ICT AND EDUCATION

BURKINA FASO

Burkina Faso Map[1]

1. OVERVIEW

Burkina Faso's education sector, especially in the levels of post-primary education, has much to gain from the use of this technology. The latter can provide unlimited access to information, facilitate understanding, and inspire the imagination for teachers as well as learners. Furthermore, it enables intellectual enrichment through communication and interaction from a distance, experience exchange and work in a network. Developing the education system will involve equipping more people with a basic quality education and guaranteeing development in the post-primary education sector. Through these two main initiatives, Burkina Faso will strengthen its workforce and number of skilled workers, professionals and other contributors to its culture, economy, and status. At the same time, these should respect the country's socio-cultural heritage.

Disparities in access based on location, gender, and age in addition to the lack of rural communication structures are Burkina's major constraints to universalize ICT use.

However, with a plan in place to build ICT infrastructures in Burkina Faso and an increasing demand for modern technologies and new information, the education sector is very likely to welcome the integration of ICT into its school systems with the help of various partnerships from public and private organizations.

2. PROFILE

Burkina Faso, also called Burkina, formerly Haute-Volta, is a West African country bordering six countries: Mali on the North, Niger on the East, Benin on the Southwest, Togo and Ghana on the South, and Cote d'Ivoire on the Southwest. Burkina Faso is one of the poorest countries in the world. This situation is due to its demographic growth and arid soil. In fact,

agriculture makes up 32% of the gross domestic product and employs 80% of the active population.[2]

With a very weak GDP per capita, no direct sea access, and a scarcity of natural resources, Burkina Faso is one of the least developed countries. Over 46% of the population live below poverty lines.

3. FACTS AND STATISTICS

Table 1: Facts and Statistics

Surface Area	274,000 sq. km
Capital	Ouagadougou
Population	13.3 million

Table 2: Economic Indicators

GDP (billions of USD)	5 (16 in purchasing power parity)
GDP per capita	428 USD (2005)
Growth rate	7.5% (2005)
Average annual inflation	6.4% (2005 estimate)
Balance of trade	-10.6% of GDP (2004)

4. EDUCATION SYSTEM

The rate of schooling is 36% in primary school and 8% in secondary. In total, only 23% of adults are literate. The country has 16 scientists working in research and development for every 1,000,000 people (compared to 2,718 in France and 5,695 in Iceland) and expenditures in this domain represent 0.2% of the GDP (2.2% in France). Development in education appears to be a major challenge.[3]

The development of the educative system by the year 2010 is based on two principles:

    a) To increase the coverage of basic education in order to universalize education while improving its quality;

b) To guarantee the development of the educative system, including the post-primary level, in order to meet the demand for a qualified workforce and make sure that those who have been to school respond to the needs of the economy, in quality and in quantity.

The outlook for the next ten years is therefore to keep up prioritizing the development of the post-primary levels in education. This consists in aiming at a better balance of the system on one hand, and meeting the development needs of the modern employment sector, and of the urban and rural informal sector on the other.

In so doing Burkina Faso wants to promote an educative system accessible to the great number of people. It should also be in conformity with the collective and individual needs, promote progress and protect the national cultural heritage.

To accomplish this, the education system must[4]:

- permit a greater access to basic education for more people through the expansion and improvement of efficiency of its own structures and the development of a large partnership;
- give young learners knowledge, skills, and values that will allow them to flourish as individuals and be prepared to be active participants in life and progress of the community;
- provide the country with the human resources necessary to its economic, social, and cultural development;
- pass down the national values and affirm the cultural identity, while opening children's minds to the outside world and universal values;
- take action in the fight against poverty and inequality in all its forms, in the consolidation of democracy, and the defence of human rights, through the knowledge and values it imparts, and its relationships with the environment.

One of Burkina Faso's two university centres is located in Ouagadougou and the other in Bobo-Dioulasso (the two main cities, about 400 km apart), in addition to the College of Koudougou (approximately equidistant from Ouagadougou and Bobo-Dioulasso). The National Scientific and Technological Research Centre (CNRST) merges the country's research activities. In 2003, Burkina Faso had nearly 18,000 students, with the majority (15,000) in Ouagadougou.

5. NATIONAL ICT POLICY

The setting up of the2000-2004 national information and communication infrastructure in Burkina Faso was approved in October 2000.There are several sector strategies for its implementation. Some inter-ministerial committees are created to ensure its follow-through[5].

The telecommunications sector is regulated by Law 051/98/AN, enacted in December 1998. This law liberalizes part of the sector and creates a regulatory body, ARTEL.

The National Telecommunication Office (ONATEL) exercises a monopoly on international and fixed telephone services. However, a process for privatization is underway.

In the domain of computers, the major strategies are defined by the High Council in Computers, presided by the head of Government. Then they are implemented by the Computer General Delegation (DELGI), created in 1990. This delegation plays the role of regulator in the computer sector.

6. ICT INFRASTRUCTURE

Burkina Faso has one fixed and three mobile telephone operators.

Table 3: Telecommunications statistics

Population (in millions)	13.3
Literacy rate	25.7
Gross National Product per capita	220
Televisions per 1000 people	103
Radios per 1000 people	433
Fixed telephone lines per 1000 people	5
Cellular phones per 1000 people	6
Personal computers per 1000 people	1.5
Internet users (in thousands)	19

Source : http://afrique.droits.apc.org/index.shtml?apc=s21821e_1

Table 4: Access to Technology

Telephone lines	36,000 (in 1997)
Cellular phones	200,000 (in 2005)
Radio sets	370,000 (in 1997)
Television sets	2,000,000 (in 2005)
Internet users	20,000 (in 2005)
Internet service providers	10 (in 2006)

Source : http://fr.wikipedia.org/wiki/Burkina_Faso

7. ICT IN EDUCATION

In a plan to develop national infrastructure and the most important sectors for integrating ICT[6], the specific objectives in education, research, and innovation aim to improve access to scientific and technical information. Furthermore, the plan seeks to involve researchers in the

development of innovative technology that the country needs for its development, across a network for education and research. This network will open access to scientific and technological information, to education, to knowledge and know-how, and will favour the valorisation of local productions.

It is a fact, however, that there is a great need for resources to support the equipping of schools with computer technology and for management or teaching purposes.

The University of Ouagadougou

The University possesses a specialized 256 Kb/s connection and serves the National Network of Education and Research (RENER). It is shared with the University (Centre of Computer Calculation, administration for NTIC-DPNTIC), RESAFAD TICE (Development of collaborative work spaces, Development of digital content, Establishment of Local Multimedia Centers), Inter-State School of Rural Equipping Engineers (EIER), the Institute for Research and Development (IRD), the teacher- cyber of the Digital Francophone Campus (CNF) and the Central University Library (BUC).

The Digital Francophone Campus (CNF) of Ouagadougou has its own specialized 128 kb/s connection, hired from ONATEL. It has several rooms for training, database consultation and Internet navigation.

The Virtual African University (UVA) officially supports the University of Ouagadougou. This project, initiated through the partnership with the World Bank, is currently funded by the Canadian Cooperation with the University of Laval. It consists in creating an on-line university, entirely dedicated to Africa. It unites about 20 partner universities throughout sub-Saharan Africa.

8. MAJOR INITIATIVES AND CURRENT PROJECTS

ICTE-Burkina[7] seeks to improve the quality of education in Burkina's secondary schools through the integration of pedagogic potential of information and communication technology in education (ICTE). Its ambition is to support and promote this integration and to work it into the classrooms of Burkina Faso's secondary schools.

This site addresses the academic community of the high schools and junior high schools in Burkina, the chief administrators in secondary schools, educators, librarians, students, and supervisors. Its objective is to guide them all through the process of incorporating ICT, adapted to the structure of their school.

The specific objectives of the project are to:
- improve access to ICT in high schools and junior high schools;
- build the capacities of key actors in secondary education, in the area of ICT;
- promote the integration of ICTE into teaching practices;
- support the development of local teaching content;
- promote digital culture in secondary school;
- support initiatives to integrate ICTE in Burkina.

Its creation was made possible thanks to the International Institute for Communication and Development (IICD).

During **National Internet Week (SNI),** there is a Web night when the best production of web content in Burkina and some actors are rewarded.

E-School Project is in fact part of many projects in the main domain of the New Partnership for African Development (NEPAD), which works for the setting up of Internet connections, training in content development, and the grouping of different educational establishments in networks. Its goal is to cover all secondary schools in Africa within the five years after the pilot phase, and all primary schools in Africa within ten years following the pilot phase. For Burkina, the agreement protocols are signed between the Ministry of Secondary Education and Scientific Research, NEPAD, and the computer corporations Advanced Micro Devices (AMD) and Hew let Packard (HP).

At the level of higher education, ICT has been recognized as one of the major axes of capacity reinforcement in the universities in the South. The program "Information and Communication Technology and Knowledge appropriation" is AUF's reply to the specific challenge of ICT.

Concerning the development of learning resources produced to support the application of ICT to education, we can refer to the project "Ben-Scolarite." This is school management software tested in 15 public secondary schools in the city of Ouagadougou, over the 2005-2006 school year. This software gives reliable and regular data on financial, pedagogic, and administrative matters in high schools and junior high schools. **Microsoft, the Netherlands Embassy and the World Bank have provided the project with their technical assistance.**

The Teacher Shortage: The e-Learning reply: several experiences have been carried towards fighting this shortage by international organisations such as the Francophone Support Network for the Adaptation and Development of Information and Communication Technology into Education (RESAFAD-TICE) or the Francophony Academic Agency (AUF).

Training at the national level is ensured by many structures: Computer training at the university level integrates the Computer College (ESI) which offers engineer training in computers on one hand, and many other parts of BTS and DUT on the other. This is in addition to trainings provided by university partners such as RESAFAD-TICE, AUF, or the CISCO region centre for network administration in the universities.

Academic Partners: Distance Training

The Italian Consorzio Nettuno mobilizes about thirty universities and the polytechnic institutes of Turin and Milan. This consortium broadcast courses through digital television and through the Internet.

The Canadian Virtual University unites nine universities. It offers two thousand distance courses, two hundred of which are online (with 19,000 students in 2000).

The Public Virtual University of Brazil links 61 universities.

The California Virtual Campus provides 3400 distance courses, 70% of them online.

France currently structures its contribution in this domain and foresees several parallel projects. The management activities will be combined in a project called **Canège** (around Paris-Dauphine); **Mecaweb** would centralize mechanical training around the National Institutes of Applied Sciences (INSA) in Lyon and Rouen. **Compusciences** is a virtual scientific campus that combines the activities of CNED, FIED, RUCA and of six universities. *IUT.en ligne* would eventually bring together 105 Academic Institutes of Technology.

The Cardean University is the result of a partnership between the Universities of Columbia, Chicago, Stanford, Carnegie Mellon in California and the London School of Economics.

Ariadne is a European project. It unites industrial and academic partners around the Federal Polytechnic School of Lausanne. Western Governors University is a consortium founded by the governors of 15 American states. Universitas 21, founded in 1999, links 18 universities of 10 countries (mainly Chinese and Anglo-Saxon) in partnership with Thomson Learning.

9. Identification and description of constraints in the use of ICT

The isolation and high cost of communications
In general Ouagadougou citizens achieve Internet access; those in Bobo-Dioulasso are only able to do so to a lesser extent. In other parts of the country the understanding and use of the network is still extremely limited.

Connections are very rare in the countryside where people usually do not use electricity or telephone. In rural zones, the electrical network remains chaotic and it's compulsory to use an undulator to avoid power surges.

A study published by Sylvestre Ouédraogo[8] in September 2000 revealed that the Internet users polled were mainly men (68.7%), and that the majority of Internet users were between 20 and 25 years old (46.9%). Only 5.3% of them were over 30. Twenty-eight had completed their secondary studies and 27 in their primary university studies. 19.4% of those polled were at the Masters level. 72.5% of the internet users were students (48.3%) or pupils.

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[1] https://www.cia.gov/cia/publications/factbook/geos/uv.html

[2] http://fr.wikipedia.org/wiki/Burkina_Faso

[3] http://www.tic.ird.fr/article.php?id_article=108

[4] http://www.messrs.gov.bf/SiteMessrs/plans/lettre.html

[5] Economic Commission for Africa, 2003, Electronic Strategies in Africa

[6] The Plan to Develop National Information and Communication Infrastructure in Burkina Faso, 2000-2004 elaborated with the concourse of CEA and CRDI-CANADA, October 1999.

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