



Economic Commission for Africa (ECA)

THE AFRICAN DEVELOPMENT FORUM '99

POST ADF SUMMIT



**THE AFRICAN LEARNING NETWORK:
EMERGING FROM BEHIND THE KNOWLEDGE CURTAIN**

1 Introduction and Rationale

1.1 The Challenge

The moves toward a global information society require a fundamental shift in thinking about the methodology of education. ICTs have already begun to exert massive transformation of education systems in developed countries – distance education universities are now quoted on the stock exchange, the best teachers in the world are becoming available anywhere at the click of a button while ‘Lifelong Just In Time Learning’ has become the order of the day. Failure to similarly change Africa’s education and learning systems in the next five years will have dire consequences 10-15 years from now.

- There will be no next generation of leadership to guide African institutions in the global information society.
- African intellectuals will be active mainly in the universities and corporations of the North and of other developing regions.
- African children, male and female, will have little or no access to global knowledge and no capacity to exploit that knowledge or generate and defend their own and community livelihoods.
- The brain flood from Africa will make the current brain drain appear a trickle.

Education in Africa today is required to address new challenges in preparing young learners to participate in local and global economies, in local social and political institutions and in international multi-lateral fora.

African youth must be given the opportunity to contribute their own perspectives and understanding to the global knowledge base, to increase their potential for building peace and ensuring security and development. Learning and teaching systems need to be put in place to foster aggressive responses to the challenges of globalisation, including the emergence of e-commerce. A pragmatic and innovative Youth and Education Programme is needed, which must be flexible, modular and designed to meet the varying needs of African countries. It must develop and nurture responsible, well-informed citizens capable of creating sustainable incomes and livelihoods, thereby reducing pressure on scarce government finances. It must support young citizens who will contribute to the global economy of the future.

1.2 Outcomes of ADF 99

The African Development Forum (ADF) convened in Addis Ababa in October 1999, saw the issue of education and Internet-based activities in schools and universities raised on various platforms.

A strong youth presence at this forum served to reinforce the desire of youth to play a far more prominent role in decision making, and to be given the opportunity to participate more fully in the Information Society.

Several outcomes emerged from ADF '99 to address the transformation and extended reach of educational systems:

- The Youth Focus Group made the proposal that an Africa-wide Youth Network be established;
- Several sessions devoted to the use of information and communications technology (ICTs) in schools led to the endorsement of a concept proposal for a regional SchoolNet Africa structure;
- A panel on African universities raised the warning that universities not fully connected to the Internet within two years would not be able to meet the objectives required of higher institutions of learning.

The above proposals also have to be seen in the light of the increasing brain drain from the region, and the lack of skilled human resources available to stimulate, promote and grow the Information Society. And finally, all learning-related programmes have to be seen against the background of an African continent characterised by a population where more than 50% are less than 25 years of age. If we persist with the current approach to education and learning, Africa's youth of today, as the future leaders and responsible citizens on the continent, will be left behind the *Knowledge Curtain*.

1.3 The African Learning Network

Transformation in education and learning requires a shift from the traditional methods where one teacher confronts many learners with a well-worn textbook. New technologies create the opportunity for the best minds to exchange information across vast distances, both at country level and across the Diaspora. Information can be shared and knowledge developed with large numbers of young learners by communicating across the geographical divide using radio, video, computers and the Internet. Learning should take many forms – the traditional curriculum approach combined with learning through entertainment, through sport, through news about current events and more. African students and educators, as well as many out-of-school youth, are ready to grasp the opportunities for collaborative learning inherent in the new technologies.

This report presents possible programmes and subsidiary projects that can be undertaken to stimulate the creation of, and support an ***African Learning Network***. There are three pillars:

1. ICTs in schools, and the creation of a regional ***SchoolNet Africa*** structure that aims to support national and regional school networking activities;
2. ***VarsityNet***, which establishes connectivity at universities and related institutions of higher learning and research, and stimulates the

development of content production and information sharing within this environment.

3. OOSYNET, a youth networking initiative that addresses the needs of Out-Of-School Youth (OOSY) at both national and regional level

These three areas have to be addressed in a synergistic manner—creating Internet-based access to information and education material for youth in the formal schooling system is likely to raise expectations from those students who may enter a university. Likewise, youth exposed to ICTs in schools will wish to have Internet access on leaving the school environment. The proposal comprises four layers:

- **Curriculum Development and Access to Information for Learning**

Measures to enrich learning of cultural, scientific and social subjects, to lay the foundations for self-guided learning and adapt appropriate media for different learning environments

- **New Learning Approaches and Outcomes**

Measures to promote peer education, community learning ventures, public debate and decision-making skills

- **Knowledge Sharing and Building Intellectual Capital**

Measures to promote the creation and presentation of content and knowledge by learners and teachers and to empower them as global communicators

- **Programme Sustainability and “Revenue” Creation**

Measures to promote the production of knowledge for sale in the knowledge marketplace (e.g. to Centres of African Studies), to protect African intellectual property and to reinforce human capacity in science, engineering and technology

1.4 Vision

The African Learning Network is intended to achieve the following vision:

That African Youth will experience improved quality of life through life-long learning in an economy and society that unleashes and harnesses their knowledge potential for peace and development.

1.5 Development Benefits And Opportunities For Learning, Networking, And Social Development

A broad number of development benefits accrue because of access to ICTs and their ability to enhance educational transformation and outcomes. By ensuring that an increased number of youth have access to ICTs, and are able to use them effectively to access information for a variety of educational

and societal purposes, we may be able to participate more effectively in the globally competitive economy. To illustrate, we present three contrasting examples:

- In August 1999, the National Museum of Namibia, in collaboration with 51 corporate sponsors, hosted an [Insect@thon](#) for students from schools in Namibia. This is a project to computerise insect inventory records. Approximately US\$1m was raised for [Insect@thon](#) involving 92 children between the ages of 11 and 19, from 16 schools. The success of the [Insect@thon](#) resulted in the recent launch of SchoolNet Namibia. It will initially give 18 schools access to the Internet while aiming to have all schools connected by 2004.
- In the squatter settlements of Brazil's capital, Rio's *favela* community, the Committee for the Democratisation of IT (CDI) has been particularly successful in using IT to present opportunities for employment and personal advancement for thousands of young people (both teachers and students). The model is simple – *favela* community leaders are trained to set up IT schools and CDI trains people to teach in the schools. Over a five year period, almost 25 000 students have graduated from the CDI programme and are finding access to the world of employment, income and increasing social awareness. They are no longer attracted to the drug trade as a means of earning a livelihood.
- A recent study conducted for the World Links for Development Programme in three provinces in South Africa indicates that, inter alia, the introduction of technology into the school along with appropriate teacher training, has positively transformed relationships between teachers and learners. Learners are reported to be using technology in their regular lessons and becoming more independent learners. The teaching processes are reported to be providing enquiry-based learning projects and doing more individualised instruction using both traditional methods (books) and the Internet.

The opportunities for learning and human development and current networking initiatives in Africa can be translated into similar success stories. If schools have access to radio, television, e-mail, the Internet or information on video or CD-ROM, both educational and social interest information becomes available. Students and communities may have particular interest areas, e.g. language development, film and science education topics/programmes, as well as topics such as HIV/AIDS, adolescent and general reproductive health, sustainable agricultural production, creating e-businesses—the list is endless. Access to basic computer software presents learners with an opportunity to turn their ideas for projects into reality by learning to write business plans, draft spreadsheets and work plans or action plans. More specifically, ICTs will enable a variety of development objectives to be met within the region:

- Youth will have access to a broader range of resources to assist them in their formal schooling. These could include curriculum materials, and an international body of students and teachers with whom to network;
- Teachers and Academic staff can share scarce resources across the region, and ensure not only better access to the broad range of material already on the Web, but also access to peer interactions and collaboration on projects within the region.
- Access to ICTs will allow African youth, and those in the education sector, to draw on the African Diaspora and in this way strengthen the ties between the region and abroad;
- Youth will be able to participate more actively in political debates, thus building political awareness and greater opportunities to participate in democratisation process;
- Access to ICTs promotes the sharing of experience and information, and will assist in ensuring access to best practice within the region and beyond;
- Collaborative activities to create more African-related content relevant to our schools and universities becomes possible with ICTs and should be encouraged;
- Distance education is increasingly becoming an option with new technology – allowing our youth to tap into these opportunities will strengthen the regional human resource component and perhaps play some role in reducing the African brain drain of our students;
- The rapid spread of HIV/AIDS throughout the continent will require all available dissemination options to be used. ICTs could be used effectively in school-going youth, universities and out-of-school youth to educate and disseminate information on the disease.
- A collaborative regional approach, and the establishment (and/or strengthening of existing institutions) will allow better leverage of resources in the region, including a more co-ordinated approach to donors and the private sector.

1.6 A Proposed Institutional Framework For The African Learning Network

One possible institutional framework for discussion would be in the form of:

The African Learning Network Partnership/Trust

The Partnership/Trust will be the governing body for the African Learning Network initiative. It will be the body to whom the Project Leadership Team and the Project Management Centre account for project success or failure and sound financial management. It will ensure proper and effective corporate governance at all times. The SchoolNet Africa Initiative, OOSYNET and VarsityNet will constitute the three programmes of the Network.

The African Learning Network Project Leadership Team

The Project Leadership Team will give guidance and advice to the project through, in particular, working closely with and giving advice on the work of

the Project Management Centre. This will be a virtual team of persons with a wide range of expertise in the education, technology enhanced learning and information science fields. They will offer intellectual leadership and conceptual design abilities to the initiative.

The African Learning Network Project Management Centre

The Project Management Centre will be established to co-ordinate, manage projects and report on all activities related to the SchoolNet Africa as well as the OOSYNET and the VarsityNet initiatives. It will apply the necessary business and project management tools to ensure that projects are successful and that funds are utilised efficiently and duly accounted for. It will ensure that synergies between the components of the Network are effectively exploited.

1.7 Overview Of Existing African Learning Network Initiatives

In order to develop a better understanding of what programmes and projects should be undertaken in the region, an overview of some existing initiatives is presented. The learning from these initiatives will assist in providing examples of best (and worst) practices, identify institutions and key players who are already active in the area, and also provide a base from which other projects could be developed and / or expanded. These examples may also serve as sources of expertise to assist others in the region to establish their own national programmes and projects, thereby creating a pool of African expertise that can share and promote the use of ICTs in learning environments. In addition, a regional approach could accelerate rollout of connectivity for education as a priority, and stimulate an accelerated learning curve on how best to promote access to ICTs for youth and educators.

1.7.1 School Networking

School networking is the field of application in which the most activity has taken place in Africa, with some countries also addressing the integration of ICTs into school curricula. As of early 2000, examples included:

- Egypt: The Ministry of Education has launched an extensive programme involving ICTs in education, through the Mubarak National Project. The project is being piloted at 150 secondary schools.
- Ghana: The WorLD programme initiated its programme in Accra in 1997, starting with 3 schools and then a further 14 in other centres. Training is also being provided to more than 70 students, teachers and their headmasters.
- Zimbabwe: The Ministry of Education of Zimbabwe has, since October 1998, endorsed the SchoolNet Zimbabwe initiative. The model consists of thirteen central resource centres that support a surrounding cluster of schools, and also provide ICT outreach programmes for communities.
- Tunisia: President Ben Ali announced in November 1997 that all the country's schools and public libraries would be connected to the Internet.

The EDUNET network provides connect to 350 secondary schools (87% of total schools) and 50 technical schools. 500 primary schools will be connected in 2000.

- Namibia: The Namibian Government, through its Ministry of Basic Education and Culture, created a special task force to investigate the use of ICTs in Education. Recent the country launched SchoolNet Namibia.
- Sierra Leone: I*EARN is working with several individual schools in the Freetown area to provide computers and engage students in online projects.
- South Africa: With endorsement from the South African government and increasing numbers of private sector partnerships, SchoolNet South Africa has facilitated the establishment of school networking structures in most of the nine provinces. By year-end 1999, SchoolNet South Africa had contributed to connectivity in about 2000 schools. It has also established IT literacy programmes, a SchoolNet e-mail service, promoted and launched Thinkquest South Africa, and set up a computer recycling operation, Netday, that also undertakes cabling for local area networks at schools.

1.7.2 African Universities and Institutions of Higher Learning and Research

A number of projects / institutions are active in Africa to provide some form of connectivity to universities or some integral components of such universities.

- Angola: In the summer of 1998, the AEF (Angola Educational Assistance Fund, <http://www.aeaf.org>) initiated the development of a state-of-the-art computer and Internet centre at the Catholic University of Angola. Today, the University has a powerful network of servers, over 50 connected computers (mostly provided by the AEF), and a permanent wireless Internet link. Computer training classes are held for students and faculty, and there are plans to offer computer training to the business community as well. The facilities have the capacity to be used for a variety of purposes, including distance learning, Telecentre support, and links to other cities and remote areas of the country.
 - The AEF also initiated a programme to supply the Catholic University of Angola with 20 000 books for its library; this has now evolved to include refurbished computers for use by students and faculty at the Catholic University. A further 30 000 books and 60 computers were scheduled for delivery in mid-1999. Computers are available through a central computer centre and through the library. Of interest is that the university will be assisting with the development of a school networking programme, by allowing the use of its facilities.

- Ghana: The University of Ghana is embarking on a major computer network expansion programme that includes access to the Internet via a fibre-optic supported LAN backbone.
- Nigeria: The Obafemi Awolowo University, University of Ile-Ife, Nigeria is pursuing a campus-wide computer network development programme (with a satellite connection component), led by the Faculty of Engineering Sciences. The programme also seeks to serve as a major hub for distance education.
- Tunisia: Under the leadership of the President, a national university network has been established to ensure that Internet connectivity is introduced.

An Africa-wide Initiative: The African IT Education Trust is developing a proposal applicable to the whole of Africa (see Annex). It is an Information Science Enterprise Campus with the following key elements:

- A faculty comprised of leading African and international academics in cutting-edge information technology subjects, offering post-graduate courses leading to degrees initially accredited by a top international university but over time developing its own status as a centre of excellence offering a range of internationally recognised qualifications.
- All faculty would be encouraged to engage in entrepreneurial activities based on the campus, with the intention of promoting small enterprises in areas like software design, training, consultancy, hardware assembly, service and maintenance etc.
- Small enterprises in the information technology field will be invited to base themselves on the campus, on the basis of criteria established to protect the interests of the campus community and the overall goals of the Campus.

The campus will be a unique educational and entrepreneurial environment with a high level of private sector input and business spin off. The aim is to stimulate sufficient employment creation to have a major impact on the economy of the host country in Africa and to serve as a model for other countries. A detailed feasibility study is in preparation.

1.7.3 Youth Networking

There are also several examples of initiatives servicing the youth in general.

- Uganda: The Internet is being used to profile a project working toward the development of a National Programme for Rural Youth of Uganda, with a focus on the need for effective educational programmes¹.

¹ <http://www.fao.org/waicent/faoinfo/sustdev/EXdirect/EXan0006.htm>

- Egypt: The 21st Century Kids Club has been launched by RITSEC (Regional IT and Software Engineering Center). These clubs provide IT training and support to youth, including school-going youth, in the district.
- Togo: Nangbeto (17-21 December 1995) saw the first meeting of the African Youth Network, with financial and political support from DG XXII of the European Commission, and the Togo Ministry for Youth. It concluded with the adoption of the Nangbeto Declaration, which reaffirms the will of the youth organisations of Africa to build a strong youth platform that will assist Africa in its development efforts².
- Cameroon: SDNP has established a network that provides information about agriculture and animal husbandry to out of school youth and rural people to help them increase production and productivity. The model is now being integrated into the national population / development and poverty reduction strategies of the Ministry of Public Investments and Regional Development³.

1.8 Success Factors For Establishing ICT-Related Projects For Youth And Education

Experience to date has shown that there are a number of important areas where success is likely to determine the eventual outcomes of local and regional educational and youth-focussed activities relating to ICTs. They can be categorised broadly into three areas:

- *Content considerations*
 - Demonstrable projects with visibility. Any initiatives arising from the Youth and Education theme should demonstrate practical achievements on the ground, as well as communicate a clear vision for Africa wide networking. Projects that encourage the sharing of knowledge between youth within and between African countries should be a priority.
 - Content. African youth must have access to content that is appropriate and relevant to local (African) conditions. Teachers and learners also require access to relevant educational content and curriculum. Unless there is a concerted drive within the region to address the development of content, it is unlikely that the region will become more than consumers of information generated elsewhere.
 - Human Resource Capacity. Knowledge is required on how to develop appropriate educational materials and curricula to support activities in the region, use technology and educational materials to enhance educational outputs and understand youth development needs.

² <http://www.comlink.apc.org/fic/newslett/eng/nl27/africa-1.htm>

³ www.sdnp.undp.org

- *Technical considerations;*
 - Available Infrastructure. Teachers, learners and youth inside and outside the formal educational environment require access to computers, connectivity and an appropriate ICT environment. This includes affordable and reliable access to, and maintenance of computers, power supply, telephone lines and Internet connectivity, and suitable facilities.
 - Access to ICTs. Youth, learners and teachers can only participate in the Information Society if they have (affordable) access to the required infrastructure, content and training.
- *Institutional considerations,*
 - Government support. Governments need to define national educational priorities and endorse national youth and education-related activities. In particular departments of education need to commit to e.g. teacher and academic training issues, curriculum development, etc. Governments need to tackle information society policies and issues to ensure that the required telecommunication infrastructure is in place.
 - African-based and focussed programmes. Any regional structures must be based in Africa and be responsive to African needs first and foremost.
 - Funding and Sustainability. Sustainable projects for the youth will need to be at national, provincial and local levels. Many initiatives are currently driven through government and/or donor support. In some countries, the private sector is increasingly playing a significant role and mechanisms need to be developed to assess how they may continue to play an expanded role in the region.
 - Partnerships. School networking initiatives have been successful largely because they have been built on partnerships in which the key players are communities, government and the private sector. Support is required from each of these players. Similar partnership models will be critical in the areas of university connectivity and the establishment of youth networks.
 - Champions. Analysis of successful projects has shown that the presence of a Champion is critical. Champions are characterised by their ability to draw together various stakeholders, and bridge the gap between policy and implementation.
 - Evaluation. To ensure and maximise the benefits arising from access to, and use of ICTs by youth, an ongoing understanding of the educational impact is required.

In addition, any project concerned with ICT and connectivity has to overcome obstacles such as:

- The lack of good telecommunications infrastructure in many African countries
- Local taxation and its impact on the cost of computers
- The lack of adequately trained human capacity
- Lack of support from governments, schools, universities, community and political leaders in specific countries
- Inability to sustain projects once initial funding is consumed
- ICT and connectivity may not command the same levels of priority on individual countries' agendas, especially in strife-torn parts of the continent.

1.9 Partnerships

If the vision of an African Learning Network is to be attained, many national and regional organisations must be engaged in the process. Depending on the specific programmes and project envisaged, partnerships should be sought that include:

- **Government Departments of Basic and Higher Education, Communications, Information and Broadcasting etc.**
- **Regional and National Institutions involved in School and University Education Policy and Implementation**, including
 - Public and private institutions involved in primary, secondary and tertiary education, including the heads of all universities, polytechnics and schooling authorities, National Councils for tertiary education, scientific, economic and industrial research, and think-tanks involved in education research such as the Institute of Economic Affairs in Ghana, the Namibian Institute for Educational Development, etc. Others include the Association of African Universities, the African Distance Education Association, the SADC Human Resources Working Group and other specialist professional bodies.
- **Representatives from National School Networks and Regional Projects**
- **Civil Society Organisations**
 - Associations, NGOs, community-based organisations, cooperative societies, etc.
- **The Private Sector**
 - Private sector organisations that can contribute new and recycled computer equipment and accessories and Internet nodes for use in schools, community telecentres etc.; organisations to whom specific activities have been outsourced; private training establishments, etc.

- **UN Agencies**, multilateral and bilateral cooperation organisations, and other programmes/projects and funds within the ECA
- Funding agencies (e.g. the donor community and the private sector)

2 SchoolNet Africa

2.1 Background and Context

SchoolNet Africa is a comprehensive proposal and set of business plans to support national school networking initiatives and thereby enhance education and learning outcomes across Africa. In view of its integral connection with individual country projects, it is important first to present the national schools networking context.

There are at least twenty-three national school networking projects in Africa, underlining the growing interest from governments, schools, donors and the private sector. The reason for such keen interest lies in the opportunity for quality learning experiences and better knowledge and skills development for increasingly larger numbers of learners. Using information and communications technologies (ICTs), whether radio, TV or computers, students and learners can have instantaneous access to a wide range of teaching and learning materials and experiences, as well as information about the world. The greater depth of learning and knowledge can mean that students are better prepared to address the challenges of economic and social life.

National school networking provides countries with the ability to improve the quality and scope of formal school education. It provides:

- Students equipped to participate in the information society and knowledge economy. Students who are information-literate can participate in new modes of democratic, cultural and social interaction. These young people will also be ICT-literate with greater employment and income-generation opportunities.
- Teachers with access to increased resources (e.g., through the content and training available through SchoolNets, through networking with other teachers, through having greater learning opportunities during pre- and in-service training, etc.)
- Community access to ICT infrastructure and to opportunities for training and career development.
- The opportunity to transform education from the industrial model to a model more appropriate to the information age. This model aims to create learners able to work independently (yet in collaborative groups), think critically, solve problems and see themselves as lifelong learners.

African youth, and those in the education sector, with the ability to draw on the African Diaspora and in this way strengthen the ties between the region and abroad;

Distance education is increasingly becoming an option with new technology. Allowing our youth to tap into these opportunities will strengthen the regional human resource component and potentially reduce the African brain drain;

Education and dissemination of information on HIV/AIDS as well as other health and development related topics. The rapid spread of HIV/AIDS throughout the continent will require all available dissemination options to be used.

Among the many separate school networking initiatives in Africa are projects in Botswana, Egypt, Ghana, Mozambique, Namibia, Senegal, South Africa, Uganda, Zambia and Zimbabwe. Each initiative is at a different stage of evolution, but all initiatives confront similar issues, particularly the lack of political, financial and technical support. In any country the following basic elements define a school networking model:

Structure

- Establishment and ongoing operation of a school networking institution/organisation
- Minimum number of five schools in regular communication and interaction on learning initiatives using information and communications media and technologies

Services

- Computer distribution and connectivity services offered by the SchoolNet institution
- Inter-school networking using the broad array of information and communications technologies
- Content and curriculum development and sharing

Sustainability

- Year-on-year growth of the country SchoolNet initiative
- Financial sustainability increases from year to year with less reliance on external resources/funding
- Steady year-on-year increase in human resource capacity with less reliance on external resources
- Year-on-year consolidation of partnerships

2.2 Origins of SchoolNet Africa

SchoolNet Africa has evolved from national school networking programmes that saw the need to look at broader issues and create a lobbying/umbrella structure which could negotiate at a higher level for funds, look at regional content development, policy interventions, etc. In September 1999, representatives of school networking forums from ten African countries gathered in Cape Town, South Africa to discuss collective concerns and how these might be resolved through collaboration. *The Cape Town Declaration* called for the establishment of

an entity to expand the discourse on Africa-wide school networking and to accelerate the process.

This declaration was taken to the *African Development Forum (ADF)* held at the UN ECA in Addis Ababa in October 1999. The Youth Focus Group of the ADF discussed the concept of school-based learning networks in specific school networking meetings where the concept benefited from broader consultation, and at the final plenary. The concept was endorsed with enthusiasm and tops the list of practical recommendations in the ADF in-session report.

A *School Networking in Africa workshop* held in Okahandja, Namibia, July 17-20, 2000 was attended by approximately 100 delegates from school networking organisations, governments, the private sector and donor communities operating in twenty African countries. The workshop developed programming and management structures for SchoolNet Africa.

As is discussed in subsequent sections of this paper, the many ideas and recommendations for SchoolNet Africa have now been incorporated in detailed programme and project proposals as well as business plans for tabling at the forthcoming post-ADF Summit.

2.3 SchoolNet Africa

While governments, schools, donors and the private sector show increasing interest in school networking, there is still limited collaboration between the many initiatives. SchoolNet Africa sets out to change this by creating a strong partnership of stakeholders keen to enhance education through ICTs. It will support and accelerate the development of national school networking projects across Africa.

Vision

National school networks established in more than half of all African countries by 2005. All schools in Africa connected by 2020.

Mission

SchoolNet Africa seeks to enhance education and learning outcomes across Africa by progressively extending sustainable access and use of information and communications technologies (ICTs) to teachers and learners. SchoolNet Africa supports a partnership among national school networking initiatives, and their constellation of stakeholders, that is aimed at mobilising and networking Africa's human and financial resources, and intellectual wealth in an Africa-wide partnership.

Objectives

Establish a pan-African school networking initiative—SchoolNet Africa—that will:

- Support the development of national school networks and regional projects;
- Build partnerships and collaboration between government, NGOs, telecommunication operators, private sector, donor agencies, teacher bodies, and other stakeholders both nationally and regionally;
- Provide a central point for information, advice and support to national school networking projects – building capacity and know-how at all levels for integrating ICTs in education;
- Facilitate access to resources and develop partnerships for national school networking projects;
- Explore creative ways of ensuring the sustainability of school networking activities;
- Support the development and sharing of local applications and educational content and curriculum;
- Monitor and evaluate the use of ICTs on education;
- Increase awareness and understanding of school networking in Africa and of the potential of ICTs in education;
- Develop mechanisms to allow for networking, information sharing and collaboration among schools;
- Promote social development objectives;
- Create access to the knowledge economy;
- Lobby to position school networking as a high priority on the African and national agendas;
- Provide strategic inputs into policy development in support of school networking.

It is stressed that SchoolNet Africa will play the role of a facilitator and knowledge broker and will not, itself, either establish or run school networking projects. It will in no way prescribe policies to its members but simply provide advice, funding and information as resources to assist with the development of policies and strategies. SchoolNet Africa will take into consideration the various educational systems and language groups – Anglophone, Francophone, Arabic and Lusophone.

2.4 Benefits of SchoolNet Africa

SchoolNet Africa will work to promote collaboration among national school networking initiatives. By achieving the above objectives SchoolNet Africa holds immense potential for:

- *Bridging the digital divide.*
 - There are an estimated 276 million people who use the Internet worldwide and yet this still represents only 5% of the world's

population. The increasing use of computers in African schools helps to bridge the growing digital divide. In this way, learners and school managers gain access to ICTs and prepare themselves for a future in an increasingly global world.

- *Building skills of teachers and learners*
 - SchoolNet Africa enhances teaching and learning through supporting the development of basic ICT skills, the development of information resources and content and projects linking students, teachers and administrators across African and beyond.
- *Preparing the future generation for the New Economy*
 - ICT is the music of the future. SchoolNet Africa will help to prepare youth to participate in the knowledge economy, in social and political institutions and in international forums.
- *Contributing towards Africanising the Internet*
 - It ensures that the Internet is Africanised through the increasing online presence of African content in support of education and as a result of projects by students and teachers.

2.5 Programmes of Action

Readers are referred to two detailed Business Plans on the ADF website. One describes a pre-start-up plan intended to get to grips with the immediate requirements; the other covers a draft five-year strategy and implementation plan. The five-year plan envisages five major programs of action:

- *Supporting school networking start-ups and national SchoolNets*
Measures to promote the establishment of national school networking initiatives and support and advice to existing national school networking projects.
- *Curriculum and content production*
Measures to ensure appropriate development of content and curriculum materials.
- *Teacher development*
Measures to enable teachers to use ICT effectively across the curriculum and develop content.
Basic connectivity for schools
Measures to build basic connectivity in schools through appropriate and affordable technologies.
- *Knowledge sharing and building intellectual capital*
Measures to promote the creation and presentation of content and knowledge by learners and teachers and to empower them as global communicators.

The *eight key thrusts* of the business plan for SchoolNet Africa are:

- SchoolNet start-ups at country level
- Enhancing teaching and learning through curriculum and content production

- Basic connectivity for schools
- Teacher development
- Developing and sharing knowledge and skills
- Project evaluation and monitoring
- Creating opportunities for entry into the knowledge economy
- Providing policy support to ensure the achievement of development objectives

The SchoolNet Africa Pre-startup phase is scheduled to commence in 2000 and last for one year. This first year will be spent laying a sound foundation for future development through implementing key projects and the establishment of appropriate corporate governance and management arrangements. The priority areas for the pre-start-up phase are to support:

- *Designing the five-year strategy, implementation plan and budget for SchoolNet Africa*
 - Program plan, partnership building strategy, communications/MIS strategy, monitoring and evaluation plan, financial plan
- *SchoolNet Start-ups*
 - SchoolNet Start-up Toolkit
 - Adopt-a-Country Mentor Programme
- *The Knowledge Warehouse*
 - Compilation of Best Practices across Africa
 - Baseline Study on the current status of SchoolNets
 - Online Educational Content Pilot Project
- *Development of ICT skills for teachers and students*
 - ICT Skills Toolkit
 - Train-the-Teacher Trainer Program
- *Lobbying and advocacy*
 - Partnerships at national and regional level
 - Increased awareness among policy makers in the region

2.6 Institutional Framework For SchoolNet Africa

The structure of SchoolNet Africa is based on the following principles:

- SchoolNet Africa must bring together and be constituted out of National SchoolNets in Africa.
- Separate In-Country School Networking Initiatives may choose to combine or collaborate to form a single SchoolNet entity or focal point for purposes of recognition as members.
- There must be widespread support from a broad constituency within Africa (i.e. governments, teachers and teacher unions, private sector, civil society).
- Representation on SchoolNet Africa bodies must be gender sensitive & language balanced.
- There has to be Sub-Regional representation on SchoolNet Africa (North Africa, West Africa, Central Africa, East Africa, Southern Africa).

The management structure for SchoolNet Africa is therefore as follows:

- **SchoolNet Africa Steering Committee** consisting of ten SchoolNet representatives (two volunteer representatives from each of the sub-regions). This committee must also include representatives from other stakeholders (governments, private sector, teachers, civil society, donors). The Steering Committee will provide guidance to the SchoolNet Africa director and will work with the director to co-ordinate, manage projects and report on all activities related to the SchoolNet Africa.
- **SchoolNet Africa Executive Management Committee** selected from the Steering Committee. This is limited to 5-6 members who are focussed, fully committed, influential and informed. The Executive Management Committee will be a legal entity (e.g. a trust) and the governing body for the SchoolNet Africa initiative. It will be the body to whom the Steering Committee and the Director account for project success or failure and sound financial management. It will ensure proper and effective corporate governance at all times.
- **SchoolNet Africa Director** appointed on the basis of appropriate experience. The SchoolNet Africa Interim Director will perform two functions – business development and project management.
- **Advisory Committees**, The Advisory Committees will be virtual teams of persons with a wide range of expertise and influence in the education, technology enhanced learning and information science fields. There will be a Government Advisory Committee consisting of Ministry of Education representatives and a Private Sector Advisory Committee. Each will lobby and advocate school networking in their respective domains in order to raise awareness and increase support and each will select a representative to be a member of the SchoolNet Africa Steering Committee.

2.7 Success Factors

The following list gives the success factors for the *SchoolNet Africa initiative*⁴:

- The initiative must be anchored by, and build on the success of, current national efforts in school networking across Africa.
- A champion who will link national champions and galvanise interest across the continent must drive SchoolNet Africa.
- The initiative must demonstrate practical achievements on the ground as well as communicate a clear vision for Africa-wide school networking.

⁴ These factors apply specifically to the regional initiative. In addition there are a series of factors directly applicable to national SchoolNet projects that are available on the ADF website..

- The entity must be based in Africa and be responsive to the needs of African learners, teachers and policy-makers
- National level champions are required to facilitate the flow of information between national players and SchoolNet Africa, as well as to facilitate collaboration and the development of partnerships.
- SchoolNet Africa will have dedicated resources and be responsible for establishing a centrally facilitated communication system recognising the needs of a multilingual environment. It will also facilitate collaboration between members and international partners.
- SchoolNet Africa will establish a mechanism for ensuring that donor involvement is coherent and responsive to national needs.
- SchoolNet Africa must be an independent legal entity that is not-for-profit, with buy-in from the public and private sectors, and civil society. As a legal entity it will have the capacity to channel human and financial resources appropriately.
- SchoolNet Africa assumes that infrastructure development is being addressed through the rollout of national telecommunications infrastructure and that school networking is regarded as a priority area by national governments.

2.8 Business Plans

Comprehensive business plans for the one-year pre-start-up phase and the five year project as a whole are available on the ADF website. The plans detail the programmes of action, projects, key thrusts, expected deliverables, responsible partners, timelines and budgetary requirements. A budget of \$435000 is proposed for the pre-start-up phase.

3 VarsityNet

Connectivity for universities and institutes of higher learning

3.1 BACKGROUND

Universities and other institutes of higher learning are the major providers of most of the professional and highly skilled labour for the African public and private sectors. This component of The African Learning Network addresses the academic and administrative components of this sector and offers a framework for university connectivity in Africa. If adopted it will rationalise the individual activities currently taking place within the region

In most countries in Africa, the traditional definition of 'university' indicates those institutions that have been duly accredited to offer undergraduate and post-graduate degree courses. However, because of educational reforms taking place in some countries, and the pressures of inadequate access caused by lack of facilities, other tertiary institutions now offer university level

diploma or degree programmes. The proposals for VarsityNet in this section therefore embrace

- Universities, polytechnics and other government-accredited private training establishments and “corporate” universities
- National Academies of Arts and Sciences
- National Councils, Research Units and other bodies devoted to scientific, economic and industrial research⁵.

Any proposal such as VarsityNet needs to address several aspects of the higher education context in Africa.

Infrastructural Constraints

Few African Universities have any computer network on their campuses, or connect to other universities. Where there are networks, they serve the specific needs of particular departments, or specific research projects or courses. Computers remain largely unexploited in the research, content development and delivery of courses and are not used for administration of student records, library and document delivery systems, etc. Physical infrastructure and capacity building development remains a subject of great concern. Universities know what to do but lack either the means or the human resources to sustain such systems.

Notwithstanding the above, some African countries such as South Africa, Egypt, Ghana and Tunisia, have taken steps to develop computer networks to meet specific needs on their campuses, such as the provision of inter-campus or inter-country connectivity. The positive efforts and the actual development on the ground in such countries should serve to provide some input on the lessons learnt as well as specific critical success factors to guide progress.

Lack of Access to Relevant Materials

In Africa there is a serious dearth of resources, both hardcopy and electronic:

- Libraries at African Universities do not stock enough materials, largely due to budgetary inadequacies and restrictions.
- The high price of printed books and materials makes access to, and ownership of such material, well beyond the reach of the average student and faculty members.
- The absence, or lack of adequate alternative or complementary library resources, is widespread, although a few services are provided by agencies such as the Alliance Francaise, The British Council, and the United States Information Service.

⁵ Links should also be considered to Ministries or National Councils responsible for the administration of the national policy on higher education.

- Many community libraries do not keep texts that meet the academic needs of students and faculty of Universities.

Worldwide, traditional teaching and learning resources are being supplemented by information accessed through the Internet or made available through alternative electronic media. Once connected, cash-strapped African universities would be able to access large numbers of online publications, electronic scholarly journals, and international newspapers and magazines of technical or scientific interest available over the Internet⁶.

Marketing of African Universities to Prospective Students

African students know little or nothing about opportunities available in African countries, because universities do not market their programmes effectively. Print media are very costly and few African universities use websites to advertise their offerings. By contrast universities and tertiary institutions in Europe, North America, Asia and Australia open their doors to prospective students all year round via interactive "tours" available on their Internet sites and African students are constantly seeking admission to such institutions⁷.

Access constraints

The absence of connectivity deprives many faculty and students of the opportunity to participate in electronic discussions of scholarly interest, thus isolating African academics even more from international and regional debates.

University Administration

University administration departments could, with the use of improved connectivity on their campuses, tackle issues such as registration-related procedures, alumni affairs, administration of financial aid, endowment tracking and funds management, on-campus announcements and other administrative services.

Language

Africa has four main official language zones—Anglophone, Arabic, Francophone and Lusophone. University education is largely provided in one or more of those languages, although local languages such as Amharic, Swahili and Afrikaans are used for instruction in some institutions of higher learning. Many African professionals are not multi-lingual. This means that outside of conferences and workshops where translation facilities are available, post-forum agendas cannot be pursued. But for the language

⁶ African universities would also be able to access additional sources of funding – such as research and travel grants, faculty and student exchange programmes – if they had access to the various listservs or Websites with such information.

⁷ For African students this often offers a first-time encounter with the Internet. For example, in Ghana, students who visit the Education Counselling service at the US Information Centre, have to learn basic computer literacy in order to cope with the admission search process, and the taking of tests for the SAT and TOEFL programmes.

problem there is a great deal of collaboration that could take place among African countries in the areas of education, scientific and technological exchanges, industrial training and development exchanges. Language diversity would thus need to be taken into account when establishing university connectivity programmes. Such programmes would need to explore opportunities to harness indigenous languages and indigenous knowledge.

Ageing Profile

Many young Faculty members have spent at least 4-5 years obtaining their higher degrees outside Africa. The sparse available resources they find on their return are a major handicap (*if they return at all!*). Without these returning professionals, though, African Universities face a huge risk of non-survival or at best, discontinuation of their critical programmes. A constructive way of addressing this human capacity shortage is by improving access to modern tools of learning, research and communication and enhancing job satisfaction in the process.

The African Diaspora

There exists a large African Diaspora made up of highly skilled African academics and professionals who wish to explore ways of contributing to Africa without losing their residential or work permit status in their present countries of abode. They represent a huge potential asset to African universities that have suitable communications infrastructure.

3.2 VISION

The previous section reveals that effective electronic communications within the African university community and between that community and the rest of the world can have a profound effect in overcoming the many problems in higher education in Africa. Add to that the vast vault of local and indigenous knowledge coupled with the enthusiasm of the general African Community⁸ and it is clear that Africa would welcome any effort to bridge the knowledge gap within and between Africa and the rest of the world.

The broad vision for VarsityNet is thus:

To use electronic means to connect all educators, students and administrators within African institutes of higher learning with each other and with the rest of the academic world.

The vision embodies the following objectives for VarsityNet:

Teaching and Learning

- To promote research into critical areas of social, scientific, national and commercial interest;

⁸ As evidenced during ADF'99 and the recent European Union-African Heads of State Summit in Cairo, April 2000

- To facilitate learning and teaching;
- To serve as a key medium for the exchange and sharing of knowledge;
- To expand the scope and diversity of outreach & extension programmes.

Capacity Building and Administrative Capacity

- To facilitate the continuous improvement and sustenance of high university administration standards; and
- To ensure that universities have suitably trained technical staff to maintain all affected systems as well as provide faculty with suitably current technology to pursue their teaching programmes.

Technical

- To bridge the ICT gap by bringing access to smaller and less endowed institutions of higher learning, and connecting them to universities with the requisite infrastructure; and
- To provide a structured backbone and peering system for use by all affiliated institutions.

More specifically, it will be necessary to:

Provide a common framework and protocol for the cost-effective interconnection of all African Universities.

Facilitate the linkage to other university- related networks in other parts of the world.

Create a mechanism to access the vast potential knowledge vault existing across African Universities, through their students and faculty.

Provide a facility for the creation of appropriate administrative support services such as common admission and recruitment systems.

Create the necessary facility for smaller institutions to piggyback on larger networks, thereby developing equality in opportunity for all African Universities.

Enable the development and make available a directory of "true" African intellectual and research capacity and available talent to help governments, the private sector and the public in Africa to address governance, empowerment and access.

Train the prerequisite manpower in a structured manner to manage the systems and the required supporting infrastructure.

Provide technical support for the development of appropriate curricula for ICT education and ICT supported education modes at all levels of tertiary education in the various countries.

The objectives above indicate the need for close collaboration among countries, universities, development partners and the larger ICT community in Africa. This is very much in line with the consensus reached at the ADF'99, where it was agreed that the "*regional mechanisms for the exchange, even concentration of experiences and programmes can provide the most appropriate channel for Africa to play an active part in global fora.*"

3.3 Project Objectives

A number of specific projects are proposed. These are summarised below⁹.

Staff Development

- Develop computer resource centres in all universities for faculty training and development
- Develop ICT training programmes in word processing, spreadsheets and database systems as well as research methods using computers
- Develop acceptable ICT use policy guidelines for African universities
- Develop content specific ICT teaching programmes for trainers

Information Dissemination and Networking

Develop multilingual Websites to facilitate institutional governance and public access to information

Design an Indigenous Knowledge dissemination system

Create an African University Inter-Library and Document Delivery system

Create an African Thesis Online service

Document the research interests of universities and their faculty

Content Development

- Determine and document specific areas where ICT could be used to improve curriculum research
- Create a clearinghouse for content production and dissemination along line of URTNA (the Union of Radio and Television Networks of Africa based in Kenya).
- Organise Subject or Theme workshops towards the production of specific materials of African, Regional or in-country relevance focussed on agreed Terms of Reference

Exchange Programmes and Partnerships

- Establish an Africa University Faculty Exchange Programme similar to the Fulbright Programme of the USA
- Create an endowed system of Visiting Professorships in all Universities

⁹ Readers are referred to the ADF website for details as regards key performance outputs, suggested lead agencies and timeframes.

- Create facilitated virtual discussion groups addressing **particular subjects** (e.g., Finance & Economy; Science & Technology; Humanities Education; The Arts, Culture & Indigenous Knowledge Development, etc.); **special interests** (Gender & the Child, Disabled, Physically Challenged and the Disadvantaged, Rural Communities Empowerment , etc); and **technical issues** such as Interconnection Interface Protocols & Management.
- Develop a formal mechanism to promote and sustain the management of connectivity by establishing the Africa Centre for University Connectivity
- Develop a framework to facilitate the harmonisation of common services either in-country or regional Develop Common Admissions interface for all students
- Develop common students administration services infrastructure - paper work, software etc

Monitoring & Evaluation of Teaching and Research

- Develop Quality Assurance Standards for ICT use at universities
- Develop Handbook on Quality Assurance Methodology for Teaching with/through ICT
- Develop Quality Assurance Measuring Guidelines Toolkit for African Universities

Student Training Programmes

- Develop online resources for students
- Develop guidelines on qualifications equivalencies
- Evaluate the impact of the African Virtual University and similar initiatives

The African Learning Knowledge Warehouse

- Prepare a Directory of Experts in various subject areas who could be invited to participate in African University and Knowledge sharing activities. Create a moderated listserv on all areas of expertise to facilitate exchange of ideas.
- Create a Virtual Library of Knowledge Material to incorporate bibliography, source of material and location of actual information; Institute joint Workshops for the preparation and review of Africa sensitive Content and Curriculum
- Institute the African Learning Exchange Fellowship Programme to bring African and Diasporan academics and professionals to African Universities for specified periods.
- Commence Programme for the Research and Introduction of improved teaching and learning methods into African Universities.

3.4 BENEFICIARIES

- Good university systems are centres for excellence in learning and not just a congregation of buildings and people. Sharing of knowledge through appropriate networks and resource exchanges will greatly enhance performance and build the required leadership in education so critically needed in Africa today.
- VarsityNet will help solve the African Diasporan Brain Drain, as it will enable faculty members to see opportunities available in other African Countries. It will also create conditions for African Faculty to work from their home bases whilst sharing and acquiring knowledge.
- A university connectivity project will offer African countries the opportunity to create more value, and enhance academic teaching and learning products with the rich wealth of information available through indigenous and more "orthodox" knowledge systems.
- The project will afford African governments and stakeholders in education the opportunity to redefine and develop the capability to manage the transition to the future.
- Students will become IT-literate and be able to participate more effectively in producing as well as consuming information. This will create graduates with better employment opportunities.

3.5 SUCCESS FACTORS

- For successful implementation, VarsityNet will have to note: The need for national concerted efforts by ECA Member countries to facilitate the building of any new systems. The issue of mistrust in opening up systems for open or even limited sharing of knowledge could seriously influence faculty participation.
- Any in-bred, poor or entrenched attitudes by university faculty and administrations, and by governments, could influence the prosecution of programmes under the project.
- Regional or language group biases must be evaluated and specific concerns addressed and incorporated into all components of the project.
- If propagation of university connectivity is put into a wrong social or political context, resistance could develop.
- All projects of similar content but having a narrower coverage should be reviewed and suggestions for harmonising areas of conflict should be seriously considered.
- The management of VarsityNet should have broad representation across the various regions of Africa, language zones, and subject interests.

- VarsityNet implementation must be based on equity on the basis of gender, physical or mental disability, race, religion, colour or creed.

4 Out-Of-School Youth Networking (Oosynet)

4.1 PROGRAMME OVERVIEW AND BACKGROUND

This component of The African Learning Network is concerned with Africa's youth who are not attending any school (nursery, primary, secondary, high school or university)—the Out-of-School Youth (OOSY). It seeks to counter the reality that most youth networking initiatives target youth in schools or universities, ignoring the ever-growing population of out-of-school youth¹⁰. The lack of research on the possibilities offered by ICTs to this group is a major impediment for policy and programme development processes in Africa and there is also insufficient empirical research on the needs of this group.

Some of the phenomena that lead to OOSY are:

Dropping out: Generally youth drop out of school for lack of money, or because they are convinced there is a faster way to arrive at maturity and independence from their parents. Sometimes parents have decided that youth, particularly girls, have had enough schooling for the role that is reserved for them in life. When youth drop out of school, they can become victims of war, of disease, and of ignorance in all its dimensions.

Hard landing 1 - Out in the cold: In general, those who drop out earlier in the schooling cycle, or do not go to school at all, have the least chance of integration into the knowledge society. Schooling and literacy are necessary for national integration, the development of a sense of belonging to a community, and for the inculcation of a culture of peace.

Hard landing 2 - Privation and exploitation: OOSY may become parents too early in life, or even single parents. In their attempts to survive they may fall prey to adventurers such as pimps, drug dealers, criminals and outcasts, including religious sects or political extremists.

Soft landing: The lucky OOSY are those who end up carrying out small trading and handicraft activities, or who are learning various trades and skills through existing apprenticeship systems.

The development challenge is to make it possible for OOSY to feel the real impact of the knowledge society on their daily living conditions. This requires not only access to the technology, but also a strategy for monitoring their livelihoods, with indicators, information collection and analysis, and appropriate policy recommendations to government for corrective measures. A major success indicator will be the ability of OOSY to generate, access, and share information about themselves and their economic and social activities.

The proposed network—OOSYNET— will provide a set of services that presently does not exist at all or exists in a very inadequate manner. Youth should, with the help of the Internet, be able to:

¹⁰ The OOSY have “oozed” out of the cracks of those initiatives.

- Find valuable knowledge for daily micro-decision making;
- Communicate with other stakeholders in their own countries and beyond;
- Contribute their own knowledge and expertise in improving their living conditions; and
- Benefit from various capacity building tools.

The OOSYNET concept builds on the work of existing multilateral and bilateral initiatives in ICTs by creating a coordinated, systematised framework across African countries, and which can be linked with other components of The African Learning Network.

4.2 VISION for OOSYNET

OOSYNET, being one of the pillars of The African Learning Network, aims to reduce poverty and improve the well being of Out Of School Youth (OOSY) by providing them with access to information and knowledge.

OOSYNET aims to enhance the capacity of decision-makers to integrate and monitor the deployment and implementation of policies and strategies aimed at poverty alleviation among this group of youth.

This will be achieved through the application of information and knowledge networking technologies such as the Internet and other global networks.

4.3 DEVELOPMENT OBJECTIVES

OOSYNET will improve access to, and mastery of ICTs by Africa's youth and monitor the impact of ICTs on the evolution of their living conditions. This will be achieved by:

- Identifying key information available on the living conditions of Africa's youth and the level of their access to ICTs, based on well-defined indicators;
- Helping in the generation of new information and the adaptation of existing information so that it can be integrated into the network;
- Strengthening the capacity of Africa's youth, so that they can maximise the value of the information provided by the network;
- Facilitating communication among Africa's youth;
- Mobilising private sector and civil society contributions in favour of this effort through the organisation of concerts, radio and television roundtable conferences, symposia, conferences and workshops, poster campaigns, etc., with a view to gathering contributions in cash and in kind for use in appropriate projects, both offline and online;

- Assisting, at country level, in the study, formulation and use of Government policies, laws, rules and regulations regarding the access to and mastery of ICTs by Africa's youth;
- Increasing the capacity of Africa's youth to represent their interests at international conferences on youth welfare issues through appropriate background research, developing well-grounded positions supported by broad-based coalitions on the continent; and
- Promoting open source software as means of reducing the cost of access to development information, and serve as a recycling centre for used computers donated by the international community, private sector and civil society for distribution to the NGO community for the benefit of the poor.

4.4 PROGRAMME OBJECTIVES

OOSYNET aims, over a five-year period, to achieve the following overall objectives:

- Prepare and submit for adoption by African Ministers a continent-wide declaration on youth and the information age in Africa.
- Propose appropriate policies, strategies and tools to African governments to help the youth improve their lives at every level through access to and use of ICTs.
- Establish at least one OOSYNET in each of 15 African countries, either alone or as a reinforcement of other networking initiatives.

Specific objectives include:

- **Youth Livelihood Observatory:** Develop and regularly monitor Livelihood Indicators in OOSYNET African countries using the network of telecentres, VarsityNets and SchoolNets as the communication backbone. This will include a study on the state of access to ICTs by the youth and how this impacts on their living conditions;
- **Visibility (The Voice of the Poor):** Publish an Africa-wide newsletter at least quarterly, on various aspects of the lives of youth; regularly publish the observatory's results through Websites, journals, magazines and newspapers, in order to make the plight of OOSY visible;
- **Training:** Train OOSY in the use of ICTs in their daily activities at all levels through meetings, seminars, workshops and study tours. Link these initiatives to similar training initiatives being coordinated through The African Learning Network;
- **Technical assistance:** Provide assistance to NGOs in the formulation of concrete proposals for knowledge-based youth oriented projects in each country and across countries and regions of the continent, so that the power of knowledge and information is harnessed to work for the youth.

- **Content Production:** Encourage a decentralised system of information production, sustainable storage and exchange in each country to provide information on content and capacity building for the OOSY.
- **Awareness raising:** Raise awareness about the potential contribution of the information age networking technologies to the improvement of the living conditions of OOSY.
- **Partnerships:** Through the African Learning Network, expand the partnership base for the youth with multilateral and regional institutions, the private sector, the academic community, and NGOs. This will ensure OOSYNET's sustainable growth.

4.5 OOSYNET Components

The components outlined below provide a practical way of attaining the OOSYNET objectives. The flexible and modular nature of the proposed OOSYNET will ensure that practical use of the network may start a few months after initiation of activities. Some can comprise stand-alone components, others sub-components linked to other parts of The African Learning Network.

The Library

One component will be an electronic Library for OOSYNET. It will need:

- A "map" that clearly indicates the roads towards youth integration in the information age; and
- A categorisation of content that is both comprehensive and widely recognised.

An institution in each participating country will assume responsibility for identifying, placing and updating the information in a node connected to the Internet. The basic interface would be through Websites and e-mail, although other methods can be used to ensure wide access to information e.g. FTP sites, newsrooms and Bulletin Boards.

Most of the information (papers, statistics, case studies, reports, guides, images, etc.) need not physically be on each node. The node would link to this information as necessary. The type of information accessible through the nodes would be decided in consultation with the stakeholders in each country (government institutions, civil society organisations, private sector, academia, and donors).

Virtual Plaza

The common interface to the network will be its Virtual Plaza, a network of Electronic Community Telecentres, VarsityNets and SchoolNets, which shall offer an electronic meeting place where Africa's youth may establish and maintain contacts, exchange experiences, ask for advice and support, offer

their services and also be entertained. Some of the functionalities include guided access to particular expertise, education and training opportunities, productivity tools, chat sessions, discussion conferences, and virtual meetings. The Virtual Plaza would become the "living centre" of the OOSYNET.

A TV and radio module will be integrated into the realm of network activities, mainly for health, education and other social components of development. TV and radio programming can be an extension of the network, with the programming based on network-provided information.

Yellow Pages and other online databases

A countrywide Yellow-Pages directory of youth-related institutions and stakeholders, providers of services and products, expertise, etc will be developed. Whenever they are connected to electronic networks, hyper-links will be provided for direct communication.

Online Resource Centres

Resource Centres will provide on-line support services assisting development organisations (e.g., in health, education, sustainable agriculture, etc.) to develop computer-based solutions tailored to the needs of Africa's youth.

The Garage

The Garage will be a Physical Resource Centre, which may have more than one location in each country, and could be strongly linked to SchoolNet and VarsityNet initiatives. The Garage could:

- Provide direct technical support to the Africa's youth;

- Enhance the technical skills of some of Africa's youth so that they can do their own basic computer maintenance and repair work;

- Introduce Africa's youth to free and open source software to reduce the cost of software, and give them the freedom to copy, study, modify, standardise and distribute software among themselves; and

- Operate as a recycling centre for old and discarded equipment from private companies, UN and other multilateral cooperation agencies. This would help cover costs and at the same time provide usable equipment to the youth community in each country. Youth themselves could be trained to operate such centres.

The Learning Centre

A network-based Learning Centre will help Africa's youth to learn online about using computers and accessing information e.g. Internet services such as e-mail, the Web, and chats, etc.). A basic set of learning instruments would be offered, both printed and electronically (through electronic networks or on CD-ROMs and diskettes on topics such as the following:

- How to operate a computer, and basic applications (word-processing, spreadsheets);
- How to make use of electronic networks, including the Internet (particularly e-mail, the Web - page browsing, chats, Usenet and discussion lists);
- How to develop content to be placed on electronic networks (creating documents with applications software, adaptation of existing non-electronic information to be posted on networks); and
- How to administer systems and networks, to produce technicians for Internet-based services in each country.

Publishing Module

The Publishing module would work on accelerating the publication of existing, digital and non-digital information about and for the youth on the network (particularly indigenous local knowledge, about rites of passage, for example).

The activities in this module would include large coordinated scanning/digitizing efforts, recording verbal information, conversion of documentation to Internet-ready formats, and storage on CD-ROM and diskettes.

Sensitisation and Awareness Raising

A vast sensitisation and awareness raising campaign shall be carried out at strategic points during the year, to make the issue of youth and the information age a household word on the continent in any language. After each high profile event, a memorandum shall be sent to the highest political authorities in each country (the Head of State, the Prime Minister and relevant Ministers) requesting specific action in favour of youth and the information age. An example might be duty free privileges for information age technology products such as computers, software, books, and other accessories for individual use.

Search Engine

Once enough content is incorporated into the network, a specialized, powerful and customisable search engine will be put in place.

4.6 BENEFICIARIES

This programme will be beneficial primarily to:

- The underprivileged youth in big cities, small towns and rural areas, who would otherwise have been left out of the information age;
- The youth's small and medium enterprise entrepreneurs and managers, who shall receive assistance from OOSYNET in the setting up and

operation of information age clubs, for computer and networking literacy; and

- Different partners in the private and civil society (NGOs, consultants and consulting firms specialising in or focussing on youth) who shall work hand in hand with the programme to bring Africa's youth into the information age.
- Governments, which shall receive advice and better access to information about the living conditions of youth.

4.7 SUCCESS FACTORS

For successful implementation,

- OOSYNETs must be integrated into well-designed National Information and Communication Infrastructure (NICI) plans.
- African countries must insure that the needs of youth in the information age are taken into consideration when designing information systems for governance. Governments should consider mechanisms to reduce the costs of providing access to ICTs.
- There needs to be a clear understanding in each country that ICTs enhance and expand the possibilities for learning for youth of all ages rather than drawing resources from existing learning initiatives.
- All projects of similar content but having a narrower coverage should be reviewed and suggestions for harmonising areas of conflict should be seriously considered.
- Regional or language group biases must be evaluated and specific concerns addressed and incorporated into all components of the initiative.
- The management of OOSYNET should have broad representation across the various regions of Africa, language zones, and subject interests.
- OOSYNET implementation must be based on equity on the basis of gender, physical or mental disability, race, religion, colour or creed.
- As spelled out in the next section, partnership is the key to the success of OOSYNET.

4.8 BUSINESS AND FINANCIAL PLAN

A business plan to ensure cost recovery and sustainability of the initiative shall be put in place during the first year. The OOSYNET initiative's duration is expected to be 4 to 5 years, and its total cost is an estimated US\$ 20 million. This initial estimate assumes US\$ 1 million for each of 15 countries and US\$ 5 million for studies, coordination and consultation at continental level.

5. DISTANCE LEARNING PROGRAMME

Distance learning program is a teaching-learning network where the actors are geographically separated and communication between them is taking place through technical media such as audio and video teleconferences, audio and video recordings, personal computer, correspondence texts, and multimedia systems. Currently, research and development activities are being undertaken towards identifying the potentials of the World Wide Web to implement distance learning programmes. Innovative distance learning programs are being implemented to meet critical educational and training requirements through and web-based training techniques.

The effort that is being made to harness the use of ICTs in Africa also embraces the area of distance learning whereby distance learning programmes are implemented to deliver courses to students, women, youth, adults and other persons in Africa on subjects of relevance to studies or their career development. Distance learning schemes can also be conducted to teach general studies to those people who are not able to attend formal schooling for one reason or the other.

Distance learning networks can be organised in collaboration with appropriate national agencies and regional and international institutions via teleconferences and teleworkshops on specific subjects related to African development. Distance learning programmes can be implemented in the following modes:

- Real-time communications between the classroom and the lecturer which can be done using two ways communication facilities;
- One way communication from the lecturer to the students whereby students listen and send questions to the instructor using e-mail facilities using a separate telephone line;
- Remote distance learning by downloading a course from the Internet;
- Using a video cassette, an audio-tape or other similar media to learn and ask questions using any available means.

5.1 Objectives of Distance Learning

Among others, the distance learning could serve the following educational purposes:

- Providing equitable remote access to resources in support of both distance education and the strengthening of local educational capacity;
- Connecting schools, universities and research centres to national and international distance education facilities, national and international databases, libraries, research laboratories and computing facilities;

- Reducing communication and administrative costs by building communications networks linking all educational establishments;
- Promoting and supporting collaboration among teachers and researchers;
- Extending the reach of educational facilities in informal learning.

5.2 Beneficiaries

Beneficiaries of the distance learning programme include:

- ECA staff member and others from member States who wish to continue in their career development;
- Students who may need to learn subjects which are not available in their countries or for which they do not have access;
- Africans who are not able to attend formal schooling for economic and social reasons;
- African experts with limited access to contemporary knowledge needed to perform their day to day activities and research undertakings better. It also helps them to uplift their intellectual and social status.

5.3 Implementation considerations

The implementation of distance learning program requires at least the following:

- Availability of ICT infrastructure (ICT equipment, telecommunications, e-mail programs, Internet access, power, digital projector, skilled human resources, etc.);
- Preparation of educational content addressing developmental problems and issues;
- Appropriate policies instituted to support development and implementation of various programs;
- Co-operation at national, regional and international level.

5.4 Success Factors

For successful implementation of African distance learning programme, the following need to be considered:

- Making an inventory of existing distance learning programs;
- Securing government and other donors commitment to support distance learning initiatives;

- Selecting appropriate hardware and networking equipment and develop curricula that would address the needs of the audience in consideration;
- Training of experts with skills required to conducting distance learning programs and maintaining equipment being used for this purpose;
- Setting up co-ordination bodies and other infrastructural facilities to guarantee the smooth running of the program;
- Preparing Web resources to be used for distance learning programs;
- Preparation of short-term and long-term plans at national and regional levels.

5.5 The Role of ECA

From institutional point-of-view, ECA will facilitate the implementation of distance learning programmes in member States. ECA through its Information Technology Centre for Africa (ITCA) will invite various capable institutions to implement distance learning programmes focussing on specific development issues and problems. Besides, ECA will approach donors and mobilise funds required to build distance learning centres at sub-regional level and set up educational networks between these centres. It will also organise sub-regional workshops with a view to sensitise all concerned parties on the uses and values of distance learning programmes.

Conclusion

Education in Africa today needs to be transformed so as to address new challenges in preparing young learners to participate in local and global economies, in local social and political institutions as well as in international fora. African children need to get access to the knowledge produced globally and to contribute their part to the global infostructure.

The need for a rational diffusion and application of ICTs in the education sector to improve the management and administration of educational activities in Africa has been adequately dealt during the ADF '99. Nevertheless, the major issue in the continent has always been getting governments committed to set up a national body that will draw up an action plan containing projects and strategies focussing on establishing and maintaining on-line learning tools such as school networks, distance learning schemes, etc. to meet local educational needs. To make this happen, governments need to exert efforts to forge effective partnership with national, regional and international development partners and show willingness to wisely commit scarce national resources.

Annex

The African IT Education Trust: Proposal for an Information Sciences Enterprise Campus

Originally established to promote education and training in computing, communications and related fields, the African IT Education Trust has decided to focus initially on a single project in a selected African country which will act as a model for similar projects in other countries.

Internal discussions and consultations with representatives of the IT industry have resulted in the following conclusions:

1. The Trust will not be able to muster sufficient resources to implement a range of IT education projects with a significant impact across a wide range of countries – or support projects undertaken by other organisations - and maintain the necessary level of financial accountability.
2. Consultations with representatives of the IT industry have revealed an unwillingness to fund high-volume, widespread IT education projects aimed at low-level skills development. Although that may be a more long-term objective for the Trust, its short-term priority should be to address the more immediate priority of high-level skills shortages - and the continuing brain-drain from the continent.
3. The Trust should concentrate its efforts on developing a high-level project that creates a unique educational and entrepreneurial environment, with a high degree of private sector input – and business spin-offs. This project should act as a model that can be replicated in a range of African countries. The aim of the project would be to educate, stimulate entrepreneurial initiative and create employment in the IT sector which would have a major impact on the economy of the host country.
4. In the information age a project that has spin-offs in terms of spawning new information technology enterprises could have a major impact on the host economy.

The proposed project is the development of an Information Sciences Enterprise Campus which will have the following key elements:

1. As its core element the Campus will have a teaching faculty comprised of African and international academics that are leaders in leading-edge information technology subjects, offering post-graduate courses leading to degrees initially accredited by a top international university but over time developing its own status as a centre of excellence offering a range of internationally recognised qualifications.
2. All faculty would be encouraged to engage in entrepreneurial activities based on the campus, with the intention of promoting small enterprises in areas like software design, training, consultancy, hardware assembly, service and maintenance etc.

3. Small enterprises in the information technology field will be invited to base themselves on the campus, on the basis of criteria established to protect the interests of the campus community and the overall goals of the Campus.

4. The campus will be designed to create an environment that is attractive for academics, students and entrepreneurs that have an international perspective and aspirations. It would include residential facilities to encourage the development of a campus community. The Trustees could hold an architectural competition to attract world-class design input for the development of the campus. The object would be to attract the best and the brightest of the 18-30 age range to the campus from around the world, particularly appealing to Africa's highly qualified Diaspora.

5. The campus may associate itself with, and/or be based on the campus of, an existing university, but its financial and academic independence would be guaranteed and managed by a board appointed by the Trustees.

6. The host country or countries would be selected on the basis of the following criteria:

- A stable, democratic political environment.
- Evident liberalisation of associated sub-sectors, particularly telecommunications.
- Firm government commitment, with a written charter, to the independence of the Campus.
- A special duty and tariff status for the campus to encourage technology importation.
- A liberal application of labour legislation and unlimited work permits to enable the campus to select staff purely on merit.
- Special tax status to enable the Campus to become self-sustaining as soon as possible, thus allowing the Trust to devote its resources to the development of further projects in other countries.

7. In order to enhance the critical mass of the Campus and its overall impact on the host economy, major international computing and telecommunications companies would be invited to base their regional or national training, marketing, assembly or sales units on the campus.

8. The campus would be closely monitored and assessed in order to provide model material for future campuses in other countries.

9. Trustees and donors need to make a major funding commitment over a fixed number of years, but with a clear target of the Campus becoming financially self-sustaining in the long term. Equity partners would be sought to invest in the Campus.

10. Ownership of the Campus would be vested in a local Management Board appointed by and accountable to the Trustees. Clear accountancy and auditing procedures would be set by the Trustees.

Next Steps:

This proposal will be discussed at a further consultation meeting with the IT industry where it can be further expanded and refined. In addition, the proposal will be circulated to all Trustees for their input. Following acceptance by the Trustees of this as its initial project proposal, a funding application will be circulated to potential donors. At the same time the Trustees will commission the development of a detailed business plan. It is proposed that a leading consultancy should be approached to undertake this on a donor basis. The Trustees should draw up an invitation to suitable host countries to bid for the hosting of the initial campus

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