	essionals to local and national partners for

Other Organisations who should be involved: ZAMTEL, COPPERNET, ZAMNET, Zambia Information Services, Zambian National Broadcasting

Table 7. Stigma and Discrimination	
Vision Building	NZP+, YAZ
Policy Development	NZP+, ZBCA, ZARD, TALC, YAZ, ANPPCAN
M&E	ZARD, TALC, YAZ, Family Health Trust, Kara
Media content development	NZP+, TALC, Afya Mzuri, Family Health Trust, ZAMCOM, Africa Directions
Training content development	NZP+, TALC, Afya Mzuri, YAZ, ZAMCOM, Kara
Protocol development	
ICT training end users	TALC, Afya Mzuri, ZAMCOM, OneWorld Africa, ANPPCAN
Training ICT support staff	TALC, ZAMCOM, OneWorld Africa
Management training	TALC, Family Health Trust
ICT infrastructure (HW & SW solutions)	TALC, Family Health Trust
ICT service development	
ICT resource management capacity	
Project Management	

• VSO can supply human resources and professionals to local and national partners for specific partners

Other Organisations who should be involved: ZAMTEL, COPPERNET, ZAMNET, Ministry of Education, Churches, Media Professionals and Media Institutions, Health institutions

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Table 8. Advocacy/Transparency/Lack of Funding	
Vision Building	Afya Mzuri, TALC, NZP+, Africa Directions, YAZ
Policy Development	Afya Mzuri, TALC, NZP+, Africa Directions, YAZ, ANPPCAN
M&E	Afya Mzuri, TALC, NZP+, Africa Directions, YAZ, ZARD, Family Health Trust, ANPPCAN
Web content development	Kara, TALC, Africa Directions, ZARD, ZAMCOM, OneWorld Africa
Training content development	TALC, Africa Directions, YAZ, ZAMCOM
Protocol development	
ICT training end users	Afya Mzuri, TALC, NZP+, Family Health Trust, ZAMCOM, OneWorld Africa, ANPPCAN, ZBCA
Training ICT support staff	
Management training	TALC, NZP+, Family Health Trust
ICT infrastructure (HW & SW solutions)	TALC, Family Health Trust
ICT service development	TALC, NZP+, Africa Directions, ZARD
ICT resource management capacity	Afya Mzuri
Project Management	
• VSO can supply human resources and pro	fessionals to local and national partners for

• VSO can supply human resources and professionals to local and national partners for specific partners

Other Organisations who should be involved: ZAMTEL, COPPERNET, ZAMNET
Evaluation of Focus Group Discussion

In their written evaluations, participants highlighted that they had enjoyed the participatory nature and level of discussions. Participants reported that they appreciated the wide spectrum of expertise represented at the meeting and the diversity of the opinions. Some expressed that the roundtable was a unique and critically important opportunity for organisations in Zambia to meet and discuss how they are using ICT in their HIV and AIDS work. Clearly from the results of the discussion, some work is ongoing, but many organisations have not shared this work with others, nor explored how they might work together to fill gaps or address the challenges they face. Participants felt that the discussions were too broad in scope. There was perhaps a need for more preparation prior to the roundtable. Although an email invitation was circulated, explaining the purpose of the study, some participants did not receive it in time. Others have misunderstood the discussion to be a specific ICT training session.

Many participants felt that although it was well-organised, the time for discussions was too short. Some participants recommended that the discussions should have taken place over two days, where the second day could have covered more specific technical issues. Some participants expressed disappointment that, although invited, no representatives from the National AIDS Council, Central Board of Health or Zambian Network of AIDS Service Organisations (ZNAN) were present. One participant suggested that Internet Service Providers should also have been present.

Through their written evaluations, participants provide valuable suggestions of organisations that should be contacted and included in any ICT and HIV/AIDS programme. They emphasised the need to build on existing programmes as opposed to creating a new one. For example, the Zambian Association for Research and Development (ZARD) is launching an ICT programme, which will focus on information and knowledge sharing among women. WIDNET (Women's Information for Development Network) involved nine partner organisations and government ministries and will be launched in the second quarter of 2005. Other examples of on-going initiatives were identified.

2. Field Report: Botswana

Introduction

In Botswana, twelve participants from a variety of organisations attended the focus group discussion. Initially, all participants were asked to introduce themselves, their organisations and to describe their interest in ICT (See list of participants at the end of this report). The majority of the focus group participants had had experience with ICT. Several of the organisations that they were representing had begun to implement programmes using ICT to address HIV and AIDS. For example, a youth organisation, YOHO, has opened an Internet café, which offers free ICT training to youth. In addition, SAPSSI, an organisation focused on enhancing psycho-social support for children and young people currently manages an ICT knowledge centre, which provides materials, publications and Internet access to children researching information.

Results

HIV/AIDS Problems Areas Identified

The first step in the participatory framework used in this focus group discussion was to identify the key problems related to HIV and AIDS. From their experience, participants were asked to identify the key problems specifically related to HIV and AIDS in Botswana. A number of problems were identified, however it was possible to cluster them into key problems. The problems identified are highlighted in Figure 5 on the following page.

Group Work

To discuss all the problem areas identified, participants were asked to divide into groups and identify key stakeholders, potential interventions, required information resources and required communication resources for each of the identified issues. Each group reported back to the larger group. Below are the suggestions presented and the key points made in discussion with all participants.



1. Lack of Access to Information

In Botswana, there is a lack of access to information in the rural areas. This is particularly true of statistical information. Although some information is communicated through the mainstream media, there is not enough available information on HIV and AIDS.

Interventions Proposed

- More channels of communication and information dissemination in the rural areas (need more mobile vans and TV in community halls)
- Society guidance to educate others- families and relatives need to be educated about HIV and AIDS
- Improve and process specialists in monitoring and evaluation
- Develop capacity of individuals to use ICT

Information resources

- ICT materials
- BCC materials
- Forums
- Family Meetings
- Communication resources
- Mobile vans
- TV in community halls
- Videos
- Posters
- Radio
- Computers and Internet

In the discussion, it was noted that people in the rural areas should not wait for information to come from somewhere else, but they should utilise what they already know to communicate about HIV and AIDS through their family discussions, radio and health centres.

2. Stigma and Discrimination

Stigma and discrimination was identified as a key problem area in Botswana. The stigma is both real and perceived. There is a strong denial related to HIV and AIDS in the communities.

Interventions Proposed

- Improved and continuous information
- Counselling services for individuals (using telephones)
- Develop support groups and peer counselling

- Reinforcement of basic facts on HIV and AIDS
- Provide additional exposure through theatre
- Need laws and policies to be put in place

Stakeholders

- Governments
- Civil Society
- International Partners
- Behaviour Change Specialists
- Media
- Information Resource
- HIV/AIDS workshop and forum
- ICT materials

Communication Resources

- Video,
- Audio Cassettes
- Radio
- Mobile Vans
- Cell Phones
- Internet
- Television

It was noted that information on HIV and AIDS is available, although not everyone has access to it. The problem does not rest entirely with the lack of information, but on how to reinforce information so as to change behaviour. There is a need to develop and reinforce programmes as well as use role models to convey messages.

3. Psycho-social Support for Children and Young people

It is an ongoing process of meeting children's needs holistically (5-key elements).

Intervention Proposed: An intervention that considers the physical, emotional, spiritual, mental and social aspects.

Stakeholders Involved: Community, NGOs, Government, UNICEF, Human Rights.

Information Resources: Children's fine arts, videoconferences, children programmes on TV and radio, children's publications, and theatre expos.

Communication Resources: Youth camps, seminars, clubs and mobile leaders.

Comments: Children need to be provided with psychosocial support to reduce their vulnerability to HIV and AIDS.

4. Lack of Medical Resources

This was identified as a problem because of the long distances to clinics and the limited access to clinics as well as limited availability of doctors and medications. In addition, it was noted that the position of the health clinics was isolated. There was an identified need to ensure that the clinics have access to statistics, protocols, drug procurement systems and referral systems. The hospitals need to have access to epidemiological statistics, inventory of equipment and system for procuring drugs and equipment.

Intervention Proposed: An intervention should be developed to ensure that there are more doctors, clinics, and that organisations have improved access to health care.

Provide connectivity (off-line) including developing a solutions for:

- Constant power supply
- Data and telecom links
- Equipment
- Training for staff
- Back-up services and technical support

Stakeholders Involved: Community, Ministry of Health, NGOs, Government, Ministry of Local Governments.

Information Resources: Public info boards, Video Conferencing, pamphlets, website, permanent slots on media for update and other information.

Communication Resources: Media, TV, Radio, Intranet, Audio-visuals.

Comments: More information about availability of resources is needed. Connectivity is a must as is the need to ensure equitable distribution of drugs and treatment protocols. If clinics could have access to ICT they would be able to provide more information on other illnesses as well as access information

from other doctors. There is a need to train nurses and doctors on the rollout of treatment care for ARVs through e-learning and e-consultations.

5. Behaviour Change

Intervention Proposed: A programme to emphasise individual behaviour change using the ABC model (Abstinence, Being Faithful and Using Condoms). The programmes should focus on life skills, change health beliefs as well as self-care (nutrition, hygiene, safer sex).

Stakeholders Involved: Media, leadership (leader and politicians), Social instructors (family, school, peer educators, faith-based organisations, NGOs, and unions).

Information and Communication Resources needed: Radio, TV, newspapers, Road shows, theatre groups, Video, ICT content, Community ICT centres and resource centres, Mobile libraries.

HIV/AIDS in the Workplace

The HIV and AIDS epidemic has a significant effect on the employees and managers of workplaces. Due to the impact of the epidemic, there has been a decrease in productivity, and increase in absenteeism due to illness or death. However, participants expressed that although efforts were being made to address this, there were challenges with regard to obtaining comprehensive commitment at the management level, developing and implementing workplace policies. The working group suggested an intervention (see Figure 6) that highlights educational programmes in the development of workplace policies, in-home awareness and management services to secure professional skills.

The Intervention would target companies and government level employees. It would consist of:

- Management training on mainstreaming HIV and AIDS;
- Training on the development of workplace policies (including guidelines and company rules);
- Develop content and materials related to counselling and testing;
- In-service sessions.



A website could be developed containing all the above information. The working group suggested that it might be the role of NACA to maintain the website. For the intervention to be successful on the national level there would need to be political commitment, monitoring and evaluation strategies and awareness raising through the media. In addition, it was noted that the use of local languages should be considered. The stakeholders to be involved were:

- Management of the companies and public organisations
- Company staff
- Politicians
- Public/Society at large

The Information Resources to be used include:

- Reference Materials: Examples of workplace policies and programmes on mainstreaming HIV and AIDS, documentation on testing programmes for workplaces, documentation of workplace experiences;
- Use of ICT for information development and dissemination. ICT could include video, audio and radio.

7. Politics and Policies

Intervention Proposed: Inculcate a culture of responsibility and responsive leadership in the fight against HIV and AIDS through advocacy.

- Secure Professional Skills
- Educational programmes
- Workplace Policies
- In-home Awareness

Stakeholders Involved: Political leaders and traditional leaders, Civil Society, Health Practitioners, NGOs, Judicial practitioners, Human rights organisations, government, gender activists, media and religious leaders.

Information Resources: Workshop, experts, campaign materials and equipment, ICT skills, IEC and Information resource centres.

Communication Resources: TV, Radio, Print, Visual and telecommunications.

Comments: Leaders should be concerned with issues of public interest not personal position seeking.

8. Drugs and Substance Abuse and Treatment

Intervention Proposed: Society should fully understand the impact and affects of drug and substance abuse through information and dissemination strategies. There is a need to review, enforce and evaluate effectiveness of drug policies.

Stakeholders Involved: Health practitioners, media suppliers and producers of drugs and substances, political leaders, religious leaders, activists and law officers.

Information Resources: Health information campaigns on all types of drugs and substances use- Information resource centres-Info Education materials.

Communication materials: Expert presentations and researches.

Communication Resources: TV, Radio, Print, Visual and telecommunications.

Comments: Responsible use of drugs and substances from an early age as a cultural practice.

Table 9. Defining Priorities	
Problem Area	Score
Stigma and Discrimination	Total
0,1,2,1,1,0,1,1,5,2,3	17
Lack of access to information	Total
0,3,0,0,2,0,1,2,0,0,3	11
HIV/AIDS in the Workplace	Total
4,0,0,1,0,0,1,2,1,1,0	10
Behaviour Change	Total
2,2,4,3,1,0,3,1,5,5,5	31
Lack of Medical Resources	Total
3,2,0,2,5,3,2,0,2,2,5	26
Psycho-social Support for Children	Total
0,1,1,1,7,0,1,0,0,1	13
Politics and Policies	Total
3,1,0,1,0,0,0,1,0,0,0,	6
Drugs, Substance Abuse and Treatment	Total
0,0,0,2,2,0,0,1,0,0,0	5

Evaluation

Many of the participants emphasised that they had enjoyed the discussions related to ICTs. They expressed their interest in being involved in various activities of the programme, including vision building, training and ICT development. It was felt that the meeting was timely and represented an important opportunity for improving HIV and AIDS programmes. Participants highlighted that the discussions needed more time and that a one-day meeting was not long enough to fully explore all the options.

3. Field Report: Mozambique

Background

Mozambique is a coastal country in southern Africa, bordered by Zimbabwe, South Africa, Swaziland, and Malawi. Its population is estimated at 18.4 million people. As a former Portuguese colony, it is one of two southern African countries whose official language is Portuguese. However due to its recent history of civil war, Mozambique is one of the poorest countries in the world, which a gross national income per capita of 210.

Access to information is a key challenge in the development of Mozambique. This is related to a lack of infrastructure, where there exist significant areas of the country that does not have access to electricity. Only 5 people in 1000 have access to a television, while fewer (3.5 people in 1000) are estimated to have access to a personal computer. Radio is by far the most popular form of communication where there exist 44 people out of a 1000 who have access to a radio. Language and literacy barriers exacerbate the situation, as only 46.5 percent of the population are literate. Mozambique has also been severely affected by the HIV and AIDS epidemic. Currently UNAIDS (2004) estimates that 12 percent of the population or 1.2 million people (age 15–49 years of age) are living with HIV and AIDS. The HIV and AIDS epidemic has directly impacted on Mozambique's capacity to address other developmental issues.

Introduction

On May 27th, 2005, a focus group discussion was held to explore the use of ICT and HIV/AIDS. Twelve participants from diverse organisations working in the field of HIV and AIDS attended the focus group discussion. Initially, all participants were asked to introduce themselves, their organisations and to describe their interest in ICT. The majority of the focus group participants were working specifically in the field of HIV and AIDS. However several of the organisations had a wider developmental (ActionAid) or media and communication focus (NSJ). Only NSJ mentioned that they had specifically worked in the field of ICT by providing ICT training to journalists and editors in Mozambique. The introductions and discussions were held in Portuguese, although many of the participants were able to speak English. Translations were provided in Portuguese and English.

Results

HIV and AIDS Problem Areas Identified

The first step in the participatory framework used in this focus group discussion was to identify the key problems related to HIV and AIDS. From their experience, participants were asked to identify the key problems specifically related to HIV and AIDS in Mozambique. A number of problems were identified, however it was possible to cluster them into key problems. The factors influencing HIV/AIDS are highlighted in Table 10 on the following page. From the issues identified in this table, the participants categorised the issues into the six broad themes listed below:

- 1) Access to quality, relevant HIV and AIDS information
- 2) How to address special populations
- 3) Monitoring and evaluation
- 4) Co-ordination of HIV and AIDS programmes
- 5) Improving the capacity of health systems
- 6) Enhancing HIV and AIDS Advocacy

Group Work

To discuss all the problem areas identified, participants divided into groups. The issues were discussed and potential ICT solutions were developed. Below are the suggestions presented and the key points made in discussion with all participants.

Group 1

This group addressed the issues of improving access to quality, relevant HIV and AIDS information, improving the capacity of the health system and enhancing HIV/AIDS advocacy. The interventions suggested were as follows:

- 1) Improve the capacity of NGOs and ASOs to use ICT
- Provide ICT equipment (such as computers, software and programmes for clinical diagnosis and database development) to health clinics
- Improve the internet systems of NGO networks and health clinics for local use

Table 10 . Factors influencing HIV and AIDS		
 History of HIV/AIDS stigma and discrimination relation to sex denial based on stigma 	Legal/policy issues - to protect PLWHAs - but little disclosure - to avoid transmission (and purposeful transmission)	
Cultural issues – Polygamy – Wife inheritance – Traditional healers	Bureaucracy – red tape – everything political – time and resources – delays to approved programs – emergency Vs delays – All paperwork no action	
Economic Issues – Cycle of poverty	Capacity in NGOs – Duplication of activities – No planning	
 Information Gap Means of dissemination Access (newspapers) No money for equipment No radio (signal) (lack of) quality and relevance content in Portuguese low coverage TV signal frightening messages 	 Misinformation Poor information about HIVAIDS as a global issue (believe: AIDS is a disease of the black people) Examples of HIV/AIDS cases from other countries (lacking) Reduce misconceptions about HIV/AIDS in Africa Racism (black and whites: HIV/AIDS is meant to eliminate blacks) Lack of clarification Not enough info in Portuguese Access to accurate info is essential 	
 Health system No more that 5 counselling centres No skills/not qualified Laboratories (CD4) (viral load tests) Treatment is there but no food Distance in Health system Reference systems 	Need more information from international conferences	

Need for greater co-ordination	Representation of PLWHAs Political will Need of mainstreaming of HIV/AIDS Religious leadership needed PLWHAs most become involved Disclosure (role models)
Need treatment literacy and community preparedness – No follow up system – More connection	 Best practices (no awareness/info of) groups doing good work need to share and exchange info need to document
Concentration of NGOs and ASOs in cities – Not in rural areas	Monitoring & evaluation – funds available but little result – no M&E at all – no accountability
Orphans/vulnerable children – Impact and burden on women – Burn out of care givers – Livelihood support	Weak education (whole) system – not efficient – adult education
Resistance – Need behaviour change	Women – Need access to info – Need to negotiate sex – Gender roles
Commercial sex work – No care or education – Safer sex – Trafficking Active/Passive – Older women / younger boys	Sexual abuse – To girls – Families – economic and traditional barriers

- 4) Provide alternative energy sources (battery, solar. biogas, wind or hydro-electric energy)
- 5) Use billboards (including moving billboards) to convey HIV/AIDS messages in schools
- 6) Develop capacity of local communities to produce road shows and street theatre programmes
- 7) Establish telecentres with video, computers, digital cameras and publications on HIV and AIDS
- 8) Expand the communication networks (mobile phone networks and wireless Internet systems)
- 9) Enhance necessary national infrastructure
- 10) Enhance communication of HIV and AIDS materials through the radio, Internet, brochures and posters
- 11) Advocate for more information to be produced in local languages

Group 2

This group explored the issues of how to address special populations (such as women, girls and OVCs) as well as the issues of monitoring and evaluation and co-ordination among HIV and AIDS programmes. The interventions suggested were as follows:

- Involve special groups in the development and dissemination of HIV/AIDS messages
- 2) Capacity building of communities and religious leaders in the dissemination of messages
- 3) Strengthen information and communication resources such as community radio, TV, videos and mobile cinemas
- Improve co-ordination between implementing agents and donors to improve implementation strategy
- 5) Create awareness among NGOs with regard to the importance of ICT
- Re-define criteria for the selection of NGOs implementing HIV and AIDS programmes (include ICT in the national HIV and AIDS plan)
- 7) Improve co-ordination system among NGOs and ASOs
- 8) Establish an information and database information system

- 9) Strengthen the monitoring and evaluation system
- 10) Conduct training of trainers in monitoring and evaluation
- 11) Training implementing agents on issues of monitoring and evaluation
- 12) Strengthen system for auditing HIV and AIDS programmes
- Define indicators and standardise monitoring and evaluation systems

Prioritisation of Activities

Following the group presentations, each participant was asked to evaluate which areas were considered a priority. To do this, each participant was given 10 dollars and asked to distribute the money between the activities according to their priority. The numbers represent the number of dollars assigned collectively by participants. Below are the results of the prioritisation exercise:

Concept or Ideas Prioritisation

Participants spread out the priorities to many of the activities. One participant suggested that this is due to the fact that they felt that these activities should be implemented in an integrated manner. However it is important to note the emphasis placed on the need to strengthen the monitoring and evaluation system by using ICT and the need to strengthen the capacity of NGOs and ASOs to use and ICT. Equally, participants emphasised the need to strengthen information and communication of HIV and AIDS information. On many occasions in the discussion, it was noted that there is not enough HIV/AIDS information in Portuguese, which is also relevant to the diversity of communities within Mozambique.

Evaluation

Participants of the workshop were asked to fill out a brief evaluation form, which asked them what they liked about the discussions, what they disliked and what they found to be interesting. In this session, the majority of participants suggested that they liked the discussions and the opportunity to explore the use of ICT. Several mentioned that they enjoyed the participatory nature and high level of participation of the discussions. Many of

Table 11. Concept or Ideas Prioritisation	
Concept or Ideas	Prioritisation
1. Improve the capacity of NGOs and ASOs to use ICT	12
2. Provide ICT equipment (such as computers, software and programmes for clinical diagnosis and database development) to health clinics	7
3. Improve the internet systems of NGO networks and health clinics for local use	0
 Provide alternative energy sources (battery, solar. Biogas, wind or hydro-electric energy) 	0
 Use billboards (including moving billboards) to convey HIV/AIDS messages in schools 	0
 Develop capacity of local communities to produce road shows and street theatre programmes 	0
 Establish tele-centres which video, computers, digital cameras and publications on HIV/AIDS 	5
 Expand the communication networks (mobile phone networks and wireless Internet systems) 	4
9. Enhance necessary national infrastructure	0
10. Enhance communication of HIV and AIDS materials through the radio, internet, brochures and posters	9
11. Advocate for more information to be produced in local languages	6
12. Capacity building of communities and religious leaders in the dissemination of messages	8
 Involve special groups in the development and dissemination of HIV/AIDS messages. 	3
14. Strengthen information and communication resources such as community radio, TV, videos and mobile cinemas	12
15. Improve co-ordination between implementing agents and donors to improve implementation strategy	7
16. Create awareness among NGOs with regard to the importance of ICTs	2
17. Re-define criteria for the selection of NGOs implementing HIV/AIDS programmes (include ICT in the national HIV/AIDS plan)	0
18. Improve co-ordination system among NGOs and ASOs	1

18. Improve co-ordination system among NGOs and ASOs	1
19. Establish an information and database information system	1
20. Strengthen the monitoring and evaluation system	10
21. Conduct training of trainers in monitoring and evaluation	0
22. Training implementing agents on issues of monitoring and evaluation	8
23. Strengthen system for auditing HIV and AIDS programmes	1
24. Define indicators and standardise monitoring and evaluation system	3

the participants suggested that the time was too short. It was noted that many participants enjoyed having the opportunity to discuss their programmes as well as the challenges and possible solutions for addressing HIV and AIDS in Mozambique.

Conclusions

This document highlights the results of the stakeholder meetings held in Zambia, Botswana and Mozambique. The recommendations presented to Sida were based on these results.

Participants List

Participants from Zambia

James Zulu	Zambian Red Cross
Phanuel Mandebvu	SAFAIDS
Nkhoma Muyembe	Zambian Business
Gay Nyakwade	OneWorld Africa
Beatrice Hamusonde	Zambia Association for Research and Development
Kelvin Kings Mulembe	African Network for the Prevention and Protection against Child abuse and Neglect
Stewart Sutherland	VSO
Bright Phiri	Sida
Raphael Phiri	Family Health Trust
Alison Cooke Matutu	Afya Mzuri
Lucy Mvula	Afya Mzuri
Felix Mwanza	NZP+
David Whittaker	Africa Directions/TALC
Shambulo	Kara Counselling
Vincent Banda	Youth Alive Zambia
Daniel Nkalamo	ZAMCOM
Mwiika Malindima	ZAMZOM
Millica Mwela	ZARD

Participants from Botswana

Pascal K. Radsebe	Journalists Against HIV/AIDS in Botswana
Joyce Tamocha	Ministry of Communications,
	Science and Technology
Courtney Marakalala	SAPSSI
Kelebogile Motlaleng	ACHAP
MHD Maphanyane	MISA
Werani Chirambo	BONELA
Kilford Zimondi	Human people to people (TCM)
Patricia Kawondera	JICA
Emily Otlhogile	Broadcasting Services
Kealeboga J. Selabe	Youth Health Organisation
Faith Oteng	Youth Health Organisation
Reginah Mpotokwane	Broadcasting Services

Participants from Mozambique

Benjamin Kerchan	Volunteer Services Overseas-Mozambique
Gaspar Sitefane	MONASO- Rede Mocambique
	de organisations contre SIDA
Joanita Nassuna	Volunteer Services Overseas-Mozambique
Cesar Mufanequico	MATRAMMovimento de acesso Ao Tratamento/Kindlimuka
Heuriques Nhanala	RENSIDANetwork of NGOs of PLWHAs
Figueiredo Lhongo	HIV/SIDAActionAid International- Mozambique
Joao Jussar	Embassy of Sweden/Sida

Octavio Mabunda	Rede Crista Contra HIV/SIDA
Edna Reis	Mueide-Associacao Mulherlei
	e desenvolviment
Leontina Virginia Scarmento	CIDA-PSU Ave Armando
Malache des Muchangas	

Annex B

Radio stations in Zambia and Mozambique

Radio stations in Zambia	
Designation	Location
Radio Icengelo	Kitwe
Radio Maria	Chipata
Radio Chikune	Monze
Mazabuka Community Radio	Mazabuka
Radio Lyambai	Mongu
Radio Chikaya	Lundazi
Radio Mano	Kasama
Mphangwe Community Radio	Katete
Breeze fm	Chipata
Radio Liseli	Mongu
Petauke Explores	Petauke
Petauke Small and Medium Entreprenurs (PASME) Community Radio Station	Petauke



Community radio stations and television stations in Mozambique		
Designation	Location	
Rádio Comunitária Moamba	Moamba	
Rádio Comunitária Mocuba	Mocuba	
Rádio Comunitária Zona Verde	Maputo	
Rádio Comunitária Manhiça	Manhiça	
Rádio Comunitária Ulôngue	Tete	
Rádio Comunitária Mutarara	Tete	
Rádio Comunitária Xai-Xai	Gaza	
Rádio Televisão Rural Vilanculos	Vilankulos	
Rádio Televisão Rural de Chiúre	Chiúre	
Rádio Televisão Rural de Namialo	Namialo	
Rádio Televisão Rural de Mandimba	Mandimba	
Rádio Televisão Rural de Marromeu	Marromeu	
Rádio Rural de Alto Molocué	Alto Molocué	
Televisão Rural de Chimoio	Chimoio	
Televisão Rural de Ulôngue	Angonia	
Rádio Comunitária de Sussundenga	Manica	
Rádio Comunitária de Morrumbala	Zambézia	
Rádio Comunitária de Bawa	Tete	
Nova Rádio Paz	Quelimane	
Rádio S.Francisco Assis	Pemba	
Rádio Búzi	Sofala	
Rádio Comunitária de Homoine	Inhambane	
Rádio Comunitária de Cuamba -RCC	Niassa	
Rádio Comunitária GESOM	Chimoio	
Rádio Comunitária Escuta	Matola	
Rádio Comunitária do Lago	Niassa	
Rádio Comunitária Thumbine- Milange	Zambézia	
Rádio Comunitária Mbumba	Sofala	
Rádio Comunitária Voz da Cooperativa	Maputo	



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Annex C

List of Required Equipment for Proposed Intervention

Community Access Point

- Investments in hardware, software, technical facilities, other
- Furniture: desks, tables, cabinets, bookshelves
- Combined copier, fax, printer
- Training ads (black board, other)
- Physical security devices (armoured doors, windows, safe, other)
- CAP LAN (router/switch, PC cards, cabling for 10 network outlets)
- CAP workstations (Including 1 server)
- Power supply unit (solar power)
- VSAT
- Software license (system & application software)
- Books & materials CAP library
- Peripheral data communication network (to Health Clinic, Radio stations, Schools)

ICT resources CAP clients

- Digital camera
- Printer
- Laptop
- Voltage stabilizer
- Software licenses

ICT resources CAP clients

- Laptops
- License Software development environment

Expert IS for Health Clinics

- Laptops
- License Software development environment

About the authors



Sara Page is the Deputy Director of the Southern Africa HIV and AIDS Information Dissemination Serice (SAfAIDS). With a Masters in Health Education/Health Promotion, she has over 8 years experience in the field of HIV/AIDS knowledge management and communication in Africa. As a writer and researcher, she has explored a wide range of issues related to HIV and AIDS, including workplace policies, treatment literacy, and food security.

Sara Page has develop a keen interest in the use of ICTs for promoting discourse, information dissemination, communication for HIV prevention, care, treatment and support. Since 2000, she has been part of the moderation team for an Africa-wide discussion forum on HIV and AIDS (AF-AIDS) and has supported a number of community-based organisations to introduce ICTs in their HIV/AIDS work.



Bert Geers is a Program Manager and Project Coordinator at the Center for Management Support for International Cooperaration (CICAT), Delft University of Technology, the Netherlands. He is heading a team of international consultants associated with the Delft University providing technical assistance to peer institutes in Asia, Africa and Latin American with focus on the deployment of ICT for education and research.

Bert Geers has over 20 years of experience of working in developing countries. He is a member and advisor of ICT4DEV platform of the Dutch Ministry of Development Cooperation (DGIS) and a consultant for the Swedish Program for ICT in Developing Regions (SPIDER).