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TITLE: Sudan key indicators of the telecommunication/ICT sector



**ITU World
Telecommunication/ICT
Indicators (WTI) Meeting
Geneva, 2006**



Sudan key indicators of the telecommunication/ICT sector

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1.1 About Sudan:

Sudan is the largest country in Africa (Heart of Africa,). This vast territory measures about One Million Square Miles, Mainly flat, 25 State which constitutes 8.5% of the land area of Africa. More Than 70% of the populations are living in small towns and rural areas.

It is geographically situated almost at the centre of the continent between:

- Longitudes 22 & 38 East.
- Latitudes 4 & 22 North.

Sudan shares borders with nine African countries. As such, it naturally became a zone of interaction between Arabs and Africans.



1.2 People:

- Population: 35,079,814
- Age structure:
 - 0-14 years: 45% (male 8,064,592; female 7,712,839)
 - 15-64 years: 53% (male 9,300,886; female 9,290,340)
 - 65 years and over: 2% (male 406,034; female 305,123).
- Population growth rate: 2.84%.
- Birth rate: 38.58 births/1,000 population.
- Death rate: 10.28 deaths/1,000 population.
- Net migration rate: 0.05 migrant(s)/1,000 populations.
- Ethnic groups: black 52%, Arab 39%, Beja 6%, foreigners 2%, other 1%.
- Religions: Sunni Muslim 70% (in north), indigenous beliefs 25%, Christian 5% (mostly in south and Khartoum)
- Languages: Arabic (official), Nubian, Ta Bedawie, diverse dialects of Nilotic, Nilo-Hamitic, Sudanic languages, English

2.1 Telecommunications Progress in Sudan:

- 1859 – Telecommunications introduced in Sudan (1st telegraph link between Cairo & Sawaken),
- 1871–1873 Telegraph line reached Khartoum (Small unit for Post & Telegraph).
- 1892/1903 – First Telephone exchange in Sudan (Eldaba & Khartoum).
- 1910 -1971 – The service was run by a government body known as Posts & Telegraphs (P&T)
- 1971- 1978 Telecommunication was separated from the Post service and run as a governmental Department.
- 1978 – 93 Sudan Telecommunications Public Corp, (STPC).
- 1993 – 94 Privatization of Telecommunication Sector.
- 1994-2001 National Telecommunication Council
- 2001, National Telecomm. Corporation (NTC) formed under Telecommunication Act 2001.
- 1994, Sudan Telecom Co. (SUDATEL) started as an Operator & Service provider.
- 1997, license issued to a cellular service provider Sudanese Mobile Telephone Co. (MOBITEL).
- 1997, First ISP, Sudanese Internet Service Co. (Sudanet).
- 2001, First Pre-paid service, Ashraaf International (Ashraaf com).
- 2003, license issued to the second mobile operator (Areeba).
- 2005, license issued to the second fixed operator (Canar).
- 2006, Sudatel launch it's 3G - UMTS Network (Sudani).

2.2 Legislation:

- 1974, Telecommunications Law.
- 2000, National Telecom Corporation Bill
National Telecom Council Bill 1994
Telecom Act. 1974
- 2002, A new Telecom. Act is to be issued in near future
Telecom. Bylaw

2.3 Sudan Telecom. Market:

- TWO Fixed Public Service Providers, Sudatel & Canar.
- Three Public Cellular Mobile Service Providers, Mobitel, Areeba and Sudani.
- 23 Internet Service Providers.
- 20 Pre-paid For Fixed Service Providers.
- 19 Value-added Service Providers. SMS, IVR,

2.4 Internet progress in Sudan:

In 1996, Internet was introduced in Sudan by the Sudan Internet Services Co. Ltd. [Sudanet] with 128Kbps Bandwidth capacity.

In early 1998, the Sudan Telecom Co. Ltd. [Sudatel] introduced its Internet Service in the country as a value added service to its basic fixed telephony services with 265Kbps Bandwidth capacity.

In Nov 1999, Sudatel became the only Pop in Sudan with 2Mbps from EMIX. Sudatel opened its Internet service provisioning to other potential service providers, the enterprise and universities sectors using its existing data communication infrastructure.

To play a role in the development and awareness development process, Sudan adopted free internet policy since late 2002.

2.5 National Telecommunication Corporation:

2.5.1 Establishment:

NTC, is the Federal Regulatory Authority of information and telecommunication sector throughout the territories of the Republic of Sudan. Its establishment has been a direct outcome of the Three – Year Economic Salvation Programme (1990 – 1993) adopted by the Government which called for the involvement of the private sector in the development of the information and telecommunication industry, inter alia, whether independently or in partnership with the government.

Subsequently, the sector has been reformed and restructured through transformation of the state-owned Public Telecommunication Corporation into a public company under the name of Sudan Telecommunication Company, SUDATEL in 1993, the complete separation between the regulatory and operational functions, and the establishment of the National Telecommunication Council affected by its 1994 law and its amendment in 1996.

The year 2001 witnessed the issuance of the Telecommunication Act 2001 comprising the establishment of the National Telecommunication Corporation, NTC, to replace the Council and revoking its 1994 law, as amended in 1996.

Currently, there is an on-going process for review and amendment of the present Telecommunication Act 2001 to conform with the ever-changing technological developments in the sector and with the era of the convergence of the information and communication technologies and their applications and services.

2.5.2 Objectives:

The Corporation aims to achieve the following objectives; namely to;

- Promote and regulate the telecommunication sector so as to conform to development and globalization.
- Provide the appropriate environment favourable to promotion of telecommunication services and the encouragement of investment in this sector.
- Ensure and diffuse free competition and recruit competent personnel in the field of telecommunications.
- Ensure connectivity among licensed telecommunication public networks.

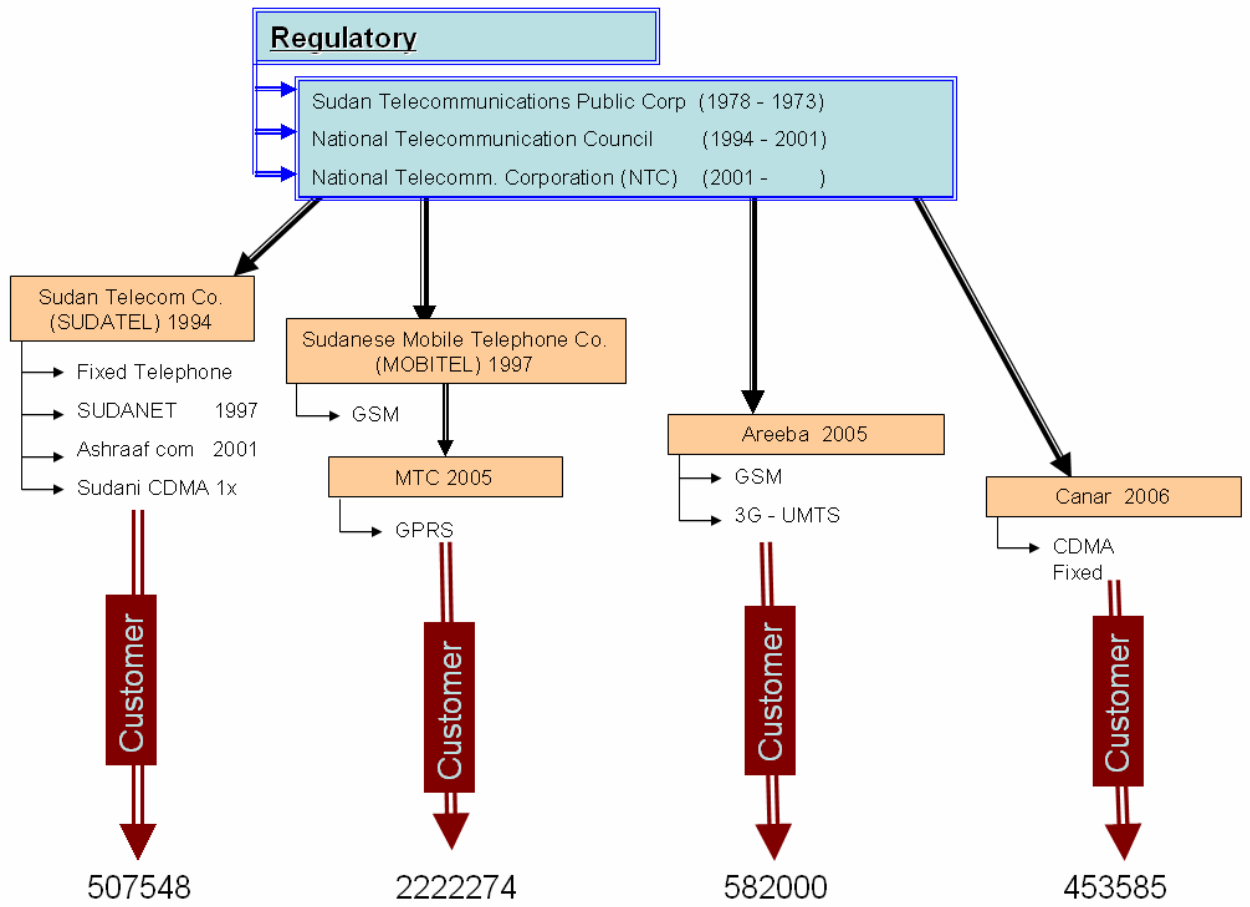
2.5.3 Functions and Powers:

The Corporation shall have the following functions and powers; namely to:

- Lay down the plans, policies and regulations for provision of telecommunication services and their establishment thereof on the national level taking into consideration the balanced development and the realization of the social and national objectives.
- Approve the methods and cost of telecommunication services in coordination with entities providing such services and supervise them thereafter.
- License the operation of networks and the provision of services as well as all activities in the sector.
- Lay down the bases for regulation, allocation and licensing of the radio spectrum for wireless equipment, wireless systems and broadcasting stations, taking into consideration the security aspects relating thereto.
- Coordinate with the competent entities in relation to the assembly, import and manufacture of the different equipment and materials of the telecommunication systems.
- Set specifications of systems, terminals and equipment used in the field of telecommunications and establish the necessary measurements and test procedures.
- Promote universal service.
- Provide for dispute settlement.
- Protect the obligations of the State and requirements thereof in the field of national security and defence, emergencies and regional and international policies in coordination with the entities providing telecommunication services.

2.6 ICT Application

1. Sudanese Bank implemented Sudanese banks network (E-banking).
2. Ministry of Education (E- learning).
3. Ministry of Interior.
4. Electronic systems for airports for security checking,
5. Civil record, Electronic ID, E-Birth.
6. PC for every Family.

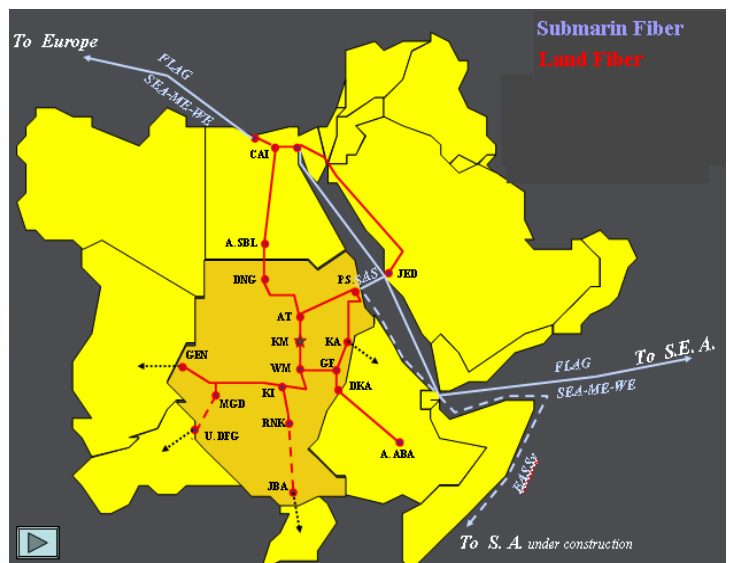


2.7 Sudan ICT indicators:

No.	ITU code ¹	Indicator	Comments
Fixed Telephone network			
1	112	Main (fixed) telephone lines in operation	570,000
2	117	Total capacity of local public switching exchanges	1,491,826 (switch) 2,023,640 (network)
3	1142	Percent of main lines connected to digital exchanges	100%
4	116	Percent of main lines which are residential	NA
5	1162	Percent of main lines in urban areas	NA
6	1163	Number of localities with telephone service	244
7	1112	Public payphones	3669



VSAT Networks



Fiber Connection

Mobile network			
8	271	Mobile cellular telephone subscribers (post-paid + prepaid)	Mobitel : 1598154 Areeba : 229786 Total : 1827940
8.1	271p	Mobile cellular subscribers: prepaid	Mobitel : 1542610 Areeba : 225829 Total : 1768439
9	2712	Digital mobile cellular subscribers	1827940
9.1	271h	Total number of subscribers to mobile networks	1827940
9.1.1	271L	Number of subscribers to low and medium speed mobile networks	1827940
9.1.2	271G	Number of subscribers to IMT-2000 (3G) high-speed mobile networks	- CDMA 2000 1x established on 2006 (Sudani). - UMTS in under testing (Areeba)
10	271land	Percent coverage of mobile cellular network (land area)	N/A
11	271pop	Percent coverage of mobile cellular network (population)	5.22%

Text/data network			
12	311	Telex subscriber lines	Service stopped
13	412	Private leased circuits	1269
14	413	Total subscribers to public data networks	3169
15	4213	Internet subscribers	DSL : 1900 Dial up : 9 ISP
15.1	4213d	Dial-up Internet subscribers	N/A
15.2	4213tb	Broadband Internet subscribers	2026
15.2.1	4213cab	Cable modem Internet subscribers	Service not established
15.2.2	4213dsl	DSL Internet subscribers	1900

15.2.3	4213ob	Other broadband Internet subscribers	90 VSAT
16	4212	Estimated Internet users	1.14 million
16.1	4212f	Percent female Internet users	49.9 %
16.2	4212f% f	Female Internet users as percent of female population	3.2 %
17	424	PWLAN locations	N/A
18	28	ISDN subscribers	400 (ITU Report) service stopped.
18.1	281	Basic rate ISDN subscribers	N/A
18.2	282	Primary rate ISDN subscribers	N/A
18.3	28c	ISDN voice channel equivalents	N/A
19	4214	International Internet bandwidth	20 Mbps
19.1	4214og	Outgoing	10 Mbps Uplinks
19.2	4214ic	Incoming	20 Mbps

Quality of service

Quality of service Parameters and indicators are the most important indicators to monitoring telecom sector and the operator's performance.

QoS indicators must include some parameter regarding to customer complaint and users perceptions.

20	123	Waiting list for main lines	N/A
21	143	Faults per 100 main lines per year	95.5
22	141	Percent of telephone faults cleared by next working day	90%
*	*	Billing Complaints (%)	
*	*	Billing Complaints Resolution Period	15 Days- (%) 30 Days- (%)
*	*	Service Outages	Accumulated Downtime of Community Isolation
*	*	Service Quality Perception	Mean Opinion Score (MOS)
*	*	General Complaints	544238 (Sutatel)

Traffic			
23	1311m	Local telephone traffic (minutes)	N/A
23.1	1313wm	Fixed to mobile traffic (minutes)	529,780,000
23.2	1311im	Internet Dial-up traffic (minutes)	40,55,34,696
24	1312m	National trunk telephone traffic (minutes)	512,000,000 Including 131 1m
25	132mb	International incoming and outgoing telephone traffic (minutes)	450,000,000
25.1	132m	International outgoing telephone traffic (minutes)	100,000,000
25.2	132mi	International incoming telephone traffic (minutes)	350,000,000
26		Public data traffic (non-Internet)	N/A
27	133wm	Outgoing mobile minutes	1,779,068,184
27.1.1	1331wm	Outgoing/originating mobile minutes to same mobile network	N/A
27.1.2	1332wm	Outgoing/originating mobile minutes to other mobile networks	N/A
27.1.3	1333wm	Outgoing/originating mobile minutes to international	64,504,884
27.1.4	1334wm	Roaming minutes out (own subscribers)	N/A
27.1.5	1332wmf	Outgoing mobile minutes to fixed networks	171,846,730 (local+ national)
27.2.1	1335wm	Incoming international minutes to mobile network	N/A

27.2.2	1336wm	Roaming minutes in (foreign subscribers)	N/A
27.3	133sms	SMS sent	N/A
27.4	133mms	MMS sent	N/A
28		International outgoing telegrams	N/A

Tariffs (SD)			
31.1			Fixed local telephone service tariffs –residential
31.1.1	151	Installation fee for residential telephone service	5,000
31.1.2	152	Monthly subscription for residential telephone service	585
31.1.3	153	Price of a 3-minute fixed telephone local call (peak rate)	15
31.1.4	153o	Price of a 3-minute fixed telephone local call (off-peak rate)	15
31.2			
31.2.1	151b	Installation fee for business telephone service	5,000
31.2.2	152b	Monthly subscription for business telephone service	585
32		National telephone call prices	16
33		International telephone call prices	110 (1 st group) 152 (2 nd group) 250 (3 rd group)
34.1.1	151c	Mobile cellular connection charge	Business 40,000 Regular 20,000 Mobipaid 20,000 (16,750 credit) Salamat 7,500 (4.250 credit) Sawasana 12,500 (100 credit)

34.1.2	152c	Mobile cellular monthly subscription	Business 3,000 Regular 1,500 Mobipaid 750 Salamat 750 Sawasana 750
34.1.3	153c	Mobile cellular - price of 3 minute local call (peak)	Mobile – Own Mobile Business 18 Regular 21 Mobipaid 23 Salamat 23 Sawasana 23 Mobile-Local Business 16 Regular 18 Mobipaid 19 Salamat 19 Sawasana 19 Mobile-National Business 26 Regular 28 Mobipaid 29 Salamat 29 Sawasana 29 Mobile-Other mobile Business 22 Regular 22 Mobipaid 28 Salamat 28 Sawasana 28

34.1.4	153co	Mobile cellular - price of 3 minute local call (off-peak)	Mobile – Own Mobile Business 18 Regular 21 Mobipaid 23 Salamat 23 Sawasana 23 Mobile-Local Business 16 Regular 18 Mobipaid 19 Salamat 19 Sawasana 19 Mobile-National Business 26 Regular 28 Mobipaid 29 Salamat 29 Sawasana 29 Mobile-Other mobile Business 22 Regular 22 Mobipaid 28 Salamat 28 Sawasana 28
34.1.5	153sms	Mobile cellular – price of SMS	5
34.2	153m	Mobile termination rate	14
Other data tariffs			

35		Leased line charges	P-to-P local loop Connection charge 5,000 Monthly rental charge 64 k.bit 12,000 128 k.bit 20,000 256 k.bit 30,000 384 k.bit 35,000 512 k.bit 45,000 1 mega.bit 65,000 2 mega.bit 120,0000 P-to-P inter exchange Connection charge 5,000 Monthly rental charge 64 k.bit 13,000 128 k.bit 22,000 256 k.bit 37,500 384 k.bit 45,000 512 k.bit 50,000 1 mega.bit 84,000 2 mega.bit 150,0000 P-to-P intra exchange Connection charge 5,000 Monthly rental charge 64 k.bit 21,500 128 k.bit 37,000 256 k.bit 62,500 384 k.bit 94,000 512 k.bit 140,000 1 mega.bit 216,000 2 mega.bit 432,0000
36		Data communication charges	Activation charge 4,000 Monthly rental charge 64 k.bit 8,000 128 k.bit 13,500 256 k.bit 23,000 384 k.bit 35,000 512 k.bit 52,000 1 mega.bit 80,000 2 mega.bit 160,000
37	Internet tariffs		
37.1	4213c	Internet connection charge	Dial-up (free) DSL 25,000 ISDN 5000
37.2	4213s	Internet monthly subscription	Dial-up (free) DSL 10,000 ISDN 2000
37.3	4213p	Internet - price of per minute (peak) connection	Dial-up : 4 DSL,ISDN : flat rate
	4213po	Internet - price of per minute (off-peak) connection	Dial-up : 4 DSL,ISDN : flat rate
37.4	4213_t20	Internet access tariff (20 hours per month)	Dial-up : 80 DSL,ISDN : flat rate

STAFF			
38	51	Total full-time telecommunication staff	3378
38.1	51f	Female telecommunication staff	N/a
38.2	51w	Mobile communications staff	419

REVENUE			
39	75	Total revenue from all telecommunication services	N/A
40	71	Revenue from telephone service	40,472,475,500 (included 711,712,713.1,713.2)
40.1	711	Income from telephone connection charges	N/A
40.2	712	Income from telephone subscription charges	N/A
40.3	7131	Income from local calls	N/A
40.4	7132	Income from national long distance calls	N/A
40.5	7133	Income from international calls	7,538,036,000
41	731	Revenue from data transmission	279,971,750
42	732	Revenue from leased circuits	6,797,389,500
43	741	Revenue from mobile communications	99,551,744,000
43.1	741d	Mobile data revenues	N/A
43.1.1	741m	Text and multimedia messaging revenues	N/A
44	74	Other revenues	N/A
45		Value-added from telecommunications sector	N/A

INVESTMENT			
46	81	Total annual investment in telecom	N/A
46.1	83	Fixed telephone service investment	314,631,862,500
46.2	841m	Mobile communication investment	55,888,143,000
46.3	841f	Foreign investment	36,304,375,770

COMMUNITY ACCESS INDICATORS

Recently, NTC with help from STIF preparing large proposal to sitting up PIACs. Phase one of the project cover 16 stats (from 25) with 5 center on each (80 center). Every center equipped with 15 PC accessing internet, 4 Telephones, Fax machine and Photocopier.

Centers must offer:

- Basic communications Services.
- Fax and Photocopying.
- Training.
 - IT.
 - Community developing.
- Internet Café.
- Technical Illiteracy Erasure.
- E-
 - Commerce.
 - Learning.
 - Government.
- Public Digital Library.

OTHER INDICATORS

54	955	Number of radio sets	N/A																																				
*	*	Number of radio sets per family	<table border="1"> <thead> <tr> <th>Cumulative Percent</th> <th>Valid Percent</th> <th>Percent</th> <th></th> <th>Valid</th> </tr> </thead> <tbody> <tr> <td>40.0</td> <td>40.0</td> <td>39.1</td> <td>Yes</td> <td rowspan="3"></td> </tr> <tr> <td>98.5</td> <td>58.5</td> <td>57.3</td> <td>No</td> </tr> <tr> <td>100.0</td> <td>1.5</td> <td>1.4</td> <td>Missing</td> </tr> <tr> <td></td> <td>100.0</td> <td>97.8</td> <td>Total</td> <td></td> </tr> <tr> <td></td> <td></td> <td>2.2</td> <td>System</td> <td>Missing</td> </tr> <tr> <td></td> <td></td> <td>100.0</td> <td>Total</td> <td></td> </tr> </tbody> </table>				Cumulative Percent	Valid Percent	Percent		Valid	40.0	40.0	39.1	Yes		98.5	58.5	57.3	No	100.0	1.5	1.4	Missing		100.0	97.8	Total				2.2	System	Missing			100.0	Total	
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* 2347250 family have at least radio sets.																																							
55	965	Number of TV sets	N/A																																				

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*1001875 family have at least one TV.																																					
56	965m	Total number of multi-channel TV	N/A																																		
56.1	965c	Number of terrestrial multi-channel TV subscribers	N/A																																		
56.2	965s	Direct to Home satellite antennas	N/A																																		
*	*	Direct to Home satellite antennas per family	N/A																																		
57	965cp	Homes passed by multi-channel TV	N/A																																		
58	422	Number of Personal Computers	N/A																																		
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