



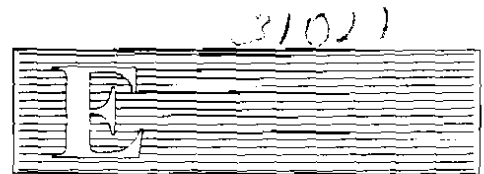
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THE STATUS OF INFORMATION AND COMMUNICATION  
TECHNOLOGIES IN THE SUDAN

# The Status of Information and Communication Technologies in the Sudan

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Dr. Izzeldin Mohamed Osman  
Vice - Chancellor  
Sudan University Of Science and Technology  
P.O.Box 407  
Khartoum, Sudan

Tel: 249 11 772508 / 775292 / 271252  
Fax: 249 11 774559 / 783891  
Email: [izzeldin@acm.org](mailto:izzeldin@acm.org)

# The Status of Information and Communication Technologies in the Sudan

## **Summary:**

The last five years have witnessed a real breakthrough in telecommunications in the Sudan. The optical fibre backbone, the introduction of modern digital technology and the development of human resources account for the quantum leap in telecommunications as reflected by the sharp rise of teledensity from 26 lines to 100 lines per 10000 inhabitants.

This paved the way for the growth, penetration of the Internet, provincial and national information networks. Novel applications such as teleconferencing and telemedicine are underway.

## **1 Infrastructure**

### **1.1 Background:**

The privatisation of the telecommunication sector in 1993 resulted in the creation of Sudatel; a private company where the government has the majority of the shares but only 20% of the voting power and control.

Sudatel succeeded in building an optical fibre backbone, introduced modern digital technology and developed human resources by recruiting qualified staff and aggressively training and upgrading knowledge and skills of existing staff.

### **1.2 Communication Media:**

This vast country (see Appendix 1: Country Profile) is now traversed by communication lines consisting of:

- (i) Over 2500 kilometres of optical fibre where 2 Mb is currently reserved for data.
- (ii) SUDOSAT (Sudan Domestic Satellite) which has 36 ground stations in remote towns.
- (iii) Intelsat, Arabsat satellites.
- (iv) Over 60 Vsat stations.
- (v) Over 10000 lines of GSM mobile telephones.

### **1.3 Networks:**

- (i) The coordinating ministry for local governments has created a national network consisting of a LAN in each of the 19 states. This network provides management and statistical information from the states to the centre. The

statistics covers health, agriculture, food and other matters that concern local government.

- (ii) A modern network using Frame Relay technology now covers Greater Khartoum and the major cities. It links LANs in banks, universities and other organizations. It has a speed of 2 Mbps and supports remote logins, ftp and email as well as teleconferencing.

## **2 Information Technology**

### **2.1 Information & Communication Hardware:**

The tax levied on imported computers and similar kinds of equipment has been reduced from 20% down to 6% and it is expected to be lowered more.

Computers are imported from abroad. However, about 30% of computers are assembled locally. Saria, a local private factory, produces annually 10000 PC monitors, 1000 HF communication equipment as well as 2500 VHF.

### **2.2 Software Industry:**

There is a growing software industry. Many Sudanese companies have won contracts amounting to hundreds of thousands USD. The demand for software design is growing too fast for the local software companies to cope with. The main obstacles are the brain-drain (the migration of qualified IT staff) and the inadequate financing of the software companies. Currently there are over one hundred small software companies and about four medium-sized ones. Today, there are no fiscal incentives for the IT companies nor for the software exporting companies.

### **2.3 The Internet:**

The Internet was introduced in 1997. Although it is a late start, yet the growth has been fast. To date there are 1300 Internet users. The user profile suggests that they are the relatively wealthy educated young men and women.

The main obstacles are the inadequacy of the current ISP and the price of using the Internet. Sudanet, the ISP, is a private firm. It is expected that before the end of 1999, many more ISPs would be licensed.

## **3 Human Resources**

### **Higher Education:**

The number of university level programmes in computer and information science, computer and communications is growing rapidly. Vocational training is not in par with higher education in this respect.

The following table exhibits the number of students in the various levels of IT higher education.

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Education level	Number of Students	Number of Universities
<b>(A) Computer and Information Science</b>		
Master	103+	3
Bachelor	480	7
Diploma (2 years)	600	5
Certificates (1 year or less)	2000	many
<b>(B) Communication Engineering &amp; Technology</b>		
Master	18	3
Bachelor	150	4
Diploma (2 year)	80	3
Certificates (1 year or less).	?	3

## **4 Current Problems**

### **The Y2K activity**

- (i) A committee, which was established in 1997 by the Sudanese Standards Organisation, has sensitised the various government departments and increased their awareness of the problem. The committee surveyed and verified the compliance of hardware & software in most government departments.
- (ii) A ministerial committee was set up by the President to verify the country's compliance. A technical committee was subsequently set up to support the ministerial committee.
- (iii) The status of the Y2K compliance to date June 1999 is as follows:  
Banks, Telecommunication, Electricity and Energy have all finished their Y2K compliance procedures. The whole country will be fully compliant by the 31st of October 1999. The effort entailed extensive reprogramming, consultations and purchase of equipment. The total cost of the Y2K compliance has been estimated as follows:

Banking & Financial Sector	3 million USD
Telecom & Electricity	3.5 million USD
Industrial Sector	0.5 million USD

The country has spent about 7 million USD. It is sad to mention that both InfoDev and the World Bank declined to participate. The chairman of the committee ({i} above) received negative responses from both organisations. It was based on political reasons!

## **5. Conclusion**

The prerequisites for harnessing information for development have been set. In spite of the satisfactory performance in last five years, a lot of effort has to be expended in order to accelerate and sustain the growth, penetration and geographical availability of the benefits of the information and communication technologies.

## **APPENDIX 1**

### **COUNTRY PROFILE**

The Sudan covers an area of 2.5 million square kilometers making it the largest country in has lengthy borders with nine African countries : Egypt , and Libya to the north ; Chad , Central African Republic to the west; Zaire , Uganda and Kenya to south ; Eritrea and Ethiopia to the east . The Sudan has 480 Kilometers of coastline along the Red Sea .

The country is predominately rural and sparsely populated with a population of 25 million . The population growth rate is 3 percent . The climate ranges from tropical in the extreme south to arid desert in the north . The water resources are the Nile and its tributaries , rainfall and underground water.

About one million square kilometers is arable and only about 40% is being cultivated. The country has about one hundred million heads of livestock . Agriculture constitutes the main production base of the economy accounting for approximately 78% of the total labour force and about 40% of the gross domestic product . The per capita GNP is 340 US\$. The country has considerable development potential and capacity for increased productivity. Sudan will reach self-sufficiency in oil by December 1999 and will be exporting a modest amount of oil by the end of 1999.

In 1989 only half of the children at school age found education opportunity . this has, however, changed dramatically during the past seven years and since 1996 almost 100% of children have found access to free education.

The number of students in higher education has increased from about 28,000 in 1989 to over 100,000 since 1996. Female students account for about 46% of the total student population and about 52% of the intake since 1997. The numbers of the students in the disciplines of engineering, science, and technology have doubled during the same period. The increase in vocational training, is not as dramatic.

## APPENDIX 2

### Sudan Telecommunications Infrastructure

