4. Case Studies

These case studies describe existing SchoolNets in Asia, Europe and Africa. While not all existing SchoolNets have achieved their goals, these examples highlight some successful strategies, as well as the key issues and difficulties, and point to the need for an integrated approach when initiating and managing SchoolNets.

SchoolNets in Indonesia

Since 1999, the Indonesian Ministry of National Education (MNE) has worked in collaboration with the Ministry of Tourism, Post and Telecommunications (MTPT) to set up SchoolNets, with the aim of promoting the use of ICT, and particularly the Internet, in education.

Three SchoolNets have been initiated, which vary in their scope and activities:
- Sekolah2000
- WAN Kota
- E-dukasi.net

The shared objectives of the Indonesia SchoolNets are to:
- Enhance the quality of education by providing access to online learning resources.
- Give equal opportunity to every student and teacher to make effective use of the Internet and gain access to online information.
- Connect various types of schools in Indonesia and intensify interaction among schools so as to encourage information sharing and co-operation.

Sekolah2000

Established in 1999 by the MNE and MTPT and sponsored by the Association of Indonesian Internet Service Providers (ISP), the goal of Sekolah2000 is to build a community of ICT users in secondary schools in Indonesia.

The biggest problem faced by Sekolah2000 is inadequate operational and technical support which is a result of limited funding and professional resources. These problems have sometimes led to disruptions in network operations.

Sekolah2000 has established a portal (www.sekolah2000.or.id), which provides details of their goals and activities (in Bahasa Indonesia), as well as news, tutorials (Open Knowledge Education), a discussion board, databases and links to schools in Indonesia.

---

12 Yuhetty, H. 2004
14 Yuhetty, H. 2004
**WAN Kota**

Launched by the Government of the city of Malang in 2002, WAN Kota is an educational network which arose as a means by which to address the lack of infrastructure and the high cost of internet connectivity, which was hindering the formation of networks (School Information Networks) among vocational secondary schools (VSS).

WAN Kota is wireless wide area network (WAN) using 2.4 GHz radio frequency. The network connects local area networks built in each school within a city at a very low cost. To connect one WAN Kota school with others, the Department of Technical and Vocational Education (DTVE), in co-operation with Indosat, a telephone company, built an intercity connection using fibre optics and satellite facilities.

WAN Kota was established with funds from the DTVE, district governments, and participating schools. The DTVE also contributed towards teacher training programmes, co-ordination, monitoring and evaluation.

**Management and Co-ordination**

The WAN Kota SchoolNet is managed by a Steering Committee, which includes a local government officer (District Ministry of Education) and heads of associations of school principals of Vocational Secondary Schools, General Secondary Schools (GSS) and Junior Secondary Schools (JSS). Day-to-day running of the project is undertaken by a full time manager, technicians and programmers, most of whom are VSS teachers and students.

**Functions**

WAN Kota provides services such as internet connection, email, mailing lists, newsgroups, technical support and a help desk, as well as a virtual library. WAN Kota also offers video conferencing services and an online system for school admissions. Although WAN Kota functions more as a vehicle for communicating and discussing rather than as a means for providing content for teaching and learning, WAN Kota provides access to some multimedia learning packages for students, produced by the Communications and Technology Centre (Pustekkom); learning materials produced by teacher training centres; skill competency standards, and curriculum-related documents.

**Participating schools**

WAN Kota’s participating schools include vocational secondary schools, general secondary schools and junior secondary schools. In some cities, teacher training centres, universities, and local government offices have also joined the network.

The participating schools vary in their level of infrastructure. While some schools have many computers, in others there is only one computer (located in the principal’s office). Generally, the schools reserve the use of the best computers for administrative purposes.

**Teacher training**

To assist teachers to utilize WAN Kota effectively, the DTVE commissioned training in the use of interactive multimedia technology for a number of VSS teachers. However, further training is required. The lack of well-trained teachers is believed to be hindering the development of the SchoolNet.
E-dukasi.net

E-dukasi.net is an educational portal (www.e-dukasi.net) which was developed by the Centre for Information and Communication Technology in Education (Pustekkom) of the Department of National Education, Indonesia.15

E-dukasi.net was established in recognition of the need for more online teaching and learning materials in local languages. Launched in August 2003, E-dukasi.net facilitates inter-school communication and collaboration and facilitates the production of varied and abundant digital learning resources.

This portal compiles and disseminates teaching and learning content and materials, in the national language: Bahasa Indonesia. The databases include electronic materials for teaching Physics, Mathematics, Chemistry and Biology at senior secondary school level. The portal also has links to other online learning resources, a forum where students and teachers can communicate, and links to news articles and information about educational activities in Indonesia.

Malaysia SchoolNet

The Malaysia SchoolNet was developed as part of the Ministry of Education’s “Smart Schools” initiative, which aims to bring technology to all schools in the country and prepare students with the technological skills required for the Information Age.

The SchoolNet began as the “Smart School Network”16 and was developed in order to:

- Enable access to online information and sharing of information between schools.
- Foster online communication between students and teachers.
- Provide a centralized data repository.

To set up the SchoolNet, the Ministry of Education contracted a consortium of IT specialists which managed the installation, testing and maintenance of the SchoolNet. The consortium was tasked with providing help-desk services to schools (accessible via a local phone call) and was also responsible for providing courseware and educational software to the participating schools. When courseware was not in line with the curriculum it was unlikely to be used by teachers, so courseware was developed in accordance with the national curriculum wherever possible. In the pilot stage of the project, the Ministry covered the installation and repair costs and provided the required software to the participating schools.

Initially, the SchoolNet was coordinated by the Smart Schools team, made up of Ministry of Education officials and experts in computer science and education. The coordination team established links with schools, and assigned specific management responsibilities to school heads, information technology (IT) coordinators and teachers.

15 The Edukasi website has a section relating to the UNESCO SchoolNet project: www.e-dukasi.net/indschoolnet/project.php
16 Chan Foong Mae, 2004
The coordination team promoted use of the SchoolNet among students and teachers by organizing website-creation competitions and online collaboration projects.

As part of the Smart Schools project, teachers from the pilot schools received computer-literacy training, including in how to use various computer programs and applications, and how to install and maintain equipment; however less attention was paid to how to integrate ICT into education and teachers were not trained in how to initiate SchoolNet activities.

A Smart School portal was set up by the Ministry of Education in 2001, and later a specific SchoolNet website was established which provides Malaysian schools with digital teaching and learning materials, interactive activities and online forums in Bahasa Melayu.

Further information:
Malaysia SchoolNet website, http://myschoolnet.ppk.kpm.my

Philippines SchoolNet

The goal of the Pilipinas SchoolNet is to build a network of schools throughout the Philippines that will utilize the Internet and related technologies to improve teaching and learning and to prepare the Filipino youth to meet the demands of the knowledge economy.  

The SchoolNet was established by the Foundation for Information Technology Education and Development (FIT-ED) in cooperation with the Department of Education, World Links for Development, private sector partners, non-profit organizations and local universities.

FIT-ED and partner organizations provide schools with hardware, software, connectivity and basic computer literacy training. The SchoolNet also implements telecollaborative projects in the areas of Mathematics, Science, English, Filipino and Makabayan.

In 2003 a web-portal was established which has a resources section for teachers and students containing teaching and learning materials and links to useful websites.

Further information:
Pilipinas SchoolNet website, www.pilipinasschoolnet.net

17 Pilipinas SchoolNet website, www.pilipinasschoolnet.net
SchoolNet Thailand

SchoolNet Thailand aims to give all students in Thailand access to the Internet, so as to enable learners to benefit from the information available online, to increase exchange of knowledge and resources, and to improve the quality of education.\(^\text{18}\)

The Thailand SchoolNet project began in 1995 as a network of schools in the capital city of Bangkok. This network was established by the National Electronics and Computer Technology Centre (NECTEC) - a science and technology development agency under the Ministry of Science and Technology.

In 1996 a nationwide network, titled the “Golden Jubilee network“, was established in honour of the 50th anniversary of His Majesty the King of Thailand’s ascension to the throne. This network provided all students with access to an electronic library containing information related to His Majesty the King of Thailand. This portal was the initiative of Her Majesty Princess Maha Chakri Sirindhorn and became a valuable source of Thai content.

In 1998 another nationwide network was created called “SchoolNet@1509“, which gave all schools access to the Internet via dialling a low-cost phone number: 1509. This phone access was provided by the Communication Authority of Thailand. With the co-operation of the Telephone Organization of Thailand (TOT), the number of telephone lines was increased and the speed of dial-up access was improved.

The initial goal was to get 1,500 schools connected to the Internet by June 1998 and 5,000 schools by June 2000. However there were only 420 dial-in lines available for the initial 1,500 schools. This required the development of a timetable system whereby schools took turns to access the Internet and initially had a limit of 40 hours of Internet access per month.

NECTEC set up a help-desk to provide trouble-shooting support for teachers and students and encouraged the development of websites, local content and teaching resources, which resulted in a greater supply of locally-relevant digital material, that could be used and shared by everyone.

To enhance the network, NECTEC developed a Linux School Internet Server, in the Thai language, which was simple for users to operate and was cheaper than the alternatives. NECTEC also developed a web-based administration system that assisted teachers to manage the network.

In June 2002, the targeted number of schools was revised upwards, to 34,000. Then in 2003 the SchoolNet came under the management of the Ministry of Education, which led to reductions in the cost of dial-up internet access.

Schools participating in the SchoolNet are encouraged to take part in ThinkQuest and other online activities. In 2003, a new web-portal was set up which contains a database of teaching and learning resources in the Thai language.

Further information:
SchoolNet Thailand website, www.school.net.th

\(^{18}\) Koanantakool, T and Thuvasethakul, C, 2004
European SchoolNet

European SchoolNet is a not-for-profit consortium of 28 Ministries of Education in Europe. “It provides major European education portals for teaching, learning and collaboration and leads the way in bringing about change in schooling through the use of new technology.”

The organisational objectives are to:
- Foster and support collaboration and cooperation among schools in Europe.
- Make available to schools in Europe pedagogical and information services with a European added value.
- Support the professional development of teachers.
- Contribute to the development of technology-enhanced learning in schools.
- Disseminate examples of good practices and investigate new models for schooling and learning.
- Provide services, content and tools based on new information and communication technologies to members and partner networks, and facilitate the development of a common approach towards standards and interoperability.

European SchoolNet’s work is organised into three strands:
- School networking and services.
- Knowledge building and exchange on ICT policy and practice.
- Interoperability and content exchange.

School networking and services
In this area of work, European SchoolNet focuses on projects and activities for schools, based on use of ICT in the classroom for enhancing education in a range of spheres. These activities are underpinned through the use of online portals and tools to enable teachers and pupils to share, communicate and learn together, as well as number of publications focus on specific in-depth issues of international innovative pedagogy. Connectivity issues are not considered, as they are addressed through national-level policies.

Policy and practice
European SchoolNet networks policy makers and researchers in school-related policy and practice, as well as offering extensive services for these key actors. The Insight portal is a platform for data gathering and exchange in the area of ICT policy and research, while the Insafe network and portal bring together key children’s NGOs to work on issues around safe and ethical use of ICT. Peer-learning activities and networking events for a range of practitioners, researchers and policy-makers are also key to this area of work.

Interoperability and content exchange
Interoperability, standards and harmonisation of eLearning services are key to European SchoolNet’s strategy of making Digital Learning resources more accessible to schools. Thanks to its role as project coordinator in content exchange projects including Celebrate and Calibrate, European SchoolNet has gained a prominent role in the field.

Further information:
European SchoolNet, www.europeanschoolnet.org

---

SchoolNet Namibia

Recognizing that open access to information provides greater opportunities for learning, SchoolNet Namibia aims to overcome barriers to access to information and promotes open education for all. SchoolNet Namibia seeks to introduce infrastructure, computer technology, Internet access and associated support services to schools in Namibia, so as to empower youth and give students the skills to participate in the “digital revolution”.

In Namibia, there are two major barriers to accessing the Internet:
- Cost of equipment, connectivity and repair.
- Lack of expertise in computer installation, use and maintenance.

SchoolNet Namibia therefore aims to:
- Minimize the costs of computers and associated equipment, connectivity, training, support and repair; and
- Establish training and support mechanisms to assist teachers and students to overcome difficulties in using computers and the Internet in the classroom.

SchoolNet Namibia is a not-for-profit, civil society organization. Established in 2000, it operates on a “total cost of ownership” (TCO) model which covers every aspect involved in computer use in education, including: hardware, operational software, furniture, long-term internet access, educational software, computer training, technical maintenance and repair, and support services. Overall, the success and sustainability of SchoolNet Namibia can be said to stem from this TCO approach.

In line with this approach, this civil society organization coordinates a range of interrelated activities, including supplying schools with low-cost servers and refurbished computers, open source operating software, affordable educational software and discounted Internet connectivity. In addition, SchoolNet Namibia trains technical staff and teams of help-desk staff who are available to answer questions and help teachers solve technical problems.

The emphasis on open source software and Creative Commons content is a particular feature of SchoolNet Namibia, and one which is central to its success. According to a reviewer, “Working with open source has stimulated SchoolNet to explore the real costs of ownership of ICTs in schools” and has ensured that the technical solutions SchoolNet Namibia provides are affordable to schools, and are therefore viable in the long term.

Strong relationships with stakeholders are another key factor in SchoolNet Namibia’s success and sustainability. SchoolNet Namibia operates in line with Namibia’s ICT policy for education and has built a strong relationship with the Ministry of Education. So much so that the Ministry has begun to take ownership of the SchoolNet implementation mechanisms. Similarly, a symbiotic relationship with Telecom Namibia, and lengthy negotiations, resulted in discounted Internet connectivity rates for schools.

---

20 Swedish International Development Authority (SIDA), 2004. Note: In rural areas, SchoolNet Namibia has provided electricity connection for schools without power and wireless technology solutions for schools without phone lines.
21 Komen, J, 2005
22 Ballantyne, P. 2004
23 Council for Scientific and Industrial Research (CSIR), 2005
24 Ibid
Another important factor in the sustainability of SchoolNet Namibia is monitoring and evaluation system which was set up when the SchoolNet was first established. This system enables issues to be identified and dealt with as they arise.

According to the Swedish International Development Authority, while Namibia SchoolNet faces many challenges in achieving its goals, it has been successful in “laying the foundations of affordable access and installing basic computer labs in schools … (and) 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.”

Further information:
SchoolNet Namibia, www.schoolnet.na

---