APPENDIX TWELVE
School Networking Introductory Information

INTRODUCTION

In this appendix we present some basic information about schools networking. Chapter seven of the report outlines a model for a communications and technology backbone and uses the national schooling systems to illustrate how this could be applied. In this chapter we pointed out that one of the major strengths of the proposed model is that it builds on existing initiatives and allows for technological flexibility. Schools networking is not a new idea and much ground work has already been done in South African through SchoolNet SA and its regional partners. As a *Regional School Networking Workshop* was recently held in Cape Town - and issues relating to schools networking Southern Africa were discussed - we thought it useful to include these reflections as part of this report as a possible source document. To introduce schools networking, we have summarised a report produced by the Claire Sithorpe of the IDRC that captures the content of the above mentioned workshop. We have also then included some of the presentations on schools networking initiatives that were presented at the accompanying Millenium Minds conference held at the same time. The following countries or regions are included:

- Botswana;
- Denmark;
- Europearn Schools Network;
- Lesotho;
- Namibia; and
- Zimbabwe.

This is clearly not intended to be an exhaustive or in depth study of international schools networking initiatives. Full acknowledgement for the material presented rests with the original writers. As this information was being circulated in the public domain (via list servs, web sites and CD-ROMs) we thought it useful additional resource and relevant to this project. l

SCHOOL NETWORKING IN SOUTHERN AFRICA

Source: IDRC Report on the Regional School Networking Workshop held on October, 1-2, 1999, Cape Town., distributed via the schools-networking listserv [1]
Contact person: Claire Sithorpe

[1] The original report contains a participants list with contact details for all participants from Southern Africa in an appendix.

'The International Development Research Centre (IDRC) through its Acacia Initiative hosted a workshop for those involved in establishing school networks in Southern Africa. Acacia is an international program to empower sub-Saharan communities with the ability to apply Information and Communication Technologies (ICT) to their own social and economic development'[2]. This workshop was held in conjunction with the Millennium Minds conference being organized by the Western Cape Schools Network in conjunction with School-Net SA..[3]

The purpose of the workshop was to bring together those involved in school networking within the region to share experiences and to discuss how to strengthen school networks in their respective countries. The school networking workshop comprised of individuals championing the establishment of school networking in a number of countries in Africa. These included representatives from government, private sector, civil society, and donor organizations. The countries represented included Angola, Botswana, Egypt, Lesotho, Malawi, Mozambique, Namibia, South Africa, Uganda and Zimbabwe. The desired outcomes of the workshop were articulated as follows:To develop a shared understanding of the status of school networking in the countries participating. This included:

- a focus on, what is happening, how countries are doing things, what's working, and what isn't working? and
- identifying obstacles to moving forward with school networking, and ways to overcome the most important obstacles and ways for countries to collaborate with each other.

It intended to find ways to strengthen collaboration and identify appropriate actions for strengthening school networking including determining who will take these actions forward as well as a timeframe for doing so.

> 'Presentations were made by each of the countries represented (Angola, Botswana, Egypt, Lesotho, Malawi, Mozambique, Namibia, South Africa, Uganda and Zimbabwe). Participants identified the new ideas, surprises, insights and concerns that came out of each of these presentations.'[4]

IDENTIFIED OBSTACLES

Through this engagement and additional discussion, the workshop participants identified a range of obstacles to school-net working that require the most attention in South Africa and other African continents. These were grouped as shown

Partnership

Many points were raised around the issue of partnership and this was identified as the area requiring urgent attention. The points raised around partnership include the need for:

- Strong coordination and support from government.
- Active partnerships between government, NGOs, private sector, donors and telecommunication providers.

[2] IDRC, *Report on the Regional School Networking Workshop*, October, 1-2, 1999, Cape Town, p. 1

[3] See http://www.wcape.school.za/conf99/

[4] *ibid.* p. 1, Electronic versions of some of these presentations can be found at: http://www.egroups.com/docvault/schoolnet_sadc

- The private-public sector partnership model was identified as key, in particular for long-term sustainability.

The following possible partnership strategies were raised:.

- A schoolnet program across Africa.
- Broad support among government, NGOs and donor agencies.
- Cross-sectoral relationships.
- Increased collaboration and sharing across Africa; among partners and beneficiaries;and among donors.
- Complementary donor funding.
- An exploration of other partners such as universities and local philanthropists.

Sustainability

'The lack of resources is considered a critical obstacle to the development of school networking. These resources include technological, financial and human resources. There is a need for alternative funding strategies as well as effective marketing strategies. In addition, questions were raised around the sustainability of school networking initiatives at schools and rural centres' Donor dependency and the sustainability of programs which experience rapid development were also mentioned.

Training

The following needs were identified in relation to training. The need for:

- Dedicated human resources such as a full-time manager.
- Curriculum development.
- Teacher training – preservice preparation of teachers in ICT as well as inservice training.
- Teacher motivation including developing measures for sustaining the enthusiasm of teachers,
- Dealing with fear of ICT and identifying ICT champions.
- Effective management in schools and education.

Infrastructure

There are many problems of access and infrastructure including the availability and quality of infrastructure. There is a need for:

- Low costs access solutions.
- Government support in relation to infrastructure and human resource mobilization.
- Increased involvement of telecommunication providers in narrowing the gap between the capacities of urban and rural schools.
- An exploration of wireless solutions.

Equity

A number of issues relating to equity were raised including the need to address problems of:

- Resource distribution.
- Disability access and equity.
- Lack of rural infrastructure, resources, support and coordination.

- Geo-economic distribution of ICT initiatives.
- Lack of infrastructure in certain areas, particularly rural areas.

Government

Government plays a key role in the development of school networks. In particular, one issue that was raised a number of times is the need for a national ICT policy and government involvement in the rollout of this strategy. There is a need for government support and commitment to school networking. The question of the role of government in democratisation of access was also raised.

Monitoring and evaluation

There is a need for monitoring and evaluation of school networking activities and the impact of ICT on education. It is also important to have an assessment of needs and goals.

Champions

A champion is very important to drive school networking – the lack of champions hinders the progress of school networking.

Content

The following issues were identified:

- Content related projects could drive connectivity.
- There is a lack of local content as well as software in local languages.
- Localization is a key factor for success of ICTs.
- Language difficulties must be addressed.

Access models

There are much related accesses and service models for the use of ICTs in education – school-networking initiatives do not have to be centred on schools. For instance, in Egypt they use clubs to introduce ICTs to youth and then to wider market. This extends the education sector.

It is argued that School networking initiatives can use dual purposes community access facilities. In this way school networking can be used to increase community access to ICT (i.e. the facilities used can extend access to larger communities). For instance, telecentres/community resources centres can be used to increase access in rural areas.[5]

Planning

There is a lack of planning and coordination as well as of implementation plans.

- Curriculums need to be adapted to ICT.
- Exposure to ICT and use of ICT in education creates new educational and employment opportunities.
- ICT awareness is important.

[5] IDRC, (1999) *Report on the Regional School Networking Workshop document,* October, 1-2, 1999, Cape Town, Southern Africa, pg. 4

POSSIBLE SOLUTIONS

The workshop participants suggested or recommended a number of possible solutions to the above-mentioned obstacles

Partnerships

Partnerships need to be flexible; strength related, prioritized and has clearly defined goals. School networking organizations can bring partners together and act as the middleman in the partnerships, particularly between government, public sector, and private sector and donor community. There are two components to school networking – delivery and operations. Operations must be governed by accountable business principles to enable sustainability and expansion.

Recommended actions to be taken:

- Share experiences and learn from each other. For instance, compile examples of partnerships. Email discussion groups can be used to inform each other of developments.
- Establish exchange programs.
- Establish guidelines for setting up partnerships that can be shared with those establishing school networks.
- Leverage economies of scale by working together.

Sustainability

The group proposed the following action items:

1. Establishing a national schools network.
   - Based on partnership between various stakeholders
   - Should be representative.
   - Must drive the national agenda.
   - Should play central role in coordination and planning.
   - Develop a national strategy for school networking.

2. Establishing an African SchoolNet Trust Fund.
   - Support schools networking.
   - Mobilize resources.
   - Sharing information across national schools networking.
   - Share information on impact and evaluation.
   - Should be governed by representatives from national school networks.
   - Three people should be mandated to prepare a proposal to ADF to approve the idea of creating the trust fund. These three will be Denis Brandjes, Generosa Cossa and Heba Ramzy. The first draft will be circulated to the participants of this workshop on October 11, 1999 for comment and finalised on October 18, 1999.[6]

[6] *ibid.*

Human Resources Issues in Education

The aim if of this group of suggestions is noted as being 'To empower teachers in their delivery of the whole curriculum through the effective use of ICTs'. As such several suggestions relating to pre-service and in-service training for teachers were recommended:

Pre-Service

- Specialist teachers need to be prepared to train colleagues in their regions.
- Teachers generally need training in how to use IT for teaching and materials development.
- Teachers need to have experience of using the collaborative and groupwork methods which they are expected to teach their students.Newly trained teachers need to be fed into effective teacher networks during their pre-service training. These networks should use multiple channels for communication to ensure the widest possible access and participation. Teachers should be able to participate equally in network wide discussions even if they only have a postal address.

In Service

- Make use of telecentres in each region
- The implementation of a new curriculum should be managed as a process of cultural change unless the technology is made available training is wasted.
- The growth of effective teacher networks should be promoted
- Courses based on the minimum skill level needed to deliver ICT should be widely offered
- Teachers in all subjects need training to implement ICT in their subject areas and develop local content.

Resources

CD-ROMs should be used more than the live Internet. This requires the use of systems for periodic download to Intranets and the distribution of CD-ROMs of useful sites to schools/centres with computers but no Internet access. There was a question in the group about the loss in interactive communication.

Funding Constraints

These can be eased by the creative use of community and student volunteers to extend provision beyond what the official budget allows. In the larger group there was a suggestion that the teachers would learn from the students.

Management Issues

Educational management needs targeting so the process of rolling out ICTs is not sabotaged e.g. equipment locked away and inaccessible to students and teachers. The training of education sector managers must include the need for ICT.

Cooperation (National and International)

- We need to build a knowledge base of good practice across Africa.
- Networking between African countries must continue.
- There is scope for the movement of trainers between African countries.

- There may be a need for the School- nets/ICT in education lobby within the SADCC countries to establish a lobbying and project coordinating group.

Infrastructure

Infrastructure, (esp. electrification and telephony) critically required for ICTs and especially internet provision at "schools", leaves much to be desired in (especially) rural areas of Africa. Therefore, there is an urgent need to develop a suite of action plans which should ideally be facilitated by an organization (e.g. collaboration, committee, network, etc.) comprising partners from private, public, NGO, corporate and government sectors.

Such an organization would provide greater human bandwidth in a wide range of pertinent specialities - IT, education, fund-raising, marketing and advocacy. Importantly, such an organization would provide an appropriately diverse aggregation of expertise to lobby locally and internationally, and put pressure on government, power and telecommunications agencies (mostly state-owned) to make policy and legislative changes which will facilitate ICTs in African communities.

Importantly, such an organization should drive a paradigm shift in contemporary government and corporate visions; instead of envisioning telephony/internet for all, master plans/policies should prioritize ICT access to communities by way of schools, community resource centres, clinics, agricultural extension offices (e.g., roughly 70% of schools in Namibia lack electrification and telephony!).

Accordingly, such an organization should develop action plans, which make sure those (esp.) rural schools, and community resource centres obtain appropriate technologies for Internet access and other forms of communication. Such ICTs should take advantage of traditional technologies where possible but should also encourage ICT innovations, including telecommunication products/services such as GSM, low orbit sat, voicemail, etc. Companies such as Tachyon, Iridium, InfoSat, Microsoft should be lobbied to provide industrial test-bed opportunities as short- and medium-term solutions in infrastructurally constrained rural communities.

SELECTED EXAMPLES OF SCHOOL NETWORKING INITIATIVES IN OTHER COUNTRIES

BOTSWANA

Source of information:	Department of Curriculum Development and Evaluation[7]
Contact persons:	David Ratsatsi, Mr Tladi
E-mail:	Dratsatsi@gov.bw; Ltladi@gov.bw

[7] This Botswana case study was compiled by SAIDE in the basis of interviews held during a research trip to Botswana in June 1999. Mr Ratstsi and Mr Busang attended the regional workshop report above.

In Botswana the *Revised National Policy on Education* released in 1994 recommended the introduction of Computer Science as a subject option in Senior Secondary schools and Computer Awareness for the three years of Junior Secondary school. As a result, a new curriculum for Computer Awareness has been developed:

> Curriculum Development Division, Department of Curriculum Development and Evaluation, Ministry of Education (1998) *Three - year Junior Secondary Syllabus Computer Awareness.* Government Printer: Gaborone

It is currently being piloted in eleven Junior Secondary schools. The curriculum aims to equip learners with computer skills that can be applied in all subjects. The department has adopted an 'infusion strategy' where by all teachers and learners are equipped with basic computer skills. The department has taken care to train all teachers irrespective of subject specialization. This is intended to counter the historic focus on mathematics and science teachers, which has developed a kind of aloofness amongst these teachers in schools.

The department aims to give a message that everyone can use computers. Office Technique, a company contacted by the central government's Computer Bureau, is contracted to repair and maintain all government computers. This includes schools. As a result, there are no technicians or appropriately trained teacher who are responsible for maintaining the LAN at each school. Technical problems have to be directed to Office Technique.

The ministry is considering training teachers to be able to troubleshoot minor technical problems. Currently PRESET teacher training offers Computer Studies as a minor subject specialization, which must be accompanied by an additional major subject specialization. The department has been struck be the enthusiasm for the projects from schools. Even where teachers and administrative staff have little computer competence, they seem very keen and willing to learn.

All schools in Junior Secondary schools already have computer laboratories, which were built in preparation for rollout of computer equipment. The eleven pilot schools have been equipped with twenty networked computers. Each school has been given a modem for dial-up Internet access and each school has been allocated a single e-mail address. Most schools already have about 1-3 computers for administrative use.

In the pilot schools, these do not form part of the Local Area Network (LAN), although an integrated school network is planned for the long term. Besides the eleven pilot schools, many schools have already acquired computer equipment through their own efforts and relationships with donor or businesses. It is anticipated that the pilot schools will be maintained as prototypes for computer use, and that more schools are added to the project annually. (No audit of computers in schools has been conducted[8])

An UK organization, the Internet Learning Trust has been involved in the pilot project offering technical expertise and drawing on UK experiences. One of the aims of the project is to enable schools in Botswana to communicate with schools in Botswana. The project has also established

[8] Mr Orabile and Chris Bosang should be able to quote the number of schools with computers and how many additional schools will be equipped with computers in the following years.

some links with the SOWETO Schoolnet project in South Africa. Some schools have developed a web presence.[9]

Some of teachers at other pilot schools have attended training on web development and are in the process of developing web sites for their schools. The Department of curriculum development has developed a web site, but this has not been maintained and is currently dated: www.bw/~cde/.

DENMARK

Sources of information:	Material submitted and presented by Claus Berg at the Millenium Minds conference., accompanying websites and reports.[10]
Targeted groups:	Adults, students/pupils and teachers.

Denmark 's adjustment to the information society has among other things that knowledge is becoming one of the country's strategically most important resources, whereas learning is becoming the most important process for individuals, business, industry and society.[11] 'The ministry of Education hereby published the combined strategies and action plans for the integration of information and communication technologies (ICT) in the education system in the period 1998-2003[12]. The strategy describes five central areas, where quite a number of ICT-initiatives will be implemented during the next five years. These strategy has worked out on the basis of a large umber of development projects, which have been carried out within the ICT area over many years…' The areas are:

- The pupil and ICT
- The teachers and ICT
- The subjects and ICT
- Equal and flexible access to lifelong education
- Coordinating of ICT- based research and education

In 1994 the Dybkjaer- Christensen committee launched the report " The Information Society in the year 2000" as well as the government's subsequent yearly ICT action plans from 1995 and onwards have had specific sections directed towards the education sector.[13] The functions of the Danish education system is to *ensure*:

- State of art qualifications in the information society
- Integration of new pedagogical possibilities
- Equal and flexible access to education

[9] www.info.bw/~morama, www.info.bw/~ledumang

[10] Berg, C (1999) *ICTs in Denmark - SektorNet and the EMU content portal,* presentation and presentation notes for the Millenium Minds conference, 29 Sept- 1 September 1999, Cape Town.

[11] Information and Communication Technologies in the Education System, Action plan for 1998-2003. Ministry of Education 1998.

[12] Information and Communication Technologies in the Education System, Action plan for 1998-2003. Ministry of Education 1998.

[13] Information and Communication Technologies in the Education System, Action plan for 1998-2003. Ministry of Education 1998.

- An effective and flexible structure ad organization

Targeted groups

In Denmark, the rapid technological development means that knowledge is no longer a " Once in a life experience for the individual". It is rather an asset, which constantly has to be updated[14].

EUROPEAN UNION

Source of information **E**uropean School-Net documentation, http:/ www.eun.organization, material submitted by Claus Berg to Millenium Minds conference[15]

The European School-net (EUN) is an educational support system that provides a framework for collaboration between the European Ministries of Education, by bringing together national and other computer networks.[16] The EUN Agreement was adopted in June 1998, to establish a formal structure for the European Schoolnet.. Its main objective is to promote the use of information and communications technologies (ICT) among schools in Europe, in particular by:

- Encouraging and supporting collaboration and cooperation among schools
- Supporting the professional development and training of teachers
- Offering a comprehensive range of educational content and teaching service
- Exchanging the good practice and educational experiences of teachers
- Providing common technical and educational standards as the platform for a powerful network supporting the needs of all educational users in Europe

EUN Goals and Implementation Instruments[17]

Offer a range of educational material and services
Upgrading teachers skills
Schools collaborative projects
Knowledge pools on ICT in education and cognitive issues

Teachers and Students

Schools life – pupils' world	**Teachers – World as professionals**
Offer a range of educational material and services	Knowledge pools on ICT in education and cognitive issues

[14] *ibid.*
[15] Berg, C (1999) *European SchoolNetwork*, presentation and presentation notes for the Millenium Minds conference, 29 Sept- 1 September 1999, Cape Town.
[16] European Schoolnet/ http:/www.eun.org
[17] EUN presentation, see also European Schoolnet/ http:/www.eun.organization or EUN Website, technical platform, and networks interoperation

Schools collaborative projects	Upgrading teachers skills

The EUN School Collaboration Area

The European School collaboration is:

> A one stop – shop area for working with international school projects[18]. Within its area, there are tools and services that are available for help with all aspects of working with school projects. It is one of the main pillars of the EUN, providing European added-value, cooperation and help to develop ICT- literacy for teachers and learners, providing content and service to enable teachers with varying experience to plan, launch, compete ad easily publish projects using ICT[19].

How it will work:

'The EUN School Collaboration Area provides teachers and schools in Europe with all the tools and information necessary to establish collaborative projects'. [20] It has recently been redesigned to offer Schools Collaboration, Innovation and Research, Educational Resources and Teachers Training in Europe. It provides high quality content and services (all the frameworks and tools needed to run a European school project would be found here). 'It provides common technical and educational standards as platform for a powerful network supporting the needs of all educational users in Europe. It supports the use of common standard throughout Europe. EUN will provide advice ad guidelines for schools and government to assist them in identifying factors, which supports the effective use of schools network and virtual communities. It will support research which will extend our existing knowledge of schools research improvement, the use of ICT in teaching and learning, professional development and curriculum practice throughout Europe'. [21]

Who will benefit?

Teachers and pupils, It is argued that the EUN will focus on research and development into effective models of training to promote teacher's ICT competence and confidence. It will act in partnership with schools and Higher Education working in pre-service and in-service training across Europe. [22] It supports channels for collaboration where teachers and pupils will be able to find partners, attract funding and publicise projects crossing language and national boundaries.

Virtual Teachers College (VTC)

It is maintained that ' teachers will always play a crucial role in education. They are the experts who instruct, guide, and judge. Teachers in future education, as it is currently developing, will have to be adequately educated and skilled. Not only will their competencies to use ICT be

[18] http:/www.eun.org
[19] European Schoolnet postcard / http:/www.eun.org
[20] Ibid.
[21] European School net brochure / http:/www.eun.org
[22] European School net brochure / http:/www.eun.org

concerned, but their competencies to deal with the fact that the teaching profession is constantly and entirely changing are also at issue'.[23]

Virtual School

It is a site for teacher to meet with other teachers, a place for colleagues to exchange materials, ideas and experiences ad having discussions on everyday problems. It is designed to help teachers to find quality resources with a European added value, on the Internet. The main target groups are teachers and head teachers or principals.[24]

European Network of Innovative Schools (ENIS)

ENIS is a network of innovative schools, which are utilized for full demonstration of pilot projects in EUN, and beyond. ' The complete network consists of approximately 500 schools with broad European representation, and will constitute a common integrated framework in terms of':

Connectivity and technical infrastructure
Pedagogical and organizational tools
Pedagogical and organizational methodology.
Skills ad Knowledge.

Key benefits and expectations for Innovative schools

Access to the full EUN-WEB site at the Internet, including access to use:
Collaborative applications
Communication platform
Educational material and
Tools developed by EUN
Direct contact with other Innovative schools: easy contact with potential project partners – sharing same development interests, access to best practise experience, a benchmark for evaluation.

LESOTHO

The following statistics were presented by Terefe Kebede from the Institute for Southern African studies in Lesotho at the Regional schools networking workshop. They serve to give some indication of the extent of computer use in Lesotho schools. Statistics show that the number of schools in Lesotho that have computers are still very low, below is a table that map out the number of primary and secondary schools that have computers.

Schools	Number of schools	Schools with computer activities	% school with Computer Activities
Primary	1 250	1	
Secondary	204	15	7.3

There is also one school that uses a Photovoltaic system for computers.

[23] European School net material / http:/www.eun.org
[24] European School net material / http:/www.eun.org

NAMIBIA

'With budget constraints everywhere I am delighted that it is possible for us to have this conference. My appeal will be that the participants will give full attention to the development of Information and Communication Technology. My motivation for this is that if you fall behind, it is always very difficult to catch up. We are now standing on the brink of a new millennium and the future for our children and us lay in Information and Communication Technology and the demands that come with it.

Background

In Namibia the National Institute for Educational Development (NIED) is spearheading reform in Education. NIED is responsible for research as well as curriculum and professional development. This means that the development of Information and Communication Technology is part and parcel of the responsibilities of NIED.

NIED has a sub-division called Craft, Design and Technology, consisting of the following subject areas:

- Commercial subjects
- Technical and Technological subjects
- Typing and Computers
- Arts
- Home Sciences

NIED operates on a Curriculum Panel system, which consist of members from schools, Regional Offices, the University, Colleges of Education, Polytechnic and the private sector. These panels meet three times a year and are concerned with the development of their specific area of interest.

Computer related subjects were part of the Mathematics Curriculum Panel and we found that the subject area of computers never received the attention that it deserved. For this and other reasons, we decided to move computers to the Craft, Design and Technology sub-division to be part of the Curriculum Panel for Commercial subjects. During September 1999, after we realized the need for a separate Curriculum Panel for Computers and Computer related subjects, such a Curriculum Panel was established.

The Executive Management Team of the minister of Basic Education and Culture established a task force to report on ICT with the following terms of reference and compilation given below:

Terms of reference:

1. To investigate the need for Information and Communication Technology in Formal Education in Namibia.
2. To identify and explore what Namibians know about the specific educational benefits that can be attributed to the use of ICT.
3. To do an audit of what is presently available in the field of ICT in Formal Education in Namibia.

4. To develop and establish a sound platform from where future decisions and actions can be taken in the field of ICT.
5. To finalise the terms of reference for such a task forces.
6. To report back to EMT and the Examinations Board on its findings.
7. To gather information about infrastructure and plans on ICT in Namibia.
8. Explore international collaboration and aid that might be available for the development of ICT.

The core team for this task force came from The Ministry of Higher Education Vocational Training, Science and Technology, Directorate Educational Programme Implementation (EPI), Directorate Planning and Development and The National Institute for Educational Development (NIED).

We are not of the opinion that Computer examinable subjects should be brought into direct link with ICT. However, for the purposes of explaining awareness regarding ICT, I would like to include the following information to show to what extend are the education population in our country are sensitive towards ICT. This information will also show that the availability of physical facilities and equipment are vital for schools and educational institutions to be involved in ICT and other computer related subjects.

Grade	Subject	Total learners	Learners taking Computer related subjects	%
1 - 7	Computer Literacy	372 256	85	,02
8	Computer Practice	29 923	986	2,96
9	Computer Practice	25 542	810	3,17
10	Computer Practice	24 888	586	2,35
11	Computer Studies	12 803	160	1,25
12	Computer Studies	11 324	106	0,94

From the table above it is clear that the number of learners taking these subjects are very low.

Grade	Subject	Total Schools	Schools offering these subjects	%
8 - 10	Computer Practice	441	23	19,2
11 - 12	Computer Studies	93	21	22,5

If we look at the pass rate of learners taking Computer Practice and Computer Science, it is obvious that it can be a success. We however face certain constrains and I will elaborate on these in a later section.

1. Computer Practice grades 8 - 10

	Number of learners:	525			
	Ungraded:	12,8%			
2.	Computer Studies	grades 11 and 12			
	Number of learners:	IGCSE	107	un-graded:	0.9%
	Number of learners:	HIGCSE	26	un-graded:	26.9%

ICT model for Namibia.

We plan the following initiatives for the future and have already developed plans to achieve these:

- To introduce ICT as a compulsory, non-promotional subjects for all learners from grade 1 to 12 (this proposal has already been submitted to the presidential commission and will be discussed during the curriculum review,
- To gradually phase out Typing as a subject and replace it with keyboarding and word processing;
- To target pre-service teachers for ICT through colleges of education;
- To target in-service teachers for ICT through Teacher Resource Centres (TRC's) and identify schools to serve as centres where no TRC's are in existence;
- To start with a cluster system in the first phase. In the cluster system schools will be clustered until funds are available to equip all schools.

Major achievements and own initiatives:

As stated under obstacles above the institutions that benefited during the pre-independence period are those still in the same position. Since independence in 1990, Namibia is still struggling to remove the last remnants of apartheid's social and economic policies. Many backlogs need to be addressed and although education receives the biggest cut of the budget cake, it still is not enough to address the imbalances and backlogs of the past.

The schools equipped with computers are those offering computer related subjects and are urban schools in the majority of cases. Since we have developed a syllabus to replace Typing as a subject over a period of time, we are convinced that more schools will take their own initiative and equip themselves with computers.

In contrast with the aforementioned, I want to brief you on the Ponhofi experience. Ponhofi Secondary School offers only grades 11 and 12 and is situated on the border with Angola in the former war zone. They secured funds from a project and set up a computer lab and a school network with their own server. They do not offer computer-related subjects but only ICT and ICT as a teaching aid for all other subjects. They have also clustered the surrounding feeder schools to help them become computer literate as well.

Awareness meetings were held in regions but these were not well attended. The establishment of the task force on ICT is a positive step from the side of policy makers to get the ball rolling.

The establishment of a Curriculum Panel for Computer subjects was a major step to give ICT and computer related subjects their rightful place and platform in education. Through the panel development can take place and access to higher authorities is much easier.

A policy on Information and Communication Technology was develop and is in place. This policy is presently under review.

NIED is presently developing a generic project proposal with a covering letter to be submitted to possible donors whenever contacts are made.

Constraints

The area of prevocational subjects is the area where we do not receive any support to develop the subject areas like in Science or English. Presently we are struggling with budget constraints and donor funding is needed. This field really needs money because we are dependent on equipment and intensive training.

Presently schools are struggling with old outdated computers that cannot be upgraded and for which they will not even receive money as scrap metal. Schools are using old 8088's and 80286's with no hard drives and the learners have to insert a start-up disk to boot up the computer, another to get the word processing package started and a third to do any printing. With today's modern technology this is a ridiculous situation.

Some schools are using DOS version 3.0, which came out in 1984, and software of such a nature, which is of no educational value to them. Therefore the learners are not prepared to use modern technology.

The same situation described above is present in the Typing classes where we sit with manual typewriters in some schools and half way, say in grade 10, they have to change to electronic typewriters when they move to other schools.

The disadvantaged people are now more disadvantaged and vice versa. Nine years after independence and we are still struggling to remove the imbalances of the past. In one school it happened that they raised the school funds by including a special fee for the purchase of computers and the training of staff. This can happen in the schools in the urban areas but what about the schools in the rural areas? This clearly implies that the playing field is not equal at all.

Namibia does not have many advanced urban areas, which leave us with the majority of people staying in the rural areas; 60% of the population live in rural areas in the north alone. The live on communal lands with a very low income, which limit access to basic social, services (other regions not included).

The high failure rates (40%) and high unemployment (40%) are also concerns which can be addressed to some extend by introducing a culture of entrepreneurship and independence in learners.

Capacity building is another concern that hampers the promotion of the subject. In this respect we think about someone with expert knowledge of developing educational material and syllabuses for schools in order to prepare the learners for further studies. This should be linked with a survey to determine the needs from the private sector as well as tertiary institutions. This also includes the technical assistance to maintain the standard once it has been achieved.

Although one can possible minimize the above-mentioned problems we are still faced with financial constraints in all spheres. This also includes the red tape from the Government side when you request assistance to replace, repair or even supply equipment and or services.

Imbalances exist between former white and black schools regarding training, equipment and physical facilities; a big country with big distances because of a population of only 1,7 million;

Present in-service and pre-service programmes fell short of addressing the need for ICT training;

Finally I want to mention the priority that the Science subjects are receiving and as I have mentioned earlier, the lack of assistance to the pre-vocational subjects that include computers as a subject.

ZIMBABWE

Source of information : Zimbabwe World links for development
:Anthony Bloome – National Coordinator
: Eliada Gudza – Education Coordinator

Importance of Information and Communication Technology (ICT) in Education in Zimbabwe

'Consideration of the basic principles and philosophy of Zimbabwe's educational and training needs aspirations on the eve of the 21st century, and having regard to the challenges of a competitive global environment in the information age'[25]

The information and Communication Technology program in Zimbabwe is known as *WORLD*

Objectives of the World National Schools Network

The Zimbabwe's ***World*** aimed at building a national network that will develop into a School-Net – Zimbabwe. It has the following functions, to:

- Channel computer contributions and training
- Link advantaged and disadvantaged schools

[25] Vision 2020 Document, Manpower Development Plan (1996-2000), CAPBIT'97, Commission of Inquiry into Education and Training, Education for Empowerment Conference.

- Link with teachers training colleges, universities, and related initiatives- e.g. schools program
- Negotiate educational discounts within the IT, ISP and PTC communities.
- Link with the community at large
- Link with the private sector
- Link with the international community

Its mission is to:

- Provide access to computers and Internet in education
- Establish a global learning network linking thousands of students and educators around the world
- Improve ad expand educational opportunities ad horizons in developing countries
- Promote effective use of Information and Communication Technology (ICT) in education
- Improve prospects of employment
- Build bridges among the leaders of tomorrow

The WORLD initiatives reach a number of countries in many parts of the world. The following table outlines the countries involved in Africa, Latin America and the Mediterranean:

Africa	**Latin America**	**Mediterranean**
Cape Verde	Brazil	Turkey
Ghana	Chile	Lebanon
Mauritania	Paraguay	West Bank/Gaza
Mozambique	Peru	
Senegal		
South Africa		
Uganda		
Zimbabwe		

The Zimbabwean World is currently collaborating with over 1000 schools in 22 countries, in future the number will increase from 1000 to 1200 schools and 22 countries to 40 countries.[26]

Who benefits and how?

Students and teachers benefit as they will:

- Access a global body of educational resources and knowledge
- Design and participate in global collaborative projects
- Contribute their own content, perspectives, and heritage to the body of world knowledge.
- Develop useful entrepreneurial skills by learning and sharing their ICT training and talents with others.

Various communities benefit through the community Resource Telecentres. World centres can be accessible to the community members in the afternoons and weekends.This opportunity provides

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- Adult, Continuing and Non-formal education
- Computer and Internet access
- Distance education
- Electronic Resource library
- ICT Professional development and training
- Micro - enterprise development

The private sector benefits as the World project provides the private sectors with the long - term opportunity to social responsibility to: invest in education. Early development of a trained ICT labour force has a national impact. In the short term the private sector benefits through:

- high profile public relations;
- strategic partnerships for investment, for example advanced ICT training in afternoons or weekends which can be used for employees' professional development
- The infrastructure can be sued as an industry or business resource to reach clients and job - seekers, for example Careernet and Commercial net.

What does WORLD look like?

World will consist of a national network of schools or centres. In its pilot phase it has established 13 World Centres so that there is at least one in each province and a mobile unit. The centre acts as a central educational resource as it serves the surrounding cluster of schools. Community telecentres provide ICT access ad training to the community in the afternoons and weekends

WORLD has the following components to its institutional framework:

- It is co- sponsored by the Ministry of Education, Sport and Culture
- It has proactive stakeholders at the national and provincial level
- It receives substantial in-kind contributions for example teachers, mobile vans, and infrastructure donations are made

There has been an enthusiastic reception for the project by national stakeholders, businesses and industry associations, government agencies. In addition there has been proactive community support from schools and school development associations and local businesses