

ICT in Education in Madagascar

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April 2007



Source: World Fact Book¹

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

Madagascar has begun to take steps towards promoting ICTs for development with the adoption of two policies: 1) the national ICT policy in 2004 and 2) the economic and social development policy, the Madagascar Action Plan for 2007-2012, which promotes the expansion of ICT infrastructure and access in the country including the establishment of ICT centres in schools. The country does not have a national ICT policy for education, and the level of access to ICTs including connectivity is relatively low. There are a few initiatives in the country that attempt to promote the access and use of ICTs to support learning and teaching, but these largely assume the form of extracurricular projects.

Country Profile

Since the mid-1990s Madagascar has followed a World Bank and IMF-led policy of privatisation and liberalisation which has placed the country on a slow and steady growth path. Agriculture, including fishing and forestry, is a mainstay of the economy, accounting for more than one-quarter of the GDP and employing 80% of the population. Exports of apparel have boomed in recent years primarily due to duty-free access to the US. Deforestation and erosion, aggravated by the use of firewood as the primary source of fuel, are serious concerns. Madagascar is plagued by periodic cyclones, floods, drought, and locust infestation. Poverty reduction and combating corruption will be the centrepieces of economic policy for the next few years.

Madagascar is classified as a highly indebted poor country by the World Bank. Children make up more than half of the population, and half of them live on less than USD\$1 a day.²

Table 1 provides some selected socio-economic indicators for Madagascar.^{3,4}

Table 1: Socio-economic Indicators: Madagascar

Indicator	
Population	18.6 million (2005)
Languages	Official languages: French and Malagasy. National languages: Comorian, Antankarana, Southern Malagasy and Tsimehety.
2005 Economic activity (% of GDP)	Agriculture: 28.1% Industry: 15.9% Services: 56.0%
Human Development Index	143 (out of 177 countries) (2004)
Per capita gross national income (US dollars)	\$240 (2000); \$290 (2004); \$290 (2005)

The Education System

Education in Madagascar is compulsory for children between the ages of six and 14. Primary schooling runs for five years. Secondary education for seven years and is divided into two parts: a junior secondary level of four years and a senior secondary level of three years. A vocational secondary school system, the collège professionnelle (professional college), is the equivalent of the junior secondary level; the collège technique (technical college) is the equivalent of the senior level.⁵

The University of Madagascar is the main institute of higher education. It maintains six separate, independent branches in Antananarivo, Antsiranana, Fianarantsoa, Toamasina, Toliara, and Mahajanga. The university system consists of several faculties, including law and economics, sciences, and letters and human sciences, and numerous schools that specialise in public administration, management, medicine, social welfare, public works, and agronomy.

Official reports have criticised the excessive number of students at the universities. In 2006 the total student population at the six public universities was 37,152 when it reportedly had the collective capacity to manage 26,000 students. Reform measures have been under way to improve the success rate of students since only 10% complete their programmes taking an average of eight to 10 years to obtain a degree compared with five years for other African countries.

Table 2 provides a quantitative perspective of some selected system indicators.⁶

Table 2: Selected Education Data

Indicator	
Enrolment in primary education (% gross)*	134 (2004)
Transition to secondary	55 (2003)
Enrolment in tertiary education (% gross)*	3 (2004)
Gender Parity Index (GPI)**	0.96 in primary; 0.90 at university (2004)

*Percent of gross is the number enrolled as a percentage of the number in the eligible age group.

**GPI = gross enrolment ratio (GER) of females, divided by the GER of males and indicates the level of access by females to education compared to males. These GPIs (0.96 and 0.90) indicate that Madagascar is slightly below parity.

Over the past decade, the number of private tertiary institutions has grown. Most provide training in business, languages, management, and computer science. In 2005 the 50 recognised private higher institutions had 6,778 students (19.5% of the total).

The Malagasy government introduced a national plan to reach Education for All in 2003. Since then progress has been made with the total number of pupils in primary education increasing from 1.7 million during the 1997-98 school year to 3.7 million in 2005-06 school year. However, the challenge of improving retention rates remains. The percentage of young people age 11 to 14 years who attend secondary school is only 27%, which is among the lowest ranking in the world, even lower than the average of sub-Saharan Africa.

The rate of tertiary education enrolment is 3% which is lower than the average of 8% for sub-Saharan African countries. Madagascar also has high levels of illiteracy. In 2006 approximately 48% of the population of 15 years old and above were illiterate, and more than one million young people from 11 to 17 years were illiterate.⁷

Infrastructure

According to the World Economic Forum *Global Information Technology Report*, Mozambique ranks 102nd 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.⁸

Table 3 provides a snapshot of the state of national ICT infrastructure in Madagascar.⁹

Table 3: ICT in Madagascar

Indicator	
Fixed-line subscribers (2004)	58.7 per 1,000 persons
Mobile subscribers (2004)	334 per 1,000 persons
Dial-up subscribers	10.5 per 1,000 persons
Broadband subscribers (2004)	0
Internet users (2004)	90 per 1,000 persons
Television broadcast stations	1 (2001)
Radio stations	AM 2; FM 9 (2001)

New legislation passed in 1996 that envisaged full liberalisation of the telecommunications sector, including a second national operator. From 2003 to 2005 there was strong growth in the number of users of fixed and mobile telephones, expansion of the telecommunications network, and significant growth in the use of the Internet and access to financial postal services. Nevertheless, the nation needs reliable international connections at an affordable price to develop the economy and achieve regional integration. In 2005 only 8% of communes were connected by telephone and Internet services. Moreover, the majority of those connections were via satellite with inadequate capacity and high costs. Also in 2005, only 23% of communes had access to television and 39% were covered by the mail service.

ICT Policies

Madagascar Action Plan 2007-2012¹⁰

The Malagasy government has adopted the Madagascar Action Plan (MAP) for 2007 to 2012 which provides a set of eight commitments relating to the economic and social upliftment of Malagasy society:

- Commitment 1: Responsible governance
- Commitment 2: Connected infrastructure
- Commitment 3 Educational transformation
- Commitment 4: Rural development and green revolution
- Commitment 5: Health, family planning, and the fight against HIV/AIDS
- Commitment 6: High-growth economy
- Commitment 7: Cherish the environment
- Commitment 8: National solidarity

The commitment to connected infrastructure includes ensuring all urban and rural areas will be covered by a reliable, accessible, affordable communication system; information will flow to the regions through better access to radio and TV services, and partnerships with the private sector to provide new and better infrastructure will be promoted. The strategies to reach these goals include:

- Reducing the high cost of mobile phone and international calls
- Increasing competition between mobile operators
- Developing wider access to ICTs
- Implementing a national information technology action plan
- Expanding phone coverage throughout the nation
- Expanding postal coverage throughout the nation, including financial services
- Improving TV and radio media coverage

The priority projects to give effect to these strategies are as follows:

- Connect Madagascar to an international optical fibre network
- Develop access to telecommunications services including ICT and Internet
- Set up a national backbone system that includes a fibre optic network associated with major infrastructure projects (e.g., roads)
- Create new ICT centres in each region (technopoles)
- Improve the system of distribution and the flow of dispatching of postal services
- Modernise the radio and television infrastructure and services based on new technologies
- Liberalise the telecommunication sector
- Implement voice-over IP for all
- Replace the national regulator OMERT by a new regulator ARTEC

The Ministry of Telecommunications has been given the responsibility to lead these projects.

One of the education challenges highlighted in the MAP is the challenge to improve upper secondary, technical, and vocational education. The strategies to meet this challenge include transforming the curricula to integrate new subjects: ITC, economy, communications, languages, and sciences with the creation of ICT centres in the schools as a stated priority project.

National ICT Policy¹¹

The national ICT policy was developed by the Ministry of Telecommunications, Posts and Communication in collaboration with the United Nations Development Programme (UNDP). The integration of Madagascar into the globalisation process is stated as one of the government's priorities. The vision of the policy is for Madagascar to become a leader in providing high-quality ICT services, which will accelerate the country's economic, social, and cultural development. The strategic areas are infrastructure development, promoting content development and applications, capacity-building, and reviewing the institutional arrangements framework.

The policy identifies health and education as key sectors. It further identifies the necessity to produce ICT specialists and adjust the education system to meet the requirements of the new generation that utilises ICT facilities. It also proposes to introduce ICTs in all aspects of education and training.

The overall objective in the education sector is to establish an education system suitable for ICT development and innovation in pedagogy. This system facilitates the integration of new generations into the information society. Therefore, the policy proposes the incorporation of ICTs into the country's national curriculum framework and promotes the notion of continuous training in ICTs as a tool for education at all social levels.

Current ICT Initiatives and Projects

AVU Teacher Education Project¹²

The African Virtual University (AVU) established an ambitious teacher education project involving 10 African countries in partnership with African Development Bank (AfDB) and the New Partnership for Africa's Development (NEPAD) in 2006. Madagascar is one of the 10 countries involved.

The programme focuses on mathematics and science education and the integration of ICTs in and across the teaching of the curricula in these two subject areas. The intention is to contribute to the growth of more and better quality teachers through the use of flexible, open, distance, and e-learning (ODEL) methodologies at an affordable cost for diploma, undergraduate, and graduate levels.

The specific objectives of the project are to enhance the capacity of teachers in the use of ICTs in teaching and learning mathematics and science, to develop the capacity of teachers to deliver ICTs as a subject in secondary education, and to increase the number

of mathematics and science teachers by expanding access to training through the ODeL methods.

The project has set targets of developing 56 ODeL modules by early 2007, the content of which will be available in Portuguese, French, and English. The authors are drawn from 12 institutions in the 10 countries that the AfDB and UNDP funding covers. The Université d'Antananarivo in Madagascar is one of these 12 institutions.

Centre d'Information et de Documentation Scientifique et Technique (CIDST)

CIDST is a national research networking agency in Madagascar that works with various government ministries in establishing sectoral networks to facilitate information exchange.¹³

ICT Village

The ICT Village is an attempt at developing an integrated model on ICTs for sustainable development and poverty eradication involving a host of international organisations such as the FAO, IFA, ITU, UNDP, UNESCO, UNDESA, and the World Bank. The model considers the use of ICTs in producing clean energy and safe water.

The first ICT Village in Madagascar was in Sambaina. After two high-level missions in November 2005 and June 2006 were carried out, a digital classroom that will serve more than 600 students of the community was inaugurated. In order to accelerate the digital alphabetisation of the community and create new jobs, a new community area has been made accessible to all and a refurbished health presidium has been equipped for pregnant women and newborn children.

Partners on this project include the UN Public-Private Alliance for Rural Development (UNPPA) and representatives from all stakeholders: universities (University of Oklahoma, Politecnico di Milano, Università Cattolica del Sacro Cuore), companies (Microsoft, Siemens, Telespazio, Pianeta, Water B2B, etc.), civil society (above all the community of Sambaina, which has been fully involved in the whole process), and the Government of Madagascar.

The next steps for the centre are to gain connectivity by acquiring the broadband satellite signal that can be received and distributed bi-directionally, a Wi-Fi system for the whole territory, and teleconference equipment. As well, there are plans for a train-the-trainer programme, to offer broadband services, and to act as an incubator and hub for economic activities.

International Network for the Availability of Scientific Publications (INASP)

INASP is an international network that encourages the creation and production of information, promotes sustainable and equitable access to information, fosters collaboration and networking, and strengthens local capacities to manage and use information and knowledge. Their activities include:

- Improving access to scientific and scholarly information

- Catalysing and supporting local publication and information exchange
- Strengthening local capacities to manage and use information and knowledge
- Fostering in-country, regional, and international co-operation and networking
- Advising local organisations and funding agencies on ways to utilise information and publishing to achieve development goals

INASP's Programme for the Enhancement of Research Information (PERI) supports capacity-building in the research sector in developing and transitional countries by strengthening the production, access, and dissemination of information and knowledge.

For more information: www.inasp.info

Jacaranda

The Jacaranda network comprises a number of institutions that share their bibliographic records, exchanges documents, conducts joint training courses, and sensitises decision-makers on the importance of information. The network is also involved in the publishing of catalogues on specific subjects.

Private Companies

A number of private of companies are also involved in ICT training:

- Institut Supérieur de Technologies d'Antsiranana (ISTS) provides training in infomatics and computer maintenance
- Institut Supérieur Polytechnique de Madagascar (ISPM) has a programme in engineering
- Infocentre runs a three-year training course in computer and information sciences.

SchoolNet Association of Madagascar

The SchoolNet Association of Madagascar was launched in 2005. Since then it has mainly been involved in activities supported by the International Institute for Communications and Development (IICD) Global Teenager Project which encourages on-line collaborative learning programmes with young learners from all over the world.

SchoolNet Madagascar has also trained 220 learners and teachers to participate in the Mtandao Afrika programme supported by Microsoft's Unlimited Potential Program, which assumes the form of a contest to encourage learners and teachers across Africa to form teams to develop educational Web sites.¹⁴

Support Technology for Educators and Parents (STEP)¹⁵

The USAID supported a pilot project known as the STEP programme in three provinces in Madagascar: Toliara, Finarantsoa, and Tamatave for 2006 to 2008. STEP works with the Ministry of Education National and Scientific Research (MENRS) to build the capacity of its personnel to offer high-quality training and support to Madagascar's growing numbers of teachers and schools. Activities focus on three distinct but linked domains: strengthening in-service teacher training, increasing community support to local primary schools, and strengthening local planning for teacher professional development.

STEP allows MENRS, USAID, and other partner NGOs to test and evaluate technology-based education support mechanisms that could add value on a nationwide scale as a means of maintaining educational quality and promoting a well-informed democracy. The programme used context-appropriate technology-interactive radio instruction, community radio programmes, and digital applications as both the catalyst for action and the mechanism to build the capacity of MENRS personnel at central and decentralised levels.

Universities

The Université d'Antananarivo is the largest university in the country with over 30 libraries and documentation centres. The university hosts the Centre Syfed of AUPELF/UREF, which is connected to the major ISP, Data Telecom Services (DTS), Internet hub. The Faculté des Sciences of the Université d'Antananarivo has a department specialising in mathematics and information sciences. The Ecole Nationale d'Informatique of the Université de Fianarantsoa has graduate programmes in computer and information sciences.

Implementing ICT in Education: What Helps and What Hinders?

Table 4 provides a summary of the current stage of ICT development in Madagascar in terms of enabling or constraining features in the education system.

Table 4: Factors Influencing ICT Adoption

Factors	Enabling Features	Constraining Features
Policy framework and implementation	Madagascar has a national ICT policy and an overall economic and social development policy with extensive reference to the development of ICT infrastructure in the country, including in schools.	There is no dedicated ICT in education policy and there is limited reference to education and the use of ICTs in the country's existing policies on ICT and economic and social development.
Advocacy leadership	Dedicated government ministries are assigned responsibility for priority projects for ICT infrastructure development.	There is no dedicated leadership around ICTs in education even though there are a few projects, largely civil society trying to take the lead.
Gender equity		There are no explicit references to gender equality and women's empowerment

		through the use of ICTs in general or in education.
Infrastructure and access		ICT infrastructure remains very limited within education institutions in particular.
Collaborating mechanisms		There appears to be limited collaborative mechanism to promote ICTs in education in particular.
Human resource capacity		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.
Fiscal resources		There appears to be limited budget for ICTs in education and limited donor funding support.
Learning content		Local contextually relevant learning content is currently lacking.
Attitudes	Within government leadership at the highest levels have displayed a positive and supportive attitude towards ICTs for development in general.	

Notes

1 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/ma.html>

2 Ibid.

3 Ibid.

4 "Beyond Scarcity: Power, Poverty and Global Water Crisis." Human Development Report 2006. UNDP. <http://hdr.undp.org/hdr2006/>

5 Madagascar Education. <http://www.country-studies.com/madagascar/education.html>

- 6 EFA Global Monitoring Report. 2007. http://portal.unesco.org/education/en/ev.php-URL_ID=49591&URL_DO=DO_TOPIC&URL_SECTION=201.html
- 7 Madagascar Action Plan. <http://www.madagascar-presidency.gov.mg/MAP/>
- 8 Global Information Technology Report. World Economic Forum. <http://www2.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme/Global+Information+Technology+Report.html>
- 9 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/ma.html>
- 10 Madagascar Action Plan. <http://www.madagascar-presidency.gov.mg/MAP/>
- 11 ICT Policy in Madagascar. http://africa.rights.apc.org/index.shtml?apc=21873s21844e_1
- 12 AVU Madagascar. <http://72.14.235.104/search?q=cache:ehwLd82mwH0J:www.avu.org/documents/Fact-Sheet.pdf+ict+education+madagascar&hl=en&ct=clnk&cd=7&gl=za>
- 13 Madagascar NICI Infrastructure. http://www.uneca.org/aisi/NICI/country_profiles/Madagascar/madaginfra.htm
- 14 Mtandao Afrika : Madagascar 2006 training program. <http://www.mtandao-afrika.org/English/Training06Madagascar.aspx>
- 15 International Education Systems of EDC. <http://ies.edc.org/ourwork/project.php?id=3772&topic=13>

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