

ICT in Education in Botswana

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Source: *World Fact Book*¹

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

Botswana is a small, dynamic country with visionary leadership particularly in the sector of ICTs in education. Not only does it boast a liberal telecoms policy, its education and national ICT policies are linked to a broader economic vision for the country. Moreover, in practice, Botswana arguably boasts among the highest PC penetration in education institutions in Africa. As well, all junior and senior secondary schools and government tertiary institutions have PC labs. The government has committed financial resources to improve connectivity and to promote the educational use of ICTs.

Country Profile

Botswana is a sparsely populated country with just over 1.6 million people living in an area of 582,000 square kilometres. Since gaining independence in 1966, Botswana has performed exceptionally well economically, scoring one of the world's highest growth rates. It is now a middle-income country with a per capita GDP of \$11,200 (2006).

Diamond mining has fuelled much of the expansion and currently accounts for more than one-third of the GDP and for 70% to 80% of export earnings. Tourism, financial services, subsistence farming, and cattle raising are other key sectors. On the downside, the government must deal with high rates of unemployment and poverty. Unemployment was officially 23.8% in 2004, but unofficial estimates place it closer to 40%. Botswana has an English-speaking population with an illiteracy rate of about 22.76%. It also has one of the world's highest known rates of HIV/AIDS infection, but also one of Africa's most progressive and comprehensive programmes for dealing with the disease. Early in 2002, Botswana became the first African country to offer free antiretroviral (ARV) therapy to everyone through the public health system.

Table 1 provides some selected socio-economic indicators for Botswana.²

Table 1: Socio-economic Indicators: Botswana

Indicator	
Population	1.6 million (2006)
Languages	Official language; English. Other languages: Setswana, Kalanga, Sekgalagadi.
Human Development Index	131 (out of 177 countries) (2006)

The 2002 Index of Economic Freedom, released by the United States-based Heritage Foundation, rates Botswana's economy as the freest in Africa. In both 2001 and 2002 the international credit rating agencies Moody's and Standard & Poor's awarded Botswana the highest investment grade sovereign credit rating in Africa. The country was also rated the least corrupt in Africa (by Transparency International's 2002 corruption perception index) and the top country in Africa in terms of good governance (by the World Economic Forum in 2003).³

Botswana is also home to the headquarters of the Southern Africa Development Community (SADC) which is an alliance of 14 countries that exists to meet the region's social, economic,

and political needs, and enables it to speak with a united voice. The effective use of ICTs within SADC is currently under consideration.

The Education System

Botswana's education system comprises seven years of primary education, three years of junior secondary education, and two years of senior secondary education. Each year at the primary level is a Standard, and each secondary level is a Form.

Education in Botswana is free, but not compulsory. The Ministry of Education has authority over all of Botswana's educational structure except the University of Botswana. The structure mirrors that of the United Kingdom: there is universal access to primary and junior secondary school, but a process of academic selectivity reduces entrance to the senior secondary schools and university. However, educational curricula incorporate pre-vocational preparation in the junior and senior secondary schools.

Primary education is the most important stage in the educational system, and the government strives to make it accessible to everyone. It is the joint responsibility of the Ministry of Education and the local government. One central objective of primary education is for children to be literate first in Setswana and then in English. Other goals are for children to become knowledgeable in mathematics and to have a command of science and social studies. From 1991 to 1997 the number of students completing the primary level and entering junior secondary increased from 65.0% to 98.5%.⁴

The minimum entry age is six years in public schools and five years in private schools, and the maximum entry age in public schools is 10 years. However, flexibility is often exercised to enable pupils in remote areas to have access to primary education.

Botswana, like all other countries in the world, invests heavily in the provision of secondary education. Currently there are 206 junior community secondary schools and 27 senior schools.

Botswana also has six colleges of education, four of which offer the Diploma in Primary Education while two offer the Diploma in Secondary Education. Botswana also has one university.

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

Table 2: Selected Education Data

Indicator	
Enrolment in primary education (% gross)*	101 (2004)
Enrolment in secondary education (% gross)*	58 (2004)
Transition to secondary	88 (2003)
Enrolment to tertiary education (% gross)	6 (2004)

Gender Parity Index (GPI)**	1.01 in primary; 1.14 in secondary; 1.15 at university (2004)
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*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 with males.

Infrastructure

Botswana's ICT infrastructure is very good, but is not fully utilised. Internet usage, for example, stands as low as 5% of the population. There is also considerable disparity in terms of urban and rural access to ICT services. Challenges include the relatively high cost of PCs, the lack of electricity in many rural locations, and high charges for Internet usage. In addition, the Internet needs to be made more relevant to the Botswana, through the development of local on-line content tailored to the needs of the population.

High international bandwidth costs between USD\$3,250 (satellite) to more than USD\$6,000 (terrestrial) per 1 MB per month. For 128 kbps, BTC leased lines are between five and 20 times more expensive than in Namibia and South Africa.⁵

ICT is still not widely exploited by business in Botswana, although it is used extensively in the retail and mining sectors within foreign-owned companies. Botswana's ICT sector itself is small and generally focused on local market opportunities.

Table 3 provides a snapshot of the state of the national ICT infrastructure.⁶

Table 3: ICT Infrastructure in Botswana

Indicator	
Fixed-line subscribers	69.7 per 1,000 persons (2004)
Mobile subscribers	708 per 1,000 persons
Dial-up subscribers	6,000 (2005)
Broadband subscribers	0 (2004)
Internet users	7.167 (2004)
Television broadcast stations	1
Radio stations	41

Botswana ranks 56th out of 115 countries on the World Economic Forum's network readiness index, ahead of Namibia, Uganda, Mali, Mozambique, and Zimbabwe.

The government is still in the process of liberalising and enhancing regulation of the communications industry in a bid to attract investment as well as encourage innovation and competition. Efforts are being made to reduce communications costs in Botswana, mainly through further liberalisation of the telecommunications industry. This should create more competition and ultimately result in lower tariffs for the consumer.

Botswana has a very small ICT workforce. A CSO labour survey from 1996 put the total size of the workforce in the country at about one-half of one percent of the working population. Of that, only 25% was female.⁷

ICT Policies

Vision 2016

Vision 2016 is a national manifesto of the Botswana government that articulates the long-term economic goals for the country including strategies to meet them. ICT is a key component of the first goal, which is to be an educated and informed nation.

The long-term vision is that Botswana will enter the information age on an equal footing with other nations. The country will seek and acquire the best available information technology and become a regional leader in the production and dissemination of information.

ICT is also a major focus of the country's economic agenda, the National Development Plan 9 (NDP9), and significant investment has recently been made in upgrading Botswana's communications networks to facilitate new technologies. In 2002 Botswana established a government ministry dedicated to ICT, the Ministry of Communications, Science and Technology.

Revised National Policy on Education

A government policy entitled the Revised National Policy on Education, released in 1994, highlighted the need for all learners to be taught computer skills at all levels of school. It also recommended the introduction of computer science as a subject option in senior secondary schools and computer awareness for the three years of junior secondary school. As a result, a new curriculum for computer awareness has been developed and piloted in 11 junior secondary schools. The curriculum aims to equip learners with computer skills that can be applied in all subjects. A strong focus is also placed on tertiary education, with proposals to increase university enrolment.

Maitlamo: National ICT Policy

The Government of Botswana has recently introduced its national ICT policy, called Maitlamo, which provides a roadmap to drive social, economic, cultural, and political transformation through the effective use of ICTs. Maitlamo aims to provide a communications network that meets high international standards and ensure the country has the skills to be an ICT leader. Its key goals are for Botswana to become a sub-Saharan ICT hub, to create an enabling environment for the growth of an ICT industry in the country, and to provide universal service and access to information and communication facilities in the country.

A steering committee for Maitlamo has been set up. In addition, NELSCOM, a National e-learning steering committee has been established to provide a comprehensive report on the strengths and weaknesses of the Botswana's e-learning strategy.

To this effect the following activities are highlighted for implementation:

- Connecting communities programme
- Government on-line
- ThutoNet (see below)
- e-Health Botswana

- ICT and economic diversification
- Connecting Botswana
- Connectivity laws and policies

ThutoNet, the policy on the promotion of e-learning, is a critical component of Maitlamo. Its targets are to:

- Provide all schools with modern PCs and Internet access
- Increase the ratio of PCs to learners to 1:7
- Design and implement an ICT content and curriculum development programme for the primary secondary, vocational, and tertiary sectors
- Design and implement professional development among teachers
- Develop ICT skills programmes for adult and non-formal learners
- Introduce a strong ICT proficiency measurement and skills monitoring programme
- Support e-education research and development
- Secure funding to sustain ICT use in education

December 2010 is the target date for having all schools and libraries with computers and Internet connectivity, for all teachers to have received ICT training, for ICT content to be available at all levels, and for achieving the 1:7 PC-to-learner ratio.

The schools connectivity project is acknowledged as an expensive endeavour. It proposes a 128 kbps Internet connectivity and proposes a central educational network as an extension of the Government Data Network to support Botswana's Education Management Information System. The proposed Computers for Schools programme will:

- Increase the ratio of computers to students in schools, extend its reach to the primary level, and introduce PCs in the classroom to facilitate ICT throughout the curriculum
- Encourage government and private sector organisations to donate surplus computers for use in schools and communities.
- Use recycled PCs to provide an opportunity for on-the-job experience for ICT graduates working in refurbishment centres
- Establish school-based computer repair workshops

A professional development programme will involve training a group of teachers who will serve as ICT managers or coaches in their respective schools. This will be followed by an intensive training programme focused on basic computer use and maintenance, use of the Internet and school network, and basic ICT education. Later phases will broaden the number of teachers who have basic skills to integrate ICTs into all aspects of the curriculum.

There will also be a range of initiatives aimed at training and job creation for those outside the formal education system. JobNet is a project that will co-ordinate existing programmes to create a network of online services and tools aimed at helping employers and job seekers use the Internet for recruitment, career, labour information, and learning.

For more information: www.maitlamo.gov.bw

Current ICT Initiatives and Projects

To date, a host of connectivity and ICT infrastructure projects have been underway. These are outlined in Appendix A, while education-related initiatives are discussed below.

Schools Sector

In the formal schools sector, all junior and senior secondary schools have fully equipped computer laboratories.

Botswana has made a commendable effort to provide resources for its junior secondary schools; however, many schools struggle with their effective use. Computers, while available in most schools, often are not connected to the Internet, precluding their use in cross-curricular instruction. While libraries exist in most schools, they do not have current collections and do not yet operate as vibrant centres of learning.⁸

World Links has played an important role since 2000 in implementing ICTs in Botswana's community junior secondary schools (CJSS's) in partnership with the Ministry of Education. These schools are part of the community in terms of their operations and management. They have a board of governors that lays out policies within which the school operates.

The government has been committed to rolling out 20-PC laboratories including a server and networking to all 205 CJSS's. These labs include air conditioning, network trunking, and a dedicated circuit isolated from the direct mains. By 2002, 51 of the 205 laboratories were equipped with computers (15 by World Links and the rest by the government). All the government-equipped schools have 20 computers with a server and a local area network; the World Links schools do not have the same complement of equipment. Students involved in the World Links programme were also linked to the collaborative projects of the International Education Resources Network (iEARN).

Internet Learning Trust

The Internet Learning Trust, an NGO in the UK, built on the government project by providing initial training and support for teachers in 11 CJSS's identified by the Ministry of Education as suitable pilot models. The project has piloted the use of the Internet for communication and enrichment of curriculum in the schools. Twenty-five more CJSS's were equipped in early 2000, and a project memorandum to equip the remaining 169 CJSS's has been completed.

In the case of senior secondary schools, computer labs have been built and most of them are complete and have the equipment installed. However, even before proper laboratories were built some schools offered an optional course in computer studies as an examinable subject.

Computers are also available at education centres and the Department of Non-formal Education (DFNE) offices. These are used for administrative and educational purposes. Most of the private schools in Botswana are connected.

Talk Back TV on HIV/AIDS⁹

The Talk Back project was a finalist in the Stockholm Challenge Award in 2002. It is a live interactive television programme that forms part of the Teacher Capacity Building for HIV/AIDS Prevention in Botswana. It aims to contribute to breaking down the silence associated with HIV/AIDS in classroom settings, creating opportunity for relevant behavioural

change. It further aims to improve teachers' knowledge and skills on interactive methods and HIV/AIDS through the use of distance education and ICT.

The programme is a 60-minute interactive live broadcast that is repeated twice a week on Botswana Television. Talk Back allows interactivity between viewers and panellists. This has been greatly enhanced through SMS call-ins during the live broadcast. The use of free communication programmes such as Skype and MSN Messenger are being used to improve discussion and participation. The project has installed television sets, VCRs, decoders, and satellite dishes in schools to allow teachers to participate. Further interaction between the programme and the teachers is provided through the country's education centres in the form of in-service workshops and seminars.

The major partners include the Government of Botswana through the Ministry of Finance and Development Planning, the Office of the President (National AIDS Coordinating Agency), the Ministry of Local Government, and the Ministry of Education, which is the implementing institution.

Talk Back TV is produced by Botswana Television. Funding and technical assistance is provided by the United Nations Development Programme (UNDP and UNFIP), the African Comprehensive HIV/AIDS Partnership (ACHAP) of the Bill and Melinda Gates Foundation, and Merck and Co./The Merck Foundation.

Having television in 61% of government-owned educational institutions has provided the infrastructure base for educational television, which has the potential of being used to address development challenges in the areas of environment, drug control, life skills education, and other social problems. The project is expected to be rolled out to involve private educational institutions and the wider community with involvement of community-based and non-governmental organisations.

It is expected that by the end of 2007 values, attitudes, and behaviour of youth and adults will have changes; Botswana's educational institutions will have received equipment that can be used in future educational programmes; educators and media professionals in the educational use of television and other ICT media will have had their developed skills; teachers, education managers, and community leaders of Botswana will have been trained to engage students on socio-cultural and gender issues associated with HIV/AIDS; and educators will be more aware of the effects of the epidemic on their own capacity to function and of the opportunity to take responsibility for the well-being of themselves and others.

Media Centre - Mochudi

The Mochudi Media Centre is a national multimedia centre established to provide ongoing in-service training and support, as well as general media support services to teachers and other educational practitioners. Managed by the Ministry of Education, it is the in-service centre for training in video, television, ICT, multimedia programme development, new technologies, and research and development. The functions of the Media Centre include:

- Formulating training strategies required to develop local capacity necessary for a dynamic and innovative educational media programme
- Networking all media and ICT services between education and other sectors to ensure comprehensive development of ICT in the country

- Providing professional development programmes and support to users and producers of educational media and training through strengthening, focusing, and extending training in ways that combine education and media skills

The programme includes:

- A television studio that is available for the production of education television programmes and professional development of teachers to enhance capacity-building as well as the production of videos to be used for teaching and learning
- An audio-visual van fitted with cameras and editing facilities and used as a field production vehicle
- Computer facilities for training teachers and other educators in computer literacy with emphasis on collaborative learning approaches

The audio-visual training room caters for the training of education practitioners in the effective use of audio-visuals and educational media in teaching and learning. This includes various aspects of multimedia production strategies to enhance instructional delivery.

Higher Education Sector

All government tertiary learning institutions in Botswana are well equipped with Internet-enabled computers. The University of Botswana is the most advanced institution in the country with six faculties: business, education, engineering and technology, humanities, science, and social science. It offers a two-year diploma in computing studies and a four-year degree in computer science.

Botswana is planning to establish a second university that will also be centred on the development of ICT related skills and expertise. World leading programmes in science, technology, engineering, and business will be at the core of the university's subject offerings.

Botswana is also home to the National Institute of Information Technology which offers diplomas and certificates in computing studies.

Informal Sector

Botswana College of Distance and Open Learning

The adoption of the Revised National Policy of Education led to the creation of Botswana College of Distance and Open Learning (BOCODOL) in 1998, a semi-autonomous and statutory organisation set up through an act of Parliament. BOCODOL and the Centre for Continuing Education of the University of Botswana are now the lead agencies in distance education and open learning. BOCODOL, with its headquarters at Gaborone, has five regional centres through which it offers school equivalency and vocational and management courses. It also has 50 study centres with an enrolment of around 21,000 in 2005. It is currently running an e-mail pilot project to improve learner support services through the use of the Internet and related services. It also plans to provide basic computer training and Internet-based e-mail basics and other software programmes to open and distance learners. BOCODOL is also considering piloting the International Computer Driver's Licence course in its strategies to become a fully-fledged open and distance institute.

Part of the roll-out strategy involves the purchase of the Promethean Interactive White Board hardware and software to teach practical subjects. The approach addresses queries involving teaching science subject practicals through simulations. BOCODOL plans to convert print-based

instructional materials to interactive CD-Roms, explore the development of Web-based instructional materials, procure video instructional materials to supplement print, and venture into in-house production of educational videos once the construction of studio facilities is complete.

To boost BOCODOL's efforts, the Ministry of Education, in conjunction with the Department of Information Technology and the Ministry of Communications, Science and Technology (MCST), is working on the development and plans to establish an Education Data Network (EDN) that will provide educational institutions with access to Internet, e-mail, and Web-based teaching and learning throughout the country. This is already being piloted in four institutions through the provision of broadband access to the Internet through Botswana Television transponders. The ideal is based on gaining discounted rates for bona fide educational purposes and creating a separate super-fast EDN highway for educational use.

MCST is also planning to link Botswana to the western continental undersea telecommunications cable that will provide high bandwidth to users. BOCODOL stands to gain from this infrastructure through its five regional offices strategically located in Gaborone, Kang, Francistown, Palapye, and Maun.

The physical infrastructure for the support of ODL and e-learning includes 50 community study centres located within existing secondary schools in the five BOCODOL regions. The 12 education centres include the Mochudi Media, Tlokweng National Resource, and Learning Resources Centres in the Colleges of Education, secondary schools, computer labs, and the campuses and sites of the University of Botswana.¹⁰

Southern Africa Open School Consortium

A number of countries in southern Africa have established new institutions or divisions within existing institutions to provide secondary education through distance learning. These institutions focus on preparing learners to secure sustainable livelihoods by improving their academic qualifications and by providing training to create and maintain income-generating opportunities. To share the emerging base of experience in open schooling, the Commonwealth of Learning (COL) supported the establishment of an open schools consortium to focus on developing academic and vocational education programmes and materials. In July 2006, representatives from institutions and ministries offering education through distance learning in seven African countries met in Gaborone, Botswana, to form the Southern African Development Community (SADC) Open Schooling Consortium. Hosted by the SADC Centre for Distance Education (SADC-CDE), the meeting was organised and supported by COL and Mindset Network, a non-profit South African organisation. The participants agreed to form the consortium, which will be housed by SADC-CDE. Mindset will co-ordinate fundraising and project implementation activities in collaboration with the other members.

The vision of the SADC Open Schooling Consortium is to provide a vehicle to initiate, design, and implement collaborative projects to develop high-quality distance education programmes (and accompanying materials drawing on different media as appropriate) at the secondary level. The programmes will be designed to secure sustainable livelihoods. The consortium will facilitate peer-to-peer networking among practitioners working to deliver school-level education through open and distance learning. It will also develop proposals, source funding, and organise and manage joint programme and materials development at two key levels:

- Junior secondary: The focus will be on increasing access to quality programmes offered via distance education in order to provide educational opportunities to those large numbers of learners in the region leaving primary education and unable to secure places in the mainstream secondary schooling system.
- Senior secondary (learners aged 16 to 25): The focus will be on designing high-quality programmes that have a strong vocational orientation in order to prepare learners to secure sustainable livelihoods for themselves and their families

Implementing ICT in Education: What Helps and What Hinders?

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

Table 4: Factors Influencing ICT Adoption

Factors	Enabling Features	Constraining Features
<i>Policy framework and implementation</i>	Botswana's general education policy commits government to the introduction of computer science as a subject and to the use of ICTs for learning and teaching. Botswana also has a national ICT policy that incorporates a dedicated section on education with clear, ambitious targets to be reached by the end of 2010.	
<i>Advocacy leadership</i>	Within government there has been dedicated personnel based at its Ministry of Education that attends to all matters relating to ICTs in education.	
<i>Gender equity</i>		There are no explicit references to gender equality or women's empowerment in the national ICT policy.
<i>Infrastructure and access</i>	Botswana has a well-developed ICT infrastructure because of its historical and economic ties with South Africa.	The cost of connectivity remains prohibitive. The government has decided to invest in second-hand PCs which may raise sustainability problems in the future.
<i>Collaborating mechanisms</i>	The national ICT policy is co-ordinated by an established steering committee from government representatives across different ministries including a dedicated e-learning steering committee to oversee e-learning activities.	

<i>Fiscal resources</i>	The Ministry of Education has dedicated financial resources to the rollout of ICTs in school and has sought partnerships with other groups and organisations in support.	
<i>Learning content</i>	The national policy shows commitment to the development of local contextually relevant digital learning content.	While there is a stated commitment to develop local content, not much digital content is available that is aligned specifically to Botswana's national curriculum or that is available in local languages.
<i>Attitudes</i>	The leadership within Botswana's government has demonstrated a very positive attitude to the promotion of ICTs in education. Many of the ICT in education programmes are based at and led from the Ministry of Education.	

Appendix A: Additional Initiatives

National Telecommunications Network Upgrade

The government has committed US\$60 million to rehabilitate and fortify the national telecommunications network. An additional US\$60 million is being mobilised to provide high-capacity international connectivity through undersea cables off the east and west coasts of Africa.

Rural Telecommunications Initiative

At the end of its first phase in 2004, the Rural Telecommunications Initiative brought modern telecommunications, including Internet access, for the first time to 147 villages. When fully implemented, the project will ensure that more than 50% of Botswana living in the remote areas of the country will be provided with basic telecommunications services. This is a major step forward which should stimulate economic activity and improve people's lives.

Community Information at the Touch of a Button

Botswana Technology Centre is piloting a community user-information system to bridge the digital divide between rural and urban dwellers. The system comprises an on-line computer network linking three rural communities to Gaborone. The centres provide rural communities with access to Internet-based information and communication services, as well as local information on health, education, and business. It will be expanded to include basic services such as downloadable application forms for everything from drivers' licences to bank loans. The centres will also provide small business services and offer basic computer awareness lessons. Following the pilot project, the programme will be rolled out to the rest of the country.

VSAT Technology

Botswana Telecommunications Corporation (BTC) launched VSAT technology that, it is hoped, will play a role in bringing services to remote areas through the use of satellite and overcome limitations placed on traditional services by vast distances and difficult terrain. The technology will bring significant benefits to the tourism industry, isolated farming communities, and government and parastatal organisations.

BTC Fibre Optics Projects

In 2005 the Gaborone and Francistown metropolitan areas introduced extensive fibre networks servicing to all business and industrial sectors. In addition, BTC provided dedicated fibre rings, interconnecting all major buildings in the Gaborone government enclave.

An optical fibre link has been introduced between the southern and eastern corridors of the country between Gaborone and Francistown. Other links are planned, which will bring high-quality fixed-line links to the entire country.

Connectivity to South Africa has recently been complemented by the Tlokweng fibre, allowing BTC to transport traffic from neighbouring countries into South Africa. Global connectivity is being addressed by shifting primary communication from satellite to fibre-optic systems. A partnership has been established with British Telecom to hub Internet and packet connectivity into London.

Notes

- 1 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/bc.html>
- 2 Ibid.
- 3 WITFOR. 2005. http://www.witfor.org.bw/about_botswana/economic_success.htm
- 4 <http://education.stateuniversity.com/pages/186/Botswana-EDUCATIONAL-SYSTEM-OVERVIEW.html>
- 5 Dyman, A. and S. Oestmann. Universal Access and Service for Botswana Program for Internet and ICT Workshop. 2 August 2006. Grand Palm, Gaborone
<http://209.85.165.104/search?q=cache:Xf3eFTEYmLkJ:www.bta.org.bw/pubs/UNIVERSAL%2520ACCESS%2520AND%2520SERVICE%2520POLICY/DAY3/Universal%2520Access%2520and%2520Service%2520for%2520Internet%2520and%2520ICT%2520presented%2520by%2520Ms%2520Sonja%2520Oestman%2520and%2520Mr%2520Andrew%2520Dymond%2520Intelecon%2520Consultants%25202%2520Aug%25202006.ppt+thutonet+botswana&hl=en&ct=clnk&cd=5&gl=za>
- 6 The World Factbook 2007. <https://www.cia.gov/cia/publications/factbook/geos/lt.html>
http://hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_LSO.html
- 7 Republic of Botswana ICT Landscape. <http://www.american.edu/initeb/jn9779a/sources/index.shtml#4>
- 8 Moanakwena, P. et al. "Improving the Quality of Literacy Learning in the Content Areas: Situational Analysis of Secondary Level Education in Botswana." 2005. UNESCO.
http://portal.unesco.org/education/en/ev.php-URL_ID=45087&URL_DO=DO_TOPIC&URL_SECTION=201.html
- 9 Stockholm Challenge Project Data.
<http://old.stockholmchallenge.se/projectdata.asp?id=1&projectid=232>
- 10 Kajevu, Z. "BOCODOL to Improve Learner Support Services." Mmegi, Tuesday 19 October, 2004.
<http://www.mmegi.bw/2004/October/Tuesday19/6712157781513.html>

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