

*School Networking Initiatives and School-
Based Telecenters*

Background Note for Ethiopian Country Team

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This draft report provides a brief overview of school networking or “schoolnet” initiatives (**Section I: About SchoolNets**) and background information on community telecenters, particularly those located in educational institutions, notably school-based telecenters (**Section II: School-Based Telecenters**). Based on further analysis of country-specific data, a final section has been provided with extension of these models to the Ethiopian country context. (**Section III: Ethiopia Country Context**).

Section I: About SchoolNets

A. Introduction to School Networking Initiatives

(Because of its relevance to the topic, Section A has been drawn in its entirety from *School Networking in the Pacific Island States: An environmental scan and plan for the establishment, of schoolnets for the Pacific island states*, Denis Brandjes, Johannesburg, South Africa April 2002)¹

In recent years there has been an increased emphasis on the use of technology to address developmental concerns throughout the world. The education sector has attracted a large part of this attention, which is centered on the use of information and communication technologies (ICTs) to address teaching, learning and administrative needs. For the purposes of this report, information and communication technologies refer to computers, networks, the Internet, and broadcast and related technologies that enable information and communication flow and processing.

The use of ICTs beyond technical and vocational development was initially promoted in the educational sector as a tool to support tertiary education. It was applied particularly in revising distance education methodologies in order to ensure larger and more varied access to education. The result has been a proliferation of courses and qualifications on offer by an increasing number of institutions in a variety of formats supported by technology, many through the Internet. This has increased accessibility to education in communities that were previously excluded. However, the “digital divide,” the gap that exists between those who have access to ICTs and those who do not, continues to limit the advantages of these technologies to those who have the finances, infrastructure and expertise to support them.

The extension of the use of ICTs into the primary and secondary education system followed, as practitioners saw the benefits of the various technologies. The use of computer hardware and software in the school environment can be traced to the late seventies and early eighties, where the use of basic software and games on equipment such as the BBC Micro, Apple, Acorn and Atari was encouraged in a few schools, particularly in Europe and North America. Another large initial driver was the introduction of Computer Studies as part of the curriculum in numerous countries, promoting the development of computer specialists. With the development of the IBM-compatible personal computer and the Apple Macintosh, the use of the technology to support teaching, learning and administration became more apparent, and in the nineties more classrooms throughout the world started to utilize the technology to enhance and support the education process, within and beyond the classroom. A significant development has been the understanding within the schools community of the use of ICTs beyond Computer Studies or computer literacy. These uses include research and information retrieval, collaboration and group work and concept instruction and reinforcement through specialized Web sites or software. The impact that ICTs

¹ <http://www.col.org/Consultancies/02SchoolnetPacific.htm>. Denis Brandjes, now an international consultant, was the original founder of SchoolNet-South Africa.

have on teaching and learning has driven the development of school networking and schoolnets throughout the world.

Schoolnets can be defined as groupings of schools that use ICTs to support the education process, or agencies that facilitate and develop the use of ICTs in the education context. The word “school” refers to the participants, namely the schools in the primary and secondary education space. Schools generally consist of the teachers, students, families and the broader community, all of whom can benefit from the introduction of schoolnets. The word “net,” a shortened form of “network,” refers to the purpose of the initiatives. Most importantly, it is the network of people within the community of practitioners that collaborate for the purpose of enhancing teaching and learning. Secondly, it is the network or platform of ICT infrastructure that allows people to communicate, collaborate and share within restricted or larger groupings. Thirdly, it refers to the emphasis on the Internet and related technologies that enable the world at large to be accessible to the individual, no matter where in the world he or she may be. By definition, schoolnets encourage teaching and learning through a collaborative approach to the education process. Complementing this is the belief that the use of ICTs promotes a more individualised learning experience, with a broad range of educational resources and experiences available to both the teacher and learner, and that the use of ICTs throughout the world supports the trend towards outcomes-based and learner-focused education.

These movements have typically been organised within school districts, or within geographic or socio-economic boundaries and include the establishment of national and regional Schoolnets to promote and facilitate the use of ICTs in the education sector, in both the developed and developing world. Although the overarching theme among Schoolnets is similar, they range in their focus from policy formulation and advocacy, information dissemination, deployment and installation of technology, teacher training and facilitation of collaborative student projects. Examples of schoolnets include the following:

1. SchoolNet Canada (www.schoolnet.ca) is an initiative led by Industry Canada (government ministry) in partnership with provincial and territorial governments, the education community and private sector. SchoolNet carries out many [initiatives](#) to encourage the use of ICT in the classroom, including SchoolNet GrassRoots, SchoolNet’s Network of Innovative Schools, First Nation’s SchoolNet, LibraryNet and SchoolNet’s Youth Employment Initiative. SchoolNet’s services allow students, teachers and parents to learn about the world of ICTs and how they can be used to enhance education.
2. European SchoolNet (www.eun.org or www.eschoolnet.org) is an international partnership of more than 20 European Ministries of Education developing learning for schools, teachers and pupils across Europe, and supporting school networks in individual European Union (EU) countries. It is primarily driven by individual governments and the EU, and is focused on the teaching and learning experience, using ICTs.
3. SchoolNet South Africa (www.school.za) is a non-profit, independent organisation with an emphasis on promoting the use of ICT for teaching and learning in South Africa, particularly in historically disadvantaged schools. The organisation initially worked in many aspects of school networking including policy and advocacy, infrastructure provision, teacher development and content provision. As the use of ICTs in South Africa schools has proliferated, the organisation has refocused to ensure that the educational value of ICTs is realised, largely through teacher development, conferencing and workshops.

4. Western Cape Schools Network (www.wcape.school.za) was established in 1994 and, together with other provincially based school networks in South Africa, assisted in the development of SchoolNet SA. It is largely a volunteer-based organisation with a small staff that originated as an educational ISP and extended its functions over time. It is soon to be merged into SchoolNet SA. The Western Cape office of SchoolNet SA will continue to manage help desk and educational ISP services on behalf of SchoolNet SA for the entire country, in addition to providing other services.

5. SchoolNet Africa (www.schoolnet africa.net) emerged out of the need to promote and support the development of schoolnets throughout the African continent. The organisation has been created as a support mechanism for national schoolnets, and thus works primarily in the areas of policy direction, information dissemination and support, and resource mobilisation, participating in various continent-wide initiatives.

6. World Links for Development (www.worldbank.org/worldlinks) started as an initiative of the World Bank Institute and has grown to encompass a separate non-profit entity. World Links is focused on the promotion of ICTs in the developing world, and as of October 2001, it is active in 15 countries, reaching approximately 650 schools. It works in collaboration with Ministries of Education and supports the development of national schoolnets in the countries in which it works. Although involved in various aspects of ICT in education, it has had a particular focus on teacher development. The organisation is currently developing a fee-for-service contracting component that will enable it to share its knowledge and expertise more broadly and will also assist in sustaining the organisation.

7. SchoolNet India (www.schoolnetindia.com) was incorporated by Infrastructure Leasing & Financial Services Limited (of India) as part of a broader initiative to address the requirements of the social infrastructure sector, in specific, the learning training segments. Schoolnet is committed to enhancing the quality and delivery of education across the learner spectrum and learning segments. The focus is not so much on the teaching of technology alone as on the use of technology in the teaching and learning process. The organisation focuses on the areas of technology, content, training and services and is operational in over 18 locations across India. In order to facilitate support for their programmes in less advantaged schools (over 750,000 schools), it has established the SchoolNet Foundation, which attracts financial and in-kind support from individuals, corporations and donor agencies. The SchoolNet India model is a standard corporation that performs the operations with the assistance of a special purpose charitable vehicle.

B. SchoolNets in Africa

As referenced above, there are many established school network initiatives in Africa today and several more currently under development. While many of today's schoolnet initiatives are home-grown, Canada's International Development Research Council (www.idrc.ca) and the World Bank's *World Links for Development* (WorLD)² programs played significant roles in the late 90's to help support and establish several schoolnet initiatives both in Africa and around the world.

² Today, the original World Links program is represented by the World Links organization, a non-profit established in 1999, www.world-links.org, and the World Bank's ICT for Education program, (www.worldbank.org/wbi/ictforeducation). Both programs are still actively involved in supporting national schoolnet development.

In November 2001, *SchoolNet-Africa (SNA)* was formally launched as a vehicle to link schoolnet initiatives on the continent. To date, twenty-eight countries are part of the SNA network.³ Their website provides useful links and background documentation regarding schoolnet development, including the *Okhandja Declaration*, a document of collective issues raised by twenty African schoolnet representatives which participated during an IDRC- and UNECA- sponsored workshop on *School Networking in Africa* in Namibia in July 2000.

National SchoolNets

SchoolNet-South Africa (SNSA) is the oldest (the NGO was formally launched in 1997) and largest of the school network initiatives on the continent. Over 2500 schools in the country use SNSA's SchoolMail software (i.e., dedicated e-mail addresses for schools) and 10,000 teachers have been trained through SNSA's educator network. With a mission to "create Learning Communities of Educators and Learners that use Information and Communication Technologies (ICTs) to enhance education" and supported by a wide variety of public and private sector stakeholders, it continues to play a lead role in national ICT in Education initiatives and serves as a model for other national SchoolNet development.⁴

SchoolNet-Namibia and SchoolNet-Uganda

Both *SchoolNet Uganda* and *SchoolNet-Namibia* are notable for their innovative approaches towards school networking.

SchoolNet-Uganda first established in 1996 by the World Bank's World Links for Development program, and now in the process of being officially established as an independent NGO, has over fifty schools participating in its formal training network.⁵ Staff at the secretariat, supported by the World Links' organization and World Bank's ICT for Education program, work closely with policymakers at the Ministry of Education and Sport, and have taken leading roles in helping shape national ICT in Education policies and initiatives. As part of a pilot project initiative supported by the Bill and Melinda Gates Foundation, eleven SchoolNet-Uganda schools in rural communities are connected to the Internet via VSAT satellite connectivity (For more information on SchoolNet-Uganda and the VSAT project, please see the attached articles: *Wireless Schools Internet Connectivity* and *Uganda School-Based Telecenters*)⁶ and operate as school-based telecenters (i.e., serving schools during the day and the general community in the after-school hours) to help recover operating costs.

As indicated on their website, SchoolNet Uganda's mission "is to make graduates of Uganda's education system more globally competitive by support(ing) Uganda educators and learners by providing pedagogical and technical expertise and advice, infrastructure and human resources, coordination, training and capacity building and developing SMART local and international partnerships in the areas of: Internet Connectivity and Appropriate Technology,

³ Angola, Benin, Botswana, Cameroon, Cape Verde, Cote D'Ivoire, Egypt, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe

⁴ www.school.za/schoolnet/about.htm

⁵ www.schoolnetuganda.sc.ug

⁶ These articles can also be found on the *TechKnowLogia* online journal at www.techknowlogia.org.

Content and Curriculum Development, Human Resources Development and Capacity Building, and Community Responsibility and Development”

The SchoolNet Namibia NGO, established in February 2000, coordinates a dynamic national network of schools in that country and has been playing a leading technical implementing role in extending national ICT access and training to rural and underserved communities. Part of their mission statement says:

“To build capacity and know-how at all levels in this network consisting of data communications equipment, data-links, computing facilities, software, operational and management procedures, and a series of agreements among partners, training programmes for teachers and learners, all relating to the operation of the network, for developing and supporting the use of Information and Communication Technologies (“ICTs”) in education in Namibia, aimed at addressing the inequalities of the past, supporting the introduction of new curricula and providing communication channels for use by educational institutions throughout Namibia.”⁷

Their “*Kids on the Block*” program is a model for youth skills development. By tapping into the energy and enthusiasm of out-of-school leavers looking for IT livelihood skills development, they have recruited volunteers to help refurbish donated computers, provide national help desk support and locally maintain school’s computer lab infrastructure.

Additionally, SchoolNet Namibia is playing a pioneering role in experimenting with *low-cost connectivity alternatives* to connect rural schools to the Internet. A new pilot has just be launched in that country which will involve a narrow-band radio network connected via a series of forty-five towers bringing coverage to most schools (approximately 900) in the densely populated north of the country by 2005.⁸

While the other Schoolnets referenced above are indicative of school networking initiatives operating in close relations with, but typically managed and financially independent of Ministries of Education, there are several Ministry of Education supported initiatives which are worth noting.

Botswana

For example, **Botswana’s Ministry of Education** has taken the lead in an ambitious school networking plan that will include the establishment of fully-equipped computer laboratories in every one of its 205 Community Junior Secondary Schools (CJSS) and 27 Senior Secondary schools in the country. It was among the early leaders in the continent to recognize the importance of computer literacy as an integrated, rather than standalone subject, in its national curriculum. In its *Revised National Policy of Education in 1994* recommendations included:

To develop in all children computer literacy and readiness for the world of work...Each student should take a Basic Computer Awareness Course”⁹

⁷ www.schoolnet.na

⁸ www.schoolnet.na/pr/wireless-annc-inside.htm

⁹ Ratsatsi, David, “Botswana Equity and Access: Are we Reaching the Audience We Intended To Address?”, *TechKnowLogia*, July – September 2002, www.techknowlogia.org

Within the last two years, a computer laboratory was built for every one of the CJSSs and Senior Secondary schools. Currently, all Senior Secondary and 51 of the CJSSs have been provided with computer hardware and software. Each of these lab includes twenty computers, server and local area network.

Impressively, the government is also underwriting the Internet connectivity and national technical support for all these labs. There are at least two government-supported national vendor contracts which provide technical troubleshooting and maintenance to all the schools. As the remaining 154 CJSSs are equipped and connected to the Internet, there are legitimate concerns being raised about the sustainability of continuing this same level of government-sponsored support.¹⁰

SchoolNet-Nigeria

While SchoolNet-Nigeria operates as an independent NGO in that country, much of its financial and operational support comes from the *Nigerian Education Tax Fund*, a source of revenue derived from a 2% profit tax levied on all major businesses operating in that country. Working in tandem, representatives from ETF and SchoolNet-Nigeria are planning an ambitious schoolnet which will initially include thirty-five schools, seven of these in community centers for teacher development and twenty-eight in secondary schools. A number of these sites will be connected to the Internet VSAT satellite connectivity.

[I will add a section about SchoolNet initiatives in Latin America, specifically the Enlaces-Chile program.]

Section II: About Telecenters

Existing educational institutions hosting community telecenters can form an important part of a regional or national SchoolNet initiative by helping to sustain the local institutional costs of ICT training and service provision. The community telecenter model was initially adopted in industrialized countries such as Canada and Australia to extend ICT services and training to under-served and rural populations. In the mid-90s, the model was adopted by a variety of international stakeholders, including Canada's International Development Research Council (IDRC), International Telecommunications Union, Education Development Center and UNESCO, for use in developing countries.

As there are a variety of different models, a general definition for a "telecenter" is a community facility that provides integrated Information and Communications Technology (ICT) services such as Internet, printing, fax, computer access, printing and phone facilities. The difference between a "cybercafe" and community "telecenter" is the latter serves a community development mission, typically serving under-served and rural communities, while the former is principally driven by a mission of profit generation.

While there has been considerable international and national interest in community telecenter development and several notable publications about their impact – both actual and potential,¹¹ the majority of standalone community-driven telecenter initiatives are simply not financially self-sustaining. Those that are deemed most successful have benefited from considerable external donor support. An author of one telecenter evaluation report notes:

¹⁰ Bloome, Anthony, *Botswana-World Links for Development Programme Proposal*, December 1999

¹¹ www.idrc.ca/telecentre

However, these successes have received a very large amount of funding, support and international interest and should be seen as interesting demonstration pilot projects. As yet, they do not represent a reproducible model that can bring benefit to the majority in a country in the next few years.¹²

Understandably, while issues of financial self-sufficiency are important for telecenter operators, the challenge is for the telecenter to avoid becoming simply another profit-driven “cybercafe”.

By establishing these services or sites within existing institutional facilities that also support a community-driven mission, such as non-government organizations, post offices, municipal government agencies, universities, and/or schools, telecenter operators can stay true to their mission while benefiting from existing institutional and management structures already in place which standalone telecenter models would lack.¹³

Role of Governments

Before exploring a specific example of an institution-based telecenter, it is important to note that governments can play an important role in supporting national telecenter development wherever their location. For example, government policy can supplant regulatory and administrative obstacles (e.g., abolishing or reducing duty tax clearance for computer hardware and software donated to or purchased by schools), passing an education rate (e-rate) initiative¹⁴ which will lower the costs of Internet connectivity for schools and libraries, providing financial support for the start-up costs involved of establishing telecenter labs, and monitoring, evaluating and disseminating results. A recent World Bank publication outlines further government supported telecenter policies.¹⁵

School-Based Telecenters

An example of an institution-based telecenter is the school-based telecenter model.¹⁶ A school-based telecenter (SBT) is dual-use: serving the school community, teachers and students, during the day, but the general community in the after-school hours – i.e., weekends, evenings and holidays. There are three principal reasons for establishing school-based telecenters: to improve financial sustainability, to build bridges to their communities, and to support community development.

Financial Sustainability

Locating a telecenter in a school, rather than as a standalone facility, builds upon the school’s existing institutional infrastructure. The school facility can provide administrative, management

¹² Benjamin, Peter and Dahms, Mona, “Socialise the modem of production - The role of telecentres in development,” Telecenter Evaluation: A Global Perspective, September 1999, IDRC, <http://www.idrc.ca/telecentre/evaluation/html/main.html>

¹³ Workshop on Empowering the Poor through Rural Information Centers: What Works And What is Sustainable?, December 2002, www.worldbank.org/gender/digitaldivide/workshop021202.htm

¹⁴ Providing a discount for telecommunications and Internet access for schools and libraries. Typically, underwritten by a universal service fund and/or obligation underwritten by national telecommunication providers.

¹⁵ Wellenius, Bjorn, “Sustainable Telecenters: A Guide for Government Policy,” *Public Policy for the Private Sector*, Note Number 251, World Bank, January 2003.

¹⁶ The SBT model could also largely apply to other educational institutions, including teacher resource centers and local colleges and universities.

and financial oversight so that the telecenter staff (often teachers working for additional remuneration in the after-school hours) can focus on service delivery. Additionally, there is a built-in client group and revenue stream: students help support the center through tuition or through additional funds generated from the school's board or Parent-Teachers Association. The community clients paying for services not only support the recurrent costs associated with their own use of the facilities – but can help underwrite the overall costs of maintenance and new equipment acquisition which will benefit the student users during the weekdays.

As with any other telecenter models, the SBT should ideally have adequate and qualified staffing, proper security, and quality customer-oriented training and services. Whether managed by teachers, a youth group, or a private franchise operator leasing the school facilities after-school hours, the owner-operators should be market-focused and entrepreneurial in nature.¹⁷ While an additional management challenge is balancing the needs of student vs. community clients, a school-based telecenter has the potential for optimizing resource utilization and financial sustainability by serving both these groups.¹⁸

One of the earliest pioneers of the SBT model is the **Zimbabwe-World Links for Development (WorLD)** program which started with 11 sites in 1999 and is currently supporting a network of over 45 school and community-based telecenters, including one which is a mobile telecenter.¹⁹ A second pilot established by the World Links' program, **SchoolNet-Uganda**, is also piloting an exciting national network of rural school-based telecenters connected to the Internet via VSAT (very small aperture terminals) satellite.²⁰ With financial matching support from the Bill and Melinda Gates Foundation, the Ugandan schools involved share the costs of Internet connectivity (i.e., 256 kbps download shared among the network and a dedicated 28.8 kbps per site upload). **SchoolNet-Nigeria** also plans to have the school computer labs it helps establish open after 2 p.m. for general community access.

ICT resource provision for each telecenter model will vary widely on government, locally resourced and donated ICT resources. The typical SBT established by the World Links' program²¹ consists of ten networked computers, printer, and Internet connection (via direct dial-up, cell phone, spread spectrum or satellite connectivity). Average costs of this SBT hardware and software is approximately US\$12- 15,000 per SBT with monthly recurrent costs of about US\$200 – US\$250 for paper, toner, electricity, etc.

Many of the SBTs have procured additional ICT equipment for themselves through monies raised from the school and community clients. Typical hardware and software additions include additional computers, color printers, fax machines, photocopiers (which can be leased), lamination and book-binding machines, and digital cameras. Some have even purchased LCD

¹⁷ Proenza, Francisco, J. "Telecenter Sustainability: Myths and Opportunities," *Journal of Development Communications* 12(2)

¹⁸ An interesting question for sharing ICT resources between school and community clients: if parents become direct beneficiaries of the school's ICT resources themselves, would they become better custodians of that school in general?

¹⁹ Bloome, Anthony, "The Bindura Internet Learning Center: Modest in Size, but Mighty in Impact," *TechKnowLogia*, November/December 2000 and Bloome, Anthony, "Big Blue's Coming To Town: Zimbabwe's Mobile Computer Lab," *TechKnowLogia*, July/August 2001, www.techknowlogia.org.

²⁰ Bloome, Anthony, "Uganda's Wireless School Internet Connectivity," *TechKnowLogia*, January –March 2002

²¹ The World Links' organization currently operates in 22 developing countries in Asia, Africa and Latin America. www.world-links.org

projectors. While the author of this paper knows of few SBTs that offer phone service, there is conceivably no reason why this could not be added.

One recommendation for a school-based, or any telecenter initiative, would be adding complementary technologies and services over time as additional resources or technology partners are identified. This spreads the cost of telecenter development over a longer period of time and allows the center to build its technology and service base sustainably. For example, the **Discovery Channel Global Education Fund** has partnered with school computer and Internet labs in Uganda and Zimbabwe to add video-based programming, television and vcrs.

Build Bridges to Their Communities

Case studies and evaluations of the two national SBT projects above have shown that beyond the additional financial revenue derived from community clients in the after-school hours, the SBTs also further positive linkages between the school and community and vice versa.

For example, schools often have strong relations with their communities already. They nurture children and at times reach out to adults and at-risk youth. When they receive computer labs and communications hook-ups these are typically part of national educational programs or from Parent and Teacher Associations.

Community-oriented student use of these ICT resource can help them give back to the communities they live in.

Two examples of this include the work by the International Education Resource Network, an international program which offers an online forum for youth-led educational and community interaction in a number of countries,²² and the World Bank's *AIDSWEB: HIV/AIDS and ICT* project, designed to promote student knowledge acquisition and social activity concerning HIV/AIDS in their communities.²³

Community Development

These same ICT resources may constitute some of the only accessible technology resources and training in that community -- a powerful shared opportunity for parents and other adult learners who want to use the Internet and software applications for their personal and professional development.²⁴

Much of the existing telecenter literature focuses on these current and potential clients and services.²⁵ As with other community-driven telecenter models, the information needs of the SBT clients is rich and varied. Farmers want product specific information, merchants access to local and national market cost data, local health professionals access to relevant medical journals or databases, and adult learners online access to further academic or professional development-focused material.

²² www.learns.org

²³ Bloome, Anthony, "Fighting the Insidious Killers: African Teenagers Battle HIV/AIDS through ICT," *World Bank Development Outreach*, Spring 2002, www.developmentoutreach.org

²⁴ Gaible, Edmond, *School-Based Telecenters* website, www.schooltelecenters.org

²⁵ www.idrc.ca/telecentre

A community needs assessment survey for the SchoolNet-Uganda VSAT SBT project indicated all the above and others as possible client users.²⁶ Since the survey implementation, there has been further targeting of several of these high-impact client groups in follow-up workshops.²⁷ Targeted groups have included small business operators (i.e., e-commerce workshop), rural hospital and health workers (telemedicine workshop) and a national workshop intended to link several SBTs with non-governmental organizations involved with HIV/AIDS prevention and orphan care activities in their communities.²⁸

Section III: Ethiopian Specific Examples

The section which follows contextualizes the SchoolNet and school-based telecenter models for an Ethiopian country context. Proposed areas of linkage have been drawn from World Bank and Ethiopian government policy reports and strategy documents.

Education Sector Development

While not ignoring other legitimate and pressing basic development and education sector needs, Ethiopian youth will require an understanding in the use and manipulation of ICT resources to stay competitive in an international marketplace. Even a modest beginning with a national Schoolnet initiative will provide youth beneficiaries with these important skills and policymakers with the demonstration effect of integrating ICT into classroom instruction for future program development.

Establishing a national schoolnet initiative will help meet overall education goals for training Ethiopian youth to compete, academically and professionally, in the 21st century. A schoolnet would also serve to “meet the quantitative and qualitative demand for training manpower at all levels, including a “vertical integration of secondary, technical-vocational and higher education programs”²⁹

Certainly lack of and/or limited access to electrification and phone and Internet connectivity will challenge Ethiopian policymakers in national ICT in Education program development. Nevertheless, innovative examples to these same problems, particularly those addressing the urban-rural divide, are being explored by international, government and SchoolNet-led initiatives around the world. Periodic forums can provide an opportunity to share these lessons of experience.³⁰

As the ICT resources are introduced into Ethiopian schools, it is important that the technology is complemented by national and international professional training programs which emphasize the creative uses of the technology for promoting youth problem-solving and critical thinking skills

²⁶ Katahoire, Anne Ruhweza, *Uganda Wireless Community Survey: The Potential Use of VSAT Technology in Ugandan Rural Schools and Communities*, October 2001.

²⁷ These workshops took place in 2002.

²⁸ Mayanja, Meddie, “Uganda School-Based Telecenters: An Approach To Rural Access to ICTs,” *TechKnowLogia*, July – September 2002, www.techknowlogia.org

²⁹ Ethiopia: Ministry of Education, *Education Sector Development Program II (ESDP-II): Program Action Plan (Revised Draft)*, May 2002

³⁰ The World Bank’s ICT in Education Videoconference Policymaker Forums and conferences such as the Wireless Connectivity conference (organized by SchoolNet-Africa in December 2002) and an *ICT in Education in Africa* conference co-sponsored by Botswana’s Ministry of Education, the Commonwealth of Learning, SchoolNet-Africa and the World Bank’s ICT in Education program in April 2003.

development. Clearly reforms in the national curriculum which “design and develop learning materials that shall improve the problem-solving capacity of the students and to make them more productive members of the community” (SDPRP, p. 90) will be important contributions in this regard.

While the introduction of technology and training resources can certainly complement primary instruction, most SchoolNets start initially at the secondary school level. This complements the Ministry’s ESDP II plans to introduce ICT in the secondary schools as a major undertaking in the coming three years. ICT-based resources and training can also be supported at technical and vocational education and training facilities as well as skills development training institutes.

Decentralization – Wareda Level

While SchoolNet formation will vary between those organized at the national, regional and community levels, experience has shown that the successful implementation and utilization of the schools’ computers labs rests upon the day-to-day management of the local decision-makers including the heads of schools, student development associations and community leaders. This model fits in well with a shift in responsibility in Ethiopia to the “wareda” level to put “decision-making closer to the grassroot population to improve responsiveness and service delivery”³¹ Within the next three years, as access to telecommunications services, including basic telephone and data is extended throughout the country to more rural Waredas, more schools in these communities will be able to participate in SchoolNet-related initiatives. (SDPRP, 64)

Public and Private Sector Participation in Education

As indicated earlier, school-based telecenters offer the possibility of strengthening school-community partnerships. Parents and community clients become important beneficiaries, as well as benefactors, of the school’s ICT resources. Youth graduating with technology skills will be able to seek employment with local and national public and private sector businesses. Moreover, community clients will help underwrite the overall sustainability of the school’s computer lab.

An example of a school-based telecenter initiative which jointly supports public and private sector participation in education (ESDP II, 2.8) is the *Youth Information Technology Microenterprise Project (YouthIT)*. This pilot project in Uganda is nationally supported by the Ministry of Education and local Rotary clubs,³² to provide in- and out-of-school youth with integrated skills training in ICT and entrepreneurship education. The intended impact will be to promote new employment opportunities and ICT-service microenterprise business opportunities in peri-urban and rural communities where ten school-based telecenters are located. (At least half of the pilot project’s 250 youth participants will be young women in an attempt to broaden the typical portfolio of ICT-project-based participants.) Rotary volunteers have agreed to serve as project mentors as well as to favorably consider participating youth as workplace interns.

³¹ Ethiopia: Sustainable Development and Poverty Reduction Program (SDPRP), Federal Democratic Republic of Ethiopia and Ministry of Finance and Development, July 2002,

³² Rotary is an organization of business and professional leaders united worldwide, who provide humanitarian service, encourage high ethical standards in all vocations, and help build goodwill and peace in the world. There are approximately 1.2 million Rotarians, members of more than 29,000 Rotary clubs in 161 countries. –www.rotary.org

The intended impact of such a project, which can be similarly developed within Ethiopia, will be to promote “self-employment schemes such as self-employment and enterprise development systems(SEEDS)” for young people. Entrepreneurship education can be delivered in cooperation with NGOs and CBOs” (SDPRP, p. 127) or offered through Technical and Vocational Education training or skills development institutes to promote self-employment activities (SDPRP, p. 95).

HIV/AIDS and Education

Creative use of the ICT resources in school-based telecenters can strengthen links between schools and community NGOs in Ethiopia working on HIV/AIDS and adolescent reproductive health issues. A recent international workshop in Uganda on *HIV/AIDS, School-Based Telecenters and ICT* and was designed to link national NGOs working on these issues with school-based telecenters operating in Botswana, Rwanda, Uganda, and Zimbabwe.³³ In addition to enabling the community NGOs themselves to benefit from the ICT resources for their own information gathering and networking, schools would benefit from closer working relationship “to use schools as centers of intervention and entry points to prevent HIV/AIDS infection among young people” (ESDP-II, 4.9.2)

Citizenship Education

Citizenship education has been identified as one of the major goals for educational institutions in Ethiopia. (ESDP-II, p. 3.3.7). Expanding access to and use of ICT resources, particularly the Internet, at the community level can promote informed citizenship activities. Young people can play an important role in these activities by first becoming knowledgeable about local and national issues -- and where such data does not exist, they can contribute to relevant local content development. For example, a new e-government pilot project being developed by the World Bank will enable young people using the school-based telecenter’s ICT resources to capture and distribute local government information.³⁴

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³³ The workshop, co-sponsored by the Ministry of Education and Uganda AIDS Control Project, was underwritten by the World Bank’s ICT for Education and Leadership in AIDS programs as well as the Education Development Center’s Dot.edu initiative.

³⁴ The World Bank Institute’s ICT for Education and Governance programs, Good Governance and CivICTs project.