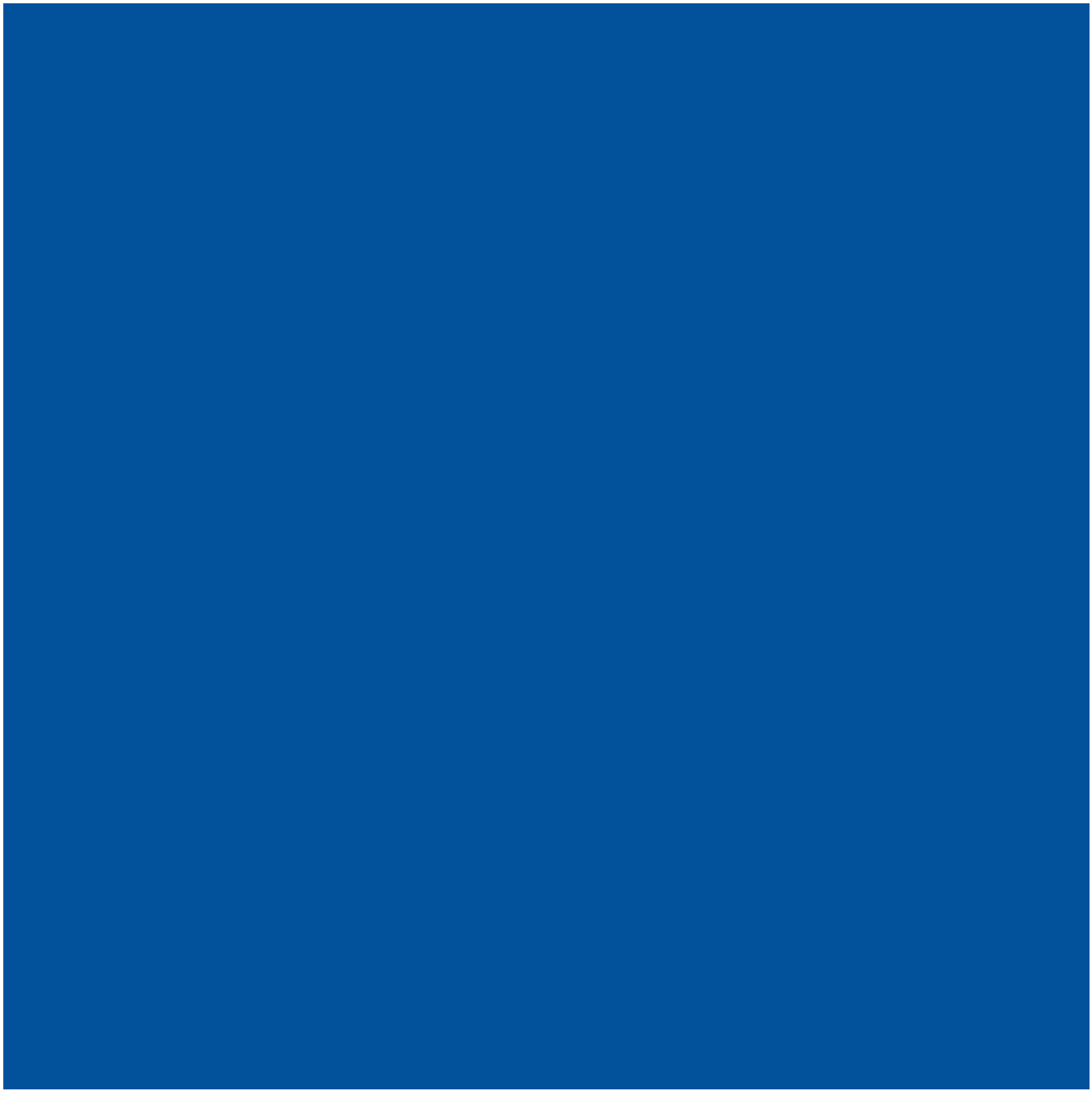
JANUARY 2004 • ICT FOR DEVELOPMENT SECRETARIAT

Sida

Evaluation of Swedish Support to SchoolNet Namibia



Contents

Published by Sida 2004

Department for Infrastructure and Economic Cooperation

Author: Peter Ballantyne

Printed by Edita Sverige AB, 2004

Art. no.: SIDA3557en

ISBN 91-586-8617-7

This publication can be downloaded/ordered from www.sida.se/publications

Acronyms

AED	Academy for Educational Development
CECS	Community Education Computer Society (South Africa)
ICT	Information and Communication Technologies
ISP	Internet Service Provider
LAN	Local Area Network
MBESC	Ministry of Basic Education Sports, and Culture
NIED	National Institute of Educational Development
Sida	Swedish International Development Cooperation Agency

Executive Summary

This report was commissioned by Sida to assess the fulfilment of the objectives for the Swedish support to SchoolNet Namibia between 2001 and 2003. It looks particularly at how Sida support was used by SchoolNet to provide Internet access to 500 (later reduced to 350) schools in Namibia, how it was used to help improve the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth, and the strengths and weaknesses of the SchoolNet Namibia approach.

The report introduces the approach of SchoolNet Namibia, examines the individual objectives set for the Swedish cooperation with SchoolNet, assesses various aspects of the SchoolNet approach, and provides some conclusions and recommendations regarding future activities. A separate short report contains lessons learned from the project.

Overall achievements

SchoolNet has *achieved* an incredible amount. In just over two years, SchoolNet has launched an ISP, successfully connected around 112 schools to this ISP, and set up computer laboratories in these schools. It has also shown how these can be done in rural and disadvantaged areas there are neither telephone lines nor connections to the power grid.

It has pioneered affordable strategies and solutions for schools. Its models combine low-cost refurbished computers, open source operating systems and software applications, discounted access to the Internet, and the offer of ICT volunteers to provide basic ICT support after set up and installation.

SchoolNet has become a strong voice for ICTs in schools and the education sector. Its wide contacts with key actors in the ICT and education sectors provide it with influence and leverage. Government and other actors have begun to take these issues seriously. Other similar projects are emerging.

SchoolNet has also begun to tackle the lack of ICT skills in Namibia and in Namibian schools. Through mentoring and training, many young people have gained computer-related skills from SchoolNet and they are now starting to benefit by getting jobs. In the schools, the pool of ICT-aware teachers and learners has also grown, and these individuals are starting to use the computers and the Internet in their daily lives and in the classroom.

SchoolNet has become a test bed and demonstrator for technical solutions that challenge more widely used proprietary operating systems, in particular offering alternatives that may be more sustainable over time, given the limited local funding base for ICTs in schools. Also around the issue of affordability, innovative partnerships with Telecom Namibia and direqlearn suggest how all disadvantaged schools can begin to make use of the new ICTs, on terms they can afford.

Achievement of the project objectives

The Sida support has been particularly valuable in "*installing basic (Internet connected) LANs in secondary schools*." While the quantity of schools expected has not been reached, and providing support for existing installations is a major issue, many preconditions to reach even higher numbers have been put in place. This is the main accomplishment. This is where most actors in Namibia see SchoolNet's principal added value. Further support for this work is essential.

There is evidence indicating that some schools connected by SchoolNet are "*reaching a high level of Internet usage by learners and teachers*." It is an achievement that much use has already been made of the Internet connections. Getting more use and especially more useful use should be a continuing priority. The great variation in usage warrants further investigation to determine what factors are actually determining levels of use and what would be a reasonable measure of 'high use' in a Namibian school, if such was desirable. In the longer term, providing basic training in use of the Internet is something that schools should deliver to their own learners. Support by SchoolNet for more advanced Internet-use enhancing activities like the web projects and competitions should be stepped up.

There is only anecdotal evidence that SchoolNet efforts are "*enhancing basic computer skills of learners and teachers*." Where it is happening, it seems to be due more to the efforts of an enthusiastic teacher or foreign volunteer, and sometimes a SchoolNet volunteer, than to any specific and sustained effort by SchoolNet itself. Though just providing equipment that works is a major contribution. It may be more important for SchoolNet to leave this task of basic computer skills training to schools themselves, and to instead make sure that there is sufficient computer and ICT management and support skills in and available to schools.

SchoolNet is helping to "*create a recruitment pool for IT technicians and professionals*," though not in the way envisaged in the log frame analysis. Many young people, especially from the immediate community, have gained a basic set of ICT skills from SchoolNet. This training serves an important local need and should continue, perhaps as a revenue generating service. In addition, for its own needs, and those of the education and development sectors more generally, SchoolNet could provide more varied and more advanced workshops, master classes, or mentoring progammes that provide more advanced technical skills, help foster open source expertise, as well as providing some grounding in applied ICT management in the education sector. Creating a general ICT recruitment pool for Namibia seems less of a core task for SchoolNet than is growing a more varied ICT skills base inside SchoolNet and in the schools.

Achievement of the development goal

The rather vague phrasing and the lack of clearly defined indicators make it difficult to draw concrete conclusions regarding achievement of the *development goal* which is to "*improve the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth through broadened horizons and a higher level of knowledge by using the possibilities of cheap and simple communication that ICT offers.*" Nevertheless, feedback suggests that learners in schools as well as young people (as SchoolNet trainees and volunteers) are broadening their horizons, learning new skills, and becoming better at information gathering as a result of the project.

Weaknesses in the approach

Despite the strengths of the approach, various issues and challenges can also be seen. Since much of this assessment is qualitative and subject to differing perspectives, these are provided as a basis for discussion and reflection rather than as specific weaknesses to be resolved.

We don't know what uses the schools make of the ICTs provided to them. For a first phase, when the aim was to provide connectivity and computers, this was a secondary question. It becomes more important as time goes on.

With a main focus on technical rollout, installation, and support, SchoolNet does not sufficiently address human and institutional factors in schools that often influence how technologies get adopted and used.

The costs of ICT ownership in a school include some costs such as staffing or facilities that are not in the SchoolNet model. A full understanding of the in-school environment will help to ensure that ICTs are sustained in schools.

At present, organisational capacities within SchoolNet are limited. Providing support to and upgrading existing schools therefore competes with the addition of new schools. The issue at present is less about finance as staffing.

The actual impact and results of the volunteering and peer-to-peer training, especially in the schools, are more anecdotal than proven.

The current 'donor-beneficiary' relationship between schools and SchoolNet is not sustainable. Turning the schools from passive recipients into partners may foster more ownership and commitment in the schools. Making the relationship a more professional one of service provider-client may empower the schools to be more critical and demanding of SchoolNet. Whichever, SchoolNet needs to avoid being a seen as just another source of donations.

The training courses produce lots of people with basic ICT skills and literacy. This helps them get jobs. Some become volunteers. It is not clear if the courses also teach all the skills that the schools actually need from potential volunteers, nor whether it teaches the skills that SchoolNet itself needs. Are technical skills alone sufficient? Are there other skills and aptitudes that need to be strengthened? Is a standard course, on its own, sufficiently tailored to the varying needs of SchoolNet and the schools it works with?

The data 'base' on the progress and results of the various activities is incomplete and, when available, it is not easy to access and query.

Almost no data seems to be collected in the schools themselves. Much of the data is transactional data – number of dial ups to the ISP, number of schools connected, number of helpdesk calls received, number of trainees, and so on These show how busy, productive and efficient SchoolNet is. Aside, for example, from many testimonial letters from schools concerning their volunteer, there seem to be no qualitative indicators of effectiveness and effects.

Recommendations

1. Define a *clearer overall goal* for the project; for each objective include more – and more relevant – indicators and define role(s) of SchoolNet.
   The main focus of the project should continue to be on *extending affordable access* by schools to Internet and computer technologies. Especially disadvantaged schools.
   To *enhance uptake of this access*, other important elements are:
   - stimulate 'creative' uses of ICTs in schools – beyond basic skills training;
   - address wider ICT management and support capacities in schools through training as well as other means;
   - open up the opportunities of ICTs to out of school youth, through training and volunteering;
   - support efforts to 'research' and document innovative aspects of the programme.
2. Establish more, and more appropriate, *quantitative and qualitative indicators* for monitoring and evaluation. These should address the whole project as well as individual components.
3. Re-think the nature of SchoolNet *relationships with schools* so they become clients or partners, but not beneficiaries.
4. Consider a *Katutura programme* or partnership that builds on SchoolNet's location, its current community Internet café, and the surrounding disadvantaged community and their schools. Use the programme to showcase technologies, creative uses of the technologies, and innovative ways of learning, as well as to build partnerships with other local groups sharing the vision of SchoolNet.
5. Explore whether *partnerships* in areas like training, content or refurbishment can be developed along the lines of the Xnet agreement.
6. Adapt the current *cost of ownership of ICTs* in schools model to incorporate other in-school costs of owning ICTs, such as personnel, buildings, etc. that are presently not included.
7. Step up efforts to *realise local income* and financial support. This has declined as a proportion of total income in recent years.
8. Strengthen the *institutional capacities of SchoolNet* to more effectively support existing schools and extend services to new schools.
   This support needs to explicitly include attention to internal structure and management. Some observations arising from the evaluation mission are:

- Avoid introducing any more layers of hierarchy in such a small organisation;
- A suitably qualified workshop manager needs to be appointed urgently;
- Make someone responsible for external communications and promotion and devise both a public awareness and a local fund raising strategy;
- Re-think the management team to include the Director as a 'first among equals', leading from the centre instead of from in front;
- Enhance internal information management and communication, through for example a shared drive to organise and store documents, regular team meetings, regular staff meetings, re-organising the work space so there is a greater mix of staff or so teams are co-located; create central files/archives for paper documents;
- If the number of decentralised 'depots' grows, consider how they fit in the structure;
- Finalise any outstanding governance issues, such as NetDay, as soon as possible;
- Regularise the position of the technicians to make it clear who is staff and who isn't, and the differences between staff and volunteers. Some technicians describe themselves as 'paid volunteers' in the tracer study.

Project Description

SchoolNet Namibia aims

SchoolNet Namibia was established in February 2000. With a mission "youth empowerment through the Internet", its main objective is to provide sustainable low-cost technology solutions for Internet to all Namibian schools. It does this through the:

- Management of computer network installation projects on behalf of the Ministries of Education, Non-Governmental organisations, donors and private sector companies
- Provision and implementation of low cost networking options to schools and educators, by the utilisation of new and refurbished equipment and stable open source (free) software
- Provision of affordable, subsidised Internet to schools and educational practitioners using both landline and wireless solutions
- Technical skills and curriculum development
- Provision of low-cost and low-risk technology test beds for replication

It also provides similar services and support to community-based educational organisations and educational practitioners in Namibia. Major milestones in the development of SchoolNet Namibia are presented in Annex 1.

SchoolNet Namibia activities

One challenge faced by an evaluator is to come to grips with SchoolNet Namibia's scale and complexity.

This is *not a pilot project.* It aims to provide Internet access to all 1500+ schools in Namibia. Already, it supports around 120 schools and dozens of related clients. They are connected through the SchoolNet Namibia ISP to the world.

It is *not just about connecting schools* – in some cases, SchoolNet also provides schools with necessary electricity to power a computer; it also provides wireless solutions for schools without phone lines and subsidies for schools that cannot afford the phone calls.

It is also *not just about connecting to the Internet*. As well as an affordable connection, schools get a small computer laboratory with server and a local network of between three and 10 workstations (or clients).

Technical support and a helpdesk are also available in case of difficulties.

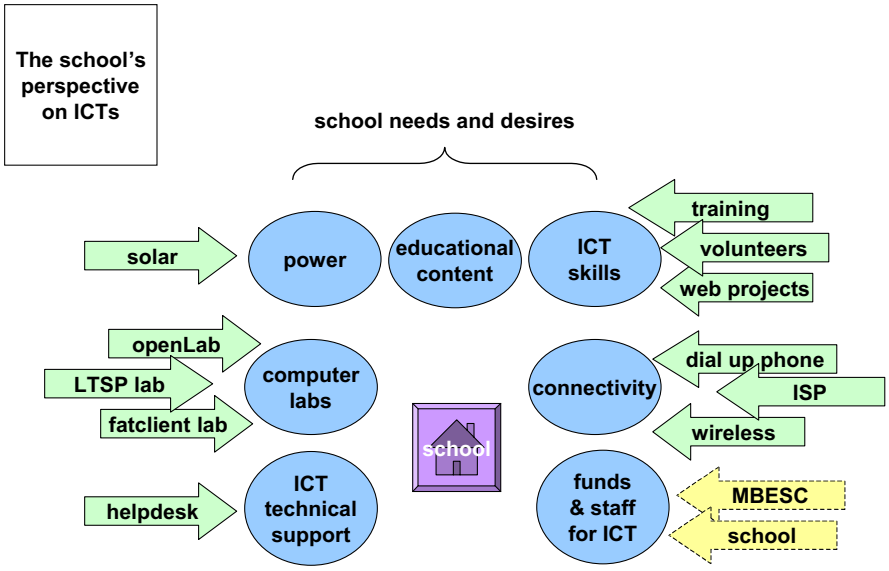
Furthermore, it's *not just about the Internet and computers.* Schools can call on the services of a SchoolNet Namibia 'volunteer' for one to three months. These young people have graduated from either SchoolNet's training or 'kids on the block' mentoring programmes by which unemployed youngsters gain basic computer skills and the confidence to share them.

Finally the focus is *not just schools,* or even on schools in Namibia. Through various innovative partnerships, alliances, and joint ventures, SchoolNet Namibia addresses wider national policy issues around sustainable access to ICTs and the costs of ICT ownership, including the development of technical and 'business' models that can be applied elsewhere.

The two pictures that follow illustrate the main ingredients of the SchoolNet approach.

The first, from the perspective of a prospective school client, shows its main ICT 'requirements' or interests and where SchoolNet fits in. The second is from a SchoolNet Namibia perspective and shows the main tasks it carries out and the main instruments used in each case.

In the first picture, we see in the circles that a school wants to have connectivity, computer labs, skills to use them, and technical support if they break down. Some may also want educational content of various kinds; a significant number also need a power supply if they are to enter the digital world. SchoolNet Namibia (the block arrows) can support most of these needs, to a greater or lesser extent.



Three types of laboratory configurations are presently in operation – OpenLab is the newest and most stable open source solution, LTSP labs are the original open source Linux (Suse 7.3+) solutions, while 'fatclient' labs contain computers with a mix of Microsoft and Macintosh operating systems and usually a Linux server.

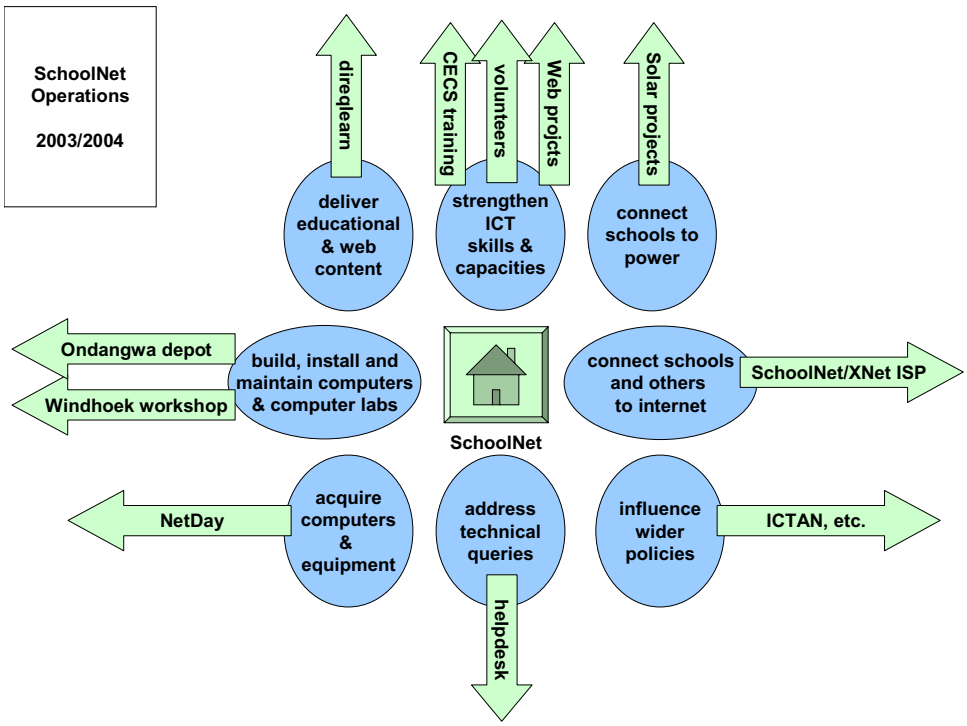
Two main types of connectivity to the SchoolNet Namibia ISP are provided – dial-up over the phone using a modem, or wireless signals

beamed to and from high masts owned by SchoolNet Namibia or Telecom Namibia. Where power is an issue, a solar solution has been implemented.

Local ICT skills and capacities are essential if the labs and connectivity are to be used by learners and teachers. Currently, some initial training is provided to selected teachers and learners at installation. A SchoolNet volunteer can also be made available to a school for several months; some schools join in web content projects and contests as tools to enhance their capacities to use the new technologies. The free phone helpdesk channels any problems to SchoolNet technicians or other staff.

A crucial element of the school perspective is to mobilise funds and staff for ICT operations. Some 'richer' schools have drawn on the small income they raise from their learners for ICT costs. Others look to the central Government. So far, neither funds nor specialised staff positions are yet available through Government. For the schools, 'affordability' usually means free equipment and very low recurring direct costs.

In the second picture, the circles represent major roles or objectives of SchoolNet Namibia in 2003. This is likely to change significantly in 2004 as various strategic alliances take effect. The block arrows show instruments used by SchoolNet to attain the objectives. Here, each is briefly introduced.



Connect schools and others to the Internet – This is the original and most commonly mentioned aim of SchoolNet. In 2002, using funds from Sida, SchoolNet set up its own educational ISP hosted at the Polytechnic of Namibia. Using dial up over phones or wireless, schools connect to the Internet. For poorer schools, this access is subsidised by SchoolNet Namibia using funds from Sida. Under an agreement just signed, these tasks will largely move to Telecom Namibia who will guarantee fixed affordable access rates for all schools, irrespective how they connect.

Acquire computers and equipment – SchoolNet Namibia currently provides refurbished computers to schools. These, together with any new components, are purchased for SchoolNet by NetDay, a not for profit company set up for this purpose. Increasingly, SchoolNet is buying multiples of standard refurbished computers instead of relying on 'trick or treat' containers with mixed equipment that require much work before they can be used.

Build, install, and maintain computers and computer labs – This core activity is where local area networks are set up and configured for delivery to a school. Configurations differ according to the local situation. The current priority is to standardise on OpenLab2, which also contains a bundle of educational content. Until recently, all installation and support was provided from Windhoek. Recently, in a partnership with BA Computers, a depot in Ondangwa in the north of Namibia has been established to provide support and service from within the region.

Address technical queries – Most teachers and learners in schools are computer beginners and they are unable to troubleshoot and fix technical problems. When they encounter a problem, they can call a toll-free telephone number to register the problem, receive immediate advice, or, if necessary, arrange for a technician to visit.

Connect schools to power – An important part of the SchoolNet Namibia model is to make sure that any school can benefit from computers and the Internet. This includes schools that are off the power grid that would normally have to wait some years for computers or connections. So far, SchoolNet has provided solar power sufficient for a computer lab to six schools, two of which can also access the Internet.

Strengthen ICT skills and capacities – Most schools have only the slightest exposure to computers and the Internet, so that ICT literacy sufficient to use the ICTs is essential. Otherwise the technologies will not be used, or will not be used to their full potential. SchoolNet provides ICT learning opportunities to kids 'off the street', usually unemployed and with little formal education. Through training and mentoring, they become ICT literate; those that pass the formal training course get a certificate. Many then become SchoolNet ICT volunteers, working in schools and assisting in the use of the computer labs and Internet facilities. Thereafter, some volunteers have been offered jobs in their schools, some join SchoolNet; most use their newly-learned ICT skills to get a job. As a way to stimulate creative uses of the technologies and more advanced ICT skills, SchoolNet also sponsored several web-based competitions in which school teams prepare and publish their own ideas and content.

Deliver educational and web content – SchoolNet has mainly focused on bringing connectivity and computers to schools. On the back of these, demands are growing from some schools for more content applications – beyond games – that learners and teachers can use. In 2003, SchoolNet Namibia joined with direqlearn in an agreement to include various educational content as part of the new installations of the OpenLab 2 operating system. An agreement with NIED also makes it possible to include their Namibian educational materials for teachers in the bundle.

Influence wider policies – SchoolNet also advocates for more affordable and more sustainable access to ICTs in Namibia. In partnerships with

the Government, the private sector, and other actors, SchoolNet activities in schools are used to test and demonstrate new technologies and new access models. The results are also shared internationally, especially with other ICTs in schools initiatives.

The Evaluation

The Sida-SchoolNet cooperation agreement

Following initial discussions and in late 2000, in May 2001, the Swedish Government and SchoolNet Namibia entered into a three-year agreement by which Swedish funds would be made available to SchoolNet Namibia to support the following objectives:

1. Install basic (Internet connected) LANs at 500 secondary schools;
2. Reach a high level of Internet usage by learners and teachers at connected schools;
3. Enhance basic computer skills of learners and teachers;
4. Create a recruitment pool for IT technicians and professionals

In a wider perspective, the support was seen as helping to "improve the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth through broadened horizons and a higher level of knowledge by using the possibilities of cheap and simple communication that ICT offers."

The total funds allocated by Sweden to the project amounted to SEK 17,900.000.

Regarding the goal and objectives, at the second annual review meeting held in May 2003, it is significant to note the following:

1. The estimate of the number of schools to be connected was seen as too ambitious and a revised target of 350 schools was agreed.
2. While the target group was extended from mainly secondary schools to include schools, other educational resource centres, NGO's and educational professionals, it was noted that secondary schools are still the main focus of the Swedish support.
3. Due to delays in starting, it was agreed that the activity period for the cooperation would be extended until June 30, 2004, with no additional funds provided by Sweden.
4. In late 2003, an evaluation of the project would be carried out. The findings will guide Sida in the preparation process for a possible continuation of the cooperation.

Evaluation purpose and questions

Carried out in November–December 2003, the purpose of the evaluation was to assess: (1) the fulfilment of the objectives for the Swedish support to SchoolNet, and (2) to document lessons learned.

Based on the original cooperation documents and the terms of reference (see Annex 4) prepared by Sida, the following evaluation questions were used:

1. How has the Sida support contributed to the SchoolNet vision to provide [affordable and sustainable] Internet access to all schools in Namibia?

   By:

   - Installing basic (Internet connected) LANs at 500 secondary schools,
   - Reaching a high level of Internet usage by learners and teachers at connected schools
   - Enhancing basic computer skills of learners and teachers
   - Creating a recruitment pool for IT technicians and professionals

2. How has the Sida support improved the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth through broadened horizons and a higher level of knowledge by using the possibilities of cheap and simple communication that ICT offers?
3. What are the strengths and weaknesses of the SchoolNet Namibia approach of providing Internet access to secondary schools? In particular regarding: its organisational form, the support/ disengagement of stakeholders, and its sustainability.

Evaluation methodology

The heart of the evaluation process was a 17-day visit to Namibia in November–December 2003. An additional briefing visit to Stockholm was also made to establish the views and priorities of Sida headquarters staff.

Substantial documentation from both Sida and SchoolNet staff was made available and provided valuable insights into the evolution of the cooperation, the results achieved, and the emerging plans for the future.

During the visit to Namibia, meetings were held with as many key actors as could be managed. Additionally, a number of school visits were made to observe the project activities on the ground and to speak with principals, teachers, librarians, and volunteers regarding their views on the project activities as well as on SchoolNet Namibia itself. Meetings were also held with SchoolNet staff to ascertain their experiences, especially regarding organisational issues within SchoolNet itself. A list of people met is provided in Annex 5.

One problem encountered was to locate concrete monitoring data on all the various activities. More or less exact data on trainees, volunteers, schools, school labs, use of the Internet, helpdesk queries, etc., had to be built up from various different sources. SchoolNet is taking some steps in this area (database of schools and their status, helpdesk records), however, they need to be expanded and accelerated.

Lacking easy access to quantitative data, the evaluator therefore focused on qualitative data and especially used representative situations and expert insights from which to draw conclusions. Given the nature of the project and the early stage of many of the activities undertaken, such a qualitative approach is anyway likely to be most relevant and useful. As the project progresses however, a set of core monitoring data will be needed – at the least to meet internal management and reporting purposes. More generally, such data is likely to be more and more demanded of SchoolNet as 'evidence' of the progress being made and as an indication of the efficiency of its overall general performance in delivering services. Too much of this data is currently in the heads of various individuals.

During the visit, a 'tracer study' was carried out to locate former volunteers and trainees and to solicit their views on their contacts with SchoolNet Namibia. This was necessarily rather 'quick and dirty' but gave a picture of an important group of SchoolNet Namibia clients.

One major methodological challenge was to try and assess the uses that the schools are making of the computer laboratories and Internet connections. During visits, people used words like 'much', 'many,' and 'varied' to describe the uses being made. Computer labs and Internet connections were also cited as being 'important', 'essential', 'valuable,' and 'critical' – though in what precise ways was very difficult to gather. While these could be explored further in one-to-one discussion, and could sometimes be observed, much information remains anecdotal and difficult to use on its own to make strong arguments for the technologies to be further enhanced and extended.

Recommendation: Establish and maintain an accessible core set of monitoring data and indicators for SchoolNet Namibia activities. This should include 'supply' indicators of SchoolNet effort as well as usage indicators from the schools themselves.

Findings

Providing Internet Access

The first question concerns the contribution of Sida support to the SchoolNet vision to provide [affordable and sustainable] Internet access to all schools in Namibia, by:

- Installing basic (Internet connected) LANs at 500 secondary schools,
- Reaching a high level of Internet usage by learners and teachers at connected schools
- Enhancing basic computer skills of learners and teachers
- Creating a recruitment pool for IT technicians and professionals

Installing basic (Internet connected) LANs at 500 secondary schools

Latest figures (see table below) show that 116 schools, mostly secondary or combined, have been provided with Internet access and/or computer laboratories. Of these, 6 have solar power installations, 17 have wireless connections to the Internet, and 99 use phone lines to dial-up to the Internet. A further 89 other groups and school inspectors have also been connected by SchoolNet, and 25 have SchoolNet computer laboratories. Most of the school installations (60%), and almost all the other groups were done in 2002. Also during 2002, a dedicated SchoolNet ISP was launched to serve the connectivity needs of the education community in Namibia.

	schools							others		
	all	with access	lab installed	lab upgraded	with solar	with wireless	in web projects	inspectrs connectd	others connectd	others labs
year 2000	5	5					9		6	3
year 2001	23	23	23						15	4
year 2002	72	68	70	15	6	12	14	33	33	18
year 2003	16	16	15	11		5	7		2	
	116	**112**	**108**	**26**	**6**	**17**	**30**	**33**	**56**	**25**

Achievement of the objective

According to the project log frame, 100 LAN's will be installed by March 2002, a further 200 by March 2003, and a further 200 by March 2004. According to informal estimates by the SchoolNet Director in December 2003, a maximum of 170 installations could be achieved in a year.

This assumes that the workshop was working flat out and that one installation was made each school day. This also supposes a well-organised and trouble-free logistical operation. In early 2003, SchoolNet staff together set themselves a target of 120 new schools for the year.

In quantitative terms, it looks unlikely that, even by the end of 2004, SchoolNet will achieve the lower target of 350 schools. Even allowing for the 11 computer laboratories about to be rolled out, the pace of connections and installations has slowed quite dramatically in 2003. The main reasons for this are: Substantial growth in technical support and troubleshooting demands from the existing one and two year old installations; delays in the delivery of the upgraded OpenLab 2 operating system; and managerial deficiencies in the production workshop. An additional contributing factor is the difficulty SchoolNet has in obtaining standard sets of good second hand computers that can be refurbished for use in schools.

One of the major changes in 2003 was the growth in technical support, maintenance, and troubleshooting, to some extent at the expense of new installations. Delivering this 'support' poses significant challenges to the SchoolNet 'back office' as technicians field more and more queries and reports of breakdowns and try to address them from a base in Windhoek.

The introduction of a toll-free helpdesk and a rudimentary job-tracking database are important tools in collecting and tracking these problems. Exact data on the different problems encountered and their frequency and the nature of the solutions found is hard to come by. More systematically collecting and analysing these may help to improve quality control in the workshop and could be the basis for some 'frequently asked questions' or other guidance to be made available to schools.

The setting up in late 2003 of a 'depot' in Ondangwa is also a response to the 'support' challenge. It will allow SchoolNet to base a small team in northern Namibia from where support and ultimately training can be provided more efficiently to the many schools in the area. While these steps undoubtedly boost SchoolNet's response capacity, the team is still stretched. It is therefore hoped that the new OpenLab 2 and 3 operating systems will be much more easy (and quicker) to install, offering fewer chances for relatively inexperienced technical staff to introduce small errors that slow the current workshop processes.

In terms of reliability, the Internet connections and the ISP are reported to be technically sound and stable, and any problems and outages mostly result from matters beyond the control of SchoolNet (lightning strikes, problems at Telecom). If the number of schools and their use of the Internet will increase substantially, additional bandwidth will be needed beyond what is currently available to the SchoolNet ISP.

A key aspect of the implementation is the focus on affordability – providing low-cost solutions that will ultimately be within the budgets of all Namibian schools. This can be seen in the access subsidies provided to schools using telephone lines for their connectivity, in the negotiations with Telecom Namibia for affordable fixed rate connections for schools, in the use of open source operating systems and software on servers and workstations, and in the use of second hand refurbished computers.

Although most schools probably do not realise it, the solutions they receive were devised with their financial constraints in mind.

As is indicated above, the quantitative targets have not been met. Needless to say, the response of the connected schools is positive. Without exception, teachers and learners met during the mission were extremely positive about the computers and Internet access they had received. Without SchoolNet, they would have had nothing. More schools are lining up to join.

Responding to the growing demands from schools is proving to be difficult. One important conclusion has been the recognition by SchoolNet that it will always struggle to achieve its very ambitious goals to connect all schools, or even 350 schools!

Scaling up and mobilising the needed expertise and resources to install affordable and supportable computer laboratories as well as affordable Internet access requires that other, larger and more specialised, agencies are also brought into the process. This is about to be achieved for the access component (including the wireless installations and the ISP) through a joint venture with Telecom Namibia (see box next page). Discussions with other agencies have started regarding similar strategies to provide solar and grid power to remote schools.

As these agreements lead to concrete activities on the ground, it is probable that large numbers of schools will be connected, at sums they can afford, to the Internet and to SchoolNet – though not by SchoolNet itself. Through such a public-private partnership, SchoolNet may be able to achieve 'its' targets in a more efficient manner, and in such a way that critical support functions that currently are a challenge are also dealt with.

The 'Xnet' agreement

In late 2003, SchoolNet Namibia and Telecom Namibia founded a "Trust for an Internet Service initiative for the commercially unfeasible development sector of Namibia." Essentially, a new entity – the 'Xnet Trust' – will act for schools seeking Internet access.

Under the agreement, Telecom Namibia will take on and support SchoolNet's connectivity roles in relation to schools, installing landlines or wireless, and offering a standard discounted access rate to all schools participating in the SchoolNet scheme. SchoolNet will manage the relations with schools, helping to ensure that schools that have access also have appropriate computers and skills to use them. The existing SchoolNet ISP will be transferred to the new Xnet Trust. Provision will be made to subsidise those schools that cannot afford even the discounted rates.

The agreement offers the possibility that Namibian schools will have access to reliable and affordable Internet connectivity ad technical support in the future, delivered in ways that are sustainable for both provider and customers. For SchoolNet, this will allow the necessary scaling up to be achieved without over-stretching its capacities. It also provides crucial 'buy in' to the schools sector by an important national actor in this area.

To conclude, while many Internet-connected LANs have been installed in schools, the overall objective has not been achieved. However, important steps necessary to connect Namibian schools to the Internet have been taken. Under the Xnet agreement, Telecom Namibia will take on many of the connectivity related tasks currently done by SchoolNet.

Further, specialised Telecom Namibia resources, equipment, and expertise can be directed to the problem. What remains is for SchoolNet to make sure that the other components that schools need – the computer labs, the power supplies, the technical support – are also ready and can be installed and supported when needed.

Relevance of the objective

When the project was initiated, the intention was to provide a technological 'platform' – made up of Internet access and computer labs – that schools and others could use to whatever purpose they desired. A deliberate step was taken not to specify what schools would do with the new tools and resources. More schools would mean more potential users and uses. As the experience of 2003 shows however, supporting existing schools is almost as energy consuming as adding new schools. Sustaining the existing schools is certainly necessary to convince others that the platform is stable, reliable, can be used, and is worthy of further expansion.

Discussions with people in connected schools, NIED and elsewhere show a growing interest and demand for more than 'just' connectivity and computers. There is a need for some clearer and defined purposes that the technologies can be used for, and guidance on doing these. Schools need to be doing something with the new tools. The question is whether SchoolNet should take on this task to deepen the use of the technologies, in classrooms, or in the administration of the schools. The consensus among people met was that SchoolNet could indeed do more in this area, especially working with other actors that are appearing on the scene. But, that it should concentrate on its principal tasks of bringing affordable computers and connectivity to more schools, especially those that are disadvantaged. Others can focus more on content and the curriculum.

One difficult issue for SchoolNet has been to select schools to assist. While many have asked for support, not all can be supported at once, and criteria are needed to give priority to schools that are disadvantaged. In the absence of established national criteria, SchoolNet has proposed, and is using, a set of criteria to determine which schools it supports first (see box).

In line with the priorities agreed with Sida, secondary schools are ranked higher than primary schools. Priority is also given to more remote rural schools, schools with high learner to teacher ratios, schools with more learners, schools with 'cluster' status, and those without telecommunications or power.

These rankings reflect a desire to support schools that are needy and disadvantaged. One wonders whether it would also be useful to include some indicators showing the potential of the school to benefit from the connectivity and computers, and perhaps their ease of support by SchoolNet.

Prioritising the schools

A key question is to ensure that disadvantaged schools get priority access to SchoolNet services. To aid in decision-making, schools were ranked on a point system adapted from the rural electricity distribution master plan for Namibia. Schools that score high will be supported first.

Senior secondary school (11–12)	70
Junior secondary school (8–10)	65
Combined school (mainly secondary)	60
Combined school (mainly primary)	55
Senior primary school (5–7)	50
Junior primary school (1–4)	45
Cluster centre status	100
Hostel at school	60
Per learner	1
Per teacher	2
ratio learner: teacher >40:1	15
ratio learner: teacher range 30:1 to 40:1	10
ratio learner: teacher < 30:1	5
no telecommunication	15
no electricity	15
remoteness > 30 km from town	20
remoteness > 20 km from town	10
remoteness > 10 km from town	5

Schools with higher potential may move faster and more effectively than those with most need. Thus, schools teaching a computer science curriculum or with an existing 'computer' teacher or with a Peace Corps volunteer might make more use of the technologies than schools without these courses or persons. Similarly, schools in certain parts of northern Namibia or close to Windhoek can much more easily be reached and supported by SchoolNet staff, offering a better quality of service. These are difficult choices that will require some guidance from the MBESC/NIED regarding priorities.

Reaching a high level of Internet usage by learners and teachers

To attain the development goal – essentially empowering youth and learners – the schools need to be making use of their computers and their Internet connections. Beyond making the technologies available, SchoolNet makes sure that the costs of connection are affordable (free or subsidised), that the infrastructure is stable and reliable, and that learners

and teachers have received some training and support usually through volunteers, in use of the Internet. It also provides some incentives – competitions and web projects – to help stimulate more use.

Achievement of the objective

According to the project log frame, the primary indicator for this activity is that, from 3 months after installation, the local server of each school will connect to the Internet at least 50% of schooldays each month [or about 10 days per 'school' month].

Data on access to the Internet by SchoolNet schools is available only for schools using dial up access. Currently, for a given period, this shows whether a school has dialled in, and how often. This tool has just become available and presently shows frequency of use for recent weeks. It does not show who in the school is dialling in, nor what they are doing with their connection. Logs showing which parts of the Internet are most visited by users of the SchoolNet ISP are available. However an application to query and view this is still in development.

The table below and the data in Annex 2 are drawn from the application set up to track dial up access to the ISP.

Summary Data on Schools Dialing in to the SchoolNet ISP

Total Number of Schools in the Database	1515
Total Number of Connected Schools	120
Total Number of Schools that are Connected and have Dialed-In this Year	95
Total number of schools that connected at least once in the past month	34
Number of Green Coded Schools (5 or more logins Last Week)	4
Number of Amber Coded Schools (Between 1 and 5 logins Last Week)	6
Number of Red Coded Schools (No Logins Last Week)	85
Total Number of Schools that are Connected and have NOT Dialed-in this Year	25
Data for week of 15 December 2003	

Source: http://www.schoolnet.na/logs/list.php?orderby=name

The data shows that just under 80% of connected schools have made at least one connection in the past year. It shows that just under 30% made at least one connection in the past month. Of the 34 schools connecting in the past month, fourteen on average connect 1 or more times per week. Of these, 6 had averaged 10 or more connections in a month (see Annex 2). These figures suggest that perhaps 5% of connected schools (6) are achieving the indicator set out above. However, since this period covers exam and holiday periods, the real total during school terms will be much higher.

Some other data, culled from phone bills of connected schools shows for instance, that Hashiyana Combined School made 541 connections in October 2003 and that Petrus Ganeb Secondary School made 510 connections in July and August 2001, and that Edunja Junior Primary School connected 24 times in September 2003. So there is a lot of variation and a lot of data missing from this one view. Once the full data is available to be queried, a very different picture should emerge.

Can we therefore conclude that the objective has not been achieved?

Yes, in that the stated target has not been reached. No, if we question the value of the specific indicator. The data shows us that just under a third of schools, in a quiet period, did connect to the Internet. In some cases, there were many connections. We really need to be clear how high a use constitutes 'high.' For schools that have never made any connections, one connect per week can be seen as an achievement, especially if that one connection was particularly valuable. Rather than 'higher' use of the Internet, it may be more useful to seek to achieve more 'effective' use of the Internet.

The current data at SchoolNet is useful in letting us know which schools are connecting and, where rates are low or nil, where there may be technical problems to be solved. Combined with some insights into which parts of the Internet are being used, some kind of in-school monitoring is needed to track what the connection is being used for, not just how often.

Another indirect means to assess the amount of use can be the logs from the SchoolNet web site. Unfortunately, these do not extend very far back. However, they do indicate that the site gets around 2500 hits per day, or about 200 visits. Of these, 30% are from the 'SchoolNet' domain and server, indicating that people in the schools are certainly visiting the SchoolNet website when they go online. Another 5% of the hits/visits are from other Namibian addresses.

Katutura AIDS project

After a successful start to the Impact of HIV/AIDS project in 2002, SchoolNet Namibia's AIDS website project changed course in 2003. Itaimed to get Namibian learners to contribute their own insights and efforts about the impact they saw HIV/AIDS having in their towns.

Six schools from five different regions received training in website design and research methods. Each group, whether based in the industrialized port town location of Kuisebmond, in the Owambo heartland of Oshakati, or the easternmost reaches of Caprivi, profiled the people and places they thought best showcased their communities' struggle with Namibia's epidemic. Each team has produced a picture and adopted an attitude about AIDS that reflects the individuality of the places they live.

http://www.SchoolNet.na/projects/Katutura_AIDS/namibia.html

SchoolNet has also supported some other web-based activities that have resulted in higher use of the Internet, in some schools, during a defined period. Projects like the original 'insect@thon' that started SchoolNet or the more recent competitions to make HIV/AIDS websites have involved between 7 and 14 schools each year.

In each school, teams of learners and teachers have been formed and these, with some training and support from SchoolNet, have created original content, developed skills, and demonstrated to schools what they can do themselves with the Internet. In the most recent project, they also learned about HIV/AIDS in their own communities. This is a powerful way to show how ICTs provided by SchoolNet can be used to address real local issues.

This approach enhances use of the Internet and the computers. The results, published on the SchoolNet website, will hopefully attract other schools to use their Internet connections to see pay a visit and perhaps to participate next time.

These 'content' projects show that the way in which the access is managed within the school has a major influence on its use. Here, teachers and learners came together around a specific topic, with support from SchoolNet, and delivered a defined result.

In most schools however, learners and teachers access the Internet in less structured ways. In some schools, the SchoolNet platform is used as an Internet 'café' where mainly learners go after school to surf, play games, and perhaps type up homework assignments. Where the computers are located in libraries, a similar situation prevails. Since use of the Internet is not yet integrated into curricula and teaching, the computer laboratories seem to be closed for much of the day – as teachers and learners have other assignments. The exceptions are those schools, especially where there is a committed teacher, where the computer labs are used to teach computer and Internet literacy. In all cases, use of the facilities is restricted to protect the equipment. When computer facilities are only open a few hours per day, usually after school when supervision is voluntary, and where limited guidance is available, we should perhaps not set too high expectations regarding Internet usage.

To conclude, many schools are making use of their Internet connections. This usage is very variable, depending on the time of year and between schools. Data on what the connections are being used for and why some schools are high users and others low users is not available. Certainly the fact that connections have to be paid for is a factor. Even allowing for SchoolNet subsidies, many schools cannot afford to make too much use of the Internet. The expected flat rate for schools should help to alleviate this. Higher use is probably better than low or no use, though it does not necessarily mean better use.

Relevance of the objective

If the Internet connections are hardly used by a school, it is fair to question whether providing the connectivity is a good use of the resources. For most schools, SchoolNet has tried to encourage use of the Internet by making access affordable and by providing basic training and volunteer support. It also encouraged a few schools to join web projects.

However, the school itself has the main responsibility to make sure it uses its connection effectively. Incentives that motivate schools to become active users, which is more than just providing training, are likely to be very important. As one interviewee emphasised, learners and teachers need to be confronted with real or hypothetical 'situations' through which they become aware of the usefulness of ICTs, and through which they can gain skills. Skills transfer or skills development occurs when learning utilises cases and contexts relevant to the learner. This implies not just learning to browse web pages, but learning to select and assess web pages for a specific assignment – which is what the HIV/AIDS project supports.

One positive aspect is that NIED and its USAID supported projects are beginning to make content available to teachers over the web and on

CD-ROM. This is still mainly 'reference' and resource materials for specific subjects, nevertheless it provides another reason why teachers, at least, would want to connect to the Internet. NIED is working to improve the ICT awareness and skills of teachers being trained so they come to schools with a better understanding of the uses of the Internet. It is also organising similar in-service training for teachers already in the schools. Finally, other projects, like that of the American Federation of Teachers, will also start to research the delivery of content for classroom use over the Internet. These will all create an awareness and demand among teachers to make more use of the Internet; it may also result in wider use of the laboratories inside school time. Overall, we should see schools making higher use of the Internet.

The involvement of these other actors is positive. It also poses a question to SchoolNet as to the extent it sees itself as both bringing Internet to a school and making sure that the Internet is widely used. The first is relatively easier to do, and to show. The second is what people will consider when assessing the usefulness of the connections. Similar to the Xnet partnership, an 'effective Internet use' partnerships in schools may be needed to help mobilise the usage levels that are expected. As part of these, SchoolNet may want to increase its web projects and similar activities, reaching more schools and providing more support. There could be a role for suitable volunteers to be sent to schools to support specific web projects, probably with a different profile than those normally sent to support new installations.

Enhancing basic computer skills of learners and teachers

Normally, during installation, a few people get basic training and someone is assigned to be responsible for the laboratory. As with the previous objective, further basic training is provided to schools by technical volunteers sent out for a month or two. Increasingly, expatriate volunteers in schools, mainly from the Peace Corps, are also taking on much of the teaching and support roles, including identifying local teachers in the schools who can take this on in the future.

Achievement of the objective

According to the project log frame, the primary indicator for this activity is that 50% of grade 8 learners use their e-mail accounts at least once per month. As with some of the other indicators used, this target is difficult to achieve and to assess, not least because it may not be grade 8 learners that are targeted by schools to receive this training. Nor do we know if each learner has an e-mail account and whether they know anyone to whom to send a message. Further, use of an e-mail account may not be the most appropriate indicator for learners who are mainly trained in computer basics, word processing, use of spreadsheets, and use of the Internet.

There is an assumption that SchoolNet volunteers provide initial training to a group of learners, who will then act as trainers for their peers. It was not clear from the visits how often this actually happened. Certainly, SchoolNet volunteers have only spent time in less than 50% of connected schools. These do seem to have given formal computer classes to learners and teachers, in some cases even to the entire school popula-

tion. This does not happen in every case however. During installation, people are identified and trained to use and maintain the equipment, but there is no data available on whether they then trained others in a formal sense. There does seem to be quite a lot of informal peer-to-peer training in the more informal Internet 'café' environments, but these only reach some of the school population.

Probably the only schools where substantial formal computer training is provided is in those that teach the computer science curriculum (some schools provide optional courses provided by a local company called 'Fourth R'). This implies however that there is a teacher assigned to this subject and that the laboratory is large enough to accommodate all the learners. According to SchoolNet, there are only about 120 such teachers in Namibia.

What can we conclude? Certainly, through the local and foreign volunteers, and with the many dedicated teachers who have taken on responsibilities for their computer laboratories, many learners and teachers have enhanced their computer skills. In some schools, it is reported that large numbers of people have been given basic training. Elsewhere, just having the facilities is sufficient for some individuals to teach themselves. Where Peace Corps volunteers are present, the novelty of both an expatriate and a new tool seems to add to the process. The impact of these efforts is difficult to assess as few data seem to be kept and quality standards are not specified nor tracked.

Relevance of the objective

As before, if the teachers and learners do not have basic computer skills, then the investments in the technology can be seen to be only of marginal usefulness. This is also an area in which other agencies are taking much interest, and where SchoolNet therefore can re-assess its own activities.

Thus, just as Internet learners can benefit from 'situations' in which to extend and apply their web skills, people seeking to extend their computer skills can benefit from access to various types of content and other applications.

One way is to build on the relationships SchoolNet has with direqlearn in which educational content is made available to schools as part of their SchoolNet platform. Similarly, Namibian educational content from NIED is going to be made available to schools through SchoolNet. Such partnerships open up the SchoolNet 'channel' to other providers, on the understanding that these providers will provide necessary training and support in their use.

It seems likely that basic computer literacy courses in schools are going to spread in response to demands and from encouragement from the government. It will be important for SchoolNet that whatever is taught in schools does not undermine or sideline the technologies and platform that it provides. A basic skills curriculum that teaches specific branded software applications (whether proprietary or open source) may impose requirements on a computer facility that either significantly raise the costs of ownership and support for a school or exclude certain options completely. These decisions are probably for SchoolNet to influence, not for it to decide.

Creating a recruitment pool for IT technicians and professionals

SchoolNet employs two main instruments to build up Namibia's ICT skills base. From the beginning, it has provided 'volunteer' opportunities to youths from poor backgrounds. Working alongside SchoolNet staff, mainly in the refurbishing workshop, these young people learned the basics of computers and the Internet. Once trained, some volunteered in SchoolNet to connect schools and install computer laboratories. Some also spent several months in schools providing initial ICT training to teachers and learners. Some have joined SchoolNet as staff members. Others have moved on and got jobs elsewhere. Since 2000, around 550 volunteers have been associated with SchoolNet.

Training courses

The current formal training courses were first offered in August 2002. One course was run in 2002 (with 40 trainees). Two courses were run in 2003 (with 160 trainees).

The current CECS certified course provides 80 contact hours of teaching and covers: introduction to computers, operating systems, word processing, spreadsheets, presentations, file management, Internet and e-mail, web design, maintenance and troubleshooting, open source, ICT workshops, and Internet for advocacy and lobbying. It is delivered as part of a regional Community Education Computer Society ICT Literacy project funded by the Open Society Institute for Southern Africa.

In 2001, SchoolNet also began to provide more formal training courses, on ICT basics, about computers, and on use of the Internet. The first courses were provided to the volunteers and were intended to provide skills to the mainly unemployed kids attracted to SchoolNet. In 2002, more structured training programmes were developed, attracting trainees as opposed to volunteers. The idea was retained that suitable trainees could also spend a couple of months in schools passing on their skills to teachers and learners. In 2003, the training curriculum was updated and a course developed by the Community Education Computer Society (CECS) of South Africa is now delivered on a regular basis. For the first time, trainees successfully completing one of these courses will receive a CECS certificate. Since 2001, around 385 people have passed through the training courses, 48 of whom also spent time doing volunteer work in schools.

One can also argue that, by introducing computers and the Internet to schools, the computer literacy skills of school learners will be enhanced, leading in the longer term to a greater recruitment pool for the ICT sector.

Achievement of the objective

According to the project log frame, the primary indicator for this activity is that 10 learners in each school pass a SchoolNet test on 'peer to peer' training and are elevated to volunteer status. As far as could be seen from the school visits, such tests do not seem to have been arranged, and the majority of volunteers are recruited from the Katutura community close to the SchoolNet office. It is not even clear whether 10 learners in each school are targeted as part of the volunteer or training programmes to get such training.

Hence, while enhanced ICT skills of many school learners in the longer term will probably result in a greater recruitment pool of people with ICT skills, there does not seem to be any data available that can be used measure this. Nor does SchoolNet seem to have given great emphasis to this particular part of the programme. Training and support in schools is mainly to ensure that someone is identified to look after and promote the computer laboratories, contacting SchoolNet when there is a problem.

This is not to say that a great deal of ICT training has not been provided in the schools. As was discussed above, the SchoolNet volunteers organise and deliver courses for learners and teachers. The few volunteers spoken to during the evaluation say they have given courses to all teachers and many learners in their schools. They have also trained others to look after the computer facilities. Feedback from the schools is very positive. Some of them have recruited the volunteers, using their own funds, to continue this work.

SchoolNet has also linked up with other Peace Corps, WorldTeach, and VSO volunteers in schools to good effect, as these individuals provide structured teaching and support during classes and also outside school hours. Some schools have set up Internet cafes instead of computer laboratories, encouraging learners and teachers to use the facility out of hours to gain or brush up computer and Internet skills. The web projects and competitions have also helped rather small numbers of learners and teachers to develop some more advanced authoring and design skills. This all suggests that many learners are getting exposure to ICTs.

We can also look at the other instruments that SchoolNet has used to develop ICT skills in the community.

As part of the evaluation, a simple 'tracer study' was conducted in an effort to contact past volunteers and trainees and find out how their SchoolNet contacts had benefited them. Of the roughly 1000 people that SchoolNet has some information about, some 200 had moved abroad, 20 had died, and 90 could be contacted in the short time available.

Of the 90 that were contacted, almost half said they had gained technical (hardware, installation software) skills, one third passed through the training course, and the remainder said they learned web skills. What are they doing now? Some 10% are working/volunteering at SchoolNet, about 15% are students, 10% work in the ICT sector (at the University, Telecom Namibia, etc.), some 35% are in various forms of employment, the rest report that the are 'at home' or doing 'nothing.'

These figures only give a snapshot. While the feedback is interesting, and certainly indicate that many people do gain much from their SchoolNet contacts, the quality of the data is not completely reliable as it includes responses from some people who applied to become volunteers or trainees, but were not actually accepted. Nevertheless, a lot of useful anecdotal information and perceptions of SchoolNet were compiled from the young people living in the local SchoolNet community.

Recommendation: Ensure that information of this type is available in the future by better organising and structuring the information about volunteers and trainees. A tracking system could be put in place to monitor where SchoolNet 'alumni' end up.

We can conclude that SchoolNet is indeed building up the ICT skills base of young Namibians, but not in the manner envisaged in the original log frame. There is a mismatch between the indicators identified and the actions taken. The kind of skills SchoolNet provides can be considered as basic ICT literacy, sufficient in most cases to get started, sufficient for some individuals to pursue and develop further expertise. The beneficiaries are mainly out of work youngsters living in or near SchoolNet, though frequently from other places, in the north for example. Many learners have also been exposed to ICTs through the school laboratories, but how many, and to what effect is difficult to ascertain.

Relevance of the objective

Everyone met in Namibia emphasises the need for learners to be ICT literate, in both formal and informal education settings.

Not everyone agrees on how to do this. SchoolNet emphasises skills development by learners, so they can become literate. NIED on the other hand focuses more on getting teachers with ICT skills, so they can incorporate ICTs into their teaching. They also support various computer related curricula that schools can deliver, if they have suitable teachers and facilities. The end result ought to be the same – many more learners 'graduating' with ICT literacy as one of their basic attributes.

SchoolNet concentrates on formal settings through its work with schools, and informal setting through the courses and volunteer opportunities it provides at its centre in Windhoek.

For SchoolNet, there is a slight conflict of priorities, between providing training and support necessary to manage and support the ICT installations in schools as well as training for those skills needed to run its own operation, and providing general ICT skills of all learners in Namibia.

On one hand, it needs to make sure that its installations are used. On the other, it can hardly at present provide ICT skills training to all learners in all the schools it serves. The volunteers are good to 'kick-start' ICT use in schools. In the long term, the schools need to have their own dedicated teachers of ICTs and provision to support their computer facilities. Hopefully making excellent use of the platform provided by SchoolNet and being stimulated to do so.

The feedback from the skills development in informal settings is very positive and especially benefits young people who perhaps did not do so well in a school environment. It seems that the basic training courses can become self-financing. It is important that they provide a certificate that is also recognised in Namibia and is seen to be a sign of quality. For more promising trainees, volunteering in SchoolNet and in schools seems to be an excellent way to groom future SchoolNet staff and to help build up a pool of visiting or permanent ICT specialists in and around schools. It would be useful to assess which skills and aptitudes the volunteers actually need to introduce and support ICTs in schools. It may not be enough that they are able to teach basic computer skills. Simply teaching ICT skills to learners may not be all that schools and SchoolNet need, especially when the expected changes in teacher training and teacher support by the MBESC and NIED materialise, producing more ICT literate teachers than before.

Empowering Youth

The second question concerns the contribution of Sida support to improving the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth through broadened horizons and a higher level of knowledge by using the possibilities of cheap and simple communication that ICT offers.

The key aspects seem to be the 'broadened horizons' and a 'higher level of knowledge' that ICTs provide, which contribute to education as well as participation in a democracy. However, it is very difficult to assess progress towards this wider 'development' goal – as much because the data is not available as because indicators to be used to assess progress do not seem to have been defined.

Nevertheless, in terms of broadening horizons, the SchoolNet volunteer and training programmes do seem to have given new opportunities to many young people that would otherwise probably not have had those chances. They have gained skills, become more aware of the wealth of information that is available to them, and they have signed up for further education or training. In the schools also, some teachers and learners have begun to broaden their horizons – teachers by incorporating up to date materials in their courses, learners, for instance, by making contact with learners elsewhere in the world and by engaging in the web projects.

The scale and impact of this broadening is almost impossible to establish. Any links with the quality of education given or received or with democratic engagement are similarly difficult to extrapolate. In theory, many learners, through their Internet connections, may be exposed to many more ideas and opinions, about developments in Namibia for example, than they would be through more controlled radio, television, or newspapers. Knowing which Internet sites the learners are visiting might provide some insights into Internet usage behaviour. However, aggregated data is not yet available from the SchoolNet ISP to help with this (though the raw logs are available). Data on the numbers of learners with their own e-mail accounts might also be interesting to help assess their use of the ICTs as a tool for communication.

To conclude, it is clear that SchoolNet activities have provided more access to the Internet to more learners. There is a latent potential that this access may also empower them in various ways. It is almost impossible to state whether any empowerment has actually taken place, how

much, and of whom. Thus, while circumstantial evidence shows that many people are using Google, we can perhaps assume that the results of their searches are bringing them into contact with information that is new to them (and thus broadening their horizons).

Clearly also, hundreds of young people have participated as trainees or volunteers in SchoolNet activities, gaining skills and knowledge. In many cases, this has already helped some of them to improve their livelihoods. It also seems that kids using the computers also improve their English language skills. This additional language competence will help when they look on the Internet for new information and ideas, also when they are seeking jobs.

Despite these positive directions, we still do not really know how the learners are actually using the ICTs, and the types of applications or uses that are likely to contribute to education and encourage the participation by youth in a democracy.

Recommendation: If such a development goal is retained in a future Sida cooperation agreement, it would be wise to more precisely specify what is intended, to set out some overall indicators to assess progress, and to make sure that qualitative and quantitative research or learning is included to assess the extent that the ICTs are indeed contributing to educational or democracy-building goals.

It is worth noting here that SchoolNet activities have also helped to mobilise many other actors – local and foreign – to support ICTs in education and in schools in Namibia. By shining a light on schools, others have also begun to step in. This includes crucially the Government. It also includes the USAID/AED activities, the potential global e-schools initiative, and even the Microsoft affiliated Partnership for Learning project. It was suggested that the work by SchoolNet on open source operating systems was itself the main trigger for the Microsoft involvement in Namibia. Together with SchoolNet's own efforts, these will help to make sure that future learners will attend schools that have, to some extent, been 'ICT-enabled' to support the broader information and learning needs of school children.

The SchoolNet Organisation

Governance

The SchoolNet Educational Trust, with its own Board, is the primary legal entity. The Board appoints the Director of the organisation. Members of the Board are drawn from various organisations and sectors – mainly education and ICTs – and serve in their personal capacities. The presence of members from the MBESC, for instance, has provided some important legitimacy to SchoolNet activities in schools as SchoolNet has yet to sign any formal agreement with the Ministry.

Alongside SchoolNet, a not for profit company called NetDay has also been set up. Legally separate, this is basically the purchasing arm of SchoolNet. It originated out of a refusal by computer distributors outside Namibia to recognise SchoolNet as a reseller and their insisting that it was an end-user that had to purchase computers, at higher prices, through local re-sellers. Today, SchoolNet uses NetDay to obtain the lowest possible prices for its needs. NetDay is able to provide low prices because it has very low overheads. There has been some confusion about the relationship between SchoolNet and NetDay. After some delays, this is now being addressed.

The most recent institutional development is the Xnet founders' agreement with Telecom Namibia. This has been profiled earlier in this report. Under this agreement, ownership of the SchoolNet ISP, and its revenues, will be transferred to Xnet. Telecom Namibia will channel its discounted access business through Xnet. The intention is that Xnet will become a multi-stakeholder universal access fund working in all development sectors in Namibia. It will generate revenues and it will disburse funds for connectivity projects, such as those of SchoolNet. The agreement has been signed and is expected to begin operation sometime in 2004. In the short term, it will cut a substantial local revenue stream of SchoolNet (the ISP). In the longer term, it will hopefully provide regular and reliable funds to schools and to SchoolNet in a sustainable fashion. Since SchoolNet is one of the Xnet founders, it will retain various high level voting rights regarding Xnet activities.

Board members of the Trust seem to take their responsibilities seriously and there is normally a good attendance at the meetings. It is not clear how Board members are chosen – though they seem to represent a wide cross-section of interests as well as allies and partners of SchoolNet.

A striking absence from the Board is any direct representation by teachers. Funders of SchoolNet such as Sida seem to be given automatic 'ex-officio' status as board members. In reality the Sida representative acts as more of an observer.

In general, the governance structure seems to be quite complicated and the various elements and plans are not fully understood by staff.

Management

Within SchoolNet, a management team supports the Director with delegated responsibilities for various aspects of the operations. In each area, a team comprises various technicians and volunteers.

In northern Namibia a semi-autonomous 'depot' has been set up in Ondangwa in partnership with a local IT company. SchoolNet has an ISP licence through which it provides Internet services to schools and related educational clients. The server is physically hosted at the Polytechnic of Namibia.

SchoolNet training activities have recently been put on a more formal footing with the appointment of a training manager (in 2002). Through a relationship with CECS, it delivers various courses and is required to create its own advisory structure with various stakeholders represented. The link between the 'standard' curriculum of the training courses and the various needs of SchoolNet and the schools is not very obvious and needs some attention.

The key 'workshop' area of SchoolNet (where computers are refurbished and prepared for installation) is a major management headache as its manager left in mid 2003. A replacement is urgently needed, but is hard to find. Much of the blame for technical problems in the schools and delays in installation is often ascribed to the 'finger work' of the technicians doing the refurbishing, installation, and support work. A small mistake in installation can hold back an entire roll out. These youngsters are all products of the SchoolNet volunteer system. The fact that they all started with no computer skills and are now the technical core of the organisation is itself an amazing achievement. Nevertheless, it must be recognised that the technicians and volunteers (technicians see themselves as 'paid' volunteers) are still a very inexperienced team that urgently needs strong guidance, mentoring, and management.

In the past, the technicians in Windhoek would travel to schools for installation and support. With the new depot in the north, this may change as SchoolNet seeks to locate its support much closer to the clients. If the Ondangwa depot is a success, similar depots will be opened in other parts of the country.

One significant advantage that SchoolNet enjoys is its location in the Katutura Community Arts Centre. Here, it is located in a traditionally disadvantaged area of Windhoek, in a poor community, and housing several schools. The Centre is itself a meeting place for the community and the SchoolNet training laboratory operates as a free local Internet café when not being used for training. Needless to say, it is always busy. It also allows SchoolNet to observe computer and Internet behaviour of the type of young people it is trying to empower. It is perhaps a missed opportunity that SchoolNet does not have a special 'Katutura project'

reaching out more intensively to the schools in the community to really demonstrate the power of the new technologies, in learning, teaching, and in empowering out of school youth.

Management issues

Discussions inside and outside of SchoolNet reveal a widespread concern that it has insufficient ability to deliver and support the services that schools need. There seem to be sufficient financial resources, though the donor funds are committed mainly to direct costs and do not cover salaries.

The problems mainly concern organisational structure, culture, and management. Leadership and vision do not seem to be issues, except that they are concentrated in too few people – the Director.

Two local consultants have provided management advice to SchoolNet and some management changes have been initiated. These do not yet seem to be fully accepted nor are they fully yielding the hoped for improvements.

Other stakeholders

Until very recently, SchoolNet was the only organisation working in Namibia on ICTs and schools. Partly through its own successes, it has attracted other actors to the same issue. These include government, NGOs, and the private sector. Major international attention seems to have also been mobilised.

For education in Namibia, this should be a benefit. For SchoolNet, this also should be a benefit. In both cases however, the arrival of new actors and agendas has caused various stresses and tensions. At the official level, mechanisms for coordination and priority setting have been left behind and the country is full of various well-meaning initiatives and projects acting in an uncoordinated and sometimes competitive manner. The government has realised this and the MBESC and NIED are working to create task forces and committees for actors to get together. This is a positive development.

SchoolNet relations with MBESC seem to be good and at a high level. Its efforts are appreciated, though perhaps the scale and complexity of what SchoolNet is doing may not be fully understood. An official agreement setting out the roles of SchoolNet and officially 'authorising' it to work in the schools is urgently needed.

SchoolNet relationships with schools are officially based on a contract that both sign. This contract hardly seems to be implemented however and most people encountered in schools seem not to be aware of any contract. Essentially, the contract commits the school to provide a secure space for the computers and to cooperate in using and promoting the ICTs in the school. They are also supposed to maintain all kinds of data on usage. The contract sets out very few responsibilities for SchoolNet.

With 100+ positive potential partners in schools, SchoolNet is in by far the strongest position in this area. It is important though that its primary clients or partners in schools do not switch away from SchoolNet as easily as they switched on to SchoolNet. Now is a good time to look again at this kind of 'donor-recipient' relationship between SchoolNet and the schools. It is probably not best suited to the kind of

collaborative or partnership relationship that SchoolNet should be developing with the schools. Certainly when the schools come in contact with other ICT 'providers' and projects, SchoolNet needs the schools to be strong advocates and champions of SchoolNet, not just thankful for the donated computers and glad to get more. This implies that the schools need to also understand more what they are getting into, at a strategic/management level.

Finally, the Microsoft/Parliament of Namibia Partnership in Learning project has created a lot of visibility for SchoolNet in recent months. Most of it was around a perceived Microsoft versus Linux debate. For many people met during this evaluation, this is what they recall most about SchoolNet. While there is no arguing that the underlying issues surrounding cost of ownership and costs to sustain need to be examined and discussed, and the various approached assessed, the polarisation of the debate into Microsoft versus open source is too simplistic and not helpful. Many people are convinced that SchoolNet will not allow computers with Microsoft operating systems into 'its' laboratories.

The most useful approach is to recognise that there is a certain 'biodiversity' of operating systems and applications in Namibian schools. Schools need reliable equipment they can sustain and support and afford. They also don't want to disadvantage their learners by teaching them skills that can't be transferred across platforms. Platforms that can deliver these could be considered as strong candidates for school use. By focusing around issues like affordability, as SchoolNet does, it will have a more powerful argument.

It is worth recording that the SchoolNet open source approach is seen in some quarters as vital to Namibia as it provides the only large-scale source of information that can be used to inform national decisions regarding choices of software and operating systems.

The SchoolNet Approach

The third question concerns the strengths and weaknesses of the SchoolNet Namibia approach. Briefly, the essential characteristics of this approach are:

- Affordable computers provided to schools;
- Affordable connectivity provided to schools;
- Anywhere access – Solar power for schools off the power grid;
- Support and maintenance for computers and connectivity in schools;
- Training and capacity strengthening – through volunteers and trainees;
- Stimulating computer and Internet uses that empower youth and enhance the quality of education;
- Executed through partnerships between SchoolNet and other public and private entities;
- Managed and delivered by a professional organisation;
- All, moving towards local financial self-reliance.

Strengths of the approach

The most striking thing about this approach is that it works. In contrast to many other developmental uses of ICTs that stay in a pilot phase, large numbers of schools and other groups are now connected to the Internet and are making use of their computer laboratories.

Another strength is its demonstration effect. Getting the project to work has also allowed various technical solutions to be tried and tested, including for very remote and disadvantaged schools where power and phone lines were not previously available. Beyond the technology, the joint venture with Telecom Namibia offers an innovative institutional approach to connecting all Namibia's schools. All of these examples offer substantial lessons for other countries in Africa and beyond.

In the same vein, SchoolNet is probably the most significant operation using and advocating open source systems and solutions in Namibia. Poorly resourced schools are good examples of situations where ICTs need to be robust, easy to use, and above all, affordable. Numerous similar situations exist in other development sectors. From just a learning perspective, this large real life open source trial is important as a way to test many assumptions about how ICTs can be introduced, used, and sustained in resource-poor environments.

This work on open source has also triggered SchoolNet to more deeply explore issues surrounding the costs of ownership of ICTs in schools. The current model is an excellent start as it demonstrates, from a SchoolNet perspective, the typical costs needed to install and support basic ICTs in Namibian schools. This type of model will be a critical resource for Government in the future when they start to determine the scale of local funding that needs to be mobilised to sustain ICTs in schools.

Another strength of the approach is the emphasis on capacity strengthening through training, mentoring, and volunteering. Much has already been accomplished in this area and more results can be expected as training especially is strengthened.

All of these elements add up to a focus on affordability. For cash-strapped schools, it is vitally important that they can afford, in the future as well as now, their ICT infrastructure and applications. It may not be necessary that all components of the approach are low-cost or lowest-cost, so long as they result in acceptable levels of performance that schools can afford, in the longer term. Thus, many 'free' donations, to SchoolNet itself and to schools, have actually turned out to be more costly in the longer term than other products that were purchased. Examples, in a school, are donated computers running old versions of windows operating systems that can't be upgraded or even repaired after a certain period, or whose licenses need to be paid for them to be legal. Examples, in SchoolNet, are donations of different makes and types of second hand computers that each need to be refurbished using different components. It is now cheaper to purchase sets of the same computer than it is to refurbish the so-called 'trick or treat' machines that arrive at no cost.

One important feature of the SchoolNet approach is that it provides generic ICT technologies and tools, as much as possible from an 'open' perspective. Because it does not have specific applications and products to 'sell' or to promote, the schools receive rather neutral platforms on which they can build. This means that schools can use their technical platform to participate in other ventures or projects. Further, other projects, of the government for example, can build on the connectivity and computers provided by SchoolNet for whichever other purposes they seek to promote.

Finally, SchoolNet works with many partners and organisations, mobilising their expertise and resources and generally raising awareness regarding the need for ICTs to be used in schools. Especially in the first years, the list of local people and organisations supporting SchoolNet is impressive. Today, a number of strategic joint ventures or partnerships are building on the synergies between SchoolNet and the other partner. The membership of the SchoolNet Board has been a good mirror of this involvement, with key stakeholders from the education and ICT sectors serving on the Board.

Issues and challenges

Despite these strengths, various issues and challenges can also be seen. Since much of this assessment is qualitative and subject to differing perspectives, these are provided as a basis for discussion and reflection rather than as specific weaknesses to be resolved.

Sustainability in the schools

If we look in the schools, in the longer term, sustaining ICTs will be achieved when the schools can support and extend their computer use and connectivity from their own resources (both financial and human).

Since these resources are very limited, elements of a sustainability strategy for schools includes: obtaining affordable equipment and connectivity (low maintenance, cheap to buy or obtain, stable and reliable in use), obtaining sufficient ICT literate people (teachers) in schools, mobilising predictable and recurring [government] funds for schools to invest in ICTs and ICT staff, and demonstrating the usefulness of the technologies inside schools so teachers and learners are convinced as to their value (content, incentives, training).

So far, SchoolNet is mainly laying the foundations of affordable access and installing basic computer labs in schools. It is also helping to build the pool of ICT literate people in and around schools, influencing and educating government to what they can do to sustain access in schools, and raising awareness in schools as to the opportunities that Internet access can provide.

Progress in all of these areas will be needed if ICTs are to become fully integrated into the schools. If the technologies get too far ahead of the other elements, there is a risk that they won't be fully understood and used, and ultimately, that the schools will not take sufficient ownership. Further, excellent work by SchoolNet on connectivity and computers may be negated or wasted.

Since SchoolNet cannot address all these elements on its own, partnerships and the type of innovative thinking that characterises the partnership on connectivity with Telecom Namibia will be needed in the other areas as well. Critically, the schools themselves need to become much more active partners in the programme – working to help make their own efforts sustainable.

SchoolNet's work on costs of ownership of ICTs in schools is a useful tool to support efforts by the schools and government to decide where and how to invest in ICTs. The current model demonstrates, from a SchoolNet perspective, the typical costs needed to install and support basic ICTs in Namibian schools. To be complete, the model also needs to incorporate other in-school costs of owning ICTs, such as personnel, buildings, etc., that are presently not included but will be essential from the schools' perspective.

Schools as beneficiaries

SchoolNet relationships with schools are quite top-down, similar in ways to the classic 'donor-beneficiary' relationship commonly found in development. Schools are mostly seen as rather passive beneficiaries of services provided by SchoolNet. Teachers are seen to be part of a 'problem' that needs to be fixed. This is a missed opportunity. For the ICTs to make a difference in the schools, the teachers and administrators need to be partners, to become active 'owners' of the tools, and have a much greater understanding of the potential of ICTs. Presently, the dialogue between schools and SchoolNet is mainly focused around technical aspects of the platform provided, making sure that basic computer skills are developed in the schools. The content of this dialogue may need to become more

'strategic' and more 'institutional' – concerned with the deployment and use of ICTs rather than just their installation. This implies a different type of relationship, perhaps more of a partnership. In this, SchoolNet could support higher-level ICT management – or change management – capacities in the schools, to maximise effective use of the technical platform provided. In the longer term and depending how it evolves, this might imply a shift of emphasis of SchoolNet from being mainly an ICT technical service provider to becoming an information and communications solutions facilitator or broker. Schools could also be formally recognised as stakeholders entitled to greater influence on SchoolNet and in its governance (there is currently no direct representative of a school on the SchoolNet Board).

Focus on uses

While the emphasis has been on the delivery of a technical 'platform', mainly comprising computer networks and connectivity, there has been little attention to the uses and applications made of the platform provided. Over and over, anecdotal feedback suggests that just simply providing some tools and some basic instruction will not lead to systematic and 'rich' uses of the ICTs. As botanical gardens show, very few introduced plants bloom without some extra nourishment and attention to the seeds and their germination. Teachers and learners can benefit from 'situations' where the ICTs can be explored and where applications, beyond games, can be tried out. The various web projects and competitions supported by SchoolNet show that motivated teams exist in the schools and that they are willing to participate in projects that extend their use of the tools beyond the basic level. Additional efforts of this type, without detracting from the main focus on providing a technical platform, will help to show why, and how, these ICTs are so useful.

Capacities

SchoolNet's volunteer and training programmes are the primary instruments by which it strengthens and passes on ICT skills. The emphasis has been on technical skills, especially to refurbish, install, and maintain computers and to install connectivity in schools. Training in schools, the 'front line' in a sense, is also focused on technical issues including use of the Internet.

In newly connected schools, this initial technical set up and orientation will remain a critical element of SchoolNet's support, especially if it can be done over a longer period through volunteers. For existing schools, there are emerging needs for other types of support and capacities, associated more with the effective application of the ICTs – in teaching, learning or administration – or with their overall deployment and management. Already some schools have several different Internet connections, and different computer set-ups from different providers. These may need to be rationalised and networked. They may want to add facilities, like printers, that are not available through SchoolNet. Currently, there is little support available for these questions, though the Ministry's Teacher Resource Centres have ambitions in some of these areas. By focusing only on technical installation and use, major in-school

ICT capacity needs that have a bearing on the use of the SchoolNet platform, are being overlooked.

Similarly, a lot of the responsibility for supporting the ICTs in some schools rests with the volunteers. Having themselves just completed a basic ICT literacy course; they are expected to pass on these skills. The assumption is that their technical skills, with some backup from Windhoek, will be sufficient. It is also assumed that volunteers have necessary pedagogical skills to effectively pass on their skills. It was not possible to test these assumptions in the course of the evaluation. Experience with ICT introduction and volunteering in other situations suggests that the technologies are not the only factors that need to be addressed, though they are often the most visible. Ownership, commitment, expectations, and resistance to change are also important. A 'technical' preparation may not be sufficient to introduce and support SchoolNet services in a school. Other skills and aptitudes are also needed and must be developed or obtained.

Finally, one could argue that strengthening the capacities of schools and the people in them is a main task of SchoolNet. Training, with associated volunteering, is the main instrument for this. Mentoring has been an important element of capacity development within the SchoolNet organisation. More generally, much emphasis is on transferring skills. Less attention is given to more participatory learning. The exceptions are the web projects and competitions that provide incentives for school teams to work together, learning as they go. The potential for school ICT 'champions' to meet and motivate each other, in workshop mode for example, has not been tapped. In addition to providing open technical platforms, SchoolNet could be an open capacity-sharing platform where existing skills and capacities, in schools, are shared horizontally 'across' schools instead of mainly being transferred 'down' to them.

Quality

Visitors to SchoolNet can easily be quite overwhelmed by the amount of work, the numbers of schools, the many partnerships, and the relatively small team. It is also quite easy to get caught up in the numbers – of schools, of wireless schools, of computers, of web visitors, of new installations, of volunteers, of trainees, and so on. Behind the numbers, however, there is a possibility that much follow through and attention to detail and quality may be getting lost. Some things on paper like the school contracts or volunteer appraisals are not implemented. Monitoring data is not collected. Since all the primary indicators used are quantitative, this overall focus is understandable. However, it can lead to an under-estimation of the human factors that actually make the technologies work.

Sustainability of SchoolNet

In terms of its own sustainability, the primary asset of SchoolNet is the widely felt positive views on what it is doing. The approach has many believers, in Namibia and among funders. Confidence is high. Many feel that SchooolNet has pioneered the wide scale provision of affordable access to computers and the Internet in Namibian schools. Its activities

have mobilised others to also get involved. All the people encountered in the mission highlighted the very positive nature of this work. They point to the number of schools, the innovative use of wireless, the work on affordability, and the solar panels bringing ICTs to very remote places. They want to see more.

Yet, most people, in schools, in SchoolNet itself, as well as elsewhere, also say that SchoolNet has major deficiencies – in its abilities to provide reliable connectivity, *and especially* to provide fast and responsive technical support and troubleshooting to its clients. In schools, any problems experienced see to be downplayed because people are so happy to have any service at all. Among others in Namibia, the problems are perceived without being experienced, but are likely to affect their confidence in SchoolNet as a reliable partner providing Internet access and computers to schools.

Unless this is addressed soon, the credibility of SchoolNet's work can quickly be undermined. This institutional weakness is probably the greatest short-term challenge to the organisation's ability to achieve and sustain its objectives.

In terms of financing, summary data presented in Annex 3 indicates that the Sida share of total SchoolNet expenses is on an upward trend. In 2003, Sida support accounts for some 75% of total SchoolNet expenses (rising from around 55% in 2001). The delayed USAID funding will reduce the total Sida share, though not the high dependence on foreign funds. If anything, perhaps because of the availability of foreign funding, income from local sources seems to be declining or at least not growing. Aside from these rather worrying general trends, there has been a substantial under-spending on Sida budget lines within the agreed and revised budgets.

More important perhaps, much more local income will need to be generated if the intention is to become independent of international 'donor' funding. If the 'Xnet' agreement evolves as planned, and if schools can begin to pay their own costs, from government funds for example, then sufficient funds may be available to pay for the connectivity component of the programme. Similar revenue streams are needed for the other activities.

SchoolNet institutional capacities

As is mentioned above, SchoolNet is rather weak organisationally. Having gone through a short and dynamic and fast-growing initiation phase under visionary leadership, it now needs to consolidate, mature and self-organise – to sustain the gains already made, and to grow in ways that can be managed.

The staff is motivated and enthusiastic, though few in numbers and, in some cases, quite inexperienced. Many tasks depend on a very few individuals. The departure of some key individuals has greatly affected the organisation's ability to achieve targets and results.

In terms of the organisation, the managerial culture and mechanisms are barely adequate to cope with the very rapid recent growth of SchoolNet. Much more 'professional' approaches are needed so SchoolNet can effectively take on more schools while also responding to the growing and more complex expectations of existing clients. There is a consensus

around SchoolNet that current levels of support provided to existing clients need to be enhanced quickly.

Finally, there is very little data that can be used to monitor the activities, inputs and outputs of the cooperation. Only now is SchoolNet putting together some supply side indicators and databases. Without these, it is very difficult for the project's managers or evaluators to reliably say what has been accomplished. Attempts to assess progress towards, for instance, the project development goal or even the more concrete objectives, are very difficult given the absence of data collected in the schools themselves.

Annex 1: SchoolNet Milestones

1999	
September	First insect@thon school competition held at PC Centre/IIT, Windhoek
November	SchoolNet Namibia Launch meeting, Windhoek – officiated by Permanent Secretary, MBESC and Managing Director, Telecom Namibia
2000	
February	First General Meeting of SchoolNet Namibia, constituted as an association not for gain.
March	Launch of "Kids on the Block" volunteer programme
April	Alpha version of Open Source Server solution for school local area network released.
September	Insect@thon 2000 roadshows – 5 regional events, one national event.
October	Geckos' Stone Award for publicity campaign "Youth empowerment through Internet"
2001	
February	AED/LearnLink Project technologies rolled out to 4 TRCs in Namibia
March	Annual General Meeting of SchoolNet.
May	Three-year financing agreement signed with Swedish International Development Agency (Sida).
July	Establishment of SchoolNet (Educational) TrustWorldTeach Volunteers deployed as ICT trainers to schools
August	Domestic Violence Advocacy Website competition
September	Establishment of stable Open Source Linux Terminal Server LAN solution, using diskless "thin" clientsDemonstration of solar powered wireless Internet solution for remote schools – Spring Energy Fair
November	SchoolNet Internet Service Data Centre established at Polytechnic of Namibia
2002	
February	Establishment of SchoolNet Internet Service Provider (ISP) – Virtual Private Network, Virtual Private Dial-up Network, with "E-rate" 0700 national number for dial-up clients; 0800 toll-free number for help-desk and technical support services SchoolNet Namibia awarded Welfare Organisation status by Ministry of Health and Social Services.
March	Beta-version low-cost local area computer networks – (LTSP) Open Source + Open Office applications + refurbished diskless workstations deployed to new schools, as well as upgrades of earlier versions at existing school clients, especially single-dial clients.

April	Annual General Meeting
June	SchoolNet Namibia established as Thinkquest Africa country coordinator
July	Move to new headquarters at the Katutura Arts CentreOld Mutual Foundation Information Resource Centre opens to public
August	Prototype stand-alone Linux-PC for teachers completed
September	NIED and SchoolNet co-host HIV/AIDS website competition for schoolsIndependent human resources investigation and SchoolNet policy document completed SchoolNet "HIV/AIDS in Katutura " website launched
October	Launch of SchoolNet Volunteer (=troubleshooter), informal trainer programme at schools – 18 trainers qualify for deployment for 3–8 weeks+
November	First 10 schools provided with solar powered electricity in northern Namibia, first two wireless schools in northern Namibia SchoolNet wins APC/UNECA Nancy Hafkin Communication Prize
December	SchoolNet web development team wins Global Junior Challenge Website Incubator competition with its "HIV-AIDS in Katutura" Website African Connection, SchoolNet Africa, SchoolNet Namibia, World Links for Development conference in Windhoek on "Satellite and Wireless Connectivity for Rural Schools and Development". First top-level meeting between SchoolNet and Telecom Namibia toward the establishment of a Development Alliance.
2003	
February	Completion of pilot solar school installations in northern Namibia
March	SchoolNet Strategic Planning workshop, Windhoek
April	Telecom Namibia MD and senior officials of the Ministry of Basic Education, Sport and Culture visit off-grid solar-powered wireless schools in northern Namibia
May	Sida annual project review
September	SchoolNet transition to DireqLearn OpenLab solution for school computers, introducing Learnthings and the DireqLearn Educational Portal
November	Agreement with Telecom and founding of Telecom/SchoolNet XNET Development Alliance Trust Evaluation of Sida support to SchoolNet
November	SchoolNet invited to join Rural Electrification Coordinating committee (Ministry of Mines and Energy)
December	SchoolNet showcased for the Global E-Schools Initiative at the ICT4D platform, WSIS, Geneva

Annex 2: School Use of the SchoolNet Connection

This table contains data from the week of 15 December 2003. It shows the number of times that schools dialed in to the ScholNet ISP in the week in question, and in the previous week (week of 8 December). The final column shows the average number of dial-ins per week for the last month. Note that these are holiday weeks in Namibia.

School Name	last week	1 month avg per week	this week
P.K. De Villiers Secondary School	104	100	19
Etalaleko Secondary School	0	42	0
Shaanika Nashilongo Senior Second	3	34.25	0
Martin Luther High School	11	22.5	0
Etosha Secondary School	1	11.25	0
David Bezuidenhout High School	0	10.5	0
Otjikoto Secondary School	0	9.75	0
Okahandja Secondary School	4	8.75	0
Leevi Hakusembe Secondary School	0	8.75	0
Omuthiya Iipundi Combined School	8	7	0
Iindangungu Combined School	0	6.75	0
Eengedjo Secondary School	0	6.25	0
Suiderlig Secondary School	2	5.25	0
Onankali-South Combined School	10	4.25	0
Enyana Combined School	0	3.75	0
Ekulo Senior Secondary School	0	3.75	0
Onamhindi Combined School	0	3.25	0
Gustav Kandjii Junior Secondary S	0	3	0
Oosterheim Junior Secondary Schoo	0	2.25	0
Oshigambo High School	0	2	0
Onamukulo Combined School	0	1.5	0
Namib High School	0	1.25	0
Da-Palm Junior Secondary School	0	1.25	0
Otjinene Junior Primary School	4	1	0
Jakob Marengo Tutorial College	1	1	0
Onathinge-North Combined School	0	1	0
Engela Combined School	0	0.75	0
Oniihwa Combined School	0	0.75	0
Kapembe Combined School	0	0.75	0
Gabriel Taapopi Senior Secondary	0	0.5	0
Epukiro Post 3 Junior Secondary S	0	0.5	0
Môreson Centre	0	0.5	0
Ngweze Secondary School	0	0.25	1
Eenhana Primary School	0	0.25	0

Updates are available from:
http://www.SchoolNet.na/logs/list.php?orderby=name

Annex 3: Project Costs 2001–2003

The data below was provided by SchoolNet in December 2003. The amounts are in Namibian dollars and show the budget allocations and actual expenditures from Sida to date. It should be noted that the cooperation began in mid 2001, and will end in mid 2004.

	year 2001			
	SIDA		Total SchoolNet	
	Budgeted	**Actual**	**Actual**	**%Sida**
SIDA SOLAR	1,166,667	-	-	
SIDA TELEPHONE	720,000	17,500	17,500	100.00%
SIDA WIRELESS	-	-	-	
SIDA ISP AND SCHOOLS	420,000	420,000	1,345,291	31.22%
SALARIES	360,000	306,280	306,280	100.00%
VEHICLE & TRANSPORT	400,000	365,362	365,362	100.00%
	3,066,667	**1,109,142**	**2,034,433**	54.52%
SIDA UNDERSPEND		*1,957,525*		

	year 2002			
	SIDA		Total SchoolNet	
	Budgeted	**Actual**	**Actual**	**%Sida**
SIDA SOLAR	2,333,333	950,983	950,983	100.00%
SIDA TELEPHONE	2,160,000	1,766,848	1,766,848	100.00%
SIDA WIRELESS	-	-	-	
SIDA ISP AND SCHOOLS	420,000	420,000	1,457,065	28.83%
SALARIES	310,000	306,280	1,139,824	26.87%
VEHICLE & TRANSPORT	400,000	103,941	103,941	100.00%
	5,623,333	**3,548,052**	**5,418,661**	65.48%
SIDA UNDERSPEND		*2,075,281*		

	year 2003			
	SIDA		Total SchoolNet	
	Budgeted	**Actual***	**Actual**	**%Sida**
SIDA SOLAR	2,333,333	454,868	454,868	100.00%
SIDA TELEPHONE	2,880,000	404,724	404,724	100.00%
SIDA WIRELESS		92,582	92,582	100.00%
SIDA ISP AND SCHOOLS	2,759,017	832,547	832,547	100.00%
SALARIES	210,000	210,000	619,320	33.91%
VEHICLE & TRANSPORT	-	-	72,543	0.00%
	8,182,350	**1,994,721**	**2,476,584**	80.54%
SIDA UNDERSPEND		*6,187,630*		

* till November 2003

Annex 4: Terms of Reference

In May 2001, a three-year agreement between Sweden and SchoolNet Namibia was entered into.

The project objectives are to:

1. Install basic (Internet connected) LANs at 500 secondary schools,
2. Reach a high level of Internet usage by learners and teachers at connected schools
3. Basic computer skills of learners and teachers enhanced
4. Create a recruitment pool for IT technicians and professionals

The development objectives are to:

– improve the preconditions for education and for the gathering of knowledge and participation in a democracy for the country's youth through broadened horizons and a higher level of knowledge by using the possibilities of cheap and simple communication that ICT offers.

During the agreement period additions and changes have been made to the project document, but the main objectives remain.

Purpose of the evaluation

The evaluation should identify strengths and weaknesses of the SchoolNet Namibia approach of providing Internet access to secondary schools, as well as potentials, opportunities and measures for improvement.

Evaluate the achievement of the development objectives and the project objectives.

Furthermore, the intention of the evaluation is also to contribute to learning about implementation of computers and Internet access to schools in developing countries, derived from experience of SchoolNet Namibia.

Scope of the services

The scope of the services is to:

– evaluate the fulfilment of the objectives for the Swedish support to SchoolNet.
– identify lessons learned from the SchoolNet experiences

Areas to be discussed and analysed should include, but not be restricted to, the following.

SchoolNet is an independent NGO, providing access to Internet for schools with the approval of MBESC. Strength and weaknesses of the organisational form should be described and analysed, both from the perspective of SchoolNet as an independent organisation in relation to stakeholders as MBESC and the schools, but also the internal organisational form. Organisational prerequisites for SchoolNet to reach set out goals should be defined. The ability to provide required maintenance of installed networks should be reflected upon.

The close relation between SchoolNet and different stakeholders, in the Board of Directors for example, has been viewed as a major advantage for the organisation to achieve its visions. The evaluation should include a stakeholder analysis, regarding the importance of the engagement from stakeholders to reach set out goals, the support/ disengagement from stakeholders in the present form of partnership and an identification of stakeholders crucial for the success of SchoolNet.

"Low costs" is a key concept for SchoolNet, both for management of the organisation and for the solutions and activities implemented by the organisation. Sustainability of SchoolNet and the SchoolNet programme should be discussed in relation to the low-cost ambitions, with references to external support, income generating activities, methods used to implement the objectives, organisational structure, technology choices and stakeholder involvement.

Where applicable, the evaluation should advice SchoolNet of possible improvements of the organisational structure, cooperation strategies and working procedures to achieve defined visions and objectives.

Time schedule and reporting

The assignment is expected to require a maximum of five weeks. The services will be carried out in Windhoek during 3 weeks, with an addition of and one to two weeks for finalisation of the report. The field visit for the evaluation should be carried out in November 2003.

Two reports should be produced. The first report should present the evaluation of the achievements of the project and development objectives reached through the Swedish support to SchoolNet Namibia (purpose 1 and 2). The target groups for the first report are the agreement partners, i.e. SchoolNet Namibia, the Namibian Government and Sida.

SchoolNet Namibia is one of the "Internet for schools initiatives" in Africa which have the longest record of experience. A second report describing lessons learned through the SchoolNet Namibia activities will therefore be produced for a wide group of stakeholders and interested (purpose 3).

The information in the two reports should be accessible independently of each other. Draft reports should be sent to Sida for comments, before finalisation.

Annex 5: Persons Met

Mr. Bengt Oberger, ICT Advisor, Sida, Stockholm

Ms. Petra Smitmanis-Dry, ICT Advisor, Sida, Stockholm

Mr. Olof Hesselmark, Consultant, Stockholm

Ms. Shafika Isaacs, Executive Director, SchoolNet Africa, Johannesburg

Ms. Christina Etzell, Programme Officer, Embassy of Sweden, Windhoek

Ms. Tina Dooley-Jones, Director of Techical Programs, USAID, Windhoek

Mr. Andy Kiloh, Director, direqlearn, Johannesburg

Mr. Alfred Ilucena, Director, National Institute of Educational Development, Okahanja

Mr. Willy Januari, Assistant Director, National Institute of Educational Development, Okahanja

Mr. Todd Malone, Chief of Party, Initiative for Namibian Education Technology, NIED, Okahanja

Mr. Holger Oberprieler, Communications and Business Consultants, Windhoek

Mr. Laurent Evrard, Director of Computer Services, Polytechnic of Namibia, Windhoek

Mr. Foster Mijiga, Country Representative, National Democratic Institute, Windhoek

Mr. Joseph Davis, Associate Director, American Federation of Teachers, USA

Mr. Sean Nicholson, Adviser, Ministry of Higher Education and Vocational Training, Windhoek

Ms. Sue Chaplin, IT Adviser, Ministry of Basic Education, Sport and Culture, Omusati and Oshana Regions, Ondangwa

Ms. Patti Swarts, Under Secretary, Formal Education, Ministry of Basic Education, Sport and Culture, Windhoek

Mr. Justin Ellis, Under Secretary, Non-Formal Education, Ministry of Basic Education, Sport and Culture, Windhoek

Mr. Dave Hill, Systems Analyst, Office of the Prime Minister, Windhoek

Director, Katutura Community Arts Centre

Teachers, Principals, Librarians, and SchoolNet or Peace Corps volunteers from the following schools:

A. Shipena Secondary School, Katutura
Gabriel Taapopi Secondary School, Ongwediva
Hashiyana Combined School, Ongwediva
Jan Jonker Afrikaner Senior Secondary School, Katutura
Omuthiya Iipundi Combined School
Onamutai Combined School, Oshikati
Onepandaulo Combined School
Oshikati Secondary School
Tsumeb Secondary School

SchoolNet Namibia Staff:

Mr. Joris Komen, Executive Director
Mr. Wilfrid Kuria, Financial Manager
Ms. Skye Reynecke, Administration Manager
Mr. Theo Whittaker, Training Manager
Ms. Ebben-esser Hatuikulipi, Web Manager
Mr. Ceiran Bishop, Web Developer and Trainer

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

SWEDISH INTERNATIONAL
DEVELOPMENT COOPERATION AGENCY

SE-105 25 Stockholm Sweden
Phone: +46 (0)8 698 50 00
Fax: +46 (0)8 698 56 15
info@sida.se, www.sida.se