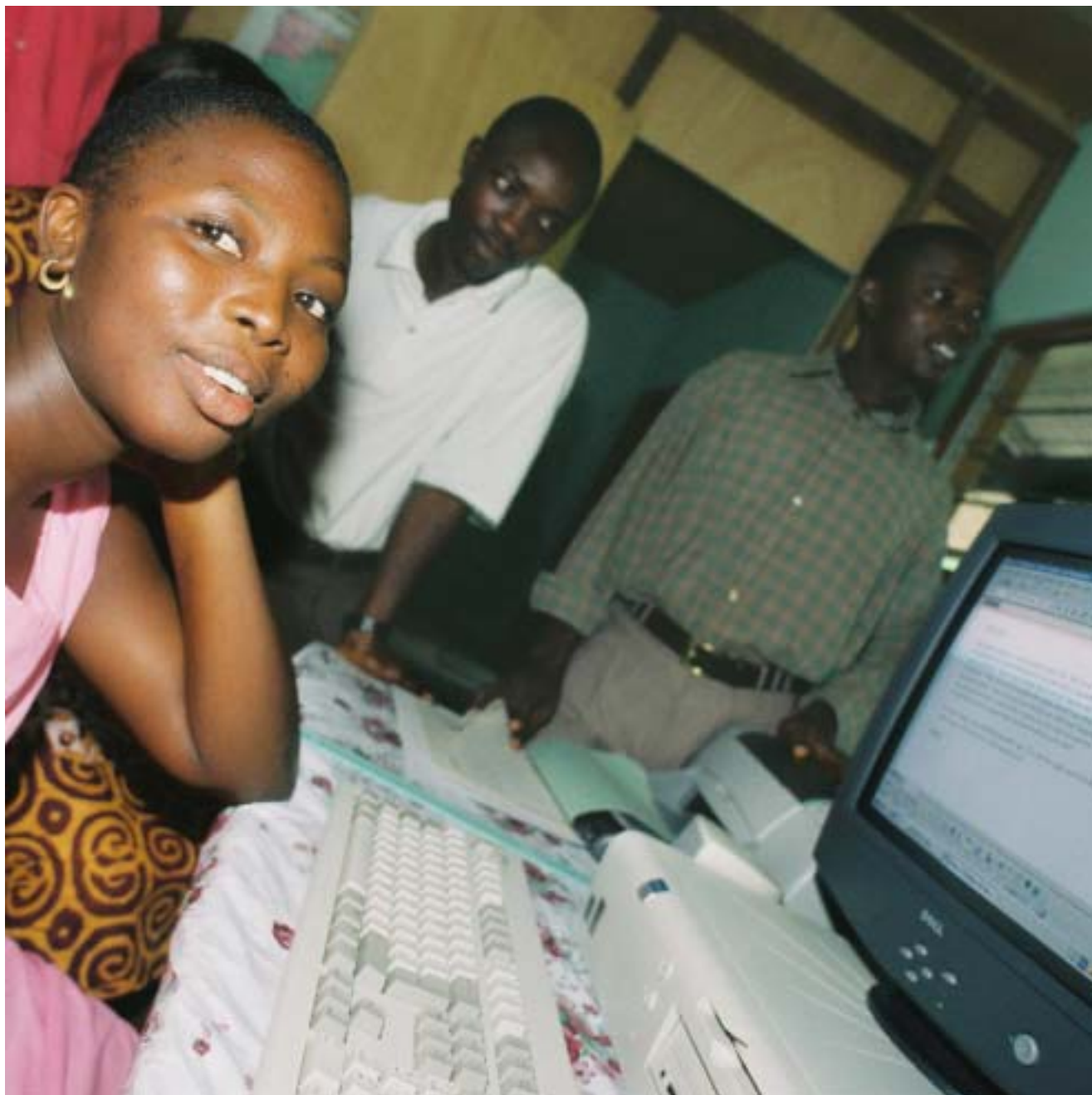


Digital Empowerment

– Guidelines to the DESO Strategy
for ICT for Development (ICT4D)



Digital Empowerment

**Conceptual and Practical Guidelines DESO
Strategy for ICT for Development (ICT4D)**

For further information www.sida.se/deso

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Introduction

1.1 Background and Objective

This report is the result of DESO's ICT4D strategy development work that has been carried out since the autumn of 2002. The strategy work commenced with a mapping exercise, carried out through meetings and interviews with DESO staff at Sida Stockholm, to determine the staff's competence in the field of ICT for Development.¹ The exercise revealed that although DESO staff are interested in working more with ICT4D, they lack the knowledge to do so. During a DESO workshop on ICT4D organized in Stockholm on 13 February 2003, the staff reiterated their need to acquire more knowledge of ICT4D.

Based on these findings, it was decided that the ICT4D strategy should be complemented by a conceptual framework combined with practical advice, to assist DESO staff in working with ICT4D. This report is aimed at providing the staff with such a tool. Representing a complement to DESO's ICT4D strategy,² this report outlines some of the main issues of relevance to DESO's ICT4D efforts. An overview of the role of ICT in a development context is combined with concrete examples of how ICT can be used to achieve DESO's objectives. In addition, a practical checklist is provided to assist staff in determining the relevance and viability of ICT4D activities, following DESO's approach to ICT4D as outlined in the department's strategy.

This report also contains concrete examples of ICT use in Tanzania. In order to anchor DESO's ICT4D strategy in the realities of a developing country, a study tour was undertaken to Tanzania in the autumn of 2002.³ During a 10-day visit to the country, meetings and interviews were held with Sida/DESO staff at the Embassy of Sweden as well as staff from projects supported by Sida. These encounters were complemented by interviews with people involved in the formulation of a national ICT policy, including government representatives and members of the country's eThinkTank. The study tour was primarily carried out in Dar es Salaam, combined with visits to Bagamoyo and Stone Town in Zanzibar.

¹ See *Kartläggning av ITB på DESO*, by Paula Uimonen, I-Connect S.A., 23 September 2002.

² *Digital Empowerment. Information and Communication Technology for Democratic Governance and Social Development*. DESO Strategy for ICT for Development (ICT4D), October 2003.

³ See *DESO-ICT4D Strategy. Report on Study Tour to Tanzania 22-31 October 2002*, by Paula Uimonen, I-Connect S.A., 5 November 2002.

The information gathered during this study tour has been incorporated in this report.

It should be noted from the outset that in this report, ICT is viewed as a tool for development. When using the term ICT, it is understood that it is information and communication rather than technology that is in focus. In this regard, technology represents but a means with which to improve and facilitate information and communication processes. Throughout the report, the proposed use of ICT is informed by the development objectives that guide the work of DESO, within the framework of Sida's poverty reduction efforts. This social focus on ICT4D follows the guidelines and objectives outlined in DESO's ICT4D strategy.

1.2 What is ICT?

Information and communication technologies (ICTs) refer to a cluster of technologies that are used for information and communication processes. Although commonly used to denote the Internet, ICT encompasses a broad range of digital technologies,⁴ including computing, networking, and telephony. In general, ICT facilitates the production, management, storage and distribution of information, and provides efficient, cost effective and interactive means of communicating, irrespective of distance. Technological convergence is making ICTs ever more applicable. For instance, sound, images and data can now be transmitted over global networks, offering unprecedented means of managing and distributing information.

Technological improvements, combined with declining costs, have contributed to the rapid, albeit uneven, deployment of ICTs around the world. For instance, having grown at an exponential rate,⁵ the Internet is currently available to over 600 million users around the world, i.e. about 10% of the world population (see table below).⁶ Nonetheless, Internet access continues to be unevenly distributed. The poorest continent of the world, Africa, is the least connected, and almost half of all Internet users in Africa are in South Africa.⁷ Even so, over the last few years there has been a higher growth of Internet users in developing countries than in developed ones, indicating a latent demand for Internet services.

⁴ Digital technology is based on the binary code of computing, which essentially means the combination of 1s and 0s in innumerable ways. Digital technology is used in a wide range of products and applications, ranging from audiovisual CDs and DVDs to Automatic Teller Machines (ATMs).

⁵ While it took radio 37 years, and television 15 years to reach an audience of 50 million, the Internet achieved this in just over 3 years.

⁶ 605.60 million users, estimate as of September 2002, http://www.nua.com/surveys/how_many_online/index.html.

⁷ Out of the estimated 605.60 million Internet users around the world, only 6.31 million are in Africa (and 3.07 million of these are in South Africa).

Table 1: Internet growth around the world (based on millions of users)

	November 2000	August 2001	September 2002
World total	407.1	513.41	605.60
Africa	3.11	4.15	6.31
Asia/pacific	104.88	143.99	187.24
Europe	113.14	154.63	190.91
Middle East	2.40	4.65	5.12
USA and Canada	167.12	180.68	182.67
Latin America	16.45	25.33	33.35

The popularity of ICT is instructive of its wide applicability. By enhancing our cognitive and communicative practices, ICT is applicable to most aspects of human existence. And the growth in ICT illustrates that users are adapting new technologies in unforeseen ways. For instance, while it was initially developed to allow researchers to share costly computer resources, the Internet is now used for a broad range of activities, ranging from professional collaboration to social interaction. Similarly, the explosive growth in mobile telephony suggests that people are not only interested in but also willing to pay for instant communication.

The wide applicability of ICTs is particularly useful in a development context. In many developing countries, ICT offers an unprecedented means with which to overcome limited informational resources and inadequate communication structures. Although the introduction and expansion of ICT can be costly and cumbersome, not least in terms of technical, human and financial resource requirements, there are numerous benefits to be drawn. Similarly, while ICT presents new risks, ranging from computer viruses to disinformation, it is important to find ways of addressing such issues. If anything, the successful use of ICT requires the development of not only technological competence but also a better understanding of the social and cultural implications of ICT.

The growing demand in developing countries is an indicator of the usefulness of ICT. While people in developed countries may complain about the stress induced by information overload, people in developing countries tend to be very enthusiastic about the ability to access informational resources on a global scale and to communicate with people around the world. If measured in demand for ICT, there is something to be said for the complacency of the information rich and the hunger of the information poor.

1.3 An Introduction to ICT for Development (ICT4D)

Over the last few years there has been a growing awareness of the need to promote and facilitate ICT for Development (ICT4D). As ICT becomes more important for economic and social development, it becomes imperative to ensure that developing countries do not fall behind in global developments. At the international level, the UN ICT Task Force was established in March 2001 to provide a global agenda for the strate-

gic use of ICT for development, the need for which was highlighted in the United Nations Millennium Declaration.⁸

The upcoming World Summit on the Information Society (WSIS) illustrates international commitment to the creation of an inclusive global information society.⁹ Organized in two phases, Geneva in December 2003 and Tunis in November 2005, this high level summit is strongly oriented to the needs and requirements of developing countries. The summit draws on the broad participation of relevant stakeholders, including representatives of governments the private sector and civil society, through regional and international consultations.

This high-level political recognition reflects, and encourages, a growing number of activities undertaken by a variety of stakeholders to harness the potential of ICT for development. Since the mid-1990s, there have been a growing number of ICT4D activities, ranging from international efforts to local initiatives. Over the last few years, Sweden has also played a more active role in such efforts, as exemplified by the work of Sida's ICT for Development secretariat.

With time, ICT4D efforts have become more development oriented. The term itself, ICT for Development, is relatively new, dating back only a few years. In the past, many ICT efforts were focused on access, following a somewhat technocratic approach. Increasingly, ICT is viewed as a tool for development, following a qualitative rather than quantitative approach. Consequentially, rather than focusing on spreading access to ICT, a growing number of actors are focusing on ways in which ICT can be used to reduce poverty and to achieve development objectives.¹⁰ DESO's ICT4D strategy builds upon and contributes to these conceptual developments.

1.4 ICT and Global Development

In terms of global development, ICT has a tremendous impact on developing countries. By facilitating a higher degree of global interconnectedness and interdependence, ICT is accelerating the process of globalization. Although we are used to thinking of this process in economic terms, i.e. the global economy, the changes go much deeper in society. Globalization represents a fundamental shift in social organization. The spread of ICT is contributing to the emergence of a networked world order, an interconnected global society in which the organizational principle of networks is having a profound impact on societies.¹¹

The networked world order represents a change in social organization that can be problematic for developing countries. The balancing act between decentralized, dynamic, boundary crossing networks and centralized, static and territorially bounded state structures is not an easy one. To some states, transnational networks represent a threat to national sovereignty and identity, to others it represents an opportunity to actively

⁸ <http://www.unicttaskforce.org>

⁹ <http://www.itu.int/wsisis>

¹⁰ See for instance *Information Communication Technologies, Poverty and Empowerment*, DFID, July 2001; *Information and Communication Technologies (ICTs) for Poverty Reduction?* SDC, March 2003.

¹¹ Scholars refer to this process in terms of the rise of the network society (Manuel Castells, *The Information Age. Economy, Society and Culture*, Vol. I: *The Rise of the Network Society*, 1996) or the networked society (Paula Uimonen, *Transnational.Dynamics@Development.Net. Internet, Modernization and Globalization*, 2001).

participate in the global arena. Regardless of position, countries have no choice but to accept that globalization is the order of the day. The challenge is to ensure that globalization becomes a positive force for developing countries.

In today's interconnected world, modernization efforts are increasingly tied to a country's ability to make strategic use of ICTs to develop competitive advantages. These advantages are not only significant for economic growth but also for social development in general. By harnessing the potential of ICT, developing countries can play a more active role in global and regional activities and exchanges. More importantly, ICT represents a powerful tool with which to combat poverty, promote social equality and strengthen democratic governance, thus enabling developing countries to achieve a higher degree of modernization.

Nonetheless, existing discrepancies between rich and poor countries is clearly reflected in the uneven distribution of ICTs. There is, for instance, a close correlation between overall levels of development and Internet access. These digital discrepancies, commonly referred to as the digital divide, are an expression of uneven patterns of development, the root causes of which have little to do with ICT. Nonetheless, when measured in terms of ICT, existing asymmetries between and within societies become even more aggravated.

Of particular concern is the fact that the poorest countries of the world tend to have the lowest levels of ICT penetration. Not only do these countries have a poor infrastructure, in terms of basic requirements such as telecommunication networks and electricity, but they generally lack the human and financial resources to improve the situation. Moreover, awareness of the importance and usefulness of ICT tends to be low, especially among policy and decision makers. In some cases, there is also a political resistance to ICT.

A great deal of effort is clearly required to turn digital discrepancies into digital opportunities. Bridging the digital divide is imperative for the creation of a truly inclusive global information society. But the challenge of creating digital opportunities is perhaps even greater. In order to ensure the active participation of developing countries in the networked world order it is important to recognize and act upon the dynamic role of ICT in contemporary processes of social transformation. More specifically, it is imperative to identify strategic priority areas where the integration of ICT can have an optimal and long-term effect on social development.

2 Vision and Objective of DESO's ICT4D Strategy

2.1 Guiding Vision: ICT as a Tool for Democracy, Human Rights and Social Development

The vision guiding DESO's ICT4D efforts is:

- DESO supports the strategic use of ICT as a tool for democracy, human rights and social development.
- Following a rights-based approach to development, ICT activities shall be aimed at poverty reduction in general, and the promotion of social equity, gender equality, a higher quality of life, and cultural diversity in particular.

2.2 Objective: Needs-based Integration of ICT

The objective of DESO's ICT4D efforts is:

- a) needs-based integration of ICT in all relevant projects and programs
- b) promotion of and support to relevant ICT4D efforts in partner countries
- c) development of synergistic linkages and networks of collaboration

The integration of ICT should be based on a clear identification of needs and objectives, combined with a realistic assessment of the advantages to be gained from using ICT to achieve the desired goals. Regardless of technical application, the guiding principle and end goal should be the social value added through ICT. Similarly, ICT4D efforts in partner countries should address development needs in a strategic manner. In both instances, the integration of ICT should build on a holistic view of development, while addressing both short and long term social needs (see ICT4D Strategy for more information on guiding principles).

2.3 Existing ICT4D Activities: From ICT-Components to ICT-oriented Activities

To date, DESO's ICT4D-related activities consist mainly of ICT-components, combined with a few ICT-oriented activities (see table below).¹²

Existing ICT-components have generally evolved naturally, corresponding to the needs of development partners. These components tend

¹ Based on *Kartläggning av ITB på DESO*, by Paula Uimonen, I-Connect S.A., 23 September 2002, page 3.

to be based on some of the most common ICT-applications, such as the computerization of administrative routines, including databases; access to and distribution of information over web sites; use of e-mail and electronic mailing lists to communicate and network.

There are also some projects/programs that are based on ICT, i.e. the use of ICT forms a fundamental part of the activity. These ICT-oriented initiatives are quite recent and tend to be of a cutting edge nature.

Table II: Examples of Existing ICT-components/activities at DESO

Division	ICT-components	ICT-oriented activity
Democratic Governance	– Computerization as part of administrative support and institution building (databases on statistics, accounting systems etc.) – Support to international human rights organizations that use databases (on laws, legal cases etc.), Web sites and e-mail	– Digital mapping and data management for 2002 Census in Tanzania – ICT support (equipment and training) to organization and school for visually impaired in Vietnam (pilot project in preparation)
Health	– Computerization as part of health sector support (health data, administration etc.) – Support to organizations and networks that work with health issues and use databases, Web sites and e-mail	– World Health Chart Project, graphic program for the management and presentation of global health data, available on the Web – Q Web, database and Web site focusing on women's health
Culture and Media	– Support to regional and international organizations and networks that work with culture and use Web sites and e-mail – Support to regional and international organizations and networks that use Web sites and e-mail in their work with journalism and freedom of expression	– The Dramatool: Internet-based network for e-learning for pro-democracy theatre in East Africa (database, interactive Website, Intranet)
Education	– Computerization as part of Sector Programme Support (e.g. EMIS) – Support to organizations and networks that work with training and advanced education and use databases, Web sites and e-mail (e.g. IIEP)	– Participation of South African University in a global, Internet-based Master's programme for adult education
HIV/AIDS secretariat	– ICT as a tool for awareness raising, capacity development and information sharing – Use of ICT tools for networking within Sida	– On-line training course on HIV/AIDS (e-learning pilot project)

2.4 Technological Continuum for Future ICT4D Activities

In making a more concerted effort to integrate ICT in its activities, DESO should build upon this technological continuum, with efforts ranging from ICT-components to ICT-oriented activities.

In many cases, the introduction of ICT-components will have sufficient impact. For instance, the ability to use computers for information and data processing, the use of Web sites to interact and distribute information, and the use of e-mail and other Internet-based applications for communication and networking, will add value to a great number of initiatives and activities. Although these are relatively simple applications, they also form the core of ICT, their scalability and wide applicability making them highly useful tools.

ICT-components can also be expanded to include additional applications and to reach a wider group of users. For instance, static Web sites that contain a limited amount of information can be developed into more information-rich resources with more dynamic and interactive interfaces. Similarly, DESO can support initiatives aimed at increasing access among the target groups of various projects and programs, thus expanding the integration of ICT-components to related activities at different levels of society.

More sophisticated and technology-intensive activities can also add value, if and when ICT is used in a strategic manner. ICT-oriented activities can range from the development of computerized information management systems in public administration to electronic training methods and distance education over the Internet.

It should be noted that in cases where substantial resources are required for more sophisticated or advanced ICT-applications, it is important that these initiatives are pursued in a collaborative manner so that synergistic effects can be achieved within and between different sectors.

ICT-oriented activities can also be pursued as pilot projects to explore new methodologies and new areas of intervention. Given the low occurrence of ICT-oriented activities, DESO would benefit from pursuing more pilot projects with appropriate partners.

Regardless of the level of technological sophistication, it is often useful to explore hybrid solutions that can be used to reach different target groups. For instance, Internet access can be combined with radio and/or television broadcasts as well as print media to reach a broader audience. Such hybrid solutions are particularly useful in cases where access to ICT is limited but where the impact of ICT can be significant even though access may be indirect.

In terms of operating systems and software, it is worth staying open to alternatives. Over the last few years, an increasing number of actors have found open source to be a cost effective alternative to proprietary systems. Although open source raises a number of issues, ranging from capacity to compatibility, it is well worth exploring this alternative, if and when available.

In spreading access to local communities, it is worth exploring public access points, such as Internet cafés, roaming mobile telephone services and community IT centers. In addition to making optimal use of limited resources such access points can also be more financially sustainable.

Internet cafés have become a very popular way of accessing the Internet throughout the developing world. For instance, it is estimated that Dar es Salaam has a few hundred Internet cafés, of varying size and sophistication. Internet cafés are usually commercially driven and provide a business model that can be applied to other instances; e.g. schools, libraries and community centers can resell access to the wider community.

In many developing countries, the resale of mobile telephone services has become commonplace. Often it is women who undertake the activity, as exemplified by Grameen's telephone ladies in Bangladesh. In Tanzania, women have created a niche market for mobile telephone services, by selling telephone calls over mobile phones and with pre-paid cards. In many instances, these mobile versions of public phone booths represent a welcome introduction of telecommunications in areas where such services are limited or non-existent.

Community IT centers (telecenters) represent another means of providing public access to ICT. For a while, telecenters was something of a trend in ICT4D circles and experimental centers were constructed in various places, often using very advanced technology. Unfortunately, not all efforts have been successful. All too often, capacity and training needs

have been underestimated, sustainability ignored and community ownership overlooked. Nonetheless, if approached in a correct manner, IT centers can make a valuable contribution to communities. In this regard, it is worth evaluating past experiences when exploring future interventions.

3 Realizing DESO's Human Approach to ICT4D

3.1 Content and Capacity in Focus

In its ICT4D activities, DESO's emphasis should be placed on content and capacity rather than infrastructure. Infrastructure requirements, such as equipment and connectivity, will of course play a role in ICT4D-initiatives. After all, if the infrastructure is not in place, there can be no ICT4D activities.

Nonetheless, in DESO's efforts to integrate ICT, the focus should always lie on usage. In other words, the ability to use ICT in an efficient, effective and meaningful way should be prioritized over the sheer availability of ICT. This prioritization will ensure the use of ICT as a tool for development, thus avoiding technology-driven solutions where ICT is an end in itself.

In short, DESO's emphasis should lie on (see section 6.3 below for examples):

- Content development
- Information management
- Flow of information
- Information brokering
- Communication and interaction
- Networking
- Capacity development
- Awareness raising

This focus on information and communication differs somewhat from the priorities that have been suggested for Swedish development cooperation. For instance, Globkom has recommended that Swedish ICT-efforts focus on knowledge and technology transfer and more widespread access.¹³ Similarly, Sida's existing IT-strategy emphasizes the spread of connectivity. While access to ICT is a fundamental requirement for ICT4D, this focus on connectivity falls short of DESO's wider goals and objectives.

¹³ For example, a notion that many DESO staff have found to be questionable is the stated goal in Globkom that Sweden contributes to providing Internet access in every village in a select number of partner countries by the year 2005. See Globkom. 2002. *En rättvisare värld utan fattigdom. Betänkande av den parlamentariska kommittén om Sveriges politik för global utveckling*. SOU 2001:96, p. 246.

For DESO, the overriding goal and challenge is to integrate ICT as a tool for democracy and social development, from a rights-based perspective. In this regard, DESO should primarily focus on activities and processes surrounding ICTs, rather than technical issues. These activities range from training in information management to the development of culturally and socially relevant content. In other words, ICT should be seen as an enabler or facilitator; a means to an end rather than an end in itself.

Strategic collaboration, and an appropriate division of tasks and responsibilities, with other Sida departments will be required for the realization of DESO's approach (see section 3.4 below). Collaboration with the ICT for Development secretariat, which has overall responsibility for ICT4D at Sida, will be particularly important.

DESO will also work in close collaboration with national, regional and international partners. This collaboration can range from financial support to active cooperation, thus ensuring consistency throughout the effort. An effort should be made to achieve improved coordination among donors in ICT4D-related activities.

3.2 From Sector Wide Approach to Cross-Sector Collaboration

By enhancing and facilitating information and communication processes, ICTs are applicable to a broad range of development activities. ICTs are also by definition crosscutting: the need and ability to manage and exchange information cuts across sector boundaries. If anything, the wide applicability and crosscutting nature of ICT lends itself quite readily to synergistic collaboration among a variety of partners, within a holistic framework.

ICT can readily be integrated in the Sector Programme Support (SPS) approach that guides part of the work of DESO, especially the divisions on Education and Health.¹⁴ ICT can facilitate the planning, implementation, monitoring and evaluation of sector wide national plans and policies. A useful tool for institution building, ICT can contribute to the efficiency and transparency of state agencies and improve the provision of social services. ICT can also be used as a tool for capacity development. For instance, distance education offers cost-effective access to informational and training resources of a more advanced nature than is locally available. These resources can be used and modified at national, provincial and district levels. ICT can also be used to build locally relevant knowledge bases as well as educational training tools.

The holistic, long-term methodology of SPS is particularly suited to ICT4D efforts. Although ICT offers some immediate benefits, it is the long-term impact of ICT on development processes that adds the greatest value. For instance, the benefits to be derived from the computerization of administrative routines will take time to materialize. The compilation, standardization and analysis of relevant data are already time consuming activities, the training needs for which are augmented by the introduction of advanced technology. The process becomes even more complicated when cross-sector needs are taken into account and attempts

¹⁴ See Sida's Policy for Sector Programme Support, Sida, 2000.

are made to allow for the convergence and sharing of data. Nonetheless, by strengthening public administration, such efforts will be of great benefit to a variety of social sectors, especially from a holistic, long-term perspective.

When it comes to ICT4D, it is useful to broaden the approach even further to cross-sector cooperation. Although SPS improves coordination and enhances effectiveness, the approach is still limited to specific sectors. The crosscutting nature of ICT, not to mention the human, financial and technical resources required for a successful integration of ICT, require, just like SPS, an even more holistic approach, one that takes the needs of different sectors into account in a long-term perspective. In order to achieve optimal results from the integration of ICT it is important that such efforts build on cross-sector collaboration and coordination.

The sector-wide or cross-sector approach can be combined with pilot projects to explore new methodologies and/or areas of intervention. Given the rapid pace of technological change, it is useful to explore new technologies and applications, the impact of which is best tested through experience. Similarly, there are many venues for trying out existing technologies in different ways and with different target groups. Pilot projects can also be used to test the usefulness of hybrid solutions, by trying out different technological combinations.

3.3 Synergistic Linkages: Horizontal and Vertical Collaboration

Synergistic, cross-sector collaboration should be sought in all ICT4D activities. Collaborative efforts of integrating ICT will have a greater total effect than the sum of individual efforts. Identifying common needs, pooling together resources, and focusing on methods that can have a cross-fertilizing effect can achieve synergistic impacts in any given area of intervention. Collaboration across sector boundaries will also allow for a more cost-effective and efficient integration of ICT.

The table below provides an example of how the use of ICT in distance education can be of benefit to various sectors. By identifying suitable target groups, it is possible to make a wide use of the infrastructure and applications required. Similarly, the identification of data and information needs allows these applications to be used for a variety of purposes. The information can further be distributed to a wide range of stakeholders through different mechanisms.

The table also shows that cross-sector collaboration can be pursued at various societal levels, ranging from national to district levels. If anything, ICT facilitates the linking of national, provincial and local initiatives, allowing for greater collaboration, interaction and communication between individuals and institutions located in different parts of a country. Such linkages help break the isolation of rural and remote areas and could even discourage migration to urban areas, if combined with the development of economic opportunities.

Linkages can also be sought at global and regional levels. One of the distinguishing features of ICT in general, and the Internet in particular, is the ability to link individuals and institutions in a given locality with the outside world. As a result, ICT is a great facilitator for global and re-

gional cooperation and networking. The ability to communicate and exchange knowledge and information on a regional or global scale is particularly beneficial to countries with limited internal informational resources.

Table III: ICT and Distance Education from a Cross-Sector Perspective

	Education	Health	Democratic Governance	Culture and Media	HIV/AIDS
Global					
Regional	Training of teachers and administrators	Training of health professionals and administrators	Training of decision makers and administrators	Training of media professionals and culture practitioners	Training of staff at Sida-S
National	Development of education data and educational tools	Development of health data and medical applications	Development of social base data and population statistics	Development of culturally relevant content	Training of staff at embassies
Local	Dissemination through schools and colleges	Dissemination through hospitals and health centers	Dissemination through public access points	Dissemination through information brokers	

3.4 Collaboration at Sida

DESO's divisions will work in close collaboration with other departments and divisions at Sida. Synergistic linkages should be sought in the integration of ICT as well as in the support of ICT4D efforts in partner countries. In all instances, an effort should be made to avoid the duplication of efforts, while maximizing the benefits to be drawn from collaboration.

At Sida, DESO can contribute to and benefit from collaboration in the following areas:

DESO-Democracy and Social Development

- Content and capacity in the fields of democracy and human rights, public administration, health, education, culture and media.
- Integration of crosscutting issues relating to children and youth, minority groups, people with disabilities, and HIV/AIDS

ICT for Development secretariat

- Overall responsibility for Sida's ICT4D activities
- Advice and expertise on all ICT4D related matters
- Collaboration with suitable external partners and networks

INEC-Infrastructure and Economic Cooperation

- Infrastructure and connectivity, including alternative technologies and technical expertise
- Urban and economic development, including small business development

SAREC-Research Cooperation

- Research and expertise on ICT, including capacity development and technical expertise

SEKA-Cooperation with NGOs and Humanitarian Assistance

- ICT for conflict resolution and peace building

NATUR-Natural Resources and the Environment

- ICT for rural and sustainable development, including decentralized access

Regional Departments-AFRA, RELA, ASIEN, Sida-East

- Integration of ICT in country strategies

Collaboration between Sida departments and divisions will require the adaptation of a dynamic, knowledge-sharing ICT culture. Given the novelty of ICT4D, the integration of ICT should be viewed as an ongoing learning process, the success of which is based on good communication and an open sharing of knowledge. ICT4D interventions will also require new approaches, the success of which relies on willingness and openness to conceptual and methodological change, and by extension changes in organizational culture.

Collaboration at Sida should be clearly reflected in the work carried out at Swedish Embassies. Sida's field based staff, including National Program Officers (NPOs), should benefit from the knowledge and competence developed at Sida-S. Communication between Sida-S and Swedish Embassies should thus be strengthened. Efforts should also be made to promote and support cross-sector collaboration in partner countries. The integration of ICT will be promoted through continuous dialogue with partners, in a reactive and proactive manner (see ICT4D Strategy for more information).

3.5 Networking for ICT4D

DESO should further support methods that are typical of ICT4D-related activities, such as the combination of top-down and bottom-up interventions, the catalytic role of individual champions and the use of networks (see ICT4D Strategy).

Networking is a common methodology in ICT4D-circles, allowing individual champions to cooperate with one another and with interested parties. Networking represents a loosely structured, decentralized and dynamic form of social organization that stretches across social and geographic boundaries, following the principle of flow rather than structure. Networks tend to be based on shared interest rather than physical proximity. Membership is often voluntary and decision-making is often collective, based on consensus rather than formalized procedures. Networks intersect in nodes that consist of individuals and/or institutions that play a brokering role by facilitating contacts between members of networks.

There are many international and regional ICT4D-networks that focus on a variety of issues, ranging from policy matters, through the

economic and social impact of ICT, to technical developments. These networks are often tied to organizations working with ICT4D in different countries and regions. National networks are often tied to these regional and international initiatives, thus allowing members to draw on the experiences and expertise of a broad range of actors.

ICT4D-oriented networks represent communities of interest that play a catalytic role in the expansion of ICT in developing countries. For instance, the eThinkTank has played an active role in promoting ICT4D in Tanzania. Formed in early 2000, the eThinkTank is a network of interested individuals from both private and public sectors. Members of the eThinkTank have brought ICT4D to the attention of political decision makers, thus contributing to the formulation of a national ICT policy. They have also actively participated in national, regional and international ICT4D forums. The group maintains a Web site,¹⁵ which is complemented by e-mail and mailing lists to communicate, exchange information and provide advice.

Networking is increasingly common among development partners and is greatly facilitated by the use of ICT in general, and the Internet in particular. E-mail, electronic mailing lists and web sites allow members of a given network to share information, participate in discussions, and establish contacts. Networking is often used for competence development, awareness raising and advocacy, the pooling and sharing of resources, and cooperation across large geographic areas. Social activists and interest groups have already benefited from electronic networking, but it is also becoming more commonplace among large, well-established institutions.

At Sida, several networks already exist, covering crosscutting issues such as human rights, HIV/AIDS and gender equality. These networks could take ICT integration into consideration, thus facilitating the mainstreaming of ICT within the organization. Similarly, a network on ICT4D should be created. Such a network could draw on the members of the ICT reference group that was formed a few years ago, with representatives from different Sida departments, including the ICT for Development secretariat and Sida's internal IT department. The ICT4D working group at DESO, with representatives from all divisions, represents a department wide network that could contribute to and benefit from an organization wide network on ICT4D. A greater effort should also be made to collaborate with international and regional ICT4D networks, as well as national ones, to achieve a higher degree of coordination.

¹⁵ <http://www.ethinktanktz.org>

4 Priority Areas for DESO's ICT4D Activities

4.1 Integrating ICT in DESO's Priority Areas

As exemplified in DESO's ICT4D strategy, the following areas can fruitfully benefit from the use of ICT (see also section 5 below on priority areas for each division):

- Administrative reform and institution building
- Democratic participation in decision making
- Legal security and the promotion and protection of human rights
- Cultural diversity and culture as a democratic force
- Independent media and freedom of expression
- Access to and availability of information
- Competence building and knowledge development
- National health- and education systems
- Sexual and reproductive health
- HIV/AIDS

4.2 A New Area of Intervention: National ICT4D Strategies and Policies

A new area of intervention that is of high priority is:

- *The development and implementation of national ICT4D strategies and policies*

By providing a vision and sense of direction, national ICT4D strategies and policies provide a holistic framework for coordinated action across all sectors.¹⁶ They allow developing countries to combine the development of an ICT sector with the use of ICT as a tool or enabler in other sectors.¹⁷ National strategies and policies are, for instance, important for the development of a nationwide infrastructure. In this regard, the state needs to create an enabling regulatory framework that encourages private sector investment, while ensuring that access is provided to all citizens. National strategies and policies are also required to ensure that all social sectors stand to benefit from ICT.

¹⁶ For an overview of current thinking on and approaches to national ICT4D strategies, see *National & Regional e-Development Strategies: A Blueprint for Action*, UN ICT Task Force, Working Group 2 on National and Regional e-Strategies, September 2002 (draft).

¹⁷ For a more detailed analysis of ICT as a sector or enabler, see *Creating a Development Dynamic. Final Report of the Digital Opportunity Initiative*, Accenture, Markle Foundation and UNDP, July 2001.

To achieve optimal results, national ICT4D strategies and policies need to be well aligned with development and poverty reduction strategies. The formulation of ICT4D strategies and policies should therefore be undertaken within a broader framework for national development, such as Poverty Reduction Strategies (PRS) and Millennium Development Goals (MDGs). Moreover, while drawing on the experiences of other countries, national ICT4D strategies and policies need to be country-specific, thus providing a framework tailored to the specific circumstances and requirements of a given country.

In order to provide a holistic framework, it is important that the formulation of national ICT4D strategies and policies is based on broad participation. The strategy/policy formulation process should include all relevant stakeholders, ranging from public and private sector representatives to representatives of civil society, academia and media. This will ensure that the implementation of strategies and policies will benefit all of society.

Tanzania has recently finalized its national ICT policy, the development of which has been supported by Sida.¹⁸ The policy formulation process has been remarkably broad and inclusive, involving stakeholders from various sectors who have been able to provide their feedback. The draft policy has also been presented to the parliament for further input. Following the finalization of the overall policy, policies will also be developed for the priority areas of specific sectors. Reflecting the wide participation in the policy formulation process, the national policy is very broad and far-reaching. The policy is also well aligned with the country's development goals, especially the Tanzania Development Vision 2025 and Tanzania's Millennium Development Goals (MDGs), and covers all social sectors.

While the ICT for Development secretariat will continue to carry overall responsibility for the development and implementation of national ICT4D-strategies and policies, DESO can add value to such efforts by applying its strategic methodology in the following ways (see ICT4D Strategy for more information):

- Promote the integration of a rights-based human development perspective
- Support institution building and capacity development
- Integrate ICT in Programme Support
- Strengthen local participation and ownership
- Promote a holistic and cross-sector approach

In addition, DESO should assist partner countries to:

- Mainstream gender equality in ICT4D-activities
- Ensure the equitable inclusion of vulnerable groups such as women, children, orphans, youth, people with disabilities, people infected / affected by HIV/AIDS, and minority groups in ICT4D-activities
- Mainstream HIV/AIDS perspective in ICT4D-activities

¹ See <http://www.moct.go.tz>

- Strengthen and promote cultural diversity and identity
- Identify strategic venues for regional and global collaboration
- Participate in ICT4D-related regional and global forums and networks
- Explore digital opportunities for social development
- Use ICT for decentralization and local development
- Understand the relation between ICT and globalization
- Explore possibilities for North-South and South-South cooperation

5 ICT4D and DESO's Divisions

5.1 ICT4D and Democratic Governance (DESA)

The main goal of the division for Democratic Governance (DESA) is to promote democratic social development, respect for and observation of human rights, and good governance.¹⁹ DESA plays a preparatory and advisory role, especially vis-à-vis regional departments and embassies. The division also manages contributions, and develops the competence of organizations and government authorities in partner countries. DESA is further charged with developing methods and promoting the integration of a democracy and rights perspective in all development cooperation.²⁰

The vision guiding the integration of ICT for Democratic Governance is:²¹

DESA supports the use of ICT for democratic governance to promote the power and influence of all members of society, especially poor people, through democratic, political processes that are characterized by participation, equal value, openness and accountability. Of central concern is the willingness and capacity of the state to use ICT to meet its responsibility to guarantee the human rights of all citizens.

Many projects and programs in DESO's priority areas already contain ICT-components. For instance, computerization is a common feature in administrative support (e.g. statistical databases and financial management systems) and the use of e-mail and Web sites is widespread among state agencies as well as organizations of civil society. Nonetheless, such efforts could be expanded further, for instance through improved standardization, management, coordination and distribution of information in the state apparatus and more widespread use of e-mail, Web sites and other Internet-based applications among governmental and non-governmental organizations. More ICT-oriented activities could also be considered, especially as pilot projects, to measure the impact of ICT in relevant areas.

¹⁹ See "Framtid DESO": DESO's Program för Mänsklig Utveckling, Sida/DESO, February 2002, p. 11.

²⁰ See Syntesrapport. Från Sidas fyra metodprojekt avseende politiska institutioner, rättsområdet, god samhällsstyrning och folkligt deltagande, DESO/DESA, April 2002, p. 6.

²¹ Based on *Ibid*: p.7.

Democratic Governance has identified public administration to be a key area for ICT-integration.²² In many cases, the computerization of administrative routines represents a move from pen and paper to computers, allowing institutions to leapfrog their capacity. Computerization in public administration can, for instance, revolve around the management and distribution of social base data, through databases and other applications, thus enhancing the capacity of the state to plan, deliver and monitor social services. ICT can also be used to improve the transparency and accountability of the state, while reducing corruption, and to promote greater interaction between state agencies and the general public. The public sector can further serve as a model user for other sectors, while its own use of ICT serves as a stimulus for the local ICT industry.

Primary areas for ICT4D for Democratic Governance are:

- ICT in public administration
- ICT in legal sector
- ICT for devolution and deconcentration (decentralization)

Another primary area is:

- The development and implementation of national ICT4D strategies and policies in partner countries

While the ICT for Development secretariat will continue to coordinate Sida's interventions in this area, Democratic Governance will play a more active role in future efforts. Not only is DESA's experience in and expertise on administrative reform and governance highly suited to this task, but DESA's focus on democracy and human rights is also a cornerstone in Sida's poverty reduction efforts. DESA is thus well placed to support national ICT4D efforts and provides methodological and conceptual advantages that partner countries can benefit from.

In supporting national ICT4D strategies and policies, DESA will work in close collaboration with other Sida departments and divisions. In addition to the other DESO divisions (see ICT4D strategies for each division below), DESA will primarily work with the ICT for Development secretariat, INEC, SAREC, and regional departments. DESA will also support and collaborate with relevant international and regional actors.

A secondary area for ICT4D activities is the integration of ICT in all priority areas for Democratic Governance, including:²³

- The organization, management and functioning of the state
- Legal security and judicial systems
- Financial management and administration
- Popular participation in democratic processes
- A functioning civil society and its interaction with the state

²² See *Informationsteknologi i Biståndet (ITB)-Förslag till Strategi för DESO*, Lennart Nordström, DESA, May 2001.

²³ Based on "Framtid DESO", p.11.

- Local democracy and decentralized administration
- Human rights, especially the rights of women, children, people with disabilities and minority groups
- Democratic processes for conflict prevention and resolution

Democratic Governance will also explore the following areas of intervention:

- The use of ICT to improve the functioning of political institutions and their interaction with civil society, in a decentralized and transparent manner (e-governance)
- The use of ICT for popular participation (e-democracy)
- ICT-based mechanisms for the promotion and protection of human rights

In addition, Democratic Governance should actively contribute to:

- the integration of a democracy and human rights perspective in the implementation of DESO's ICT4D-strategy
- the integration of a democracy and human rights perspective in the mainstreaming of ICT4D at Sida

Linkages and synergies will play an important role in DESA's ICT4D-related activities. In integrating ICT, DESA will play a leading role in promoting closer collaboration within DESO. DESA's priority areas are closely related to the divisions of Culture and Media, Health and Education. Closer collaboration between the divisions will ensure that the integration of ICT follows a shared, holistic framework for democracy and social development, while taking full advantage of synergistic collaboration and coordination.

Examples of areas that are suited to synergistic collaboration between Democratic Governance and other DESO divisions in the field of ICT4D:

Culture and Media	– Strengthening of independent media and freedom of expression – Promotion and protection of the rights of children and youth, women, and minority groups – Development of a democratic culture – Promotion and protection of the right to independent cultural expression, especially among minority groups – Administrative reform and institution building in the culture and media sectors, at national, regional and local levels – Promotion of open and participatory social debate among all members of society, especially socially marginalized groups – Development and sharing of social base data
Education	– Promotion of the right to information and knowledge – Promotion and protection of the rights of children and youth – Use of education to create a better understanding of democracy and human rights and to build a democratic culture – Administrative reform and institution building in the education sector at all levels – Distance education of administrators, policy and decision makers – Development and sharing of social base data
Health	– Administrative reform and institution building in the health sector, at national, regional and local levels – Protection and promotion of the right to health, especially among women and children – Protection and promotion of the rights of people with disabilities, including measures to improve their active participation in society – Political support and responsibility for the struggle against epidemics like HIV/AIDS – Development and sharing of social base data

5.2 ICT4D and Culture and Media (KULT)

The overall goal of Sida's work with culture and media is to create opportunities for cultural diversity, creative activities and sustainable development based on human rights.²⁴ The division for Culture and Media supports culture and media activities nationally, regionally and globally and participates in analyses, research and debates on the role of culture in social and economic development. The division also has the ambition to make the cultural perspective visible in all development cooperation and participates in the international development of methods for cooperation.²⁵

The vision guiding the integration of ICT in the activities of Culture and Media is:²⁶

The division for Culture and Media supports the use of ICT to create opportunities for cultural diversity, creative activities and sustainable development based on human rights. ICT shall be used to enhance the role of culture and media in social development processes, to promote pluralism and cooperation, and to deepen our understanding of and improve the conditions for global interdependence.

ICT-components already exist in some of Culture and Media's projects and programs. For instance, many culture and media organizations use e-mail and Web sites to communicate and disseminate information. KULT also sponsors Dramatool, which uses an innovative ICT-based approach for capacity development. Nonetheless, the integration of ICT should be broadened to areas where it is currently not used as well as expanded in activities where it is already being used. The frequent occurrence of international and regional networks in culture and media activities is particularly suited to the integration of ICT, as is the information-brokering role of media professionals.

Culture and media is an area that is well suited to more ICT-oriented activities, the creative aspects of ICT lending themselves quite readily to the promotion of cultural diversity and the strengthening of culture. For instance, ICT can be used to explore new means of artistic expression, new forms of cultural practice and new ways of documenting and preserving cultural heritage. Similarly, ICT is highly suited to the support of independent media. For instance, ICT offers new means of gathering and disseminating information, new opportunities for training and capacity development, and new venues for popular participation in social debates. Consequently, KULT should support and explore a more widespread and advanced use of ICT.

Primary areas for ICT4D for Culture and Media are:

- ICT for cultural diversity and expression
- Pluralism and diversity in media sector, including broadcasting media and independent media
- Culture and media for social inclusion

²⁴ See "Framtid DESO": DESOs Program för Mänsklig Utveckling, Sida/DESO, February 2002, p. 11.

²⁵ Policy for Sida's international development cooperation in the field of culture, Sida, March 2000, p. 3.

²⁶ Based on *ibid*:4 and Verksamhetsinriktning 2001-2004, enheten för Kultur och Medier, Sida/DESO, 2001.

Another primary area is:

- The integration of culture and media in the development and implementation of national ICT4D strategies and policies in partner countries

In close collaboration with other DESO divisions, especially DESA, KULT should integrate a culture perspective in the development and implementation of national ICT4D strategies and policies. KULT can actively contribute to the promotion of cultural diversity and identity in the global information society, the importance of which is receiving increasing attention. The division's support of media is of equal importance as information and communication are becoming more important for development efforts. In this regard, the division will, among other things, promote and support the development of culturally relevant content, decentralized access to ICT, the use of ICT for the documentation and protection of cultural heritage, the use of ICT for popular participation in social debates, and the use of ICT for exposure and exchange within and between cultures. The division should also support the use of ICT among media professionals, the use of media for awareness raising and education on ICT among the general public, and media coverage of national ICT4D strategies and policies.

A secondary area for ICT4D activities is the integration of ICT in all priority areas of the division for Culture and Media, including:²⁷

- Freedom of expression and right to information
- The independent exercise of culture
- Bridge building between different ethnic and political groups, and urban and rural populations
- Networks and institutional cooperation
- Decentralization and even access to cultural practices and experiences
- Documentation and preservation of cultural heritage
- Strengthening the identity and self-esteem of individuals, groups and cultures
- ICT for improved communication and interaction between centers and peripheries

Culture and Media will also explore the following areas of intervention:

- ICT and culture tourism
- ICT for intercultural dialogue, including conflict management
- ICT for partnership, communication and networking

In addition, Culture and Media should actively contribute to:

- the promotion of culture and media in the implementation of DESO's ICT4D-strategy
- the promotion of culture and media in the mainstreaming of ICT4D at Sida

²⁷ See "Framtid DESO": DESOs Program för Mänsklig Utveckling, Sida/DESO, February 2002, p. 11.

The division for Culture and Media will also expand linkages with other divisions and departments at Sida. The broad mandate and flexible methodology of the division intersects with the work of all other DESO divisions, especially when viewed from the crosscutting perspective of ICT4D. The division is also well placed to work with other Sida departments. For instance, ICT and tourism could well be pursued in collaboration with INEC, culture and research networks with SAREC, and conflict resolution in culture and media with SEKA. Culture and Media will also work in close collaboration with relevant international and regional partners.

Examples of areas that are suited to synergistic collaboration between Culture and Media and other DESO divisions in the field of ICT4D:

Democratic Governance	– Strengthening of independent media and freedom of expression – Promotion and protection of the rights of children and youth, women, and minority groups – Development of a democratic culture – Promotion and protection of the right to independent cultural expression, especially among minority groups – Administrative reform and institution building in the culture and media sectors, at national, regional and local levels – Promotion of open and participatory social debate among all stakeholders, especially socially marginalized groups – Development and sharing of social base data
Education	– Development of culturally relevant learning materials, including material that strengthens the identity and self-esteem of students – Access to informational resources through different media – Use of culture and media for educational purposes – Promotion of a culture of learning and a reading culture – Distance education for culture practitioners and media professionals
Health	– Promotion of the cultural expression and social inclusion of people with disabilities – Use of culture and media as a means to combat epidemics like HIV/AIDS – Promotion of norms and values that enhance the quality of life, especially among women and children – Use of culture and media to protect women and children against violence and exploitation

5.3 ICT4D and Education (UND)

The overall goal of the Education division is to promote basic education of a good quality for all, through support to broad reform processes.²⁸ Support to education, especially basic education, has been central to Swedish development cooperation for many years.²⁹ The provision of basic education for all children by year 2015 is also one of the goals of the UN Millennium Declaration endorsed by Sida. The Education division works increasingly through Sector Programme Support (SPS).

The vision guiding the integration of ICT in the activities of the Education division is:³⁰

The Education division supports the use of ICT to enhance the right to relevant education for all, following the guiding principles of the right to education and rights and democracy *in* and *through* education. ICT should be used to advance an education that empowers the poor and excluded parts of the population to participate as active and informed citizens in all aspects of development.

¹ "Framtid DESO": DESOs Program för Mänsklig Utveckling, Sida/DESO, February 2002, p. 12.

² See *Utbildning för alla – en väg ur fattigdomen*, Sida, 2001.

³ Based on *Education for All: A Human Right and Basic Need*. Policy for Sida's Development Cooperation in the Education Sector, Sida, 2001, pp. 23-24.

⁴ *UND ICT-plan*, DESO/UND, Olof Sandkull, November 2002.

Currently, ICT-components are primarily found in the division's sector programme support, a common feature of which is the computerization of administrative routines and processes (e.g. EMIS). The division also supports organizations involved in training that use databases, Web sites and e-mail (e.g. IIEP). ICT is, however, rather underutilized and could be expanded further, primarily through the integration of ICT-components but also through the use of more ICT-oriented activities (e.g. distance learning, development of educational materials). These activities need not cover the whole educational sector, in the sense of ICT being available at all schools, but a more concerted effort should be made to integrate ICT in instances where it can have an optimal effect, such as teacher training colleges.

Teacher training and distance education have been identified as particularly suited to ICT-integration. In addition, ICT can be integrated in sector programme support and capacity development.³¹ These complementary fields cover much of the division's priority areas of intervention. For instance, ICT can be used for planning and administration of education as well as the development of curricula and educational materials. Moreover, ICT can be used to improve the availability of different forms of media, communication and information opportunities, including library services. ICT can also be used for capacity development, an important target group of which is teachers. In addition, ICT offers new opportunities for distance education, providing training opportunities for teachers and students as well as representatives of relevant organizations, institutions and ministries.

Primary areas for ICT4D for Education are:

- ICT for status and skills of teachers
- ICT and distance education

Another primary area is:

- The integration of education in the development and implementation of national ICT4D strategies and policies in partner countries

In close collaboration with other divisions and departments, UND will promote the integration of education in national ICT4D strategies and policies. In dialogue with partners, the division will identify strategic entry points for the integration of ICT in the education sector, especially for the achievement of MDGs. Moreover, the division will emphasize the need for relevant education of a good quality, education being a basis for the successful use of ICT in all of society. The division will further promote educational reforms aimed at promoting critical and creative thinking, which is a prerequisite for the transformation to information societies.

A secondary area for ICT4D activities is the integration of ICT in all priority areas of the Education division through sector programme support, including:³²

³² "Framtid DESO": DESOs Program för Mänsklig Utveckling, Sida/DESO, February 2002, pp. 12-13.

- Educational reforms aimed at providing equitable access to basic education
- Institution building and capacity development within the public education sector
- Training of teachers and improved working conditions for teachers
- Development and distribution of educational materials
- Improved quality of education, especially at primary levels
- Increased literacy and the development of a strong literate environment
- Development of adequate and appropriate curricula

The Education division will also explore the following area of intervention:

- ICT-based interactive learning modules (e-learning)

In addition, the Education division should actively contribute to:

- the integration of education in the implementation of DESO's ICT4D-strategy
- the integration of education in the mainstreaming of ICT4D at Sida

Linkages with other divisions and departments will play an important part in the integration of ICT in the field of education. Education is a prerequisite for poverty reduction, especially in an era where information and communication are becoming increasingly important for social development. In order to strengthen education, the division will identify linkages with other DESO divisions. The division will also work in close collaboration with SAREC and the ICT for Development secretariat to improve the ICT-capacity of partner countries.

Examples of areas that are suited to synergistic collaboration between Education and other DESO divisions in the field of ICT4D:

Democratic Governance	– Promotion of the right to information and knowledge – Promotion and protection of the rights of children and youth – Use of education to create a better understanding of democracy and human rights and to build a democratic culture – Administrative reform and institution building in the education sector at all levels – Distance education of administrators, policy and decision makers – Development and sharing of social base data
Culture and Media	– Development of culturally relevant learning materials, including material that strengthens the identity and self-esteem of students – Access to informational resources through different media – Use of culture and media for educational purposes – Promotion of a culture of learning and a reading culture – Distance education for culture practitioners and media professionals
Health	– Promotion of the health and rights of children and youth – Awareness raising of sexual and reproductive health issues, especially HIV/AIDS – Promotion and protection of the educational rights of people with disabilities – Protection of children and youth against violence and exploitation – Distance education of health professionals, administrators, policy and decision makers

5.4 ICT4D and Health (HÄLSO)

The overall goal of the Health division is to promote health services of a good quality for all through support to reform processes, and to contribute to the improved health of marginalized groups.³³ It has become increasingly clear that health is not just a technical issue, but also an important part of social and economic development, with major implications for poverty reduction. The correlation between health and social and economic development is also recognized internationally. For instance, three out of the eight goals of the UN Millennium Declaration are directly related to health (reduced child mortality, reduced maternal mortality and reversal of the spread of HIV/AIDS and other major diseases).³⁴ The Health division works increasingly through Sector Programme Support (SPS).

The vision guiding the integration of ICT in the activities of the Health division is:³⁵

The Health division supports the use of ICT to achieve improved health outcome through sustainable and effective health systems with universal access to and coverage of health services of acceptable quality, emphasizing social equity and gender equality. ICT shall also be used to strengthen the role of the health sector in influencing the health-related policies and health outcomes of other sectors.

A recent inventory illustrates the extent and nature of ICT-components in the projects/programs of the Health division.³⁶ Out of a total of approximately 150 projects, 33 have some form of ICT-component. These range from computerization of the health sector (statistics, administration etc.) to the support of organizations and networks that use databases, Web sites and e-mail in their work with health issues. The division also supports a few ICT-oriented projects, including an experimental ICT-tool for the analysis and presentation of global health data (World Health Chart Project). In addition to supporting a more widespread use of ICT, the Health division could also explore a more advanced use of ICT in relevant areas.

Data and information management are particularly suited to ICT integration. Efficient and reliable means of gathering and managing information facilitate the planning, implementation and monitoring of the health sector. In addition to improved management systems, ICT can also be used to provide training for administrators and decision makers as well as health professionals. ICT can also be used for awareness raising and advocacy efforts within and beyond the health sector, especially on issues like HIV/AIDS.

³³ "Framtid DESO": DESOs Program för Mänsklig Utveckling, Sida/DESO, February 2002, p. 12.

³⁴ *Health is Wealth. Policy for Health and Development.* DESO/HÄLSO, 2002.

³⁵ Based on *Health is Wealth*, p. 6.

³⁶ *IT i biståndet: Sammanfattning och analys av hälsoinsatser med IT-komponenter*, DESO/HÄLSO, 2001.

Primary areas for ICT4D for Health are:

- Health data for research, management and awareness
- Improved management information systems for health and medical care
- ICT for awareness raising, education and information

Another primary area is:

- The integration of health in the development and implementation of national ICT4D strategies and policies in partner countries

The Health division will encourage and support the integration of health in the development and implementation of national ICT4D strategies and policies. In collaboration with partners, the division will further support the integration of ICT in relevant areas of the health sector, especially for the achievement of the MDGs. In addition, the division will highlight the impact on health of ICT4D-efforts in other sectors. The division will also support and cooperate with relevant international and regional partners, especially with regards to global issues such as the struggle against HIV/AIDS.

A secondary area for ICT4D activities is the integration of ICT in all priority areas of the Health division, including:³⁷

- Healthcare reform aimed at promoting equal access to cost effective care of a good quality
- Cross-sector efforts to promote public health
- Sexual and reproductive health and rights, including HIV/AIDS
- The health and rights of children and youth
- Institution building for improved health
- Integration of ICT4D tools in PRSP

The Health division will also explore the following areas of intervention:

- The use of ICT to improve health services in rural and remote areas
- The use of ICT to improve the status and skills of health professionals
- ICT as a tool for analysis and diagnosis for health personnel

In addition, the Health division should actively contribute to:

- the integration of health in the implementation of DESO's ICT4D-strategy
- the integration of health in the mainstreaming of ICT4D at Sida

The Health division will work in close cooperation with other DESO divisions (see table below) and Sida departments. Given the crosscutting nature of health, the division will take advantage of synergistic linkages with other divisions. The division will also assist other divisions and departments in identifying the health implications of their ICT4D-efforts.

**Examples of areas that are suited to synergistic collaboration
between Health and other DESO divisions in the field of ICT4D:**

Democratic Governance	– Administrative reform and institution building in the health sector, at national, regional and local levels – Protection and promotion of the right to health, especially among women and children – Protection and promotion of the rights of people with disabilities, including measures to improve their active participation in society – Political support and responsibility for the struggle against epidemics like HIV/AIDS – Development and sharing of social base data
Culture and Media	– Promotion of the cultural expression and social inclusion of people with disabilities – Use of culture and media as a means to combat epidemics like HIV/AIDS – Promotion of norms and values that enhance the quality of life, especially among women and children – Use of culture and media to protect women and children against violence and exploitation
Education	– Promotion of the health and rights of children and youth – Awareness raising of sexual and reproductive health issues, especially HIV/AIDS – Promotion and protection of the educational rights of people with disabilities – Protection of children and youth against violence and exploitation – Distance education of health professionals, administrators, policy and decision makers

6 Practical Advice on ICT-Integration

6.1 Avoiding Common Pitfalls: Some General Guidelines

The following guidelines are intended to assist DESO staff in implementing the needs-based, holistic approach to ICT4D outlined in DESO's ICT4D Strategy. These guidelines are by no means exhaustive, nor conclusive, but rather aimed at identifying some of the most common issues relating to ICT-integration. In order to provide adequate assistance, these guidelines should be used together with the conceptual framework identified in the preceding pages.

In promoting the integration of ICT in projects and programs, DESO staff should always *identify the social value added by ICTs, based on existing needs and priorities*.

In addition, attention should be paid to the following issues:

Infrastructure

Are infrastructure requirements addressed sufficiently, i.e. hardware, software, telecommunications and electricity etc.? Have adequate measures been taken for the set-up and maintenance of the necessary equipment? Is the cost of use and maintenance taken into account?

Training and support

Is the staff adequately trained to manage the equipment and applications that will be used? Can adequate training be obtained locally? To what extent does staff require external support for training and maintenance as well as technical troubleshooting? Have the mechanisms and costs for such support been identified and taken into account?

Target groups

Who are the target groups of the initiative? Do they have access to the necessary equipment, including Internet connectivity? Are the skills of the target groups sufficient? In case the target groups require training, have these needs been taken into account?

Synergies and Linkages

To what extent can the initiative be linked to other activities, within or across sectors? Can resources be pooled together with other initiatives/

activities to achieve an optimal effect? Is the initiative well coordinated with related activities and approaches, including national and sector specific ICT4D strategies and policies?

Scalability

Can the initiative be broadened to reach additional target groups, at local, national, regional and international levels? Can it be deepened to better address the issues at hand or expanded to include related issues? To what extent can synergistic collaboration with other initiatives enhance the scale and enrich the scope of the initiative?

Sustainability

Have adequate mechanisms been identified for the sustainability of the initiative (human, financial and technical resources)? Have possibilities of generating income been fully explored and taken advantage of? Has competence been built in a sufficient manner to ensure the long-term viability of the initiative?

6.2 Advantages to be Gained from Common ICT-Applications

Table IV: Characteristics and Advantages of Common ICT-Applications

Application	Technical characteristics	Advantages
Databases	– Customized interfaces based on user needs allow for an efficient means of storing, managing and retrieving large quantities of data. – Reduces physical storage needs and increases safety and longevity of data. – Allows for automated publication of content and data to the Web – Allows exchange and sharing of data between different systems using XML	– Improves administrative routines by providing an efficient tool for information management – Facilitates the compilation of base data (e.g. statistics) that is required for effective public administration – Improves quality and analysis of data through standardization, categorization and cross-referencing – Data can easily be shared/distributed
Internal networks	– Allows disparate computers to be connected to one another thus facilitating the exchange of information and the sharing of common resources – A scalable means of connecting a select number of users internally, Local Area Network (LAN), and/or externally, Wide Area Network (WAN). – Provides the technical platform for the convergence of various applications.	– Facilitates the coordination of internal and external activities (e.g. through Intranets and/or Extranets) – Enhances transparency and accountability through a more open and efficient distribution of information – Allows users to share certain applications (e.g. databases) thus making them more widely available
E-mail	– Allows users to communicate almost instantly regardless of physical location – Offers an interactive means of communication at low cost (one-to-one or one-to-many at no incremental cost) – Expedites the exchange and distribution of information (e.g. attachment of files, mass-mailing) – Facilitates the storage and retrieval of sent and received messages	– Provides an efficient and cost-effective means of communicating – Allows for timely exchange and distribution of information – Facilitates the establishment and maintenance of geographically dispersed networks – Allows users to participate in global discussions and debates, e.g. through mailing lists
Web sites	– Provides a timely means of publishing up to date information – Provides a cost-effective means of distributing information (the cost of retrieval is borne by the user) – Allows organizations to reach a wide audience at little extra cost – Allows for the integration of various interactive (e.g. chat rooms and messaging boards) and multimedia (e.g. audio/video) applications – Hyperlinks can be used to connect to relevant information on external sites	– Provides unprecedented access to global information resources – Provides an efficient and cost-effective tool for advocacy and awareness raising – Facilitates public access to national and international agencies and organizations, thus promoting transparency and accountability – Facilitates and encourages access to related information/organizations – Provides a global platform for local activities and initiatives

6.3 Social Value Added by ICT: Examples from Tanzania

In determining the value added by ICT4D it is useful to identify what processes are strengthened by the use of ICT. ICT reinforces certain forms of social organization that provide methodological advantages for development activities. Similarly, ICT facilitates the implementation of activities aimed at social transformation by promoting certain behavioral and structural changes. These changes are a result of new means of managing and sharing information and new ways of communicating.

The following examples seek to identify specific instances where the integration of ICT offers conceptual and methodological value. The idea is not to limit the integration of ICT to these areas, but rather to offer a conceptual framework that outlines the broader implications of ICT4D in some of DESO's priority areas. The examples are based on information gathered during a study tour to Tanzania and cover all of DESO's divisions. A description of ongoing and future activities is combined with a social analysis of the processes enhanced by ICT, thus applying DESO's focus areas in the field of ICT4D (see section 3.1 above).

6.3.1 Geographic Information Systems

(GIS) and Social Base Data – The 2002 Census

In conjunction with the 2002 Census in Tanzania it was decided that the gathering of social base data should be combined with an improved geographical mapping of the country, an effort that was supported by the division for Democratic Governance.³⁸ Accurate geographical maps are crucial to the successful taking of a Census and form an important part of social planning. In the case of Tanzania, existing maps are outdated, inadequate and of poor quality. In order to improve the geographical mapping of the country, aerial photography was used to demarcate some of the enumeration areas in regions where the existing maps were particularly poor due to unplanned settlement and /or high population growth. Given time and budgetary constraints, the aerial photography was limited to some 15,000 out of 55,000 enumeration areas in total.

The aerial photography has improved the means with which to produce a 'social atlas' of Tanzania, combining digital base maps with a wide range of social data. In determining what data to gather during the Census, meetings were held with all stakeholders. Consequently, the Census form covers a broad range of social sectors, including health, education, labor and housing conditions. While primary school teachers did the filling out of the Census forms manually through an interview process, the forms will be scanned, thus providing a resource of base data in digital form.

The mapping and data gathering for the Census has a wide applicability for poverty reduction in Tanzania.³⁹ The data can be used to develop a poverty index of geographical areas that is aligned with the country's Poverty Reduction Strategy. By providing information on

³⁸ The information presented here was obtained during a meeting with Hennie Loots (Geospace), Martin Butterfield (Census Adviser) and Damas Mbogoro (Census Commissioner), in Dar es Salaam on 22 October 2002. Hennie Loots provided complementary information in writing and Martin Butterfield was kind enough to comment on a draft of this section.

³⁹ See also *ICT and the Democratic Process: Some Examples from a Donor's Viewpoint*, Statement by Lennart Nordström, Head of Division for Democratic Governance, Sida, at ESAURP's Conference "How Can ICT Contribute to Democratic Solutions to Africa's problems?", Tanzania, 27-28 June, 2002.

population distribution and density, the data can be used for the planning, delivery, monitoring and evaluation of social services. The aggregate data can also be used to strengthen more democratic forms of governance, for instance by indicating areas in which to focus efforts for voter registration and the development of identity cards, not to mention to determine ownership and utilization rights to land. The aerial photographs also provide an effective means for surveys and mapping and can, for instance, be used to redesign the country's electric grid and to expand telecommunications networks, although additional surveying work would be needed to support engineering work.

In order to improve the institutional capacity of key social sectors, mechanisms need to be identified for the distribution of the aggregate Census data to relevant stakeholders, in digital form. Summary information will be provided in hard copy for the benefit of the many Tanzanians who do not yet have access to electricity or computers. Some means will also be found, using the existing administrative structures, to inform non-literate members of Tanzanian society about the outcome of the Census.

The Census in Tanzania illustrates how digital technology can be used to improve administrative routines, a process that relies on *information management* and the *flow of information*. The collection and storage of social base data in a digital form offers a more rational means of managing information, including improved standardization and convergence of data, and a more effective means of sharing and distributing the information. While digital technology facilitates this process, it should be underlined that it is the information rather than the technology that is the main resource, especially when measured in terms of lasting value.⁴⁰

6.3.2 Using the Internet to Strengthen Independent Media

The Media Council of Tanzania (MCT), which is supported by the division for Culture and Media, uses the Internet to gather information, to network and to communicate.⁴¹ Having used e-mail for quite a while, MCT set up a web site, <http://www.mct.or.tz>, in the autumn of 2002. The site has not been updated since an external consultant first designed it, and the staff finds it static and boring, especially when compared to other media sites that they have found on-line. Nonetheless, the staff member who is in charge of training, research and coordination will undertake training in Web design in order to better maintain and utilize the site. The site will eventually be bilingual, containing information in English as well as Kiswahili.

Although the MCT have yet to develop the capacity required for a more effective use of the Internet, there is no question about their enthusiasm about it. To journalists and media professionals in Tanzania, the Internet represents a medium of opportunity. As one MCT staff member put it "once you try it, you can't do without it". The Internet offers access to vast informational resources that media professionals use to improve their products as well as skills. It also provides them with a

⁴⁰ See *Mozambique's Soft ICT Infrastructure-A Pilot Study*, by Sören Lindh, Sida/Sarec 2002. Sören Lindh was kind enough to elaborate on his findings in an interview on 23 August 2002.

⁴¹ This account is based on a meeting with MCT staff Pili Mtambalike and Anthony Ngaiza in Dar es Salaam on 29 October 2002.

more efficient and cost-effective means of communicating and networking, at national, regional and global levels.

To the MCT, the Internet is important for both capacity development and institution building. One of the main activities of the MCT is mediation, members of the public and government turning to them for arbitration when they have felt aggrieved by media representations. The MCT also provides training in media ethics and offers seminars and workshops on various issues that media professionals need training in. Researchers and students turn to the MCT with questions relating to media. All these activities have increased the workload of the staff wherefore they feel a strong need to improve their ability to manage and distribute information over the Internet. Plans are in place to develop a data base with information on journalists, legal experts publications etc. that can be accessed over their Web site, thus reducing the workload of the staff.

In addition to strengthening their own capacity, the MCT is keen on spreading access to the Internet to media professionals throughout the country. Regional Press Clubs serve as resource centers for journalists. In addition to improving their professional capacity, Internet access would reduce the communication costs of journalists, many of whom work for outlets based in Dar es Salaam and rely on fax and telephony to submit their stories. MCT is also keen on incorporating ICT skills in the mid-career training of media professionals.⁴²

While the usefulness of ICT as a tool for media professionals is widespread, there is a lack of understanding of the role of the media in a broader ICT4D context. The media should play a more active role in reporting on the formulation of the national ICT policy, thus broadening the social debate on the issues being addressed. The media should also provide information on ICT in general, thus educating the general public in the use of ICT. In addition to raising the awareness of the general public, such efforts would stimulate the demand for ICT services throughout the country.

In terms of social processes, the use of ICT improves the *information brokering* capacity of media professionals. The strategic positioning of media professionals in the midst of information flows provides them with an opportunity to mediate information between different social groups. For instance, by having access to the Internet, journalists can gather information relating to a certain social group or social issue and distribute this information through more traditional means (radio, TV, newspapers, newsletters or journals). Journalists can also use the Internet to provide a platform for more interactive and informed social debate among a broad range of stakeholders.

6.3.3 *Interactive Web Site on Sexual Health and HIV/AIDS for Young People in Africa*

Femina Hip is a popular magazine in Tanzania, providing hundreds of thousands of readers with information on sexual health and HIV/AIDS.⁴³ The Health division at Sida supports the magazine. An example

⁴² See *Proposal to Establish a Mid-Career Training Centre for Journalists*, MCT, August 2002.

⁴³ The information presented here was obtained in a meeting with Femina Hip staff, Minou Fuglesang, Amabilis Batamula, and Jamillah Mwanjisi, in Dar es Salaam on 30 October 2002.

of edutainment, the glossy magazine cover is matched by the youthful tone of the content that includes information and discussions on sensitive issues that rarely get voiced in the country. The magazine is complemented by a TV show and a colorful 'photonovel' and comic, SiMchezo, which caters to less advanced readers.

The Femina Hip staff is very knowledgeable and enthusiastic about the opportunities that the Internet offers. They have been using e-mail since the beginning of the project, to communicate among the staff and with the audience as well as to communicate and network with partners and donors. Staff members also subscribe to some mailing lists that provide them with news and information updates. A web site was launched in the autumn of 2002, <http://www.feminahip.com>, although it is rarely used and serves mainly as an "information leaflet" to present the project.

A dynamic and interactive Web site is being planned, catering mainly to young people within and outside Tanzania. On-line research by a staff member has revealed that there is no site on the sexual health of young people in Tanzania or East Africa. Although some sites exist in South Africa, they tend to contain research information, and none of the sites are truly interactive.

The new Web site will have a distinctly African profile, focusing on African issues. The site will be bilingual (English and Kiswahili), and it will contain up to date information, along with some truly interactive features. Taking advantage of the anonymity of the Web, chat rooms and messaging boards will allow users to interact and discuss a variety of topics, including issues that may be difficult to bring up in face-to-face meetings. A Web master will provide guidance and mediate expertise when required. The content of the site will include and compliment the content of the project's other activities, while providing an interactive format, along with links to relevant external sites, thus taking advantage of the Web interface.

The envisaged Femina Hip Web site is an example of *communication and interaction*, processes that in this case are clearly targeted at social development. The project's edutainment methodology has already proven its usefulness, as evidenced in the popularity of the Femina Hip magazine. Seeing that many young people in Tanzania use Internet cafés, the new site will provide content that is of social and cultural relevance to the project's target audience. The site will also cater to the diaspora, as well as young people throughout Africa and beyond, providing them with an interactive platform for communication on issues that are as important as they are sensitive.

6.3.4 (Em)powered by Cows – ICT and Teacher Training in Kasulu

In October 2002, the Kasulu Teachers College (KTC) was the first institution in town to receive broadband access to the Internet.⁴⁴ Satellite connectivity through a Very Small Aperture Terminal (VSAT) provides Internet access to the College's internal network of 14 computers. The

⁴⁴ This account is based on information supplied by Geoff Calder, a volunteer for the project, who was kind enough to supplement the information he shared with me in an informal meeting in Dar es Salaam with a progress report from November 2002.

innovative use of VSAT-technology for broadband access in a remote part of Tanzania is, if anything, equaled by the originality of using biogas for electricity, which is generated by cows. Two American NGO's, Global Catalyst Foundation (GCF) and Schools Online (SOL), support the Internet project at KTC.

The KTC Internet project is aimed at providing training for teachers to teach ICT. Teachers at the college have to complete the International Computer Driving License (ICDL), the requirements for which ensure that they have the skills to deliver computer training. The College has also been selected as a Cisco Network Academy. Supported by UNDP and Cisco, the Cisco Certified Network Associate (CCNA) program will provide students with the necessary technical skills to set up and maintain all the equipment that is essential to Internet connectivity.

Although still in its early stages, the KTC Internet project has already generated considerable interest in the country. The project has, for instance, attracted the interest of the Tanzanian Government, in particular the Commission of Science and Technology (COSTECH). Seeing that the project has managed to address the technical problems of alternative energy and Internet connectivity in an innovative way, the Commission has approved it as a research project. The results of the project will feed into ICT and education efforts in the country, especially with regards to Internet connection, curriculum development, human resources and sustainability.

The long-term sustainability of the project has been considered from the outset. By developing human capacity through training, keeping running costs as low as possible and generating income from course fees, Internet access and the sale of learning material, the project is generating an income that is used for the maintenance and replacement of equipment. It is also hoped that KTC will become the local Internet Service Provider (ISP), thus being able to generate a substantial amount of income.

The KTC Internet project is an example of *capacity development*, a process that in this case is strategically aimed at teachers. By training teachers in ICT, who in turn will train students, the project will contribute to the development of human resources, thus ensuring that Kasulu will have a well-trained workforce. The project will also be expanded to promote and support educational programs through distance learning over the Internet. One innovative idea is to promote the pairing of teachers in Kasulu with teachers overseas, thus allowing them to exchange experiences.

Halving poverty by 2015 is one of the greatest challenges of our time, requiring cooperation and sustainability. The partner countries are responsible for their own development. Sida provides resources and develops knowledge and expertise, making the world a richer place.



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