

The Case for Introducing Internet Education Into Africa

By. Diana J. Muir
15 April 2000

Ph.D. Candidate
University of Iowa

31 March 2000

The Digital Revolution	4
Knowledge as a Key Asset	4
Basic Literacy is a Necessity	5
The Need for Life-Long Learning	6
Marginalization and Polarization - The "Haves" and "Have-Nots"	7
The Question	8
Programs that promote education in the 21st Century	9
Status of Education in 3rd World Countries	12
General Population Statistics and Main Indicators	14
The Proposed Solution	18
Case Studies	18
Summary of Case Studies:	24
Algeria	25
History	25
Demographic Characteristics	26
Status of Education	27
Infrastructure	28
Educational Outlook	29
Burkina Faso	31
History	31
Demographic Characteristics	32
Status of Education	32
Infrastructure	33
Educational Outlook	33
Central Africa Republic	35
History	35
Demographic Characteristics	35
Status of Education	37
Infrastructure	37
Educational Outlook	38
Kenya	39
History	39
Demographic Characteristics	43
Status of Education	44
Infrastructure	46
Educational Outlook	47
Malawi	49
History	49
Demographic Characteristics	50
Status of Education	51
Infrastructure	56
Educational Outlook	59
South Africa	60
History	60
Demographic Characteristics	65
Status of Education	66
Infrastructure	67
Educational Outlook	68
Sudan	70
History	70
Demographic Characteristics	71
Status of Education	73
Infrastructure	75
Educational Outlook	76
Zimbabwe	77
History	77
Demographic Characteristics	79
Status of Education	83
Infrastructure	84

	3
The Solution	87
Questions Posed	87
#1 "What are the Basic Elements of E-Education?"	87
#2 "Where can the basic elements of E-Education, along with the necessary infrastructure be found?"	88
#3 "How do we deliver basic education to the people who need it the most?"	89
#4 "How can we ensure greater success when other programs have failed?"	91
Costs Associated with a Mobile E-School	94
Potential Change in the Status of Economy	94
Conclusion	96
Bibliography:	97

The Digital Revolution

The advent of the new millennium has made people around the world realize that the world is undergoing a transformation. This transformation has been called the 'digital revolution' and is usually thought of in financial terms and how it affects global markets and world-wide economies, although it also affects society and cultural change as well.

Many people are more comfortable with a pace of change that is incremental instead of supersonic; as the digital revolution tends to be. The reality of change in today's life is much different than the reality of change 50 years ago. The Internet and technology are altering the world at a rapid pace and are achieving critical mass around the world.

Knowledge as a Key Asset

Knowledge is today's world is a key asset. Economic activity, which in the past has been founded on the extraction and transformation of scarce resources, is now giving way to an economy of abundance of information and the means of communication. The leverage of knowledge becomes critical in today's fast moving global society. The new networking technologies will eliminate the boundaries between people and begin to focus on the end user, and not necessarily the governments who provide it. New networks of government, civil society and the marketplace will redefine the nature of public services in all sectors as boundaries collapse and the focus becomes who can best add and build value to education.

The *IMF* and the *World Bank* argue for full integration of the developing countries into the global economy. They recommend that this be done by achieving a world order with a 'human face,' and that integration must be accompanied by policies

that guarantee the satisfaction of basic needs; correcting for highly unequal assets, income, and power distribution and prevent the growth of insecurity and social exclusion. To bring the 1.3 billion people who now live below the poverty line up to a minimum income level would require a fourfold increase in current economic aid. This is not likely to take place. Although increases in aid have taken place in the last three years, prospects for continued increases are dim. Economic and social equality must be achieved in a different manner, solving the root cause instead of attacking the symptoms of the illness, the lack of adequate basic education.

Basic Literacy is a Necessity

Children are the primary target group for education in today's world, but yesterday's children - today's adults - also have immense learning needs. Nearly 23 per cent (23%) of adults over the age of 15 today are unable to read, write, or do simple arithmetic operations. Many lack the basic knowledge and skills to be responsible parents, efficient workers, and active citizens in local government.

Basic education empowers individuals by opening methods of communication that would otherwise be closed. It expands personal choice and control over one's own environment, and is necessary for the acquisition of other skills. It gives people access to information through both print and electronic media. It equips them to cope better with work and family responsibilities and changes their self-image. It builds self-confidence to participate in community affairs.

Basic education is the key with which individuals, and entire societies, can unlock the full realm of their talents and realize their potential. Disadvantaged people are given the tools they need to move from exclusion to full participation in their society.

The 1990 World Conference on Education For All revealed significant gains in the provision of basic education in many countries during the 1990s. However, they also

noted several shortfalls, including a widespread lack of support to out-of-school literacy and education programs for adolescent and adults.

Basic education is, at times, an ambiguous term. It refers to all forms of organized education and training that meet the basic learning needs of adults. This includes literacy: political literacy, basic literacy (or the ability to read), computer literacy and social literacy, as well as numeracy. It also includes the general knowledge, skills, values and attitudes that people need to survive, develop their capacities, live and work in dignity, improve the quality and longevity of their lives, to make informed decisions, and to continue a life-long learning process.

The Need for Life-Long Learning

It has been shown that the least developed countries are the home of an ever-increasing proportion of the world's illiterate population with the lowest employment rates, lowest life expectancy rates, and the lower standard of living. Even within industrialized nations, *The Organization for Economic Co-operation and Development (OECD)* estimates that there are more than 20 million jobless and 38 million poor in Western Europe. The incidence of unemployment in 15 European countries declines as the level of education rises.

In 1995, there were also an estimated 9 million illiterate adults in Europe, of which 2/3 were women. The gender gap in educational opportunity feeds other forms of polarization, including disparities in the status of men and women. This is especially true in African nations where women are discouraged from learning due to social and religious pressures and non-availability of opportunities or sufficient 'seat-space' to provide for them.

The climate of a global market-based economy is highly competitive. It forces individuals, firms, and entire nations to continually adapt and improve skills in order to

compete effectively. That need is compounded by the constantly changing work environment.

A knowledge-rich society contains the tools with which people can address problems ranging from health and economic well-being to personal fulfillment. Such fulfillment will not be recognized, however, if the benefits of the new technologies and emerging forces are restricted to a fortunate few while large numbers of people, and even entire nations, remain powerless watching on the sidelines. A *polarized* world, sharply divided between "haves" and "have-nots", is a world that is neither efficient, stable, nor just. Excluding large numbers of people from participating in the changing world economy runs the risk of creating enclaves of poverty, despair and violence that cannot be eliminated by last-minute government action or humanitarian need. The danger is everywhere; hordes of jobless young people, left to fend for themselves in large cities, are exposed to all the dangers inherent in social exclusion, many leading to social revolution.

Marginalization and Polarization - The "Haves" and "Have-Nots"

Marginalization occurs when people are systematically excluded from meaningful participation in economic, social, political cultural and other forms of human activity in their communities and are thus denied the opportunity to fulfill themselves as human beings. In a global, digital world, 'communities' takes on an entirely different meaning and connotation. When a critical mass of individuals becomes marginalized, society itself becomes *polarized*. While the marginalization of a single person is a human tragedy, the polarization of entire societies is both tragic and dangerous in economic and social context.

The signs of marginalization are evident in the growing gaps in income, health care, education, and other measures of human well-being between industrialized 1st

World Countries and LDCs, least developed countries, generally called 3rd World Countries. These gaps also exist within individuals nations, both rich and poor. Overcoming these issues of marginalization will require concentrated effort in political, diplomatic, social, economic, and educational programs. The most important element of such efforts is providing basic education to all persons.

Peter Drucker, an American writer on management issues, has stated that "the key resource in today's world is knowledge". Drucker warned that "inequality based on knowledge is a major challenge in today's emerging learning societies".

Developing countries are particularly vulnerable with the emergence of knowledge-based societies because a certain level of basic education is necessary to profit from additional training and knowledge acquisition.

Investment in new technologies can be expensive, thus widening the gap between countries that can afford to be connected to the Internet and those that cannot. When it comes to acquisition of knowledge and mastery of information technologies, individuals with the necessary threshold of knowledge are in a position to gain more, while others are left out, creating even greater marginalization and polarization of entire societies.

Education is itself, a polarizing force. Seen by many as a means or promoting equality, it also function as a source of inequality. "Lifelong learning" becomes more established and the gap is likely to widen between those who have a sufficient basic education to benefit from further learning and those who do not.

The Question

The question becomes, "How do we deliver basic education to the people who need it the most?" and "How can we ensure greater success when other programs have failed?"

First, let us review the policies and funding that are already in place and how they support the final proposal of this paper; delivery of basic education to the LDCs of Africa, via the concept of E-Education, over the Internet through the use of technology. Next, we will review the current status of education in Africa and what programs would be most beneficial to individual case-study nations. Finally, we will discuss the exact method of implementing E-Education and what the expected results might be in our future global community.

Programs that promote education in the 21st Century

In the advent of the new millennium, several international programs have put forth statements in support of "educating for a sustainable future." *UNESCO* sponsors the "*Education for All*" *World Forum* and has collected assessments on basic education from 123 countries around the world, only a few of which are from Africa. The *World Conference on Education adopted the World Declaration on Education For All 1990*. It represented a renewed international commitment to ensure that the basic learning needs of all children, youth and adults are met effectively in all countries.

One of UNESCO's newest publications, "*Adult Education in a Polarizing World*" (1997) addresses the issue of adult education, the 'haves' and the 'have-nots,' throughout the world. It gives a strong argument for empowering adults, as well as children, and supports basic education as a fundamental human right.

The Cologne Charter gave forth the following statement in June 1999:

"Education and skills are indispensable to achieving economic success, civic responsibility and social cohesion", according to a charter on the aims and ambitions of lifelong learning. The leaders of the world's richest countries adopted the charter, the G8, at their meeting in Cologne in June. It states that the challenge for countries in the next century is to become a learning society and to ensure that its citizens are equipped with the knowledge, skills and qualifications needed in a knowledge-based society".

The Convention on the Rights of the Child, held by UNICEF in 1999 put forth the following statement:

*"Children are born with fundamental freedoms and the inherent rights of all human beings. This is the basic premise of the Convention on the Rights of the Child, an international human rights treaty that is transforming the lives of children and their families around the globe. People in every country, of every culture and every religion are working to ensure that each of the 2 billion children in the world enjoys the rights to survival, health and **education**; to a caring family environment, play and culture; to protection from exploitation and abuse of all kinds; and to have his or her voice heard and opinions taken into account on significant issues". (UNICEF)*

They later added to this statement with the ***Implementing the 20/20 Initiative***:

*"During the first half of the 1990s, goals and targets for infant mortality, child malnutrition, **adult literacy** and other social indicators were set at landmark world summits and global conferences. The report by the development Assistance Committee, *Shaping the 21st Century*, set the year 2015 as the deadline for achieving the goals of universal primary education, reducing under-five and maternal mortality, universal access to reproductive health services, gender equity and the halving of extreme poverty. Fulfilling these goals, targeted for the year 2000 and beyond, will require a substantial increase in investment in basic social services -- basic health, including reproductive health services, **basic education**, nutrition programs and low-cost water and sanitation". (UNICEF)*

The Final Communiqué of the Mid-Decade Meeting 1996 adopted as the Amman Affirmation in 1996. It reaffirms the international community's commitment to provide *Education for All* and calls for an acceleration of efforts.

United Nations Resolution on Education for All 1997 was adopted by the General Assembly of the United Nations in December 1997. It reiterates the importance of literacy as a human right and as "an indispensable element" for economic and social progress.

United Nations Draft Resolution on an UN Literacy Decade was drafted by the General Assembly of the United Nations in October 1999. It states the desirability and feasibility of launching a *United Nations Literacy Decade* as a means of achieving Education for All.

In July 1998 a study was done on the concept of *"Including the excluded: One school for all children"*. The concept of inclusive education is a concept that is gaining ground in ministries of education around the world. It requires a fundamental rethinking of the meaning and purpose of education for all. An estimated one child in ten is born with, or acquires, a serious impairment that, if no attention is given to it, could impede development. Altogether, an estimated 20% of children have special learning needs at some point during their schooling. If the large number of out-of-school children is added to this equation, ***education systems are failing some 200 million children.***

A 1995 UNESCO survey of sixty-three countries showed that integration of these children into regular schools is a declared policy in almost every country, compared to only three-quarters of the countries asked in a similar survey in 1988. Backed by several United Nations agencies and many human and disability rights organizations, inclusive education has reached policy-making agendas.

All of these organizations agree in concept with what we are suggesting, the implementation of education, via the Internet, to the general population of the African nations. The purpose is to bring the 3rd world countries into the 21st century with the ability to compete intellectually and economically with other nations and people. We believe that easily accessible, quality education will assist them in not only opening new fields of opportunity, but instill human worth and improve their quality of life.

Although education and implementation of technology into the curriculum has advanced throughout the world in 1st and 2nd world countries, education in the countries of Africa, with very few exceptions, has lagged far behind. Many of these countries, besieged by political and cultural unrest, have focused on dealing with the symptoms of the problems that manifest themselves in the social problems of their countries. They have, due to necessity, neglected the root of the problem; education and opportunity to

change a way of life, not by political unrest and revolution, but by learning new skills, opening up new economic opportunities, and building self-confidence in the individual.

Human capital is one of Africa's greatest natural resources, yet this natural resource has been neglected in deference to mineral and production wealth. In an effort to understand how implementation of Internet-based distance learning, both in K-12 education and adult education, can change the face of a continent, this paper will focus on a selection of countries. These eight countries are located in different parts of the continent with different cultural and political backgrounds. However, all these countries have common, independent factors. Some are very poor in natural resources. Some are very rich. All have a common wealth: human capital and the desire to learn and to participate.

Status of Education in 3rd World Countries

According to a UNESCO-UNICEF pilot survey of schooling conditions done in 1996, it found:

- That on the average, nearly half of children in LDCs do not have access to primary education.
- Over 60% of teachers in some countries have only a primary school education.
- Nearly all children in the survey were taught one language at school and another at home.
- In many LDCs, the average pupil has only one square meter of classroom space.
- In half of the countries surveyed, there are more than 55 pupils per class in grade one.
- A majority of pupils attend schools that have no supply of running water working.
- Many pupils in LDCs sit on the floor.

- In a majority of LDCs pupils have no books.
- Most classrooms had no usable chalkboard and no world map.
- None had all classrooms supplied with a teacher desk and chair.
- Most countries have no classroom library.
- Homework is rarely assigned because children have too many obligations at home to get it done.

When asked why so few students attend schools, a number of answers were given which involved physical and socio-economic reasons.

- Schools often didn't have enough places for everyone.
- They were located too far away from home.
- Parents feared for their daughters' safety.
- Families were too poor to send their children to school or needed them at home to work or care for siblings.

Enrollment tends to decrease from one grade to the next, except for the last and penultimate grades where strong focus is placed on exams. Pupils often repeat those grades in order to pass exams that are required to enter secondary school or to obtain a certificate that is useful in seeking employment. In general, 2-5% dropped out each year. In countries such as Malawi, only 3 of 100 students is able to move on to secondary school. This is due mostly to availability of seats. Even bright students with incredible potential are left behind due to lack of classrooms, teachers, and resources.

There is also extreme overcrowding of urban schools. Only 7 of 13 countries had sitting places for up to two-fifths of their children. If children have no place to sit, there is little hope that they have place to write.

Teachers in most LDCs are men, and more than half are 30 years old or younger. The average school has 4.4 teachers. In Cape Verde and Tanzania, 60% of the teachers have

only a primary education. Thirty to fifty percent of teachers in Cape Verde, Togo and Uganda have received no teaching training.

General Population Statistics and Main Indicators

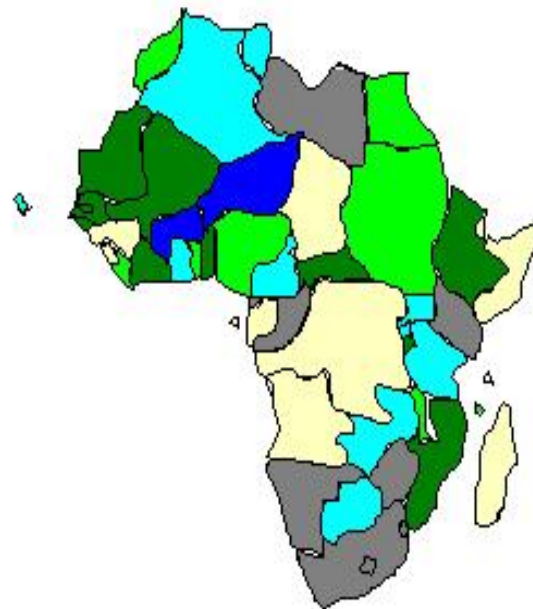
General population statistics have been gathered by several groups, including the World Bank, which include indicators of the general population for all countries in Africa. As can be seen below, there is a great difference in population amongst the countries of Africa. It also becomes obvious that the literacy rate has little to do with the unemployment rate, which indicates either an insufficient job market, or an extreme disparity in existing job skills with the existent job market. Each of these will be discussed in the individual country case studies.

(All statistics gathered from World Bank, 1997)

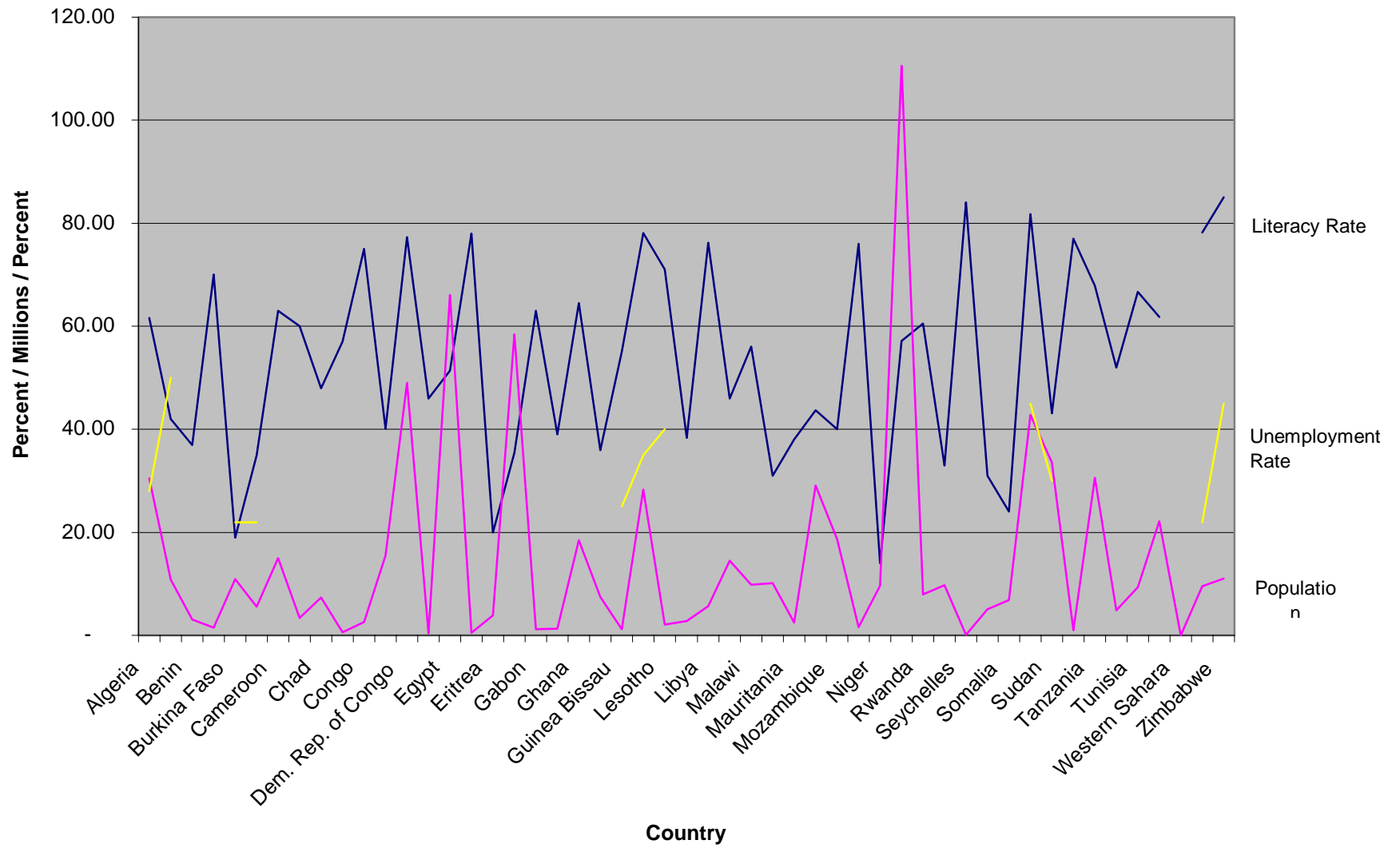
<u>Country</u>	<u>Literacy Rate</u>	<u>Population</u>	<u>Unemployment</u>
Algeria	61.6%	30,480,793	28.0%
Angola	42.0%	10,864,512	50.0%
Benin	37.0%	6,100,799	
Botswana	70.0%	1,448,454	
Burkina Faso	19.0%	10,891,159	22.0%
Burundi	35.0%	5,537,387	22.0%
Cameroon	63.0%	15,029,433	
Central African Rep	60.0%	3,375,771	30.0%
Chad	48.0%	7,359,512	
Comoros	57.0%	545,528	
Congo	75.0%	2,583,198	19.0%
Cote d'Ivoire	40.1%	15,446,231	
Dem. Rep. of Congo	77.3%	49,000,511	
Djibouti	46.0%	440,727	
Egypt	51.4%	66,050,004	9.4%
Equatorial Guinea	78.0%	454,001	
Eritrea	20.0%	3,842,436	20.0%
Ethiopia	35.5%	58,390,351	
Gabon	63.0%	1,207,844	
Gambia	39.0%	1,248,085	
Ghana	64.5%	18,497,206	10.0%
Guinea	36.0%	7,477,110	
Guinea Bissau	55.0%	1,178,584	25.0%
Kenya	78.1%	28,337,071	35.0%
Lesotho	71.0%	2,089,829	40.0%
Liberia	38.3%	2,771,901	
Libya	76.2%	5,690,727	
Madagascar	46.0%	14,462,509	
Malawi	56.0%	9,840,474	
Mali	31.0%	10,108,569	
Mauritania	38.0%	2,511,473	
Morocco	43.7%	29,114,497	20.0%
Mozambique	40.0%	18,641,469	
Namibia	76.0%	1,622,328	
Niger	14.0%	9,671,848	
Nigeria	57.1%	110,532,242	28.0%
Rwanda	60.5%	7,956,172	
Senegal	33.0%	9,723,149	
Seychelles	84.0%	78,641	
Sierra Leone	31.0%	5,080,004	
Somalia	24.0%	6,841,695	
South Africa	81.8%	42,834,520	45.0%
Sudan	46.1%	33,550,552	30.0%
Swaziland	77.0%	996,462	
Tanzania	67.8%	30,608,769	
Togo	52.0%	4,905,827	
Tunisia	66.7%	9,380,404	16.0%
Uganda	61.8%	22,167,195	
Western Sahara			
Zambia	78.2%	9,460,736	22.0%
Zimbabwe	85.0%	11,044,147	45.0%

Illiteracy rate, total for 1997, Percent

No. of countries in range	
10	9.1 - 24.4
10	24.5 - 39.8
8	39.8 - 55.1
11	55.1 - 70.4
2	70.4 - 85.7
11	Data Not available



Literacy Rate / Population / Unemployment Rate



The Proposed Solution

What this paper proposes is that basic education can be easily disseminated to the least developed countries of Africa by providing E-Education, defined by Stephen Kaplan, author of "An Empire Wilderness: Travels Into America's Future" as education delivered via the Internet, or through majority dependence on technology. The exact method of doing that, the content, and the method of delivery will be discussed at the conclusion of the paper after the needs of eight case study nations have been evaluated.

Case Studies

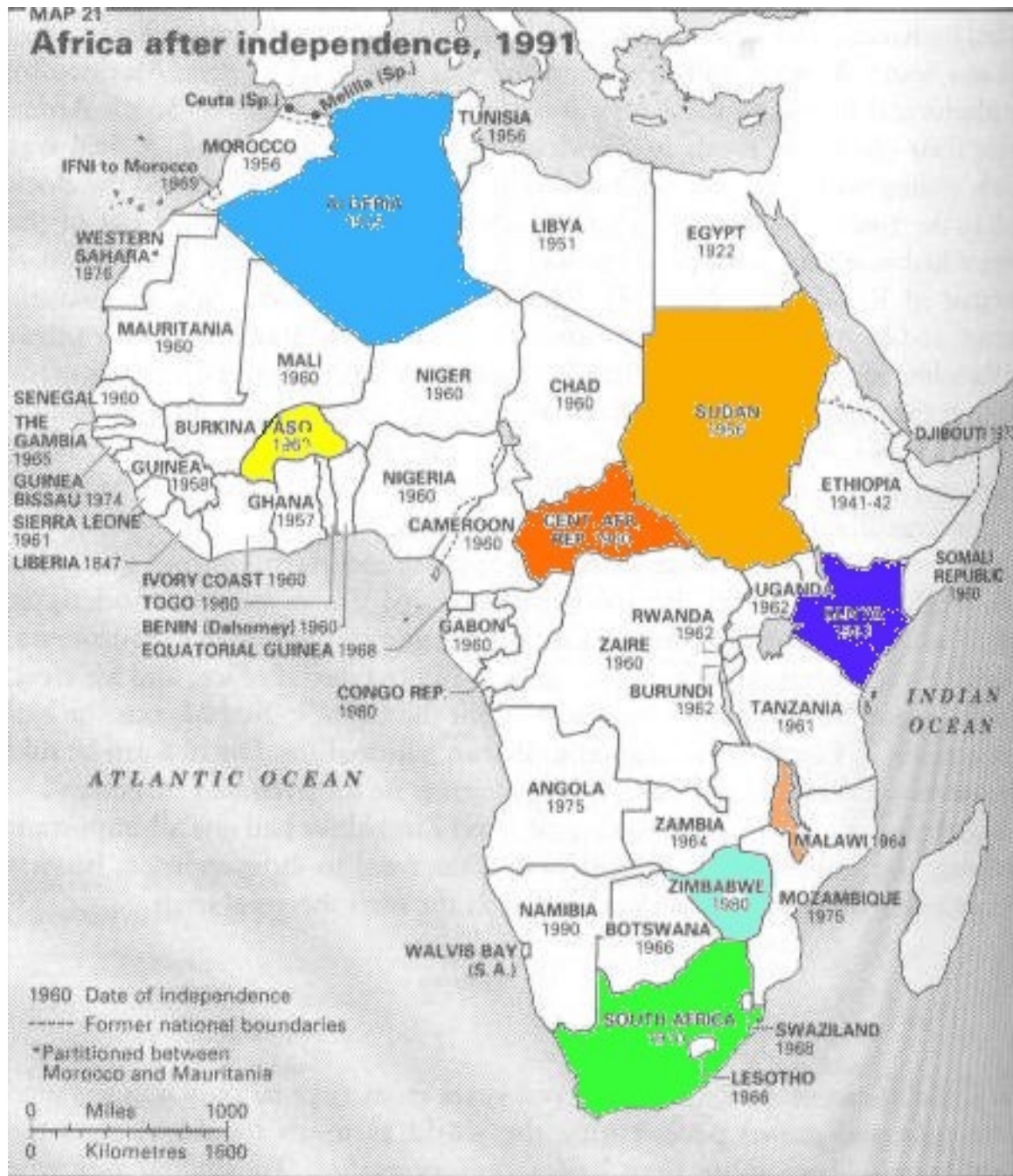
As can be imagined, it would be extremely difficult to discuss every country in Africa, as each has its own unique issues and problems. Therefore, I have concentrated on eight countries which are located in different parts of the continent. Some countries are landlocked. Others are on the ocean. Several have a wide variety of natural resources while others have virtually none.

The eight countries chosen are:

- Algeria
- Burkina Faso
- Central African Republic
- Kenya
- Malawi
- South Africa
- Sudan
- Zimbabwe

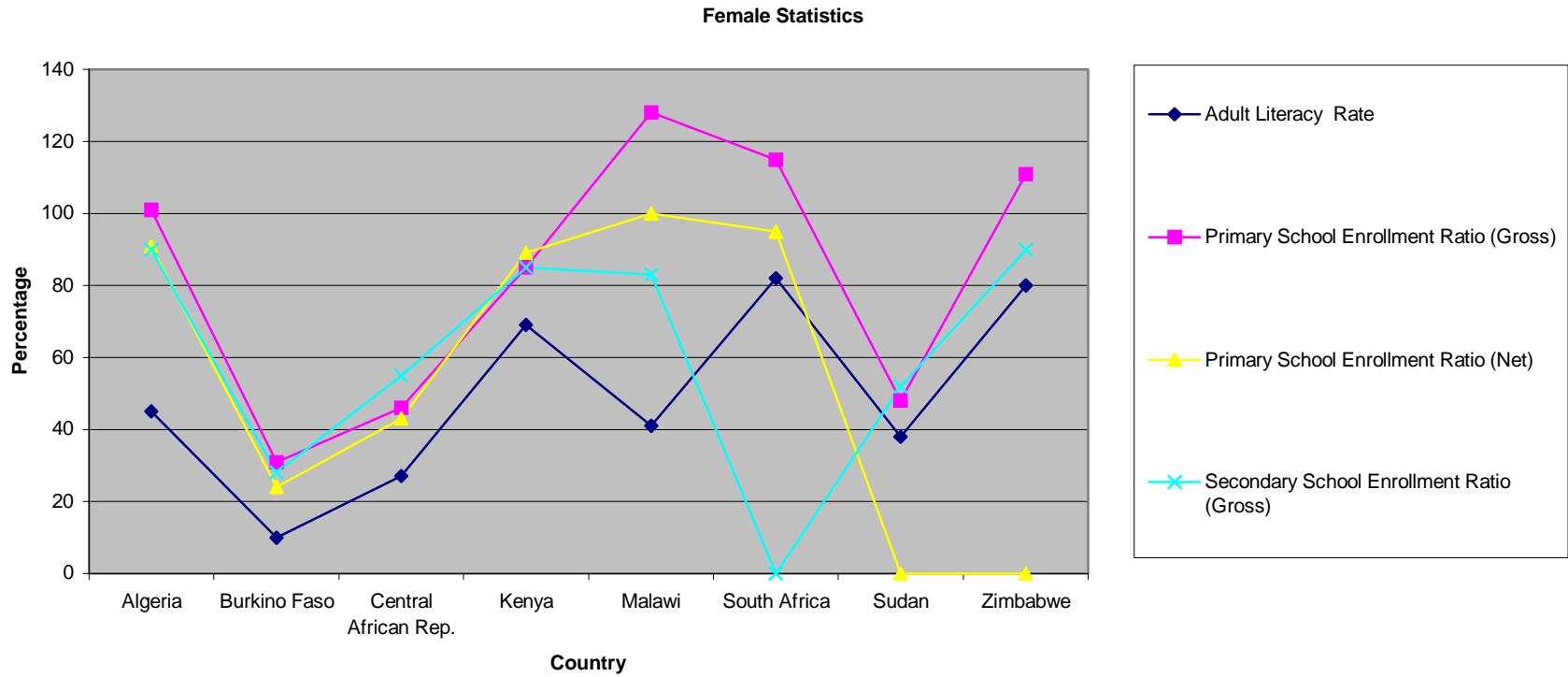
These countries were chosen because they are all located in different geographical areas on the African continent, have widely disparate economies and cultures, and have an amazing range of statistical data. By choosing these eight countries of varying

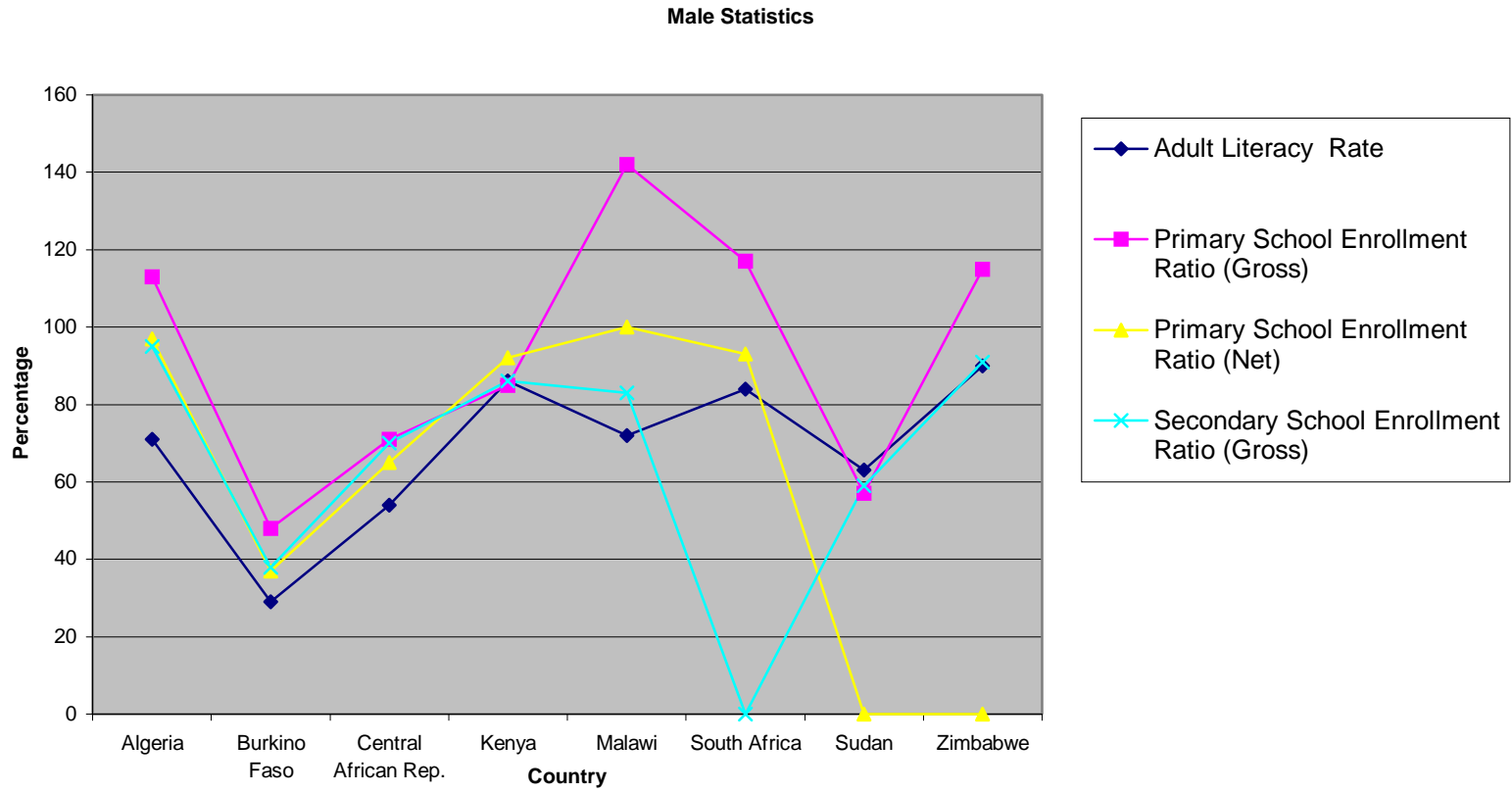
situations, the situation in any of these eight countries could be applied to any region around the world of similar circumstances; rather it be in South America, Canton, China, Eastern Europe, South-east Asia, the Caribbean, or on a Native American Indian Reservation in the United States.



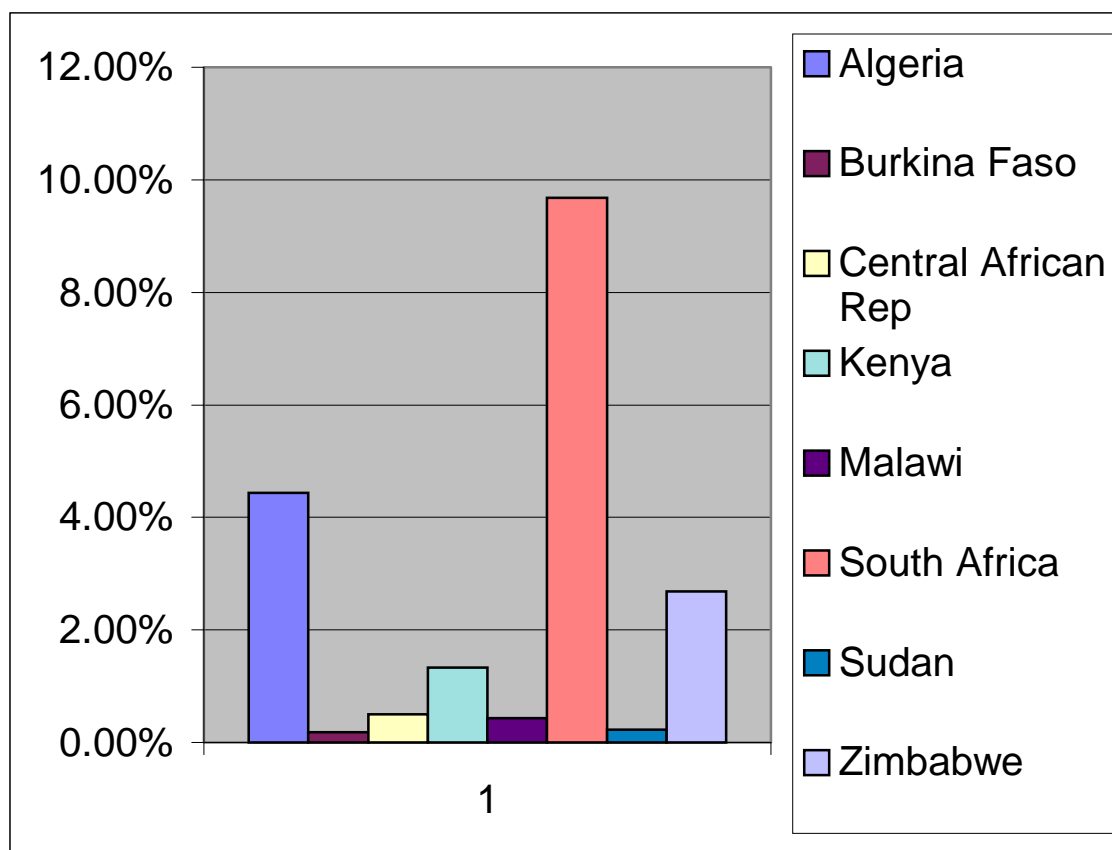
General Population Statistics and Indicators

<u>Country</u>	<u>Population in Millions</u>	<u>Unemployment</u>	<u>Inflation Rate</u>	<u>% Below Poverty</u>	<u>Life Expectancy</u>	<u>GDP In Billions</u>	<u>% of Agriculture</u>	<u>GDP Industry</u>	<u>Services</u>	<u>Telephones</u>
Algeria	31.1	30.0%	9.0%	22.6%	69.2	\$ 140.2	12.0%	51.0%	37.0%	1,381,342
Burkina Faso	11.6	22.0%	2.5%	n/a	45.9	\$11.6	35.0%	25.0%	40.0%	21,000
Central African Rep	3.4	6.0%	2.6%	n/a	47.2	\$5.5	53.0%	21.0%	26.0%	16,867
Kenya	28.8	35.0%	2.5%	42.0%	47.0	\$43.9	29.0%	17.0%	54.0%	383,676
Malawi	10.0	n/a	83.4%	54.0%	36.6	\$8.9	45.0%	30.0%	25.0%	43,000
South Africa	43.4	30.0%	9.0%	n/a	54.8	\$ 290.6	5.0%	39.0%	56.0%	4,200,000
Sudan	34.5	30.0%	27.0%	n/a	56.4	\$31.2	33.0%	17.0%	50.0%	77,215
Zimbabwe	11.2	45.0%	32.0%	25.5%	38.9	\$26.2	28.0%	32.0%	40.0%	301,000





When discussing the introduction of technology via the Internet, infrastructure becomes one of the most highly significant factors. Without phones, a person cannot access the Internet. If you were to graph the percentage of phones against the population within the country, it can be seen that the infrastructure is clearly insufficient. The issue of building an inexpensive and functional infrastructure that will accommodate Internet education and address the issues of the current status of education, is part of the solution to be presented at the conclusion of the case studies.



Summary of Case Studies:

What appears below is a recap of an extensive survey that was done of these eight countries. That survey included a review of the following factors for each country:

- History
- Topography
- Climate
- Population
- Economy
- Agriculture
- Trade & Industry
- Language
- Religion
- Media
- Education
- School Visits
- Main Economic and Population Indicators
- Available Infrastructure
- Occupational Outlook

Algeria

History

Settled by ancient Berbers and a part of the ancient Roman Empire, Algeria is best known for ancient piracy, i.e., the Barbary Coast. North African piracy caused Spanish occupation of the northern ports and Muslims soon called for assistance from the Ottoman Sultan. In 1815, the United States attacked Algiers, and in 1816 the Dutch and English were forced to attack in order to protect their own ships, signaling the beginning of the end for the indigenous people. In 1830 the French invaded Algiers and the French occupation continued for 132 years.

French occupation and intense subjugation of the Muslim and African populace eventually backfired and those schooled in French academies in the French way of thinking, soon became the backbone of the Algerian nationalist movement. The movement emerged between World War I and World War II and demanded civil rights for the indigenous peoples of Algeria. After 20 years of fruitless efforts of non-violent activism, the frustrated nationalists formed a militant anti-French party in 1939 called the Friends of the Manifesto and Liberty, combining Islamic and communist factions. On the 1st of November in 1943, the NLF (National Liberation Front), formed in Egypt by Ahmed Ben Bella and eight other exiled reactionaries, declared war on the French.

The French sent 400,000 troops to put down the guerilla uprising but the brutality of the French turned world opinion against them. The French use of concentration camps, torture, and mass executions of civilians suspected of aiding the rebels, isolated France and elicited invidious comparisons with totalitarian regimes and Nazism. Although DeGaulle returned to power and gained control over Algeria, he chose between French

colonialism and France's place as a standard-bearer of democracy. He gave Algeria the choice; remain part of France, or independence. The colonials saw it as betrayal and attempted to overthrow the general. In March of 1962 a cease-fire was negotiated and Algerians spoke in solidarity. Algeria became independent and the vast majority of the French colonials left before the year was out.

Eight years of war had shattered Algeria. There had been more than one million Algerian casualties and nearly two million Algerians had lost their homes. For over a century the French had deprived the Algerians of any but the most minimal opportunity to become involved in its infrastructure and institutions. Algerians had been made a subclass of servants, unskilled laborers, and peasants. The departure of the French left the country without the skilled labor to keep the country running. French Sahara oil fields, turned over to the Algerians, their greatest natural resource, lay virtually useless in the fields. Since independence, civil strife has continued to tear Algeria apart. Assassinations and terrorism abound and the war between the government forces and militant forces continues.

Demographic Characteristics

Country	Algeria
Literacy Rate	61.6%
Population (Millions)	31.1
Unemployment	30.0%
Inflation Rate	9.0%
GDP (Billions)	\$ 140.2
% Below Poverty	22.6%
Life Expectancy	69.2
Agriculture	12%
Industry	51%
Services	37%
Telephones	1,381,342
% of phone service	4.4416%

Eighty-five percent of Algeria's population is of Arab extract, 17% of Berber extract or of Berber-Arab intermarriage. The Touareg tribes of the Saharan desert emigrated to Algeria from southwestern Asia in approximately 3,000 B.C. and converted to Islam. Half of the population lives in the rural areas, the other half in the northern port cities.

Prior to independence, Algeria's economy was dominated by agriculture and the country was known as the "breadbasket of the Roman Empire". By 1993, dependence on agriculture had waned to where 60% of the country's cereal needs were imported due to government support of industry over agriculture. This didn't change until it became a critical issue. Oil resources, strictly controlled by the socialist government, were harshly affected by drastically reduced oil prices and per capita income fell from \$2,360 in 1988 to \$1,541 in 1992.

Almost 2/3 of Algeria's foreign trade is with Western European nations. The United States and Japan supply the rest. The sale of natural gas and petroleum provides Algeria with 17% of the GDP (Gross Domestic Product), the mining industry contributes 17%, and the services industry sector 36%.

Arabic is the primary language of 82% of the population with French as the secondary language. Islam is Algeria's official religion and the majority of Algerians are Muslim. In the past 25 years, however, the society has become sharply polarized between westernized secularists and traditional Muslims.

Status of Education

According to government statistics, 85% of all children between the ages of 6 and 13 years are enrolled in schools, amounting to some 5.8 million students in elementary

and middle schools and 839,000 high school students during the early 1990s. *Since 1976 all education has been controlled by the state, private schools having been abolished.*

Although education has been compulsory for all children aged between 6 and 15 since 1976, by 1989 nearly 40% of the entire population over 15 still had no formal education; and nearly 57% of over-15s have been registered as literate. With 42% of the population under the age of 15, education will remain a major challenge for the government for the foreseeable future. There are 10 universities in Algeria accommodating over 160,000 students. Aside from the University of Algiers, there are universities and technical colleges in Oran, Constantine, Annaba, Batna, Tizi Ouzou and Tlemcen.

Infrastructure

Algeria has only one large, local functional ISP with visibility on the Internet. It is <http://www.cerist.dz/>, Le Cereist, and is entirely in French. It serves as the prime server for government offices, research facilities, universities, and major associations with Algeria, totally about 40 prime sites. It offers email services to local residents in the larger cities and connection to the university system, search engines, and local information for those with phone service. Phone service in Algeria only exists for approximately 4.44% of the people, and mostly in the large cities along the northern coast.

No infrastructure exists in the rural areas with which to carry Internet-based education, however Le Cerist's 10 linked universities could theoretically serve as servers, or host computers for downloading current information to servers in rural areas.

The University of Algiers is the main university, while others are vocationally oriented. With a telephone density of approximately 4 percent, the domestic network includes over 44 domestic satellite earth stations. Algeria also has installed 2,500 kilometers of fiber optic links to form the core of north-south and east-west fiber optic backbone. The transmission network is 70% digital. Algeria currently has six submarine fiber optic cable links with France, Italy, and Spain, and is also connected to SEA-ME-WE2 and is a member of ARABSAT, INTELSAT, AND INMARSAT.

Educational Outlook

For almost a millennium, Algeria was dominated by agriculture and known as the "Breadbasket of the Roman Empire". Since the 1960s, oil revenues for Algeria have increased making it one of the wealthiest nations in Africa. The government has put forth several policies to strengthen education but poor cooperation between local and government agencies have made it difficult to reach rural areas.

Education is controlled by the government and private schools have been outlawed. Islam remains the official religion and education reflects Islamic beliefs. By 1989 nearly 40% of the entire population over 15 still had no formal education, although 57% were listed as being literate. Basic education that would increase the literacy rate of the people and add industrial and technological skills to the economy would be extremely welcome by the government.

Programs which Algeria is seeking to promote are:

- Agriculture (wheat, barley, oats, grapes, olives, citrus, fruits; sheep, cattle)
- Oil Industry (97% of all exports)
- Communications Technology
- Medical Technology

- Water Resources
- Construction and Public Works

Burkina Faso

History

In 1984 the leaders of Upper Volta changed the name of this former French colony to Burkina Faso, a term combining two of the country's many languages, and meaning "land of upright people". As one of the world's poorest nations, Burkina Faso counts people among its most important resources. Migrant laborers, working in the more affluent Côte d'Ivoire, sustain the households of many of the approximately ten million citizens in Burkina Faso, over 80 percent of whom live in rural areas.

The tradition of southward migration became firmly established during the colonial era, when France incorporated the Volta region into its West African empire precisely in order to turn the drought-prone, but relatively populous Mossi plateau into a labor reserve.

De jure independence in 1960 heralded a new era of de facto dependence on foreign donors, especially France. However, steady infusions of aid failed to prevent either the onset of two famines or the eventual overthrow of six governments. In 1983, however, flight commander Thomas Sankara came to power promising an end to both neocolonialism and rural suffering. Sankara's government initiated improvements in rural literacy, health, and food security, as well as women's rights. The current regime of Blaise Compaoré has deregulated the economy, mended relations with the West, and pledged a commitment to democracy. Still extremely poor, Burkina Faso enjoys a reputation for religious and ethnic tolerance, as well as for its rich performing arts traditions.

Demographic Characteristics

Country	Burkina Faso
Literacy Rate	19.2%
Population (Millions)	11.6
Unemployment	22.0%
Inflation Rate	2.5%
GDP (Billions)	\$ 11.6
% Below Poverty	n/a
Life Expectancy	45.9
Agriculture	35%
Industry	25%
Services	40%
Telephones	21,000
% of phone service	0.1810%

The official language of the nearly 12 million population is French. Indigenous languages are: More, Dioula, Gourmantche, and Peul. Forty percent of the population is Muslim, 50% Christian.

Status of Education

Like other African nations, education is a priority for the Burkina Faso government but resources are scarce. Children in the rural schools have few textbooks, and reflect the major findings of the World Bank. A Basic Education Sector Investment program is anticipated for FY2000. Preparation is underway. (IMF)

Bandiagara was the old administrative center of the region that includes the Dogon cliffs during the colonial period from 1897 to 1958. It remains the capital of the region, and has schools that are attended by children who travel considerable distances from home villages. The Burkina government has, in recent years, been introducing instruction in local languages during elementary school. The language of instruction gradually

switches to French as children become older. This means younger students are able to progress more rapidly because they start by learning in their own languages.

However, as with the case in other African nations, there are few seats for students in secondary school and only those with the higher schools advance to higher education.

Infrastructure

A telecommunications infrastructure exists but all service are only of fair quality. There are microwave radio relay, wire, and radio communication stations in use; broadcast stations - 2 AM, 17 FM, short-wave 1 (1998) 2 TV. The satellite system includes 1 Atlantic Ocean INTELSAT earth station. In 1993 there were an estimated 21,000 telephones and 49,000 televisions.

The Ministere de la Communication et de la Culture is responsible for regulation of the telecommunications. The Office national des Télécommunications (ONATEL) is currently the sole provider of telecommunications services and Internet. The Corporation is moving rapidly to modernize its telecommunications network and in December 1998 the government made the decision to privatize the company. Eventually, ONATEL will reduce its share from 100% to 34%, 3% will be offered to staff, and 63% to the private sector. A committee has been established to consider offers.

Educational Outlook

The occupational outlook for Burkina Faso is bleak when considering its relevant poverty of natural resources and agricultural base. Programs that would be most needed would be vocational programs that deal with offering basic education, developing current

natural resources, basic education, business and health related topics and the building of infrastructure.

Central Africa Republic

History

Before the slave trade was instituted in the 1700s, the Bantu tribes of Central Africa Republic lived in relative peace and played an important part in African history. In the middle 18th century, slaves were caught in southern and eastern parts of the Central African Republic by the Arab and Moslem slaves traders and shipped to Egypt and North Africa, called the "East Slave Trade" while European nations conducted the "West Slave Trade".

Large-scale racial migration took place in the 19th century due to slave trade and the area came under the control of Egypt. France invaded through Algeria and in 1903, the area came under complete French control. In 1957, a year after autonomy was granted the first government by the Oubangui people was formed. Independence was declared in 1960 and in January of 1966 was overthrown by revolution. Bokassa declared the government a monarchy in 1976 and declared himself emperor in 1977. Because of his excessive waste of money and bad taste, he was eventually overthrown. Since then political factions have continually fought for power.

Demographic Characteristics

Country	Central African Rep
Literacy Rate	60.0%
Population (Millions)	3.4
Unemployment	6.0%
Inflation Rate	2.6%
GDP (Billions)	\$ 5.5
% Below Poverty	n/a
Life Expectancy	47.2
Agriculture	53%
Industry	21%
Services	26%

Telephones	16,867
% of phone service	0.4961%

The CAR has an estimated 1995 population of 3,4 million people. The official language is French. Sango is the local language of most people.

During the time of slave trade, many of the inhabitants were sold and sent to the Americas. Into the vacuum caused by the slave trade, people from around the country immigrated. About 3,000,000 of the inhabitants are Bantu, and the rest are approximately; 150,000 Arab merchants, 20,000 Pygmies, 20,000 Mbororo (ancient Arab nomads), and several thousand whites (Europeans).

The Bantu tribes, living in rural areas, mainly practice farming for a living and eat Cassava (a sugar beet) as a staple food. Tapioca is made from the sugar beet refinement and homes in the rural areas are made of dried bricks of laterite with thatched roofs.

Pygmy tribes live naked in the southern rain forest areas near the border of Congo. They make simple houses with grass and live nomadic lives. The government encourages settlement, but most people still live in the jungle, hunting and collecting plants.

Key industries in the Central African Republic are mining and oil. Electricity is provided by the parastatal utility Enerca. The diamond mining industry contributes 40% of export earnings, making it one of the world's major producers. Production is more than half a million carats per annum, of which about half is of gem quality. Gold is also mined. Smuggling is a major problem for both the diamond and gold industries.

Subsistence agriculture, together with forestry, remain the backbone of the economy of the Central African Republic (CAR), with more than 70% of the population living in outlying areas. The agricultural sector generates half of GDP. Timber has accounted for about 16% of export earnings and the diamond industry for nearly 54%.

Important constraints to economic development include the CAR's landlocked position, a poor transportation system, a largely unskilled work force, and a legacy of misdirected macroeconomic policies.

Very little English is spoken although Swahili is spoken in the east of the country and Arabic in the north. The official language is French, but people use Bantu language called Sango as a spoken language. Therefore, Sango is considered the 'common' language.

Twenty-four percent of the population maintains indigenous beliefs. Twenty-five the population is Protestant, 25% Roman Catholic, 11% Muslim 15%, other the remaining 11% are of other beliefs.

Status of Education

According to governmental statistics, 60% of the population over the age of 15 is literate, although mostly in their native language. Schools in the city are similar to other schools in other African nations but schools in the rural areas are maintained by religious orders and are drastically understaffed with few resources.

Infrastructure

In 1992 it was estimated that there were 16,867 telephones in what was considered a fairly good telephone system. The domestic network consists principally of microwave radio relay and low-capacity, low-powered radiotelephone communication. There is an international satellite earth station, 1 Intelsat (Atlantic Ocean), 4 radio broadcast stations: AM 1, FM 3 (including Africa No. 1 and R. France Internationale stations located in Bangui), short-wave 1 (1998) and 7,500 televisions.

Educational Outlook

The educational outlook for the Central African Republic is extremely bleak due to its poor economical condition, land-locked position and nomadic lifestyle of 80% of the population who live in the rural areas. Schools must adapt to the people and although the government encourages settlement, the people lack the skills to maintain a settlement and continued use of the resources. Basic education and vocational skills are a necessity and yet little has been done to bring basic education to the people of CAR. Occupational outlook for CAR lies mostly in the agricultural and mining fields. Programs to promote the building of an infrastructure, business, basic education and agricultural skills would be extremely useful.

Kenya

History

According to paleontologists, the history of human beings began in the region in what is now known as Kenya and Tanzania. Altogether three types of early hominids have been found at Olduvai. These were Australopithecus; Homo habilis, a small, tightly built creature, and Homo erectus, a hominid whose brain capacity was much larger than the other two. Back in East Africa itself, some ten thousand years ago, there seem to have been four different groups who had evolved within the area. These included the Hunters and Gatherers of the plains, and the forest dwellers the Cushite, Bantu, and Nilotic. The peace of the hunters and gatherers was rudely disturbed around 6000 BC by the first waves of Cushites (before called Hamites), Bantu and Nilotes from the north and west.

Their weapons and military organization were so greatly superior that they rapidly submerged totally the groups they found. Out of this interaction of peoples with their migrations, invasions and counter-invasions over many thousands of years, have come the modern inhabitants of East Africa. Very few indeed of the descendants of the original inhabitants are now left but the land is full of flourishing groups of Cushites, Bantu and Nilotes.

In 500 AD Arabs immigrated into the region and still remain in sizable numbers on the Kenya coast. Then came the Persians, the Chinese and Malaysians who traded across the Indian ocean, and then the Europeans. The immigration patterns established between 1000 and 1500 AD were a direct result of the gold discoveries and resulted in a large amount of trade and establishment of trade routes with Asia and Europe.

In 1498 Vasco de Gama made a stopover on the Kenya coast on his way to India and established Portuguese control. One by the one, the cities of eastern Kenya fell to the Portuguese, causing the gold trade to be re-routed around the Cape to Europe, destroying the coastal cities for lack of trade and income. The Portuguese never intended to settle the Kenya coast, only to have safe ports for their ships.

Between 1500 and 1600 the Luo invasion of the north-eastern shores of Lake Victoria started. The Kisiis also settled in their present territory of Kisii hills. At the end of the XIX century the Nandi became the most powerful group in Western Kenya. In eastern Kenya the Somalis were the main factor for the migration of different people. In central Kenya the Maasai become the most important group in the early 1,700s. These internal wars of the Maasai took place from the 1840's to the 1870's and almost wiped out some clans of the Maasai which had to look for refuge and integrate themselves to the neighboring tribes of Kikuyu, Taveta or Chaga in Tanzania. The impact of the slave trade on inland Kenya was not significant since it was very difficult to travel inland due to the Taru dessert. Never-the-less contact with the coast hinterland developed as the ivory trade grew. Most of this was handled by Kamba traders in the early nineteenth century and brought down to the coast in Kamba organized caravans.

The decline of the Portuguese and the loss of all of their trade posts north of Cabo Delgado did not bring back the flourishing trade the coast of Kenya had known before. After the defeat of Napoleon in Europe in 1815, two important events took place for the future of the coast and the future Kenya. The British took over the Isle of France and the Seychelles and the British had decided to abolish the slave trade of which they had been the undoubted masters in the previous 100 hundred years.

The first event gave a clear indication to the Omanis of who was now the master of the Indian ocean., whilst the second gave the Omanis no end of trouble since slaves were their principal commodity of trade.

European interest in East Africa at this time was developing fast, although most of the contacts were being made in Zanzibar. The campaign to abolish slavery worldwide was at its height in the middle of the century, and Britain was one of its leaders. Together with the altruism and Christian conscience of many of its supporters, it found ready ears among businessmen and politicians. Britain lost their interests in the United States and anti-slavery was now a weapon to attack the interests mainly of the Dutch and French colonies. This especially affected Kenya.

There was also a great push to the scientific study of Geography and this founded many expeditions to explore unmapped areas of the globe, mainly to Africa. The most important explorer who set himself to open the paths of Africa to Europeans in order to preach, trade and lead Africans to higher levels of civilization, was the mythical missionary David Livingstone who from 1853 to his death in 1873 spent most of his time wandering around the slave trade routes looking for the source of the Nile. His reports on the brutalities he was witnessing moved Britain so much that he became a national hero. After not hearing from him for over five years a reporter, Henry Stanley, was sent to look for him. They met at Ujiji in October 1871 and they did some explorations together before Stanley returned to Britain. After Livingstone died, Stanley, along with his expedition of 244 persons, continued his work to discover the source of the Nile.

The new nations emerging in Europe, mainly Germany and Italy, wished to be at par with colonial leaders Britain and France which created a struggle for colonial

possessions worldwide and particularly in Africa. Meanwhile, France had plans to colonize all territories from Algeria to Senegal. In an effort to colonize the region, the British built the Ugandan railway and the good nature of land in the Kenyan highlands was praised by most of those who traveled to Uganda.

The most determined and successful of all pioneers was Baron Delamere who described his ordeal in the book "The White Man Country" by Elspeth Huxley. Delamere arrived in the highlands during a hunting expedition which started in Somalia and the highlands conquered his heart. He sold his estate in England to make his home in Kenya and invested all he had in making farming possible. Although he more often failed than succeed, he managed to adapt many foreign products to the local conditions and created a tradition of research which is prevalent today in Kenya.

His successes attracted more and more settlers, which meant more land to be taken from the tribes which originally used it for grazing. In 1911 the Maasai agreed to sell the rights to their land and be relocated in less fertile areas where they roam today. By 1912 the Europeans settled in Kenya were only about 3,000. A special veteran settlement scheme after World War I brought the figure up to over 110,000 who owned the majority of the very fertile land in the highlands.

Nationalistic movements developed in Kenya, as did in many of the African nations, and in 1960 The United Nations Assembly adopted a Declaration of the Granting of Independence to Colonial Countries and Peoples. The United States, under J.F. Kennedy, clearly advocated a policy that "Africa should be for the Africans". The first Parliament met on the 13th of December in 1963 and set the key note for the new Nation.

Demographic Characteristics

Country	Kenya
Literacy Rate	78.1%
Population (Millions)	28.8
Unemployment	35.0%
Inflation Rate	2.5%
GDP (Billions)	\$ 43.9
% Below Poverty	42.0%
Life Expectancy	47.0
Agriculture	29%
Industry	17%
Services	54%
Telephones	383,676
% of phone service	1.3322%

English is the official language while Kiswahili is the national language. This means that government and education are in English, while everything else tends to be in Swahili.

In addition to these two languages, most of the people in Kenya also speak their "mother tongue" - the language that they grew up speaking. While an increasing number of city-dwellers grow up speaking English, most rural people still speak their tribal languages.

Kenya's African population is divided on three linguistic groups:

- *Bantu*. Concentrations in three main geographical regions - Western Kenya and Lake Victoria region (Luhya, Kisii), east of Rift Valley, (Kikuyu, Embu, Kamba) and Coastal belt (Mijikenda).
- *Nilotic*. Represented by the Luo, Kalenjin, Maasai and related groups. The Kalenjin linguistic group is concentrated in the area north to south and west of the central highlands, while the Luos are concentrated in the Lake Victoria Basin.

- *Cushitic*. Somali speaking group occupying eastern portions of the arid and semi-arid northeastern Kenya. Rendille and Orma speaking groups occupy the north western part.
- Over 30 distinct languages or dialects are spoken in Kenya.

Kenya is a cultural microcosm of Africa. Over the past centuries, people from many parts of the continent and beyond have been migrating to Kenya, each bringing with them some distinctive feature of their own culture and language.

The Constitution of Kenya guarantees freedom of worship and there are hundreds of religious denominations and sects in the country. The followers of Christian faith are in the majority and Islam is the main religion for most of the communities along the coast and the Somali community. The Asian community is mainly Hindu and some Kenyans observe traditional methods of worship.

- *Exports*: Tea, coffee, horticultural products, hides and skins, pyrethrum, pineapples, beer, among others.
- *Imports*: Industrial machinery, crude petroleum, motor vehicles and transport equipment, minerals, iron and steel, chemicals, food and manufactured goods.
- *Main Industries*: Food and beverages processing, manufacture of petroleum products, textiles and fibers, garments, tobacco, processed fruits, cement, paper, pyrethrum products, engineering products, wood products, pharmaceuticals, basic chemicals, sugar, rubber, plastics, etc.

Status of Education

The colonial government developed, in a limited way, road, telephone and postal networks to supplement the railway line. In conjunction with the missionaries it also

established medical and educational facilities. This infrastructure and human development, was however, essentially intended to achieve the rather narrow objective of serving the colonial government and the settler community. Any form of education of the African community was intended to produce a low-level, unskilled labor force.

In 1846 the Church Missionary Society established a school at Rabai near Mombasa in the Coast Province. This was the start of formal education in Kenya. The school's primary purpose was to promote evangelism but as education developed it became an instrument to produce skilled labor for the settlers' farms and clerical staff for the colonial administration.

Education in the colonial period was racially stratified. There were separate schools and curricula (and much superior resources) for the Europeans. The Asian and Arab systems came next, while the African system was determined by the dominant role of the missionaries in building, managing and supervising the few schools. The missionaries established training colleges for teachers and provided the funds for most of the recurrent costs, with only a small subsidy from the government in the form of grants.

Up to independence, there were great disparities in educational between the races and different regions. In the colonial period, stress was placed on technical and vocational education for Africans, based on the Fraser Report of 1909, which recommended an industrial curriculum as the basis of African education, the 1919 Education Commission Report, the 1924, Phelps-Stokes Report and the 1949 Review Commission under Archdeacon (later Archbishop) Leonard Beecher. The objective was always to enhance their suitability as laborers and craftsmen on the settlers' farms.

By the time of independence, the colonial educational legacy posed many problems of quantity, quality, and relevance. Since that time, enormous investment has been made both by the government and the public.

To this end, the system of education has been restructured significantly, especially since 1985 when the 8-4-4 (eight years in primary school, 4 in middle school, and 4 in secondary education) system of formal education was introduced. The new system was intended to meet the increasing demands of the economy for technically and professionally qualified personnel. In addition, substantial expansion in education at all levels has been achieved since independence. In terms of expenditure, the proportion of the government budget allocated to education rose from 10% in 1964/65 to about 38% in 1990/91. Today, more than 6 million Kenyans are enrolled in various educational institutions and adult literacy rates are estimated at about 60% for men and 40% for women.

Infrastructure

One of the countries that was expected to be among the first in Africa to obtain full Internet, efforts to achieve this in Kenya were stymied by the regulatory environment and the high cost of international leased lines. As a result Nairobi developed a large concentration of dialup email service providers, albeit unofficially. In late 1995 full Internet services were however established by some companies, despite the PTOs objections advertised in the national newspapers. Never-the-less, Kenya now has one of the largest Internet communities in Sub-Saharan Africa, with some estimates as high as 25,000 users.

Telecommunications in Kenya puts it in the top group of African systems, consisting of primarily of radio relay links, over 260,000 telephones; 26 broadcast stations (16 AM; 4 FM) 6 TV stations, satellite Earth stations, 1 Atlantic Ocean INTELSAT and 1 Indian Ocean INTELSAT.

Educational Outlook

In comparison to other countries in Africa, the outlook for educational progress in Kenya exceeds all but the richest countries in Africa, South Africa, due to the government's due diligence at instituting programs and allocating funds. Even so, the rural schools of Kenya are much the same as those in other countries. Textbooks are difficult to obtain, teachers are young and inexperienced in the rural areas, often without official teacher training. Teachers in the cities have been there for years and are reluctant to change methods or to introduce technology into the classroom.

Many students from Kenya leave the country to come to the United States for education and graduate school because the quality of the education is so much higher in the U.S. and less expensive. When Kenyan students in American universities were asked if they would have stayed in their home country if adequate and quality education had been available, all gave a resounding "Yes!"

Kenya seeks to improve education in all of the following areas:

- Accountants
- Airlines
- Automotive
- Banking
- Car Hire
- Communications
- Engineering
- Finance
- Hotels

- IT
- Insurance
- Machinery
- Manufacturing
- Medical
- Real Estate
- Restaurants
- Shipping
- Stockbrokers
- Tour Operators
- Transportation

Malawi

History

Malawi was settled by various Bantu tribes who traded in agricultural surplus and ivory with Portuguese merchants on the coast. After hearing of David Livingstone's trouble, Scottish missionaries arrived in the country and established a state by overwhelming the warlike Ngoni and Yao. By doing so, they suppressed slavery, opened up missions, and started making inroads into traditional agricultural practices. The number of plantations in the country began to grow quickly due to the declaration of a Protectorate in 1891 and after the introduction of coffee.

The Nyasaland African Congress was formed in the 1950's as an opposition group to colonial rule this was also opposed to federation with northern and southern Rhodesia. This group did not have much support until Dr Hastings Banda came home and took control of the leadership. The colonial authorities were forced to declare a state of emergency due to the amount of support that had mounted for Banda. As a result of this state of emergency, leaders of the Congress, including Banda, were imprisoned and a rampage of suppression ensued.

Banda was invited to a constitutional conference by the colonial authorities in 1961 and elections were held shortly after. The Malawi Congress Party (Banda's party) won easily and the party dissolved the federation of Rhodesia and Nyasaland. In July of 1964, Malawi became independent.

In 1978, the first general election since independence was held. Banda personally threatened anyone who wanted to stand as a candidate and he made all candidates take an English examination (therefore precluding 90% of the population). Although tyrannical

in political affairs, Banda encouraged foreign capital investment especially from Britain, Taiwan, and the USA. He also encouraged ministers to establish plantations, forcing peasants off the land. Facilities such as education and medicine were low priorities while roads and railways serving plantations were given prominence.

During the 1980s and early 1990s, the Government agreed a series of economic reform programmes with IMF and the World Bank. The programmes entailed a certain move in the direction of increased liberalization of the economy but failed to achieve the anticipated effect, primarily due to recurring drought, shoddy discipline in economic policies and failure to implement more in-depth structural reforms, particularly given privileged groups resistance to the reforms.

Demographic Characteristics

Country	Malawi
Literacy Rate	56.4%
Population (Millions)	10.1
Unemployment	n/a
Inflation Rate	83.4%
GDP (Billions)	\$ 8.9
% Below Poverty	54.0%
Life Expectancy	36.6
Agriculture	45%
Industry	30%
Services	25%
Telephones	43,000
% of phone service	0.4257%

Malawi's 10 million plus population is made up of several ethnic groups: Chewa, Nyanja, Tumbuko, Yao, Lomwe, Sena, Tonga, Ngoni, Ngonde, Asian, and European. Indigenous tribes are mainly of Bantu origin and include the Chewa, Chipoka, Ngonde, Tonga, Tumbuku, and Yao.

Most of the population is employed in agriculture (90%+) producing tobacco, sugar, tea, cotton, groundnuts, and maize. Minging, although present, is not a significant industry. The manufacturing portion produces beer, cement, cigarettes, matches, shoes, spirits, and textiles. Agriculture is the all-dominant industry in terms of both employment and export. Production makes up 30% of GDP and generates more than 90% of the country's export proceeds, while at the same time more than 85% of the population earn a living from farming.

Women supply 70% of the work performed on smallholdings and are sole breadwinners for 35-40% of the farms under 1 hectare.

The official language of the country is English and Chichewa, as well as several minor tribal languages. Fifty-five percent of the population is Protestant, while 20% is Catholic, 20% Muslim and the rest participating in indigenous beliefs.

Status of Education

Malawi, which is one of the twenty poorest countries in the world, has a largely agriculture-based economy that is comprised mostly of subsistence farming. Malawi placed 159th out of 174 countries on the 1999 Human Development Index. According to the 1999 Human Development Report, the adult literacy rate in Malawi was 57,7% in 1997. Malawi is ranked 72nd on the Human Poverty Index.

Distance education has been recognized as a strategy for delivering schooling opportunities for out-of-reach youth in rural areas since 1965 when the Malawi College for Distance Education (MCDE) was established.

Following the first multiparty elections in 1994, many changes took place in education in general, and in the provision of distance education in particular. Two

important factors contributed to these changes. First, the Malawi government's commitment to a structural adjustment programme under the auspices of the International Monetary Fund, which commenced under President Kamuzu Banda's government in the late eighties, led to cuts in government spending. Second, the decision of government on 29 September 1994 to provide free primary education placed an immense burden on an already over-stretched education infrastructure and budget. As a result, emerging distance education initiatives, such as the development of distance education materials and investments in infrastructure development required for distance education, are, by and large, supported by donor funding. Education is, however, an important priority for tremulous-government.

Statistics indicate that approximately 3.2 million pupils are currently enrolled in 2,900 primary schools in Malawi. In 1994, there were approximately 34,000 pupils enrolled in conventional secondary schools. In 1998, 150,000 students were enrolled with the Malawi College of Distance Education for secondary education through distance education. Currently, approximately 3,000 students are enrolled at the University of Malawi and its constituent colleges, and 1000 students are enrolled at the University of Mzuzu. It is estimated that approximately 4,000 students are attending public vocational and teacher training schools. In addition, there are 3,000 registered learners at the Aggrey Memorial School – a private distance education college - though these learners are not all from Malawi. Information on the number of Malawians studying through international providers could not be obtained.

Education opportunities in Malawi remain severely limited. In 1997, for example, of the 98,819 pupils that successfully completed their Primary School

Leaving Certificate of Education, only 8359 could be placed in Form I in conventional secondary schools. It is report that only 3 of every 100 students is allowed the opportunity, or is given space to advance to secondary school. Of those completing their secondary education, only 15% obtain places at the University of Malawi and University of Mzuzu. For that reason, many Malawians pursue tertiary studies through distance education institutions in other countries, particularly South Africa and the United Kingdom.

The fact that government was unable to provide secondary education opportunities to match the increase in demand resulted in a sharp increase in the number of private secondary schools. Many of these – though not all - are offering poor quality tuition.

Increased secondary school enrolments in turn led to an increase in demand for higher education, as more learners completed their secondary school education and wanted to pursue further studies, and as the country needed to train more teachers. To meet the demand, a teacher training college in the North was converted into university, and became known as the University of Mzuzu.

Over the next five years, education interventions in Malawi have the following aims:

- To open up more places in higher education;
- To provide more secondary school education opportunities;
- To train more teachers and re-train under qualified teachers;
- To put in place mechanisms to ensure the quality of private education;
- To increase the pass rate for MSCE and JC examinations.

- To improve the participation rate of girls in primary and secondary education.

Malawi has two dedicated distance education providers, one a private school and the other department of the Ministry of Education, Sports and Culture. New distance education initiatives are, however, in the making. The University of Malawi is exploring possibilities for offering distance education programmes and the Domasi College of Education plans to offer a Diploma in Education through distance education in 2000. MIITEP, an in-service programme run by the Teacher Development Unit to train untrained and under-qualified teachers, employs distance education methodologies for delivery of the programme. In addition, the newly established Mzuzu University is also planning to offer teacher education courses through distance education. International providers, such as the Rapid Results College, also operate in Malawi.

New education legislation is in the process of being drafted. The Communications Act 41 of 1998, which encompasses all regulations with regard to ICTs, was passed by Parliament at the end of 1998.

Malawi has one of the lowest rates of literacy in Africa. The school system is altogether inadequate to cope with the needs of a fast-growing population. The previous regime put the stress on a handful of schools for the children of the elite and otherwise on higher education generally, but neglected the educational needs of the population in general and basic schooling especially. An essential part of basic and intermediate school teaching was done by voluntary organizations with a Christian or Muslim background subsidized by the state.

Teaching institutions were generally of an inferior standard, with only 50% of children being admitted and many - girls especially - dropping out along the way; and the

quality of the teaching was very poor. Only 1.5% of an age group attended school at intermediate level (9th-12th grades). School fees and the expense of uniforms and materials largely kept the poor segments of the population away.

The new government changed this policy and made teaching and free basic schooling in particular, its first priority. All children were given free access to basic schooling (1st-8th grades), and the proportion of children undergoing basic schooling immediately rose to 83%.

During the financial year 1995/96, 22% of the state's current outlays will be spent in the educational sector, with over 70% going on basic schooling. This new policy, however, has created a string of new problems, first and foremost, with overcrowded classrooms and a dearth of teachers. ***In certain places, there are over 200 children to a class; only 20% have a chair and only 15% a desk.*** Teaching materials, too, are entirely inadequate. There is a huge need for new classrooms and for 22,000 new teachers. Increased capacity for teacher training is an equally pressing matter, therefore. In the space of a few years the few, large cohorts will be imposing further pressure on the intermediate school level.

Intermediate schooling is quite clearly aimed at higher education. The odd technical school does exist, but these aim solely to provide employment in the formal sector and provide no basis for instance people wishing to start as self-employed traders in the private sector. Furthermore, the technical schools are in no position whatsoever to offer girls a relevant educational opportunity.

Girls avail themselves of the school system to an even more limited extent than boys. Fewer start school, they drop out more quickly, and the skills they normally need

(e.g. nutrition, health and farming) are not incorporated in the syllabuses. Over half of the girls who begin school never get around to learning to read, and those completing all 8 years of basic schooling take an average of 16 years to do so (as against the boys` 13). The Government's decision to offer free basic schooling has reduced the difference in admissions somewhat. However, it is clear that a number of the social and cultural factors in place result in girls` education generally not being ascribed the same importance as boys`. The Government is aware of the problem and is prepared to make efforts to persuade girls to take more and better advantage of the education system. Amongst other efforts, attempts are being made to compile gender-specific teaching material.

In January 1996, the Government presented a Policy and Investment Framework for Education, in which it accounted for its priorities and goals for the sector. The three overriding objectives are to make education accessible to all, the content of teaching relevant to the needs of the population and the educational system effective.

In light of considerable needs, a number of donors have already donated support. The World Bank, AfDB, Great Britain, USA, and Germany grant considerable assistance, especially to basic schooling. Former Danish assistance to the sector was confined to individual experts and grants for technical training and school building.

Infrastructure

An essential proviso for the Government's success with its strategy to alleviate poverty is the establishment of a functional physical infrastructure, failing which it will be impossible to realize the growth targets set. Despite the fact that Malawi is a relatively small and densely populated country, its weakly developed infrastructure constitutes a serious hindrance to increased production and trade. In some instances there is a lack of

capacity, but the problem is often that existing infrastructure is poorly exploited owing to lack of upkeep and mismanagement.

Sizable transmission capacity is on stream but in certain areas the distribution network is poorly developed. In many areas, however - particularly in the countryside - there are vastly under exploited distribution lines, since users cannot afford to be connected.

Only 3% of the population in rural districts has access to electricity as opposed to over 5% in neighboring countries.

The telecommunications sector is regulated by the Malawi Communications Regulatory Authority (MCRA), under the Ministry of Information, Posts and Telecommunications. A Communications Bill has been processed by parliament and includes the establishment of clear criteria and a formal procedure for tendering and issuing communication licenses, as well as establishing a regulatory body to oversee them.

Malawi has one of the poorest telephone infrastructures in Africa - about 70,000 lines with unreliable links between cities. The availability of new lines is low, with a waiting time of 24 months, which is not uncommon.

Within telecommunications, there is sizable demand that remains unmet. Telephone density in Malawi is just 0.4 lines per 100 inhabitants, as compared with 0.8 in Kenya, 0.9 in Zambia and 8.9 in South Africa. The goal is to increase this density to 0.9 in the year 2000. The present telephone exchanges have a capacity of 66,000 lines, while only 34,500 telephone connections have been installed, distributed equally between private and business customers. Twenty-five thousand are registered on a waiting list,

while demand outside the major cities and for public telephones has not been computed. The anticipated demand for telephones in the year 2000 is 92,000 subscribers, rising to 148,000 in the year 2005. The Government is committed to reaching 72,000 lines by the year 2000, calling for an annual increase of 15% in the number of new lines.

A number of exchanges are so old that it is no longer possible to obtain spare parts, and others are poorly maintained owing to insufficient access to foreign currency. The representatives of industry as well as the NGOs that support the development of small companies have pointed out that poor communications render normal business transactions difficult. Even simple transactions such as "clearing" cheques take weeks despite the existence of systems that should make it possible to handle them in minutes. However, they cannot function because they require fast and reliable communications links. The types of equipment involved are many and varied, old as well as new, which makes great demands of spare-parts stocks and the technical qualifications of staff in repairing the various types of equipment. This has led to a deterioration in service, which is still under an acceptable level; by way of example, only just over 80% of lines installed actually work, the completion ratio for long-distance and international calls is under 50% and repair times are exceedingly long.

The rural population generally cannot afford a telephone, for which reason the Malawi Post and Telecommunications Corporation (MPTC) is planning to establish a public telephone in all villages of more than 2,000 inhabitants by the year 2000 as well as a public telephone for every 1,000 inhabitants in the suburbs of major cities and in all district centers of Malawi.

Full Internet services have been supplied since mid '97 by MalawiNet in the larger cities, but there are also a number of email providers - BUMAS, Integrated Computers and Epsilon Omega and Unima.

Educational Outlook

While the government is dedicated to increasing educational opportunities it does not have the infrastructure in place to make it happen. The need for basic education is great and the demand is high. All that needs to be found is an affordable solution.

South Africa

History

South Africa is the southernmost country of Africa, bordered on the north by Namibia, Botswana, Zimbabwe, Mozambique, and Swaziland; on the east and south by the Indian Ocean; and on the west by the Atlantic Ocean. Lesotho, now an independent nation, forms an enclave in the northeastern part of the country. On May 9, 1994, longtime anti-apartheid activist Nelson Mandela marked his election as president of South Africa with a speech from the balcony of Cape Town's city hall, overlooking the Cape of Good Hope. Originally named by Europeans, the Cape was the site of one of the earliest European colonies in sub-Saharan Africa. The small colony grew and prospered, and eventually became the continent's wealthiest country. This prosperity was possible primarily because South Africa's extraordinary racial oppression created a large pool of low-wage labor.

The earliest known human societies in southern Africa were groups of hunter-gatherers, often referred to today as the San. The first Europeans to come ashore in southern Africa were Portuguese explorers, looking for a sea route to Asia. Three years later, the Dutch East India Company sent Jan van Riebeeck and more than 100 others to establish a supply station. They arrived at Table Bay on April 6, 1652, and established what became known as Cape Town.

The settlement soon became the administrative center of an expanding Dutch colony. Its primary purpose was to provide services and provisions, such as wheat, vegetables, and livestock, for passing ships.

Peaceful relations between the settlers and the Khoikhoi did not last long. The settlers began encroaching on Khoikhoi-occupied land, and the company curbed its use of Khoikhoi intermediaries by trading directly with African groups in the interior. Open conflict between the Khoikhoi and the settlers first broke out in 1659, and again in 1673. The second conflict lasted four years and led to the death or imprisonment of thousands of Khoikhoi. Colonial records show that the settlers also confiscated more than 14,000 cattle and 32,000 sheep from the Khoikhoi between 1660 and 1675. By 1677 the Khoikhoi population had been reduced to several thousand. Slavery further reduced their number, and a smallpox epidemic in 1713 left the Khoikhoi virtually extinct.

A steady stream of European immigrants continued to swell the colony's population during the 18th century. The white population increased from about 2,000 people in 1717 to more than 10,000 by 1780. The area under white control expanded with the arrival of the new settlers—mostly Dutch, Germans, and French Huguenots fleeing religious persecution. Those who moved into and around the northern reaches of the colony became known as trekboers, due to their livelihoods as seminomadic farmers and ranchers. The name was later shorted to Boer, the Dutch word for “farmer”. The settlers were also known as Afrikaners, the Dutch word for “African”. Encouraged by the Dutch East India Company to settle new lands, they eventually pushed into territories occupied by Bantu ethnic groups such as the Xhosa. Competition for pasture and water in these territories led to increasingly hostile relations.

The 19th century brought three major developments to southern Africa. The first was the consolidation of the Zulu kingdom under Shaka. This period, known as the mfecane (Zulu for “crushing”), led to the complete destruction of some African ethnic

groups and spurred other groups to migrate as far north as what is now Zambia. The second major development in the 19th century was a sustained conflict between Afrikaners and Africans over control of parts of what are now the Eastern Cape, KwaZulu-Natal, and Free State provinces. The third major event was the discovery of gold and diamonds in the region. This development led white authorities to force Africans to labor in the mines and spurred the British to wrestle control of the colony from the Afrikaners.

In 1910, the British government created the Union of South Africa, a largely autonomous dominion of Britain. Under the 1910 constitution the four colonies - now reconstituted as provinces - surrendered their autonomy to a new national government, but the British granted the national government broad discretion over internal matters. The new government moved quickly to mend differences between English-speakers and Afrikaners, primarily by guaranteeing white privilege and domination of blacks. The government provided generous loans and capital to Afrikaner farmers and British miners and granted white women the right to vote. It made both Afrikaans and English the country's official languages and allowed for the formation of the Afrikaner-dominated National Party. Blacks were excluded from voting in three of the four provinces and granted only limited franchise in the Cape. But as the province's mineral wealth fueled an industrial revolution, the government experienced increasing difficulty addressing demands for African labor for farms owned by Afrikaners while ensuring necessary labor for mines and other businesses owned by English-speakers.

In 1948 the election of the Afrikaner-led National Party heralded a much more extreme policy, known as apartheid. Under apartheid the government recognized three

distinct racial groups: white, Bantu or black African, and colored. Asians were later recognized as a distinct racial group as well. Apartheid sought to control and divide South African society through an elaborate set of race-based laws. These laws restricted not only where people could live or work but also with whom they could marry—or even associate.

In 1994, Nelson Mandela, newly released from prison as a political prisoner, led the African National Congress to an overwhelming victory in the elections and apartheid was ended. The results of the 1994 elections did not complete the transition to democratic rule in South Africa. For the next two years negotiators representing all the members of the Government of National Unity worked to craft a new, permanent constitution.

Race relations in the new South Africa remain complicated. Although the school system is officially unified and open to all, white families have boycotted some recently integrated schools, claiming that educational standards have declined since integration. Black and white families have faced harassment and even violence from some of the boycotters. Despite their still-dominant role in corporate culture, some whites have opposed affirmative-action laws and have labeled the hiring of black government officials as “cronyism” or even “reverse apartheid”.

The demise of apartheid did not end all of South Africa’s social problems. By the late 1990s, South Africa's high crime rate had become a major political issue, although the government claimed that some types of crime had become less common since the 1994 elections. Concerns of whites about violent crime led to a dramatic rise in white emigration from South Africa in the first few years after the 1994 elections, but poor and

predominantly black urban neighborhoods remain some of the hardest hit areas. White farmers report that they face a rising trend in attacks and robberies in remote areas.

Along with crime, the new government has had to grapple with a somewhat unstable and sluggish economy. Although the end of minority rule improved South Africa's economic performance, growth remains less than many had hoped. In 1998, the value of the South African currency (the rand) fell to a record low, raising fears of a long-term economic crisis.

Despite its problems, South Africa's economy remains the largest in sub-Saharan Africa. This relative prosperity has allowed the government to improve living conditions for many of its citizens. Although the country still faces an acute housing shortage, the government has been able to provide millions of homes with water and electrical service. In 1997 alone, it appropriated \$500 million for new housing loans. In addition, there are hopes that South African industry and capital will help drive economic growth across the continent, or at least within the Southern African Development Community (SADC), a regional economic bloc. By the late 1990s, South African firms were investing in West and Central African mining operations, as well as in hotels and other tourist facilities across eastern and southern Africa.

Demographic Characteristics

Country	South Africa
Literacy Rate	81.8%
Population (Millions)	43.4
Unemployment	30.0%
Inflation Rate	9.0%
GDP (Billions)	\$ 290.6
% Below Poverty	n/a
Life Expectancy	54.8
Agriculture	5%
Industry	39%
Services	56%
Telephones	4,200,000
% of phone service	9.6774%

South Africa is a middle-income, developing country with an abundant supply of resources, well-developed financial, legal, communications, energy, and transport sectors, a stock exchange that ranks among the 10 largest in the world, and a modern infrastructure supporting an efficient distribution of goods to major urban centers throughout the region. However, growth has not been strong enough to cut into the 30% unemployment, and daunting economic problems remain from the apartheid era, especially the problems of poverty and lack of economic empowerment among the disadvantaged groups. Other problems are crime and corruption.

The new government demonstrated its commitment to open markets, privatization, and a favorable investment climate with the release of its macroeconomic strategy in June 1996. Called "Growth, Employment and Redistribution", this policy framework includes the introduction of tax incentives to stimulate new investment in labor-intensive projects, expansion of basic infrastructure services, the restructuring and partial privatization of state assets, continued reduction of tariffs, subsidies to promote economic efficiency, improved services to the disadvantaged, and integration into the

global economy. Serious structural rigidities remain, including a complicated and relatively protectionist trade regime, and concentration of wealth and economic control.

- GDP: purchasing power parity - 290.6 billion (1998 est.)
- GDP: real growth rate: 0.3% (1998 est.)
- GDP - per capita: purchasing power parity- \$6,800 (1998 est.)
- GDP - composition by sector:
 - agriculture: 5%
 - industry: 39%
 - services: 56% (1996 est.)

Agriculture consists mostly of corn, wheat, sugarcane, fruits, vegetables; beef, poultry, mutton, wool, and dairy products. Exports: \$28.7 billion (f.o.b., 1998) Export included: gold 20%, other minerals and metals 20%-25%, food 5%, chemicals 3% (1997) with partner UK, Italy, Japan, US, Germany (1997). Imports totaled \$27.2 billion to include machinery, transport equipment, chemicals, petroleum products, textiles, scientific instruments from Germany, US, UK and Japan.

There are 11 official languages, including Afrikaans, English, Ndebele, Pedi, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, and Zulu. The main religions are: Christian 68% (includes most whites and Coloreds, about 60% of blacks and about 40% of Indians), Muslim 2%, Hindu 1.5% (60% of Indians), and traditional/animistic 28.5%.

Status of Education

(A letter received from Jennifer Jenkins, Math teacher in Durban, South Africa 17 Mar 2000)

"We have a new Minister of Education in South Africa who is doing his level best to get our education system jacked up. He is very keen on using computers in education wherever possible. While we do have pockets of

excellence in the main cities at the established schools, the rural schools suffer from a lack of facilities.

Some rural schools have no electricity and some even have no running water. This means the children who are on duty for that day to fetch water from the river spend valuable learning time. Also, some of these schools have too few classrooms and so lessons are held under the trees.

We have some very expensive private schools in S.A., which are of a very high standard & equal to the best in the world. Our government schools are extremely crowded and class sizes are rather large. An average of 35 for High School and 45 Primary Schools. I'm at Durban Girls High and we have 1360 girls. We are in the fortunate position of having 45 computers, which are networked and used for computyping, but only one of these is connected to the Internet at present. The aim is to somehow use the Internet for teaching purposes but this is not yet underway. The computer teacher is working on it.

I think that there is a need for more education through the Internet as more pupils will want to do home schooling as discipline and overcrowding in government schools becomes more of a problem. We do have adequate infrastructure such as ISPs. Let me know if there is any more information that you need. Regards, Jennifer

Infrastructure

The telephone system in South Africa is the best developed, most modern, and has the highest capacity in Africa. It consists of carrier-equipped open-wire lines, coaxial cables, microwave radio relay links, fiber-optic cable, and radio-telephone communication stations. Key centers are Bloemfontein, Cape Town, Durban, Johannesburg, Port Elizabeth, and Pretoria. There is 1 international submarine cable; satellite earth station (3 Intelsat - 1 Indian Ocean and 2 Atlantic Ocean), radio broadcast stations, (AM 15, FM 164), short-wave 1, radios: 7.5 million, television broadcast stations, 556 (includes 156 network stations and 400 privately-owned low-power stations; in addition, there are 144 network repeaters). There are reportedly 7.5 million televisions.

Full Internet facilities are available throughout the country with about 150 Internet service providers around the country. They are with upstream bandwidth by the

PTO (Telkom SA) as well as a number of multinationals and locally owned companies with their own independently leased (from Telkom) upstream connections to the US and UK totaling over 60Mbps of international bandwidth. South Africa developed a vibrant Internet user community 10 years ago within the academic community, who were the only ones with local access to full Internet. This, combined with the opportunities for international outreach presented by the Internet following the end of the boycott era has helped bring the country into the top 20 nations worldwide for the number of Internet hosts. The number of Internet users in the country is currently estimated at between 700 000 and 800 000 and the market at about 400 million/a year.

South Africa has a first-world telecom network in the commercial centers but this contrasts with very low penetration of services in rural and remote areas, especially in the previously 'independent homelands'. The two cellular providers have about 2 million subscribers between them. The massive development goals of ANC government include a number of objectives to improve access to communications in the country. Both Telkom and the cellular service providers have extensive obligations to provide access to previously disadvantaged areas.

Educational Outlook

Even though South Africa is considered the richest nation in Africa with the most highly developed technological infrastructure, it still lags far behind the 1st World Countries. Rural areas are in desperate need of quality education with well trained staff. Programs that would assist in building an infrastructure and making use of natural resources, are currently being sought out by the government. Skilled laborers in service

industries are also desperately needed. Educational programs in all areas are in constant demand.

Sudan

History

The first inhabitants on the territory of Sudan were Hamites, ancestors of the present day Azande, Shilluk and Dinka tribes. In 641 AD, the Arabs took over from the Byzantines and ruled for five centuries. In 1276, Nubia (present-day northern Sudan) was conquered by Bahri Mameluk from Egypt. By the 17th century, the caravan trade across the Sahara had created wealthy Fung and Fur sultanates of central and western Sudan. Arab nomads had spread the Arabic language through intermarriage and migration.

Britain administered the Sudan from the 19th century. By the 1920s an economy based on gum-arabic and cotton export had been created. On the political front, nationalism rose. After WW II the independence movement became more organized and in 1956 Sudan officially became an independent state.

Problems began for the new republic almost immediately, in the shape of conflict between north and south. Carefully isolated from one another under British rule, the vast cultural differences between these two regions now escalated rapidly, and civil war was imminent.

A military coup, led by General Ibrahim Abboud, overthrew the government in 1958. Parliament was dismissed and martial law was declared, with Abboud as self-proclaimed Prime Minister.

Another coup in 1969, led this time by Colonel Jafaar Mohammed al-Nimeiry, set up government under a revolutionary council. Nimeiry became the Sudan's first elected President in 1972, and signed the Addis Ababa agreement, in an attempt to end strife between north and south. Uneasy peace was maintained for almost a decade and in

1983, Nimeiry was re-elected for a third term of office. His policies for economic recovery were ineffective, however, and unrest grew once more, resulting in Nimeiry's deposition in a bloodless coup in April 1985.

A year of military rule followed, before the rise of a new Mahdi. This was Sadiq al-Mahdi, the great-grandson of Mohammed Ahmad, but, despite many lofty promises of democracy, the new government proved weak and al-Mahdi was deposed in 1989.

His replacement was Lt. General Omar Hassan Ahmed al-Bashir, and Sudan was ruled by a 15-member Revolutionary Council. Throughout the 1990s, conditions have deteriorated in the Sudan. Non-Muslim rebels in the south, known as the Sudanese People's Liberation Movement (SPLM) are led by John Garang, a member of the southern Dinka tribe. The war between government and rebels continues, and many of the Sudanese people are displaced refugees, while many others are faced with economic ruin and the threat of starvation.

Demographic Characteristics

Country	Sudan
Literacy Rate	46.1%
Population (Millions)	34.5
Unemployment	30.0%
Inflation Rate	27.0%
GDP (Billions)	\$ 31.2
% Below Poverty	n/a
Life Expectancy	56.4
Agriculture	33%
Industry	17%
Services	50%
Telephones	77,215
% of phone service	0.2238%

According to the 1983 census, the population of Sudan was 20,564,364. The population is mostly Arab in the northern areas, and black Africans in the south. Many

additional tribal groups, including the Beja, Jamala and Nubian people are located in the north, and the Azande, Dinka, Nuer and Shilluk people in the south.

Agriculture accounts for 35% of GDP and 80% of the labor force. There are drastic water shortages and two-thirds of land area is suitable for raising crops and livestock. Major products are; cotton, oilseeds, sorghum, millet, wheat, gum Arabic, sheep and Sudan is marginally self-sufficient in most foods.

Sudan's economy is mostly agricultural and pastoral, with about 65% of its population making its living through crop growing or animal grazing. Lack of irrigation schemes and poor general infrastructure, however, mean that the full potential of the land is not being exploited. Indeed, only about 5% of the Sudan's land area is used for farming.

Principal food crops consist. of millet, sorghum, rice, cassava, wheat, peanuts, beans and bananas. The main export crops are sorghum and cotton. The latter is produced in the Gezira (al-Jazirah) region, between the Blue and the White Nile. In the south, agricultural activity is mainly pastoral, with the main domestic livestock being cattle. Sheep, goats, camels, and chickens are also reared.

There is some fishing along rivers and coastline. Forestry activities include the production of gum Arabic, (an ingredient in sweets, perfumes and processed food) beeswax, tannin, senna, and timber, principally mahogany.

The Sudan is a potentially wealthy country, with rich reserves of oil and minerals. However, these reserves are barely exploited, with industry contributing as little as 4% to the total national economy. Oil and natural gas reserves have been discovered in western areas, but, as yet, only small amounts have been mined and refined. Other minerals to be

found in the Sudan are mica, marble, chromite, gypsum, iron ore, uranium, manganese, zinc and copper. Gold has also been found in the Red Sea Hills but, again, little of these riches are mined or processed.

Some manufacturing industries exist, but these are in a very early stage of development. These mostly consist of the processing of agricultural products, but there is also some industry associated with textiles, paper, footwear, and cigarettes. Sugar and petroleum refineries have also been established.

Unsurprisingly, the tourist industry is almost non-existent. The crippling cost of the continuing war has resulted in poor economic conditions, and the dangers inherent in traveling in certain areas mean that the Sudan is a far from popular place to visit. The latest UN figures record that only 52,000 visitors entered the country in 1987. Today's figures would probably be lower even than this.

The official language is Arabic, with English widely spoken and understood. Many other African languages also spoken.

The main religion is Sunni Muslims, 73%, mostly in the north. Islamic culture is very strong in the northern two-thirds of the country. In the south, 17% follow tribal religions; the remainder are Christian, mostly Roman Catholic.

Eighty percent of the population are Muslims and only 5% are Christians. Fifteen percents are Animists

Status of Education

The educational history in Sudan dates back to the early eras as proved by archaeological evidence. The educational ladder was changed in Sudan in 1991 from a (6+3+3) to (2+8+3) to include two-year pre-school stage, 8-year basic stage and three

years secondary school stage. Following a political decree by the Higher Authority of Arabicization, Arabic language was instituted and made the official language of teaching and scientific curriculum at the governmental Higher Education Institutions.

According to government statistics, only 46.1% of the population over the age of 15 can read and write. Fifty-seven percent of these are male, and only 34.6% are female.

Students who attend universities in the United States report that schools in Sudan are barely adequate and the teaching staff is under trained. Programs at the college level are inadequate and the quality of content, especially in teacher training and scientific fields, needs huge improvements.

Schools in the rural areas suffer the same problems as other African schools; lack of textbooks, resources and funding. Few children receive the opportunity for a secondary education, and even fewer go on to college. Distance learning is currently not in place in Sudan but desperately needed.

(Letter to a 9th grader from an English teacher in Sudan concerning a request about the status of education.)

Hi David:

I guess I must be late answering your questions but I just read your e-mail now. I have lived and worked in Sudan for 13 years. First the requirements to be a teacher in Sudan, you need to have a teaching degree in the subject you will teach.

For public schools, the student/teacher ratio is very unbalanced (there could be a class of 75-100 students and only 6 teachers)!!! But in private schools it is a lot lower.

When talking about extra curricular activities, we have to specify whether we are talking about a private or a public school. In public schools, there are basically none!!!! And sometimes sports classes are considered extra curricular activities. You might occasionally have drama classes in a school or two.

About dress code, Sudan now has an Islamic government that is imposing an Islamic dress code on students: There is of course uniform for boys (military

print),and the girls have to have their hair all covered in a veil. Teen life is not as here in the states, they do not have as much recreation because they live in a society that puts rules governing their behavior. But they play sports like soccer and basketball in schools, volleyball too. Basically these are the only sports played. But girls are less fortunate because their behavior is even more restricted. Education is mostly public, there were only two private schools, one American and one British (in which I was working).These of course offer better education to students(those who can afford it)because it is very expensive there. In the British school where I worked, there were extra curricular activities like sports, Drama, chess clubs etc. The subjects taught are like history Geography, English, Maths, Physics, chemistry, Arabic religion etc. In private schools, the arabic/religion classes are not as intensive as they are in public ones.

Public schools, apply disciplinary rules that involve hitting so it is legal for a teacher to hit a student with a cane, sometimes lashing on the feet is also practiced (only for boys)!!! But in private schools, teachers have no right to hit their students in any way. The only disciplinary rules they follow are detentions, suspensions and giving cautions that will be written in the students reports.

I hope I have given you all the information you needed, I will be glad to help you with any more questions you may have.

HOWAYDA

Infrastructure

Sudan has a large, well-equipped system by African standards, but barely adequate and poorly maintained by modern standards. It consists of microwave radio relay, cable, radio communications, troposcatter, and a domestic satellite system with 14 stations; broadcast stations - 11 AM, 3 TV; satellite earth stations for international traffic - 1 Atlantic Ocean INTELSAT and 1 ARABSAT.

Although there is an open market in Internet service provision, there is only one ISP - Sudanet. It is planning to open Internet cafes in Khartoum.

The country's telecommunications services suffered major setbacks in the last two decades due to lack of maintenance by the government-owned monopoly. In 1994, the

government formed a partnership with the private sector, establishing Sudatel to handle Sudan's telecommunications.

Educational Outlook

Because of the lack of infrastructure the possibilities of using traditional distance learning seems dim. Programs in basic education and vocational education are desperately needed as well as teacher training programs.

Zimbabwe

History

The Karanga people ruled a great inland African empire from about AD1000 to AD1600. The Karanga were great traders smelted gold and traded it on the shores of the Indian Ocean for glass beads and porcelain from China. European explorers discovered vast stone ruins of the Karanga in 1867. The site was called Zimbabwe, which means “stone dwelling” in the native Bantu language. The Europeans were unwilling to believe that sub-Saharan Africans could have built Zimbabwe; they theorized that ancient Phoenicians, Arabs, Romans, or Hebrews created the structures. Excavations in 1932 proved that the indigenous Africans created the ruins, but the white colonial government of Rhodesia attempted to deny the site’s African genesis. The leaders of Rhodesia said the land was empty of people and culture before they arrived. When the government allowed people of all races to vote in 1980, the black majority of the nation discarded the name of Rhodesia and, looking to the past for nobler origins, chose the name Zimbabwe.

Zimbabwe is one of the countries that is under presented on the WWW. For the period until 600 C.E. it’s difficult to locate much information. There is more information about Great Zimbabwe which was established at around 1300 C.E. The first civilization known in that area was that of the Khoisan people. They settled the area around 200 B.C.E., followed by settlement of Bantu-speaking people around Mwenemutapa. Beginning around 900 C.E., Shona people ruled the area.

Archaeologists trace human occupation of Zimbabwe back 100,000 years The country is rich in Stone Age remains, notably impressive rock paintings. The Iron Age

began around the 2nd century C.E., evidently introduced by forebears of the Shona, who were - and are - primarily agriculturalists.

Evidence of the lands earliest settlers, the Khoisan, date back prior to 200 BC. A period of Bantu domination followed, succeeded by a period of Shona rule. The southward movement of the Bantu towards the southern tip of Africa, and the subsequent northward movement of tribes of Bantu descent saw the advent of the Nguni and Zulu peoples in the south-east of the country. By the mid-nineteenth century the descendants of the Nguni and Zulu, the Ndebele, had established a powerful kingdom in the area now known as Matabeleland.

The first British explorers, colonists, and missionaries arrived in the 1850s, starting a massive influx resulting in the territory being named Rhodesia in 1895. As part of the British Empire, the country was a member of the Commonwealth until 1965, when the Rhodesia Government severed ties with Britain by proclaiming a Unilateral Declaration of Independence. Zimbabwe rejoined the Commonwealth on attainment of independence in 1980.

By the late 1960s, there was growing agitation for universal franchise to bring about a more equitable form of government encompassing all racial groups. The Rhodesian Government resisted this, and a war of liberation lasting sixteen years ensued. Though international intervention and support for the liberation struggle, culminating in a negotiated settlement at Lancaster House in 1979, the desired objective of a properly constituted democratic voting system and government was achieved. A universally recognized independent Zimbabwe was thus born on 18 April 1980.

The period of economic sanctions imposed upon the country between 1965 and 1980, and the subsequent recovery period have greatly contributed towards the Zimbabwean spirit of resourcefulness in times of economic hardship, particularly in the industrial, mining and agricultural sectors. The post-war spirit of reconciliation between all racial groups is evident in what has become a diverse yet stable society.

Demographic Characteristics

Country	Zimbabwe
Literacy Rate	85.0%
Population (Millions)	11.2
Unemployment	45.0%
Inflation Rate	32.0%
GDP (Billions)	\$ 26.2
% Below Poverty	25.5%
Life Expectancy	38.9
Agriculture	28%
Industry	32%
Services	40%
Telephones	301,000
% of phone service	2.6875%

Zimbabwe's population was estimated at 11,163,160 in July of 1993 with a life expectancy (at birth) of 38.86 years. African ethnic groups make up 98% of the population (Shona 71%, Ndebele 16%, other 11%), white 1%, mixed and Asian 1%.

Approximately 50% of the population live in rural areas with 21% living in the commercial farming areas and the remainder living in the urban areas. Approximately 50% of the population is under the age of 15. There is a definite trend towards urbanization, and between 1982 and 1988 this element of the population grew by six percent.

English is the commercial and legislative language of the country. The other two languages are Shona and Ndebele.

The government of Zimbabwe faces a wide variety of difficult economic problems as it struggles to consolidate earlier progress in developing a market-oriented economy. Its involvement in the war in the Democratic Republic of the Congo, for example, has already drained hundreds of millions of dollars from the economy. Badly needed support from the IMF suffers delays in part because of the country's failure to meet budgetary goals. Inflation rose from an annual rate of 25% in January 1998 to 47% in December and will almost certainly continue to increase in 1999. The economy is being steadily weakened by AIDS. Zimbabwe has one of the highest rates of infection in the world. Per capita GDP, which is twice the average of the poorer sub-Saharan nations, will increase little, if any, in the near-term. Zimbabwe will suffer continued frustrations in developing its agricultural and mineral resources.

Industries in Zimbabwe include: mining (coal, clay, numerous metallic and nonmetallic ores), copper, steel, nickel, tin, wood products, cement, chemicals, fertilizer, clothing and footwear, foodstuffs, beverages.

Zimbabwe has several natural resources including: coal, chromium ore, asbestos, gold, nickel, copper, iron ore, vanadium, lithium, tin, and platinum group metals.

The country boasts of a reliable agricultural sector and is one of the few self-sufficient countries on the continent in foodstuffs. The agricultural sector is the backbone of the economy and has close linkages with other sectors. It is the largest employer and about 70% of the population is directly or indirectly dependent on it for income. The sector comprises of a relatively advanced commercial sector and a small-scale communal sector. Approximately two-thirds of the country is suitable for agriculture.

There is a high degree of diversification, with the cultivation of maize, soya bean, cotton, wheat, groundnuts, sorghum, sunflower seed, cottonseed, coffee, millet and the production of high-grade beef and dairy products as main produce. Agricultural incentives exist in the form of pricing policy and extension services particularly to communal farmers. The sector on average contributes about 30-40% to total export earnings.

Tobacco is one of the country's big three (with gold and ferrochrome) foreign exchange earners. Harare has the biggest tobacco auction floors in the world. Tobacco farmers produced a record 200 million kilograms in 1992, earning over Z\$1.6 billion in foreign exchange. Beef exports average 12,100 tonnes annually. Zimbabwe's cotton lint ranks among the best in the world. The fastest growing sub-sector in agriculture is horticulture which has grown from 1,200 tonnes of vegetables valued at Z\$1.5 million exported in 1980 to well over Z\$200 million exported in 1991/92. Zimbabwean flowers are among the best in the world and during the 1992/93 marketing year accounted for 58% of the sub-sectors's total export earnings of Z\$270 million.

The manufacturing sector contributes about 25% of Gross Domestic Product (1992). Its share of GDP is three times the average for Sub-Saharan Africa, and is equal to the weighted average of low income economies of the world. After South Africa, Zimbabwe is the second most developed manufacturing sector in the region. In 1992 its value added was US\$1 508 million as compared to US\$227 million in Malawi, US\$1 180 million in Zambia, US\$128 million in Botswana and US\$23 197 million in South Africa.

The mining sector is a major foreign exchange earner with 90% of its output being exported. For every Z\$5 mining uses to import, it generates an average of about Z\$100 in foreign exchange.

While Zimbabwe produces a wide variety of products, gold is the country's major mineral and foreign currency earner. Gold mines are widely scattered throughout the country. The current production levels are about 15 tonnes per annum. At present Zimbabwe is one of the ten largest producers of gold in the world. Gold is sold through the Reserve Bank of Zimbabwe while all other minerals, are marketed through the state owned Minerals Marketing Corporation of Zimbabwe.

The total value of mineral production is estimated at about US\$500.5 billion excluding the value of beneficiated products such as ferrochrome, pig iron, steel, cement, ceramics, and coke. The sector employs about 600 000 people which is equivalent to 5% of the registered national labor force. Other principal minerals are asbestos, nickel, copper, coal, and chrome.

Zimbabwe's major trade partners include the United Kingdom, Germany, South Africa and the United States.

The official language is English while Shona, Sindebele (the language of the Ndebele, sometimes called Ndebele), and numerous but minor tribal dialects are spoken. The main religion is syncretic (part Christian, part indigenous beliefs) 50%, Christian 25%, indigenous beliefs 24%, Muslim and other sects. 1% Christianity is the main religion, but local traditional ethnic beliefs do persist on a limited scale. Spirit mediums are often consulted as they are believed to have direct contact with ancestors.

Status of Education

The adult literacy rate among males is 90%, the highest in Africa, and among females, 80%.

After independence the new Government launched an impressive programme with a view to making primary education universal, integrated and compulsory. School attendance figures rose from 1979 to 1987; in primary schools from 820,000 to 2,264 000, and in secondary schools from 60,000 to 600,000.

The University of Zimbabwe in Harare has steadily increased its enrollment to nearly 10,000 students per annum. An intensive adult literacy programme operates both in the urban and rural areas.

Distance and open learning has been going on for quite some time in Zimbabwe and that new distance education institutions continue to be established. Despite this, it was somewhat, disappointing to notice that there has not been an umbrella organization that could lead the way for distance education and its providers in that country, by way of research and bringing together DE providers for purposes of sharing ideas.

All the institutions use both distance and face to face delivery modes but the degree to which they use the latter differs significantly from one institution to another. All the institutions that were visited still rely very much on printed media. The only advanced technology used in some of the institutions, particularly those supported by the government is radio.

On the other hand, private colleges, whose purposes include not only educating people but making money as well, neither use radio nor any of the advanced technologies except for telephone which is mainly used for administrative purposes.

Reasons for the limited use of sophisticated technologies such as television, audio-visual cassettes, video conferencing, computers etc, are cited as lack of adequate financial resources which is exacerbated by the poor exchange rate of Z\$ to currencies such as US\$ and SA Rands. As a result, such technologies are extremely expensive and therefore difficult to purchase. The other problem is that even if the institutions could try to purchase such technologies, most students particularly those in rural areas would not have access to such facilities. Never-the-less, most institutions particularly the indicated strong willingness to use all these technologies and some of them, particularly the university, already have good plans in place for the use of technologies for teaching and learning purposes which they hope to implement in the near future.

Based on the annual reports of the Ministry of Education, Sport and Culture's Non-Formal Education Section, there seems to be enough evidence of government involvement in and support of distance and non-formal education. Apparently, various ministries have at one point or another used distance education to train their staff and the Ministry of Education, Sport and Culture has itself established a number of non-formal education Programmes including the Correspondence School, Study Groups, Vocational School Courses. Despite all these, it is said that the government does not have a clear National Policy on distance education.

Infrastructure

There are an estimated 301,000 telephones (1990 est.) and the system was once one of the best in Africa but now suffers from poor maintenance. The domestic system consists of microwave radio relay links, open-wire lines, and radiotelephone communication stations including: international: satellite earth station—1 Intelsat

(Atlantic Ocean), Radio broadcast stations: AM 8, FM 18, short-wave, radios: 890,000 (1992 est.), television broadcast stations: 16 (1997), televisions: 280,000 (1992 est.),

Two years ago the PTO, ZPTC, contracted Global-One to establish a large-scale national and international Internet backbone with a 256kbps link to the US and POPs in the four major cities. The service is operated as a wholesale facility for resale by the private ISPs. Accounts on the system are sold in blocks of 20 to each ISP, which then resell them to the end user. Since the start of the service, the link was upgraded to 1Mbps and a further upgrade to 2Mbps took place in mid '98 with the addition of a 1MB link to Teleglobe in Canada.

Two companies have established web services and are waiting for their leased lines from the PTO to provide dialup services - Zambezi Net and Zimbabwe Online.

A total of 11 other companies have registered to become public service providers - Bridgenet, Citel (in Gweru), CST Internet, Flight Supporting Services, Government Telecom Agency (which will provide services to government departments), Information Media Investments, Isis Internet Services, Layout Zimbabwe (Kwekwe), Omnitechnologies, Top Flight Computers, and World Networking.

Recap of Case Studies

Country	<u>Official Language/ Secondary Language</u>	<u>Economic Base</u>	<u>Educational Needs</u>	<u>Government Position</u>	<u>Educational Impediments</u>
Algeria	Arabic/French	Agricultural/Oil	Basic Education	Supportive	85% Arab/Muslim State Controlled Schools, Private Schools are outlawed.
Burkina Faso	French	Agricultural	Basic Education	Supportive	Infrastructure
Central African Republic	French/Sango/Swahili/Arabic	Farming/Mining/Oil	Basic Education	Supportive	Nomadic tribes
Kenya	English/Kiswahili	Agriculture/Oil/Manufacturing	Basic Ed/Vocational and Skilled Labor	Supportive	Infrastructure
Malawi	English/Chichewa	Farming/Manufacturing	Basic Ed/Vocational and Skilled Labor	Extremely Supportive	Lack of space in schools, poor infrastructure
South Africa	Afrikaans/English	Mining/Services	Basic Ed/Vocational and Skilled Labor	Supportive	Crime, corruption, racial social unrest
Sudan	Arabic/English	Agriculture/Mining	Basic Ed/Vocational and Skilled Labor	Supportive	Continuing political conflict, poor infrastructure destroyed by conflict
Zimbabwe	English/Shona/Ndebele	Agriculture/Mining	Basic Education	Supportive	Highest AIDS rate, 50% of population under the age of 15, 50% of pop in rural areas.

The Solution

Questions Posed

Although seemingly out of order, the final questions become:

1. "What are the basic elements of E-Education needed in order to be successful in LDCs to increase the literacy rates, reduce the level of unemployment, increase the standard of living, and thus increase life expectancy and quality of life, no matter what format they are delivered in?"
2. "Where can the basic elements of E-Education, along with the necessary infrastructure be found?"
3. "How do we deliver basic education to the people who need it the most?"
4. "How can we ensure greater success when other programs have failed?"

Let's answer them in the above order:

#1 "What are the Basic Elements of E-Education?"

The basic elements of E-Education, which are necessary to promote basic education, vocational and industrial programs to improve the quality of life in Africa are:

1. an accredited K-12 curriculum that includes basic education and literacy (social, reading, and numeracy).
2. an accredited and quality vocational education curriculum that meets the needs of the country.
3. a Technology Proficiency Program .
4. a teacher training program to ensure continued access and dissemination of education without local constraints.

Only a combination of all four elements offers success in all areas and allows individuals, and nations, the ability to maintain and access further education through technical competence.

#2 "Where can the basic elements of E-Education, along with the necessary infrastructure be found?"

The basic elements of E-Education can be gotten through one educational company, *Intelligent Education, Inc, (IEI)* of Atlanta, Georgia. This company's focus is to offer an accredited quality K-12 and vocational educational curriculum in electronic and Internet format which fully incorporates technology and teaching strategies which deal with all types of learners (visual, auditory and kinesthetic), learning disabilities, and learning situations.

Although currently focused towards students in the United States, basic courses in math, sciences, language arts and world history and literature are already available, as well as basic vocational/career/technology programs. More courses and programs are being added on a daily basis by their experienced staff and an infrastructure to support hundreds of thousands of students and teachers is in place. Courses can easily be translated to the prominent languages of each country and be made available within a very short period of time.

Teacher training programs designed to deliver the curriculum (in several different formats), adapt teaching strategies to different learners and educational situations, and to maintain the level of technology can be instituted in each location. Once local teachers are trained in the necessary methods, programs can be maintained with less cost and effort and can reflect local policy and needs.

#3 "How do we deliver basic education to the people who need it the most?"

Once the necessary quality curriculum is obtained, the next problem becomes one of delivery. Most people would think that the technological challenges would be insurmountable and that the costs involved would be too enormous to be practical. In reality, the solution to the problem is already available and simply needs to be adapted to the area and country where it is to be employed.

Several years ago it was recognized that children in Cuban, New Mexico (United States) were spending 5 1/2 hours each day on the school bus, riding back and forth to schools from rural areas. Researchers from JDL Technologies, Minneapolis, Minnesota (United States) researched the problem and developed a solution which can be applied to any area of Africa, or for that matter, in the world. Imagine the following:

A school bus (or van) which is 'ruggedized' to traverse the local roads, equipped with the following:

- Comfortable seats for school children (Airlines who refurbish planes will readily donate used seats.)
- Laptop computers (donated by companies such as Apple, IBM, and Microsoft).
- An altered generator which will maintain electricity for the laptops computers, or rechargeable batteries. (A laptop battery has already been developed which will last for 8 hours and will completely recharge overnight.)
- Gasoline to maintain the alternator and engine (or generator).
- An email server (for sending homework assignments in and online assessment capability).

- A proxy caching server which can 'cache' 400-500 educational sites such as National Geographic, Britannica, PBS, Discovery and act as a 'library'. It can be used to cache textbooks in electronic format and can be updated on a regular basis when the school bus (or van) is brought into town or through the use of a:
- Portable satellite disk which can be used to download and upload current material, send email and keep in contact with technical support personnel and teaching support staff.
- A teacher's computer.
- A pull-down projection screen
- Air-conditioning (for those countries and areas which need it).

This "Mobile E-School" could be adapted to any terrain, culture, language, and vocational need. Many of the problems inherent in African schools such as lack of schoolroom space, technology, textbooks, libraries, world maps, and reference materials would all be made available through Internet links, online libraries and CD ROM curriculum. The issues of inadequate infrastructure, buildings, electricity and running water are all irrelevant and can be bypassed the use of available technology. Instead, skills needed to solve those insufficiencies can be built within 5 years and Mobile E-Schools can be integrated into local schools as they are improved and brought into the realm of modern technology.

IEI's curriculum already includes lesson plans for every course, current and regularly updated curriculum links and the most up-to-date technology resources available. Teachers would have all the resources necessary to teach, as well as online

assessment tools, eliminating the time-consuming task of correcting papers, quizzes and tests, thus giving them more time to teach and tutor students in areas of need. At the same time, students would be learning the necessary technological skills to keep pace with the rest of the world and to acquire new skills when they become available.

#4 "How can we ensure greater success when other programs have failed?"

In the past five years several programs of UNESCO, the World Bank and IMF have seen success in individual areas, although for the most part, most of the programs have been a disappointment. One of the programs which has been successful is the *Gobi Women's Project*, aimed at increasing the literacy rate of women.

Life in the Green Desert: (UNESCO) states:

Education to 15,000 nomadic women: The Gobi Women's Project, launched in February 1996 with UNESCO's technical assistance and about US\$1.7 million furnished by the Danish aid agency DANIDA, provides non-formal distance education to some 15,000 nomadic women. The aim is to provide useful instruction on health, commercial skills, family planning, traditional crafts and environmental issues.

About 80% of the women have had at least four years of primary schooling and under communism the literacy rate reached 95% in the Russian Cyrillic script (schools are now re-introducing Ourgen, the Mongolian alphabet). The project relies on a series of weekly radio programs and booklets, covering everything from stitching a camel saddle to basic math.

The *World Declaration on Education For All 1990* was adopted by the ***World Conference on Education for All*** in 1990. It represents a renewed international Commitment to ensure that the basic learning needs of all children, youth and adults are met effectively in all countries. When the Executive Secretary of the Forum was asked specific questions regarding the expirations of the mandate "Education for All" in the year 2000, he responded:

Are unpredictable events the reason for the lack of progress in sub-Saharan Africa, for example, where education is still a luxury reserved for the few?

"There are several reasons for the situation in Africa. The structural adjustment programs have had a rather negative impact. But we cannot blame it all on this. The lack of progress is partly due to the specific socio-economic problems in the region and partly to the serious lack of co-ordination between governments, donors, non-governmental organizations and others working in education. There are many overlapping projects pulling in different directions.

Today, however, the development of sector analysis in some countries provides a platform for co-ordination. This is an important first step but it is still extremely difficult for governments to be in charge of the development in their countries because donor agencies often do not ensure sufficient co-ordination, and ultimately, integration with the countries' education systems. In this context, the Education for All Forum is a unique example of ten years of co-operation between the leading agencies in the area of basic education.

The major fault of existing programs has been the lack of cooperation between international governments, regional governments and local communities. Many of the reasons behind the lack of cooperation have been political, religious, and economic. In order for a program to be successful, they must eliminate the political and religious objections and work within the economic structure that is available.

Much of the problem with prior programs has been lack of cooperation between local, regional, and national governments with the aid programmes which have been instituted. Lack of funding has been an important issue and local political and cultural problems have also come into play.

While many of these problems may continue, teaching local teachers within each country to teach the electronic and Internet curriculum would facilitate cooperation between lower level and higher level bureaucracies and create a more solid foundation for cooperation and mutual learning. Areas, where religious and cultural constraints are important, can utilize their own teachers while using IEI's electronic and Internet based

curriculum and choose which courses and programs are best suited for their purposes. Because the digital world is so adaptive, changes to curriculum and teaching methods can be instituted quickly, keeping pace with the changes in local demand and opinion. Utilizing local teachers would eliminate political, health and social issues which might be crucial when operating in areas where social and political unrest is common.

The cost of outfitting a van and obtaining the necessary curriculum, along with teacher and administrative support on a village by village basis is far less than instituting a program for an entire region or country with large numbers of overseeing administrators and logistical support. The number of people to support a technology based educational system is far less, and far less expensive, than a traditional educational system, and far more adaptive.

Costs Associated with a Mobile E-School

Each Mobile E-School could be outfitted and maintained for a period of one year, for the following costs:

(Based on 1 School/100 students/1year)

School Bus (used)	\$	15,000.00
Seats	\$	*
Laptop Computers	\$	*
Altered Generator	\$	600.00
Gasoline	\$	6,000.00
Email Sever	\$	3,000.00
Proxy Caching Server	\$	3,000.00
Portable Satellite Disk	\$	3,000.00
A teacher's computer.	\$	1,500.00
A pull-down projection screen	\$	300.00
Projector	\$	3,000.00
Air Conditioning	\$	700.00
Curriculum	\$	30,000.00
Cost Per Unit	\$	66,100.00

*Local Teachers Salaries Would Be Covered Locally by
Local Governments*

* = donated

Potential Change in the Status of Economy

Knowledge is the key asset in today's society. With the knowledge to make life-long learning possible, to acquire new skills as they develop, and to provide for one's welfare and family at a level equal to their needs, basic literacy for all adults can become a reality within one generation. It has been conclusively shown that a parent's educational, or literacy level, directly affects that of their children. By teaching parents to read and write, children will be encouraged to do the same and their learning will be supported at home.

The unemployment rate in most countries is a direct reflection of the literacy rates. With new skills and knowledge, new jobs become available, new markets are created and barriers that formerly excluded people from becoming part of the competitive, global economy, are erased.

The standard of living in most countries is also a direct reflection of literacy rates. Children in Africa who are dying from diarrhea could be saved if their mothers could only read instructions on how to mix a simple saline solution. Health and hygiene methods could bring the spread of diseases such as AIDS, under control. Talent and potential, which to this date has been undiscovered, unsupported, and virtually invisible, will soon come to light. Political and social unrest, caused by factors fed by ignorance, poverty and violence will soon be eradicated.

Potential Funding and Educational Partners.

There are several potential funding opportunities which can be utilized. They are:

- The World Bank
- UNESCO
- UNICEF
- IMF
- Large technology corporations such as:
 - IBM
 - Microsoft
 - Intel
 - Apple

Educational partners, or infrastructure elements which are already in place (and stated within the larger study) which can be utilized are:

- Local universities and schools.
- Large Corporations within the country which already act as ISPs.
- ArabMedTelSat and other regional satellites.
- Private ISPs.

Conclusion

The larger pieces of the infrastructure are already in place. It only remains to make the more portable portion of the infrastructure (Mobile E-Schools) available and the cost of delivering and receiving basic education a minimal cost on the receiving end. By offering sufficient coordination and supervision, integration into the current educational system and by training local teachers as an integral part of the program, E-Education (in cooperation with companies such as Intelligent Education, Inc. and JDL Technologies) has a high probability of success.

Bibliography:

1. "A Policy framework For Educating and Training" Education Department African national Congress, January 1994 Centre of African Studies - Edinburgh University, <http://www.ed.ac.uk/centas/>
2. "Africa Interactive Maps" - <http://www.africamaps.com/>
3. "African Internet Infrastructure Information" - <http://www3.sn.apc.org/africa/>
4. "Africa Live Database" - <http://www.worldbank.org/html/extpb/aldb.htm>
5. "Africa Summary Briefings" - The World Bank
<http://wbln0018.worldbank.org/afr/aftbrief.nsf/Africa+Briefing?opennavigator>
6. "Afrikana.com Article: Burkina Faso" - http://www.afrikana.com/tt_201.htm
7. "Arab/Net Directory of ISPs in the Arab World" - <http://www.arab.net/isp-directory/comoros.html>
8. "Arabic Search Engine" -
http://www.4arabs.com/links/Countries/Morocco/Computers_And_Internet/
9. "Changing the Subject: Curriculum Change and Zimbabwean Education Since Independence" by Simon McGrath, 1993, Centre of African Studies Edinburgh University. <http://www.ed.ac.uk/centas/>
10. "Click Afrique" - <http://www.clickafrique.com/>
11. "Components of a Future Development Strategy, The Importance of Human Development" by Paul Streeten, published in *Finance and Development*, A Quarterly magazine of the IMF. December 1999, Vol. 36, Number 4.

12. *"Economic Policy for Poverty Reduction"* - The World Bank
<http://wbln0018.worldbank.org/edi/edimp.nsf>
13. *"Education and Occupational Aspirations of High School Students in South Africa"* Thesis by Eucalia Nandipha Mzikazi Matomela, 1997, University of Iowa.
14. *"Education for All Publications"* - <http://www2.unesco.org/efa/07public.htm>
15. *"Education International"* - <http://www.ei-ie.org/main/english/index.html>
16. *"Exploring Africa"* - <http://www.sc.edu/library/spcoll/sccoll/africa/africa.html>
17. *"Finance and Development"*, December 1999 -
<http://www.imf.org/external/pubs/ft/fandd/1999/12/index.htm>
18. *"Governance in the Digital Economy, The Importance of Human Development"*, by Don Tapscott and David Agnew, published in *Finance and Development*, A Quarterly magazine of the IMF. December 1999, Volume 36, Number 4.
19. *"Integrated Network - Communications / Information by Development Partner"* -
<http://www.intracen.org/lacs/benin/bencom.htm>
20. *"Internet Africa"* - <http://www.internetafrica.com/>
21. *"Learning: The Treasure Within"* by Jacques Delors, Report to UNESCO of the International Commission on Education for the Twenty-first Century.
22. *"Media Africa - ISPs In Africa"* - <http://www.mediaafrica.co.za/isp/algeria.html>
23. *"Outpost - Congo Trek - National Geographic"*
<http://www.nationalgeographic.com/congotrek/>
24. *"Outpost: Human Origins - National Geographic"* -
<http://www.nationalgeographic.com/features/outpost/index.html>

25. *"Relevant Education for Africa"* edited by Brahim D. Kaba and Lewis C.A. Rayapen, 1990
26. *"South Africa: Education in Transition"* by Gari Donn (Ed), 1996, Centre of African Studies Edinburgh University, <http://www.ed.ac.uk/centas/>
27. *"Status and Trends"*, Education for All Forum, UNESCO
28. *"UNICEF"* - <http://www.unicef.org/>
29. *"The USAID Leland Initiative and Senegal"* - <http://www.info.usaid.gov/regions/afr/leland/senindex.htm>
30. *"The World Bank"* - <http://www.worldbank.org/millennium/>
31. *"The World Bank Group"* - <http://www.worldbank.org/>