

## ICT in Education in Mozambique

by Shafika Isaacs  
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Source: *World Fact Book*<sup>1</sup>

*Please note:*

This short *Country Report*, a result of a larger *infoDev*-supported *Survey of ICT in Education in Africa*, provides a general overview of current activities and issues related to ICT use in education in the country. The data presented here should be regarded as illustrative rather than exhaustive. ICT use in education is at a particularly dynamic stage in Africa; new developments and announcements happening on a daily basis somewhere on the continent. Therefore, these reports should be seen as “snapshots” that were current at the time they were taken; it is expected that certain facts and figures presented may become dated very quickly.

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## Overview

Mozambique's economy has grown at a steady pace since the end of 1992, following 16 years of civil war. Its education system has also improved markedly with steady increases in school enrolment, even though the numbers of qualified teachers have not kept pace. Mozambique has also been in the lead in southern Africa in developing a national ICT policy and implementation strategy with dedicated programmes such as SchoolNet Mozambique and the Mozambican ICT Institute (MICTI), which serve as flagship projects in the use of ICTs to facilitate and support learning and skill development in the country.

## Country Profile

In 1992 Mozambique was listed as the poorest country in the world with a GDP per capita of USD\$80. Since then Mozambique's economy has grown steadily, with an average rate of 9% between 1997 and 2003. During the same period, the proportion of Mozambicans living below the poverty line fell from 69% to 54%, exceeding the goals set out in the government's first Poverty Reduction Strategy. Despite the impressive economic recovery, Mozambique is still among the world's 20 poorest countries.

Table 1 provides a brief overview of the basic socio-economic indicators for the country.

**Table 1: Basic Economic Indicators: Mozambique**

Indicator	
Population	19.5 million (2005)
Languages	Official language: Portuguese. Other languages: Emakhuwa, Xichangana, Elomwe, Cisena, Echuwabo.
2005 Economic activity (% of GDP)	Agriculture: 23.2% Industry: 30.0% Services: 46.8%
Human Development Index	168 (out of 177 countries) (2005)
Per capita gross national income (US dollars)	\$230 (2004); \$270 (2004); \$310 (2005)

The Mozambican economy is based on agriculture with more than 70% of the population living in rural areas, working mainly in farming, forestry and fisheries. Half of the population is aged between six and 24 and women are in the majority. Almost 80% of public investment is earmarked for the social sector (education, health and water supply), and for agriculture, transport, and rural infrastructure.

## The Education System

The Ministry of Education administers primary and secondary education and the Ministry of Higher Education Science and Technology has administered higher education institutions since 2000.

Formal education comprises a 5-2-3-2 system:

- Five years of lower primary education (known as EP1 which runs from Grades 1 to 5)
- Two years of upper primary education (known as EP2 which includes Grades 6 and 7)
- Three years of secondary education first cycle (known as ES1 which runs from Grades 8 to 10)
- Two years of secondary education second cycle (known as ES2 which includes Grades 11 and 12)

Under the current curricular transformation, the government vision is that the two levels of primary will gradually merge.

Education is compulsory at age six. Primary schools operate on two or three shifts depending on the region. Two types of study plans are established with different amounts of time and to ensure compliance with the curriculum.

Higher education takes place in both public and private institutions. Technical and professional education is taught at technical schools and institutes offering courses in three major areas (commercial, agricultural and industrial) at elementary, basic, and medium levels.<sup>2</sup>

### **Challenges**

While enrolment has increased over the years, the recruitment of teachers has failed to keep pace. The ration of pupils to teachers in EP1 increased from 61:1 in 1997 to 66:1 in 2003. Since signing the peace accords in 1992, student enrolment (EP1 and EP2) increased in absolute numbers from 1.3 million to 3.2 million in 2003 while the number of schools increased from 2,836 to 8,418.<sup>3</sup>

About half of lower primary school teachers do not have formal teacher training, and double- or triple-shift teaching has been introduced to cope with the shortage of classrooms and teachers. And despite the considerable effort to rebuild and expand access to schooling, population data indicate that one million school-age children remain out of school. Of these, an estimated 650,000 are of primary school age. In 2004, only 28% of girls and 40% of boys completed primary school.<sup>4</sup>

Child poverty is a pervasive and deep-rooted problem, with about 58% of children living below the poverty line. One of Mozambique's biggest challenges is to translate its economic gains into improved child and maternal health and well-being over the medium and longer term.

The HIV/AIDS epidemic is less severe in Mozambique compared with the rest of southern Africa, but the consequences of the epidemic are still devastating. The National Statistics Institute estimates that the infection rate for all Mozambicans is 15%, and more than two million citizens are expected to die of AIDS in the coming decade. HIV/AIDS has two main consequences for the basic education system. First, it has deeply damaged the lives of many children, some of whom are now caring for infected relatives, and many who have lost their parents. Some students are themselves infected. Second, it has infected many teachers and other young adults, whose deaths will exacerbate an already critical shortage of teachers in the basic education system.<sup>5</sup>

Out of the country's 1.6 million orphans in 2006, more than 380,000 had lost their parents to AIDS-related illnesses. As parents continue to die, the number of orphaned children is predicted to rise to 626,000 by 2010. Life expectancy is also expected to fall from 37.1 years in 2006 to 35.9 years by 2010.<sup>6</sup>

## Infrastructure

According to the World Economic Forum *Global Information Technology Report*, Mozambique ranks 101st out of 115 economies using the Networked Readiness Index (NRI) which measures the degree of preparation of a nation or community to participate in and benefit from ICT developments.<sup>7</sup> Most of Mozambique's infrastructure is concentrated in the capital city Maputo.

Table 2 below provides an overview of Mozambique's ICT infrastructure.<sup>8,9</sup>

**Table 2: ICT Infrastructure Indicators**

Indicator	
Fixed-line subscribers (2004)	69.7 per 1,000 persons
Mobile subscribers	708 per 1,000 persons
Dial-up subscribers (2005)	6,000 ( <a href="http://www.afridigital.net">www.afridigital.net</a> )
Broadband subscribers (2004)	0.0
Internet users (2004)	7.167
Television broadcast stations	1
Radio stations	41

Telecommunication costs remain very high due to internal and external communication relying on satellite links. Cell phone and Internet access is growing at an estimated 67% per annum although the access rate in Mozambique in general remains low<sup>10</sup> due to high Internet prices. Residential and broadband Internet access is available now in Mozambique, compared to 2004.

Mozambique also has a small but growing number of community radio stations which use local indigenous languages as a communication medium.<sup>11</sup>

Electricity is available in the capital city, Maputo, and in the provincial capitals. However the reliability and quality of electricity has been poor with power outages, voltage control, spikes and noise causing irregular access to electric power. Approximately 20% to 30% of schools that have access to ICTs are based in areas with no regular access to electricity.<sup>12</sup>

## ICT Policies

The Government of Mozambique's primary policy goal is to reduce absolute poverty within 10 years. It adopted an Action Plan for the Reduction of Absolute Poverty (PARPA) for 2001-2005 and an Education Sector Strategic Plan (ESSP) for 1999-2003, which was revised for 2004-2008. The main objectives of PARPA and ESSP are to:

- Provide universal primary schooling and improve the quality and efficiency of teaching.
- Increase the number and quality of teachers
- Build additional classrooms and address gender disparities
- Increase girls' access to education and also increase the transition rate from EP1 to EP2, while reducing drop-out rates
- Reduce high rates of illiteracy, particularly in rural areas
- Reduce repetition and drop-out rates
- Expand access to secondary education
- Expand access to technical-vocational training
- Continue with investment in training of more and better teachers
- Carry out specific measures as part of its national AIDS programme

A second Poverty Reduction Strategy Paper (PARPA II) for 2006-2009 has a special focus on ICTs within various dimensions of its strategy to reduce poverty.<sup>13</sup>

In 1998, the government established a dedicated National ICT Policy Commission that facilitated the adoption of a national ICT policy in 2000 as an extension of its PARPA strategy. In doing so, Mozambique ranked among the first countries in southern Africa to adopt a national ICT policy.

The key objectives of the national ICT policy include:

- Considering ICTs as a contribution to the fight against poverty
- Expanding citizens' access to global knowledge
- Raising the efficiency and effectiveness of state institutions
- Improving governance and administration
- Transforming Mozambique into a producer and not just a consumer of ICTs
- Linking Mozambique into the global information society

Education, human resource development, health, universal access, national ICT infrastructure, and governance are the ICT policy priority areas.

Since 1998 the National ICT Policy Commission has established an implementation strategy that was adopted in 2002. A technical implementation unit (UTICT) was established within the ICT Policy Commission to oversee the implementation of strategic projects.<sup>14</sup>

## **Current ICT Initiatives and Projects: Schools**

### **SchoolNet Mozambique**

The history of SchoolNet Mozambique dates back to 1997 when it was established as a pilot project named Internet para as Escolas (Internet for Schools) which aimed to introduce computer literacy into 10 secondary schools, explore the integration of ICTs in the teaching process, encourage schools to become centres of information sharing and communication, provide training opportunities, and promote the use of e-mail and Internet access as well as the exchange of experience within the southern Africa region. This pilot project was supported by the International Development Research Centre (IDRC) and the World Bank Institute's World Links Program.

In 2002 SchoolNet Mozambique was launched as an in-house project of the Ministry of Education and was envisaged as a flagship of the National ICT Policy Implementation Plan. One of the central aims of SchoolNet Mozambique is the promotion of access to ICTs in all of Mozambique's secondary schools in order to enhance learning and teaching. Its targets include the need to reach 200 schools within three years and to establish an education portal and a Mozambican teachers' network.

Since its official launch, SchoolNet Mozambique, through the Ministry of Education, secured initial support from the IDRC. Later additional support was provided through partnerships with agencies such as TV Cabo, a local television company; TDM, the local telecommunications company; Computer Aid International; OSISA; SchoolNet Africa; and World Computer Exchange. OSISA and SchoolNet Africa supported the establishment of a technical services centre based at the Industrial Institute Maputo to refurbish and deploy of second-hand PCs to schools. Other agencies such as Computer Aid International and World Computer Exchange helped source the second-hand PCs.

Of the 280 secondary schools, SchoolNet Mozambique was instrumental in facilitating the establishment of PC labs in 75 schools by July 2006 with an estimated 25 schools connected to the Internet.<sup>15</sup>

*For more information:* [www.mined.gov.mz/schoolnet](http://www.mined.gov.mz/schoolnet)

### **NEPAD eSchools Mozambique**

The New Partnership for Africa's Development (NEPAD) eSchools Initiative is a multi-country, multi-stakeholder, continental initiative that aims to:

- Impart ICT skills to young Africans in primary and secondary schools
- Improve the provision of education in schools through ICT applications and the use of the Internet

The first phase of the initiative is a demonstration (demo) project that is being implemented by the private sector partners. The objectives of the demo project are to:

- Determine typical e-school scenarios and requirements in various circumstances in Africa
- Highlight the challenges inherent in a large-scale implementation of e-school programmes
- Monitor the effectiveness of multi-country, multi-stakeholder partnerships
- Determine “best practice” and exemplary working models for the large-scale implementation of the NEPAD e-Schools Initiative, which aims to equip more than 550,000 African schools with ICTs and connect them to the Internet
- Demonstrate the costs, benefits, appropriateness, and challenges of a satellite-based network
- Demonstrate the costs, benefits, and challenges of ICT use in African schools

The demo project has been implemented in six schools in each of 16 countries across Africa through partnerships that involve private sector consortia. Mozambique is one of the 16 countries where the demo project was co-ordinated by a dedicated country liaison person (CLP) based at the Ministry of Education and within the SchoolNet Mozambique project. Hewlett Packard and Microsoft are two companies that formed consortia to support the demo project in six Mozambican secondary schools where the typical model involved fitting each school with a lab comprising approximately 20 PCs, a server, a printer, and a media lab in some instances which included a PC-based kiosk containing health information and a television with satellite television access to education channels. Teachers at the six schools were to receive training and learners are meant to use the PC labs in the classroom.

The demo project was reportedly still ongoing in Mozambique at the time of writing.

### **EPCI**

This project was established initially as a pilot in 2000, based at Emília Daússe Secondary School, situated in Inhambane City, the capital of Inhambane Province, known at the time to be the second-poorest province of Mozambique. EPCI’s principal aim was to provide students, teachers, and the local community with access to ICTs. Within the school, ICTs would contribute to improving the quality of teaching and learning and support the school’s administrative and financial management systems. To increase teacher and student interest in ICTs and to provide a framework for their learning to apply ICTs to real situations, the project designed a series of sub-projects involving groups of students and teachers around themes such as the environment and traditional practices. Within these sub-projects students and teachers conducted research, established partnerships with government and private institutions, and developed products and

services in support of the community and the provincial economy. For example, one sub-project involved developing skills in the translation of Portuguese and English. The students and teachers established a partnership with a professional translator and developed skills in using translation software and evaluated its merits using e-mail and the Internet to source translation work as well as word processing skills to produce high quality documents.

The project also served as a public access point for Internet and e-mail access, training in ICT use, graphics, fax and photocopying services, scanning, CD writing, digital photography, and data projection facilities. It was set up as a Research and Information Technology Centre. However, as a way of promoting ICTs as tools for providing good governance and encouraging accountability, transparency, and anti-corruption measures within the State, EPCI developed partnerships with the provincial government offices, the government's district administration offices in Massinga and Jangamo (in the centre and south of the province respectively), and the provincial Education Department.

The Research and Information Technology Centre is now a reference point in Inhambane City. It trains the future workforce and those aspiring to go on to higher education. It promotes the use of ICTs through local NGOs and the community. As the implementation of ICTs is a government priority, many of the local civil servants are taking courses at the centre to gain the skills now demanded of them.<sup>16</sup>

## **Current ICT Initiatives and Projects: Higher Education**

While public and private post-secondary education institutions provide bachelor's-level training in computer science, these are reportedly insufficient in developing the requisite skills in software and application development in the labour market.

### **CIEUM**

The Centre for Informatics at the University Eduardo Mondlane (CIEUM) played a pioneering role in introducing ICTs for development in Mozambique. It served as the home for a number of pilot projects during the late 1990s including telecentres and schoolnets and has evolved as a leading agency in promoting the development of Mozambique's national ICT policy and implementation strategy. Recently the CIEUM facilitated the establishment of MICTI (see below).

*For more information:* [www.cieum.org.mz](http://www.cieum.org.mz)

### **ISCETEM**

Instituto Superior de Ciencias e Tecnologia de Mocambique (ISCETEM) is considered the best private post-secondary ICT school in Mozambique. It has a computer science programme that it is currently being revised to accommodate the needs of the labour market in skills development.

### **MICTI**

The Mozambique Information and Communication Technology Institute (MICTI) is a multifaceted initiative aimed at addressing the challenges of skills shortage, post-secondary education and a weak ICT sector. MICTI aims, through ICT applications and research, to serve broader governance, social services delivery, and economic development needs of the country. It has several components including learning, research, and technology. The long-term goal is to place the institute and job incubation activities into a science park environment.

*For more information:* [www.micti.co.mz](http://www.micti.co.mz)

### **MoReNeT**

Mozambique Research and Education Network was announced in 2006 to be established and sponsored by the Ministry of Science and Technology. MoReNet will serve to link 25 education and research institutions in Mozambique and will reportedly have the support of fibre-optic operators in an attempt to improve the speed and quality of Internet access to the education and research institutions. MoReNet will serve to build collaboration between research institutions within Mozambique and between Mozambican institutions and those based in other countries across the world. The focus is to allow the sharing of resources such as research journals and courseware.<sup>17</sup>

## **Current ICT Initiatives and Projects: TVET, ABET and Informal**

### **Community multimedia centres**

Supported by UNESCO, the merger of telecentres and community radio stations in Mozambique have led to the establishment of eight community multimedia centres in Mozambique with more planned for the coming period.

### **Telecentres Networking and Services Development**

Based at the CIEUM, the Telecentres Networking and Services Development project started in May 2002 and aimed to consolidate the existing and planned telecentre initiatives led by CIUEM into a coherent and technically supported public access system to further the objectives of the ICT Policy Implementation Strategy. The project activities included the preparation of premises, buying and installing equipment, and managing the telecentre services over four years. The telecentre staff were recruited locally and trained by CIUEM.

*For more information:* [www.telecentros.org.mz](http://www.telecentros.org.mz)

### **Women's Information, Education and Networking via the Internet**

This small project was run from an organisation called Forum Mulher, which developed a Web site as a mechanism to collect, store, and facilitate wider distribution of printed information pertaining to gender issues (especially violence against women) to a network of 50 gender-related NGOs within Mozambique and thus to their membership of community women. Training for some member NGO personnel on ICTs was carried out in the various telecentre areas.

For more information: [www.forumulher.org.mz](http://www.forumulher.org.mz)

## Implementing ICT in Education: What Helps and What Hinders?

Table 3 provides a summary of the current stage of ICT development in Mozambique in terms of enabling or constraining features in the education system.

**Table 3: Factors Influencing ICT Adoption**

<b>Factors</b>	<b>Enabling Features</b>	<b>Constraining Features</b>
<i>Policy framework and implementation</i>	Mozambique has a national ICT policy that incorporates the education sector; a dedicated national ICT Policy Commission and an implementation strategy.	
<i>Advocacy leadership</i>	The ICT Policy Commission played an instrumental role in facilitating the development of the national ICT policy and its implementation strategy and constituted a core team of ICT champions in Mozambique.	
<i>Gender equity</i>	The national ICT policy explicitly recognises the role ICTs can play in promoting gender equality and women's empowerment. The implementation plan included support for dedicated women's empowerment organisations such as Forhum Muller.	
<i>Infrastructure and access</i>	Infrastructure and access has improved since the adoption of the national policy.	Infrastructure and access remains weak and largely confined to Maputo, the capital city.
<i>Collaborating mechanisms</i>	The National ICT Policy Commission's role is to encourage collaboration across the different ministries as well as with the private, civil society and donor sectors.	
<i>Human resource capacity</i>	The establishment of MICTI serves to address the long-term and strategic development of human resource capacity in ICTs in Mozambique.	There remains a very limited layer of skilled personnel and champions at the national level concentrated around a network of skilled engineers and personnel developed at the CIEUM.

<b><i>Fiscal resources</i></b>		The budget for the implementation of ICT programmes in Mozambique remains largely dependent on donor and private sector funds.
<b><i>Learning content</i></b>		Local contextually relevant learning content is currently lacking although there have been attempts at localising content produced in Brazil.
<b><i>Procurement regulations</i></b>		The duties and taxes currently levied on ICT products makes them too expensive.
<b><i>Attitudes</i></b>	Within government leadership is strong and a positive attitude in favour of the promotion of ICTs for development in general and in education in particular.	

## Notes

- 1 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/mz.html>
- 2 Mozambique. <http://www.eaie.nl/pdf/torino/905.pdf>.
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- 10 “A Country ICT Survey of Mozambique.” 2006. Greenberg ICT Services, SIDA. Stockholm, Sweden.
- 11 Ibid.
- 12 Ibid.
- 13 Ibid.
- 14 Ibid.
- 15 Ibid.
- 16 IDRC Acacia: Mozambique. [www.idrc.ca/acacia/mozambique](http://www.idrc.ca/acacia/mozambique)
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