

Chapter 2

Overview of Sudanese Economy and the Status of ICT in Sudan

2.1 Introduction

This chapter provides a general overview of the socio-economic characteristics of the Sudanese economy and explains the status of ICT in Sudan. Section 2.1 presents introduction. Section 2.2 provides a general overview of the general socio-economic characteristics of the Sudanese economy, Sect. 2.3 explains the status of ICT in Sudan and finally Sect. 2.4 provides the conclusions.

2.2 Socio-economic Characteristics of the Sudanese Economy

Sudan was the largest country in Africa and the Arab world until 2011, when South Sudan separated as an independent country, following an independence referendum. Sudan is now the third-largest country in Africa (after Algeria and the Democratic Republic of Congo) and also the third largest country in the Arab world (after Algeria and Saudi Arabia). According to the World Bank classification, Sudan is classified amongst the lower-medium-income economies. According to the UNDP-HDI classification the average GDP per capita for Sudan is among the world's low-income and low human development group.¹

¹ The World Bank and United Nations Development Programme (UNDP) Human Development Report classifies world countries differently according to income level. We use the World Bank classification of economies that puts Sudan in the lower middle-income category or group.

Data from Sudan's Central Bureau of Statistics and Central Bank of Sudan (2013) about the structure of Sudan's economy indicates the dominance of the services (49 %, 46.7 %) and agricultural (30.6 %, 30.6 %) sectors and low share of the industrial sector (20.4 %, 21.1 %) in GDP in 2012 and 2013 respectively (See Central Bank of Sudan, 2013, p. 120). The structure of the Sudanese economy shows the importance of both the agricultural (71 %, 39 %) and services (21 %, 43 %) sectors compared to the industrial sector (9 %, 18 %) in terms of both the share in total employment (1990) and value added as a percentage of GDP (2002) respectively (cf. World Development Indicator (WDI) database 2005). The structure of Sudan economy is characterised by rent-seeking, shifting from agricultural-based economy to oil-based (or oil-dependent) economy that appears from high dependency on oil for exports and revenues, with oil contributing over 95 % of exports and about 50 % of government revenues. The heavy reliance on oil implies that Sudan's economy turned from low to lower- medium-income economy, but suffers from uncertainty and high fluctuation in economic growth.² For some time, Sudan's economy has been characterised by low GDP per capita income, the presence of high rates of poverty, unemployment and inequalities in resources sharing. According to the World Bank's classification, Sudan was listed amongst the least developed poor and highly indebted economies, but following the exploitation of oil and improvement in its economic performance, the country has turned from a low income economy into a lower medium income economy according to the World Bank classification. The increasing dependence on oil has led to sound economic growth. Consequently, Sudan's real economic growth averaged about 9 % during 2005–2007, putting Sudan among the fastest growing economies in Africa (The World Bank WB-DTS2008). In 2010, Sudan was considered as the 17th—fastest—growing economy in the world given the rapid development of the country -largely from oil profits, despite international sanctions.³ However, the secession of the South in 2011, had gravely affected the economy as more than 80 % of Sudan's oil fields existed in the southern part of the country. This decline in oil revenues caused a major adjustment to the Sudan's fiscal situation and prompting financial austerity measures. The situation was further exacerbated by the continuing tensions between Sudan and South Sudan and their inability to reach an agreement over transit fees for oil from South Sudan.⁴ The independence of the

² See the World Bank (2008).

³ See <http://www.sd.undp.org/content/sudan/en/home/countryinfo/>, accessed on September 2014.

⁴ See <http://www.sd.undp.org/content/sudan/en/home/countryinfo/>, accessed on September 2014.

South has had immediate negative fiscal and balance of payments implications for North Sudan [because of the loss of the bulk of the oil production and export revenues, because about 75 % of Sudan's oil revenues generated from southern oil production].⁵

Concerning the general socio-economic characteristics and economic development context in Sudan, Table 2.1 illustrates the substantial gap between Sudan and the world regions in economic development, as measured by GDP per capita and the human development index (HDI). In general, Sudan is characterized by low standards of economic development together with high population. For instance, Table 2.1 shows the low GDP per capita income in Sudan which is in excess of only the least developing countries, low human development, and Sub-Saharan Africa (SSA) countries, but less than all other world regions. Despite the fact that in 2005–2007 there has been impressive real growth and rapid increase in per capita incomes, emerging vulnerabilities and little progress in social indicators still exist. This is evident from recent United Nations Development Programme (UNDP) statistics on Human Development Indicators (HDI), for instance, according to UNDP-HDR (2014) Sudan is still classified amongst the low human development countries and the bottom of developing countries in terms of HDI (0.473), as it ranked 166 out of 187 countries.⁶ Sudan's performance in terms of the estimated HDI (0.473), falling behind all other groups, even the least developed, low human development, and SSA countries. Sudan's performance in terms of life expectancy (62.1) and GDP per capita (3,428) is above only the least developed and low human development, and SSA countries, and lags behind all other groups including the Arab states, East Asia and the Pacific, Latin America and the Caribbean, South Asia, Europe and Central Asia, high human development and medium human development. Adult literacy rate in Sudan accounted for 71.9, which lies below all other groups except the least developed and medium and low human development, South Asia, and SSA countries. Moreover, the share of population with at least some secondary education and gross enrolment ratios for primary (73), secondary (39) and tertiary (6.1) education for Sudan fall behind the standard rate of the world countries and fall behind all other groups, even the least developed, low human development, and SSA countries (See Table 2.1).

⁵ See International Monetary Fund IMF (2013) "Sudan Interim Poverty Reduction Strategy Paper" IMF Country report no. 13/318, October 2013. <http://www.imf.org/external/pubs/ft/scr/2013/cr13318.pdf>. Accessed 04 September 2014, p. 6.

⁶ The human development index (HDI) provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by purchasing power parity, PPP, income). See UNDP-HDR (2014), pp. 238–286.

Table 2.1 Socio-economic human development and education indicators in Sudan and other regions in the World 2014

Human development index and its components						Education						
HDI rank	Human Development Index (HDI)	Life expectancy at birth	Mean years of schooling	Expected years of schooling	Gross national income (GNI) per capita	Literacy rates			Population with at least some secondary education	Gross enrolment ratios		
						Adult	Youth			Primary	Secondary	Tertiary
	Value	(years)	(years)	(years)	(2011 PPP \$)	(% aged 15 and above)	(% aged 15–24)		(% aged 25 and above)	(% of primary school-age population)	(% of secondary school-age population)	(% of tertiary school-age population)
	2013	2013	2012	2012	2013	2005–2012	2005–2012		2005–2012	2003–2012	2003–2012	2003–2012
Sudan	0.473	62.1	3.1	7.3	3,428	71.9	87.3	15.5		73 ^a	39 ^a	6.1 ^a
Human development index groups												
Very high human development	0.890 ^b	80.2 ^b	11.7 ^b	16.3 ^b	40,046 ^b	...	...	86.9 ^b		103 ^b	101 ^b	76 ^b
High human development	0.735 ^b	74.5 ^b	8.1 ^b	13.4 ^b	13,231 ^b	94.2 ^b	98.9 ^b	64.9 ^b		118 ^b	87 ^b	35 ^b
Medium human development	0.614 ^b	67.9 ^b	5.5 ^b	11.7 ^b	5,960 ^b	71.7 ^b	85.9 ^b	47.5 ^b		111 ^b	70 ^b	23 ^b
Low human development	0.493 ^b	59.4 ^b	4.2 ^b	9.0 ^b	2,904 ^b	58.2 ^b	70.2 ^b	22.1 ^b		98 ^b	39 ^b	8 ^b

In addition, the little progress in social indicators in Sudan also apparent from high poverty rates, where about 46.5 % in northern Sudan are estimated to be living below the poverty line of less than US\$ 1 a day.⁷ While progress has been made toward several of the Millennium Development Goals (MDGs), such as in the areas of education (MDG 2), infant and child mortality (MDGs 5 and 5), access to water and sanitation (MDG 7). However, Sudan's performance against the MDG indicators demonstrates large inequalities with respect to gender (MDG 3), rural–urban residence (MDG 7), and at the regional and sub-regional level.⁸ Data from UNDP-HDR (2014) shows evidences on inequalities with respect to gender in terms of GNI per capita in 2011 (male (US\$5153)—female (US\$1692)) and in terms of mean years of schooling [male (3.8) and female (2.5)] over the period 2002–2012. The significant regional disparities between regions contributed to growing inequalities and unbalanced development in Sudan (see Tables 2.2 and 2.3). Sudan suffers from disparities in development; Sudan's growth process has been unbalanced, with the majority of its manufacturing firms and irrigated land concentrated in the center with a huge disparity in development indicators between the best and worst performing regions in Sudan. Outcomes from the NBHS 2009 for a number of individual MDG-related indicators confirm that the major challenge facing Sudan's progress towards the MDGs is the massive inequality in outcomes and access to services (Table 2.3). Overall, there appears to be little evidence of aggregate improvements in social indicators such as poverty and educational enrolment. The significant development disparities between urban and rural areas and between regions contributed to growing inequalities and an increasing urban informal sector accounting for more than 60 % of GDP. This state of affairs has aggravated migration from rural to urban centers that is believed to have weakened agricultural productivity.⁹ Furthermore, Sudan suffers from high unemployment rates (20.7 %) and, particularly, high youth unemployment rates (32.8 %). Over the period (2000–2010) the unemployment rate increased from 15.5 % in 2000 to 20.3 % in 2010; i.e. increased by 4.8 %.¹⁰

⁷ Sudan Central Bureau of Statistics Household Survey Report (2009).

⁸ The Millennium Declaration and adoption of the UN MDG in September 2000 implies commitment toward achievement of the eight MDG by 2015. The MDG are: (1) Eradicate extreme poverty and hunger: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day, and halve, between 1990 and 2015, the proportion of people who suffer from hunger. (2) Achieve universal primary education: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. (3) Promote gender equality and empower women: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015. (4) Reduce child mortality: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate. (5) Improve maternal health: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio. (6) Combat HIV/AIDS, malaria and other diseases. (7) Ensure environmental sustainability and (8) Develop a global partnership for development. See UNDP-HDR 'UN MDGs in Sudan': http://www.sd.undp.org/mdg_sudan.htm, accessed June 1, 2010.

⁹ See International Monetary Fund IMF (2013) "Sudan Interim Poverty Reduction Strategy Paper" IMF Country Report No. 13/318, October 2013. <http://www.imf.org/external/pubs/ft/scr/2013/cr13318.pdf>. Accessed 04, September 2014, pp. 7–8.

¹⁰ See Sudan Ministry of Labour and Human Resources (MoLHR) (unpublished data and statistics).

Table 2.2 The status of MDGs in Northern Sudan in 2008

MDGs/indicators	Indicators	Status in 2004 ^a	Current level ^b	Reference year	2015 target
MDG 1 eradicate extreme poverty and hunger	Estimated poverty incidence (% of total population)*	50 % ^c	46.5 %	2009	45 %
	Prevalence of child malnutrition (underweight for age; % under 5) *	35 % ^c	31.8 %	2006	16 %
	Prevalence of acute child malnutrition* (underweight for weight; % under 5)	16 % ^c			8 %
MDG 2 achieve universal primary education	Gross primary enrolment ratio***	62 %	71.1 %	2009	100 %
	Percentage of cohort completing primary school***	21 %			100 %
	Adult literacy rate**	65.1 % ^(b)	77.5 %	2009	25 %
	Ratio girls to boys in primary education***	88 %	53.9–46.1 %	2007	100 %
MDG 3 promote gender equality and empower women	Women's literacy rate	62 %	86 %	2009	–
	Percentage of women in National Assembly/Council of States	19 %	25 %	2010	–
	Under-5 mortality rate (per 1,000)*	105 ^c	102	2008	35
	Infant mortality rate (per 1,000 live births)*	70 ^c	71	2006	–
	One-year-olds immunized against measles***	78 %	85 %	2009	–
MDG 4 reduce child mortality	Maternal mortality ratio (per 100,000 live births)	638 ^c	534	2006	127
	Birth attended by skilled health staff*	57 % ^c	57 %	2006	90 %
	Contraceptive prevalence (% of women ages 15–49)***	7 %	7.6 %	2006	–
MDG 5 improve maternal health	HIV Prevalence (% adults ages 15–49)*	1.6 % ^c	0.5–1.24 ^d	2009	–
	Incidence of TB (per 100,000 per year)***	90	120		–
	Children under 5 with fever treated with antimalarials (%)	54.2 % ^c			–

(continued)

Table 2.2 (continued)

MDGs/indicators	Indicators	Status in 2004 ^a	Current level ^b	Reference year	2015 target
MDG 7 integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources	Access to improved drinking water source (% of population)*	58.7 % ^c	65 %	2010	85 %
	Access to improved sanitation (% of population)*	39.9 % ^c	42 %	2009	67 %
MDG 8 develop a global partnership for development	In cooperation with the private sector, make available the benefit of new technologies, especially information and communications	Telephone line per 100 population (% of population)	0.9 %	2009	
		Cellular subscribers per 100 population (% of population)	28 %	2009	
		Internet users per 100 population (% of population)	10.4 %	2010	

Sources

^aSudan Millennium Development Goals Interim Unified Report, 2004 prepared by the UN Resident Coordinator's Support Office, Khartoum, Sudan: http://www.sd.undp.org/mdg_fact.htm, accessed on 1 June 2010

^bSPHS-2010, NBHS-2009, SHHS-2006 and administrative data from concerned institutions cited in pp. Sudan MDGs Progress Report 2011, Sudan National Population council, Khartoum, Sudan, 9–10

^cSudan Health and Household Survey 2006

^d0.5 for males and 1.24 for females

^eSudan Health and Household Survey 2006

^fEFA Global Summary Report 2008 p. 17

^gSudan Millennium Development Goals. Interim Unified Report, 2004

Table 2.3 Regional disparity in demographic and economic structure and achievements in MDGs in Northern Sudan 2005–2009

Region	Demographic and economic structure (2005–2008)									
		Northern	Khartoum	Central	Kordufan	Darfur	Eastern	Total		
Population ^a	2008	1,819	5,274	7,423	4,327	7,516	4,534	30,893		
		Share (%)	5	13	19	11	19	12	100	
Revenues ^b	2005	14,853	15,678	19,267	9,546	10,628	25,382	95,354		
		Share (%)	16	16	20	10	11	27	100	
Actual per capita federal Allocation ^b	2005	9,068	8,497	4,872	3,765	2,732	2,553	5,248		
Urbanization ^b	2005	27	88	29	29	20	43	39		
MDGs ^c (2009)										
Poverty gap ratio	MDG 1.2	9.4	6.4	13.8	23.1	24.6	17.7	16.2		
Net enrolment rate in primary education	MDG 2.1	83	85	67	60	62	57	67		
Literacy rate of 15–24-year olds	MDG 2.3.1	88	94	77	69	74	63	77		
Literacy rate of 15–24-year olds	MDG 2.3.2	91	96	84	79	85	68	84		
Literacy rate of 15–24-year olds	MDG 2.3.3	86	92	70	61	64	57	71		
Share of women in wage employment in nonagricultural sector	MDG 3.2	15	19	13	19	22	12	17		
Employment ratio to population 15 years old and above	MDG 1.5	35.9	37	41.3	48.5	45.3	39	41.4		
Proportion of employed population below poverty line	MDG 1.6	30.1	21	41.5	55.5	58.8	39.2	42.5		
Proportion of own account and contributing family workers to total employed	MDG 1.7	39.2	25.3	36	39.8	50	46.7	45		

^aAdapted from Sudan Central Bureau of Statistics Population Census Data (2010), in thousands: The Fifth Sudan Population and Housing Census (2008)^bElbadawi and Suleiman (2008, p. 107)^cSudan Central Bureau of Statistics (2011, p. 12)

2.3 Background on the Importance and Diffusion of Core ICT Indicators in Sudan, Arab Countries and World Regions, (2000–2013)

This section examines the status and trend of core ICT indicators on access to, and use of ICT in Sudan compared to Arab countries and World regions, using the latest available data for the period (2000–2013) (see Tables 2.4, 2.5, 2.6, and 2.7).¹¹

The historical use of ICT in Sudan, according to the WDI database (2005) implies that before 2000 the number of users of both mobile-cellular telephones and Internet (per 1,000 population) were zero and up till the year 2000 both were only one. In recent years, Sudan has shown growing telecommunication networks and Internet services but still the highest prices/most expensive Internet service compared to other African and developing countries. In recent years, the diffusion of ICT in Sudan has increased significantly. Tables 2.4, 2.5, 2.6, and 2.7 below present recent indicators from International Telecommunication Union (ITU) (2014) and illustrate that despite recent slowdown in terms of fixed telephone, the recent average growth rate of the total online population, Internet, fixed (wired)-broadband and mobile-cellular subscribers in Sudan during the period 2000–2013 has been significant. In Sudan over the period (2000–2013) the growth rate of mobile-cellular telephone (1,039.71) is faster than Internet (755.67), fixed (wired)-broadband (59) and fixed telephone (−0.04) respectively (see Tables 2.4, 2.5, 2.6, and 2.7).

The status and trend of ICT indicators in Sudan appears from the status and trend of fixed-telephone, mobile-cellular telephone and fixed (wired)-broadband subscriptions and the percentage of individuals using the Internet in Sudan over the period (2000–2013). For instance, fixed-telephone subscriptions (in millions) increased from 386,775 in 2000 to 570,000 in 2005 but then declined to 544,984 and to 415,571 in 2010 and 2013 respectively. Moreover, fixed-telephone subscriptions per 100 inhabitants over the period (2000–2013) increased from 1.13 in 2000 to 1.48 in 2005 but then declined to 1.25 and to 1.09 in 2010 and 2013 respectively (see Table 2.4 and Fig. 2.1). In addition, mobile-cellular telephone subscriptions (in millions) increased from 23,000 in 2000 to 1,827,940, 18,093,231 and to 27,657,875 in 2005, 2010 and 2013 respectively. Moreover, mobile-cellular telephone subscriptions per 100 inhabitants over the period (2000–2013) increased from 0.07 in 2000 to 4.76, 41.54 and to 72.85 in 2005, 2010 and 2013 respectively (see Table 2.5 and Fig. 2.1). In addition, fixed (wired)-broadband subscriptions (in millions) increased from 793 in 2004 to 1269, 13,500 and to 44,662 in 2005, 2010 and 2013 respectively. Moreover, fixed (wired)-broadband subscriptions per 100 inhabitants over the period (2000–2013) increased from 0.002 in 2004 to 0.003, 0.03 and to 0.12 in 2005, 2010 and 2013 respectively (see Table 2.6 and Figs. 2.2 and 2.3). Furthermore, the percentage of individuals using the Internet increased

¹¹ Regions in Tables 2.4, 2.5, 2.6, and 2.7 are based on ITU BDT Regions, see: <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>

Table 2.4 Fixed-telephone subscriptions per 100 inhabitants in Sudan compared to Arab Countries and World Regions 2000–2013

Fixed-telephone subscriptions per 100 inhabitants														
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arab countries														
Algeria	5.55	5.85	5.99	6.30	7.43	7.57	8.23	8.74	8.59	7.08	7.89	8.10	8.40	7.98
Bahrain	25.59	24.88	23.95	24.06	23.35	22.00	20.42	19.72	19.75	19.97	18.22	21.39	22.72	21.78
Comoros	1.28	1.64	1.84	2.32	2.58	2.82	3.09	4.11	4.44	4.62	3.11	3.31	3.34	3.13
Djibouti	1.34	1.35	1.36	1.35	1.45	1.36	1.43	1.77	1.84	2.05	2.22	2.18	2.32	2.37
Egypt	8.29	9.96	11.41	12.58	13.41	14.48	14.81	15.13	15.70	13.43	12.32	10.98	10.60	8.31
Iraq	2.84	2.75	4.47	4.56	3.88	4.07	4.45	4.75	3.68	5.47	5.56	5.63	5.71	5.63
Jordan	13.00	13.65	13.76	12.49	12.53	11.99	11.31	9.88	8.78	8.11	7.52	6.91	6.20	5.20
Kuwait	24.50	23.85	23.53	23.01	22.63	21.98	21.39	21.07	19.24	18.54	17.36	16.47	15.69	15.08
Lebanon	17.80	18.64	19.31	18.97	16.35	15.92	16.70	16.85	17.92	18.93	19.30	19.09	18.66	18.04
Libya	11.69	12.55	13.48	13.83	14.52	15.23	15.99	16.76	15.66	17.83	20.33	16.38	13.23	12.72
Morocco	4.96	4.11	3.85	4.12	4.38	4.45	4.17	7.81	9.66	11.24	11.85	11.12	10.08	8.86
Oman	10.12	10.29	9.86	9.89	9.85	10.52	10.56	11.48	11.61	11.27	10.13	9.50	9.19	9.67
Palestinian Authority	8.49	7.75	7.19	7.11	7.78	9.47	8.85	9.36	9.29	9.41	8.98	9.30	9.34	9.29
Qatar	26.98	27.37	28.03	27.95	26.50	25.01	23.60	20.60	19.56	18.41	15.43	16.17	19.23	19.02
Saudi Arabia	14.72	15.47	15.66	15.33	15.50	15.57	15.57	15.42	15.55	15.57	15.28	16.69	16.97	16.37
Somalia	0.34	0.46	0.45	1.24	1.21	1.18	1.15	1.12	1.09	1.07	1.04	0.91	0.69	0.61
Sudan	1.13	1.28	1.88	2.56	2.74	1.48	1.27	0.85	0.88	0.87	1.25	1.33	1.14	1.09
Syria	10.23	10.88	12.33	13.94	15.04	15.98	17.25	17.65	17.86	18.41	18.90	19.67	19.43	20.22
Tunisia	10.00	10.94	11.78	11.82	12.10	12.51	12.48	12.39	11.92	12.16	12.13	11.32	10.10	9.29
United Arab Emirates	33.71	33.62	33.92	33.71	32.46	29.81	26.86	23.90	23.48	20.47	17.53	20.45	21.37	22.32
Yemen	1.98	2.34	2.92	3.64	4.07	4.48	4.69	4.82	4.43	4.49	4.60	4.61	4.63	4.68
(continued)														

(continued)

Table 2.4 (continued)

	Fixed-telephone subscriptions per 100 inhabitants													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
World regions														
Developed						47.2	46.6	44.8	44.3	45.5	44.6	43.4	42.2	41.2
Developing						12.7	13.0	13.0	12.8	12.4	11.9	11.5	11.2	10.9
World						19.1	19.2	18.8	18.5	18.4	17.8	17.2	16.7	16.2
Africa						1.5	1.5	1.5	1.5	1.6	1.5	1.4	1.3	1.3
Arab States						9.4	9.6	10.1	10.3	9.9	9.8	9.8	9.6	8.9
Asia & Pacific						15.1	15.5	15.3	14.9	14.9	14.2	13.7	13.3	12.9
CIS						23.0	24.7	25.8	26.0	26.1	26.2	26.1	25.7	25.0
Europe						45.5	45.3	43.7	42.7	43.6	42.8	41.6	40.3	39.6
The Americas						33.0	31.9	30.9	31.2	29.9	29.2	28.3	27.6	27.0

Source: International Telecommunication Union (ITU) (2014) World Telecommunication (ITU)/ICT Indicators database. <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>

Table 2.5 Mobile-cellular telephone subscriptions per 100 inhabitants 2000–2013

Mobile-cellular telephone subscriptions per 100 inhabitants														
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arab countries														
Algeria	0.27	0.31	1.38	4.38	14.59	40.23	60.85	78.53	75.66	89.96	88.44	94.31	97.52	102.01
Bahrain	30.79	42.87	53.10	57.39	79.19	87.22	95.42	108.10	129.10	117.66	125.21	131.01	161.17	165.91
Comoros	0.00	0.00	0.00	0.35	1.43	2.58	5.98	9.82	14.13	18.41	24.20	30.91	39.51	47.28
Djibouti	0.03	0.41	2.01	3.05	4.50	5.67	5.69	8.71	13.93	15.67	19.86	22.80	24.72	27.97
Egypt	2.06	4.16	6.58	8.35	10.83	18.99	24.66	40.54	54.69	72.10	90.50	105.08	119.92	121.51
Iraq	0.00	0.00	0.08	0.31	2.15	5.60	33.30	48.79	59.56	66.69	75.14	80.16	81.63	96.10
Jordan	8.16	17.90	24.87	26.59	31.89	59.89	80.00	84.37	89.89	97.30	102.56	111.16	128.17	141.80
Kuwait	24.97	44.33	59.91	67.10	80.79	60.19	48.79	55.83	55.51	91.87	133.01	157.91	156.90	190.29
Lebanon	22.96	22.84	22.05	21.56	22.95	24.92	27.12	30.44	34.09	56.28	65.97	77.19	80.81	80.56
Libya	0.77	0.95	1.31	2.34	9.08	35.75	69.07	77.83	125.56	159.85	180.45	163.85	155.77	165.04
Mauritania	0.56	3.96	8.59	11.83	17.10	23.70	32.74	42.46	61.12	62.06	76.91	89.52	106.04	102.53
Morocco	8.16	16.44	21.15	24.88	31.27	41.14	52.66	65.31	73.71	80.93	101.07	114.02	119.97	128.53
Oman	7.39	14.43	20.06	24.86	32.72	52.86	71.16	97.29	124.13	149.09	164.34	159.00	159.25	154.65
Palestinian Authority	0.22	5.35	7.48	7.71	12.51	15.94	22.58	27.42	34.43	45.99	64.88	70.12	74.30	73.74
Qatar	20.36	29.08	42.35	57.03	68.07	87.29	95.06	109.70	105.18	124.60	124.96	120.48	126.86	152.64
Saudi Arabia	6.83	12.10	22.95	31.67	38.49	57.37	77.64	109.59	136.54	167.43	189.17	193.45	187.40	176.50
Somalia	1.08	1.12	1.28	2.49	6.06	5.91	6.33	6.73	6.86	6.83	6.73	18.17	22.56	49.38
Sudan	0.07	0.30	0.53	1.44	2.80	4.76	11.90	20.36	28.95	36.11	41.54	68.78	74.36	72.85
Sweden	71.82	80.76	89.20	98.43	97.81	100.82	105.69	110.46	108.44	112.13	117.16	121.22	124.57	124.40
Syria	0.18	1.20	2.35	6.85	13.27	16.24	24.86	31.87	34.68	47.65	54.32	59.24	59.30	55.97
Tunisia	1.25	4.03	5.89	19.47	37.55	56.52	72.23	76.34	82.78	93.21	104.54	115.20	118.11	115.60
(continued)														

(continued)

Table 2.5 (continued)

	Mobile-cellular telephone subscriptions per 100 inhabitants													
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
United Arab Emirates	47.19	60.96	75.31	88.22	100.67	109.29	113.20	133.36	137.64	138.27	129.43	131.40	149.64	171.87
Yemen	0.18	0.82	2.62	3.54	7.53	11.31	14.41	20.53	29.70	37.40	48.70	50.07	58.28	69.01
World regions														
Developed						82.1	92.9	102.0	107.8	112.1	113.3	113.5	116.0	119.2
Developing						22.9	30.1	39.1	49.0	58.2	68.5	77.4	82.1	87.6
World						33.9	41.7	50.6	59.7	68.0	76.6	83.8	88.1	93.1
Africa						12.4	17.8	23.5	32.2	38.0	45.4	52.3	58.9	65.9
Arab States						26.8	38.8	52.6	63.2	76.5	87.9	99.1	105.4	108.8
Asia & Pacific						22.6	28.8	37.1	46.6	56.3	67.3	76.5	80.9	86.4
CIS						59.7	81.8	96.1	111.6	126.8	134.2	127.2	130.5	137.0
Europe						91.7	101.2	111.7	117.0	116.8	115.0	117.9	119.6	122.8
The Americas						52.1	62.0	72.1	80.8	87.3	94.0	100.6	103.9	107.2

Source: International Telecommunication Union (ITU) (2014) World Telecommunication (ITU)/ICT Indicators database. <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>

Table 2.6 Fixed (wired) broadband subscriptions per 100 inhabitants 2000–2013

		Fixed (wired)-broadband subscriptions per 100 inhabitants													
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arab countries															
Algeria		0.00	0.00	0.00	0.05	0.11	0.40	0.49	0.82	1.36	2.25	2.43	2.60	3.00	3.26
Bahrain	0.00	0.17	0.68	1.26	1.82	1.82	2.44	4.06	6.46	6.89	6.38	5.40	14.16	13.20	13.15
Comoros		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.05	0.06	0.17	0.18
Djibouti	0.00	0.00	0.00				0.01	0.02	0.14	0.30	0.64	0.97	1.33	1.73	2.03
Egypt		0.00	0.07	0.08	0.11	0.11	0.20	0.35	0.64	1.02	1.36	1.86	2.32	2.83	3.26
Jordan		0.01	0.06	0.10	0.10	0.20	0.45	0.90	1.57	2.32	3.29	3.03	2.97	2.81	2.83
Kuwait		0.25	0.51	0.61	0.91	0.91	1.09	1.24	1.37	1.48	1.58	1.54	1.50	1.45	1.40
Lebanon		0.00	1.00	1.90	1.90	2.08	3.26	4.66	4.64	4.66	4.64	6.98	8.28	9.71	9.95
Libya			0.00	0.00	0.00	0.00				0.79	1.06	1.21	1.15	1.09	1.04
Mauritania		0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.12	0.17	0.19	0.16	0.17	0.18	0.19
Morocco		0.00	0.01	0.01	0.01	0.22	0.83	1.29	1.56	1.56	1.52	1.58	1.84	2.10	2.53
Oman		0.00	0.00	0.00	0.01	0.03	0.52	0.79	0.79	1.25	1.54	1.83	1.74	2.15	2.62
Palestinian Authority		0.00	0.00	0.00	0.00	0.00	0.21	0.75	1.49				3.79	4.42	4.71
Qatar	0.00	0.00	0.04	0.45	1.52	1.52	3.12	4.83	7.55	7.67	9.04	8.23	8.53	8.96	9.94
Saudi Arabia		0.07	0.16	0.20	0.20	0.29	0.27	0.86	2.40	3.98	5.01	5.49	5.68	6.95	7.33
Somalia		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.39	0.57
Sudan		0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.11		0.03	0.05	0.07	0.12
Syria		0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.05	0.16	0.32	0.56	1.11	1.58
Tunisia	0.00	0.00	0.00	0.00	0.03	0.03	0.17	0.43	0.93	2.19	3.55	4.53	5.20	4.85	4.77
United Arab Emirates	0.07	0.27	0.52	0.90	1.53	1.53	3.12	4.94	6.55	8.20	8.91	9.32	9.71	10.34	11.11
Yemen		0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.12	0.24	0.37	0.47	0.70	1.05
(continued)															

(continued)

Table 2.6 (continued)

	Fixed (wired)-broadband subscriptions per 100 inhabitants													
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
World regions														
Developed						12.3	15.5	18.0	20.4	22.0	23.5	24.6	25.7	26.6
Developing						1.3	1.8	2.3	2.9	3.5	4.2	4.9	5.4	5.8
World						3.4	4.3	5.2	6.1	6.9	7.6	8.4	9.0	9.4
Africa						0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Arab States						0.3	0.5	0.9	1.3	1.6	1.9	2.2	2.6	2.8
Asia & Pacific						2.2	2.8	3.2	4.0	4.7	5.5	6.4	7.0	7.4
CIS						0.6	1.3	2.3	4.3	6.1	8.0	9.2	11.0	12.6
Europe						10.9	14.8	18.4	20.4	22.1	23.6	24.8	25.7	26.6
The Americas						7.5	9.0	10.9	12.3	13.0	14.0	15.0	15.8	16.3

Source: International Telecommunication Union (ITU) (2014) World Telecommunication (ITU)/ICT Indicators database. <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>

Table 2.7 Percentage of individuals using the internet and proportion of households with internet access at home and with computer 2000–2013

Percentage of individuals using the internet															Proportion of households with	
															Internet access at home	Computer
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013			
Arab countries																
Algeria	0.49	0.65	1.59	2.20	4.63	5.84	7.38	9.45	10.18	11.23	12.50	14.00	15.23	16.50	10.0	18.1
Bahrain	6.15	15.04	18.05	21.55	21.46	21.30	28.24	32.91	51.95	53.00	55.00	77.00	88.00	90.00	79.0	92.7
Comoros	0.27	0.44	0.55	0.85	1.33	2.00	2.20	2.50	3.00	3.50	5.10	5.50	5.98	6.50	2.4	...
Djibouti	0.19	0.34	0.49	0.63	0.78	0.95	1.27	1.62	2.26	4.00	6.50	7.00	8.27	9.50	1.7	12.1
Egypt	0.64	0.84	2.72	4.04	11.92	12.75	13.66	16.03	18.01	25.69	31.42	39.83	44.00	49.56	34.5	43.1
Iraq		0.10	0.50	0.60	0.90	0.90	0.95	0.93	1.00	1.06	2.50	5.00	7.10	9.20	...	...
Jordan	2.62	4.71	6.03	8.47	11.66	12.93	13.87	20.00	23.00	26.00	27.20	34.90	41.00	44.20	35.4	50.8
Kuwait	6.73	8.55	10.25	22.40	22.93	25.93	28.79	34.80	42.00	50.80	61.40	65.77	70.45	75.46	62.0	66.9
Lebanon	7.95	6.78	7.00	8.00	9.00	10.14	15.00	18.74	22.53	30.14	43.68	52.00	61.25	70.50	61.8	71.5
Libya	0.19	0.37	2.24	2.81	3.53	3.92	4.30	4.72	9.00	10.80	14.00	14.00		16.50	...	...
Mauritania	0.19	0.26	0.36	0.42	0.48	0.67	0.98	1.43	1.87	2.28	4.00	4.50	5.37	6.20	...	...
Morocco	0.69	1.37	2.37	3.35	11.61	15.08	19.77	21.50	33.10	41.30	52.00	46.11	55.42	56.00	46.0	47.0
Oman	3.52	5.89	6.87	7.26	6.76	6.68	8.30	16.68	20.00	26.80	35.83	48.00	60.00	66.45	77.6	82.9
Palestinian Authority	1.11	1.84	3.10	4.13	4.40	16.01	18.41	21.18	24.36	32.23	37.40	41.08	43.40	46.60		
Qatar	4.86	6.17	10.23	19.24	20.70	24.73	28.97	37.00	44.30	53.10	69.00	69.00	69.30	85.30	96.4	97.1
Saudi Arabia	2.21	4.68	6.38	8.00	10.23	12.71	19.46	30.00	36.00	38.00	41.00	47.50	54.00	60.50	54.4	...
Somalia	0.02	0.08	0.12	0.38	1.05	1.08	1.10	1.12	1.14	1.16		1.25	1.38	1.50	...	...
Sudan	0.03	0.14	0.44	0.54	0.79	1.29		8.66			16.70	17.30	21.00	22.70	29.3	14.0
Syria	0.18	0.35	2.09	3.40	4.32	5.65	7.83	11.50	14.00	17.30	20.70	22.50	24.30	26.20	35.2	...
(continued)																

(continued)

Table 2.7 (continued)

	Percentage of individuals using the internet														Proportion of households with		
															Internet access at home	Computer	
Tunisia	2000	2.75	4.30	5.25	6.49	8.53	9.66	12.99	17.10	27.53	34.07	36.80	39.10	41.44	43.80	17.1	23.2
United Arab Emirates		23.63	26.27	28.32	29.48	30.13	40.00	52.00	61.00	63.00	64.00	68.00	78.00	85.00	88.00	72.0	85.2
Yemen		0.08	0.09	0.52	0.60	0.88	1.05	1.25	5.01	6.89	9.96	12.35	14.91	17.45	20.00	2.9	...
World regions																	
Developed							50.9	53.5	59.0	61.3	62.9	67.1	70.5	73.1	75.7	72.6	75.5
Developing							7.8	9.4	11.9	14.6	17.4	21.2	24.3	27.4	29.9	24.2	27.6
World							15.8	17.6	20.6	23.1	25.6	29.4	32.5	35.5	37.9	37.1	40.7
Africa							2.4	3.3	3.9	5.9	7.3	9.8	12.6	14.6	16.8	7.5	7.8
Arab States							8.3	11.1	13.4	16.2	19.1	23.0	26.6	33.8	37.4	31.2	34.0
Asia & Pacific							9.4	10.6	13.4	16.2	18.9	22.5	25.2	28.1	30.1	28.0	31.0
CIS							10.3	12.6	16.8	19.5	23.8	34.0	40.8	45.5	50.8	43.4	50.4
Europe							46.3	49.7	56.0	60.2	63.2	66.6	69.2	71.4	73.1	74.0	76.2
The Americas							35.9	38.8	42.7	44.1	46.1	50.5	54.8	58.1	61.8	51.8	58.4

Source: International Telecommunication Union (ITU) (2014) World Telecommunication (ITU)/ICT Indicators database. <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>

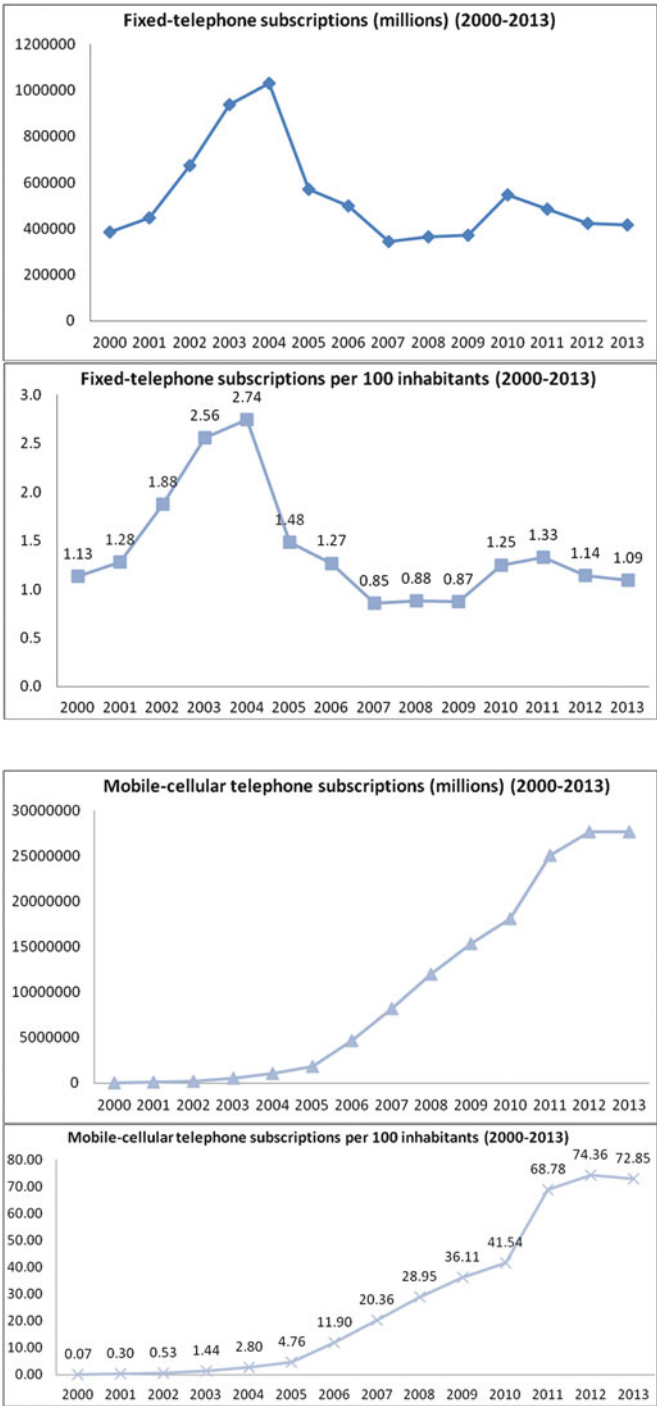


Fig. 2.1 (continued)

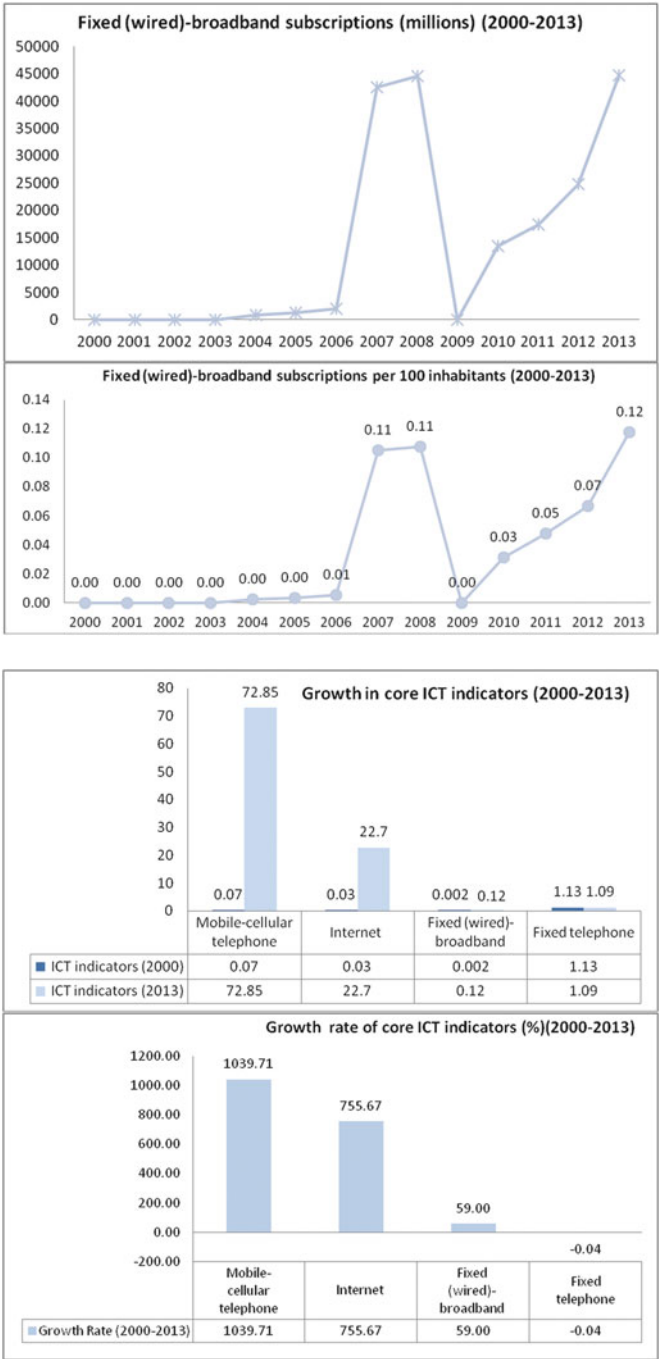


Fig. 2.1 (continued)

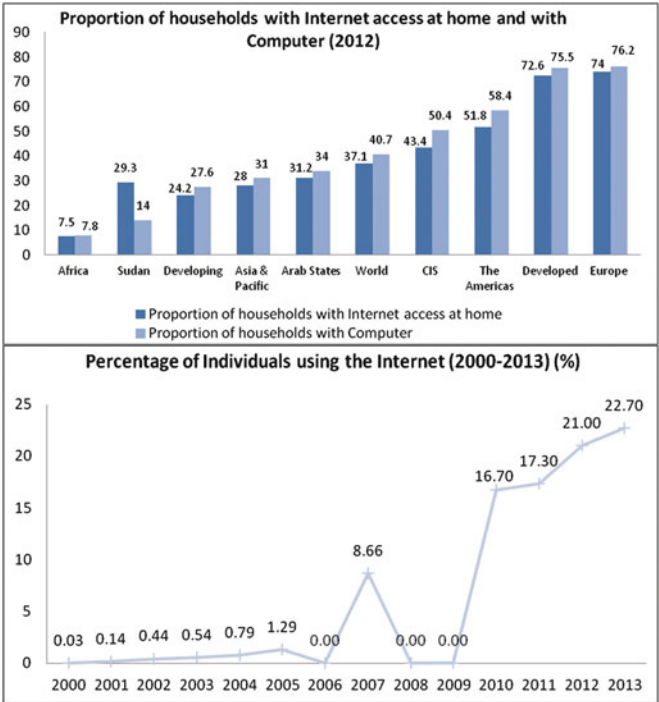


Fig. 2.1 Fixed-telephone, mobile cellular telephone, Fixed (wired) broadband subscriptions per 100 inhabitants and use of Internet in Sudan 2000–2013 (*Source* Adapted from ITU World Telecommunication/ICT Indicators database)

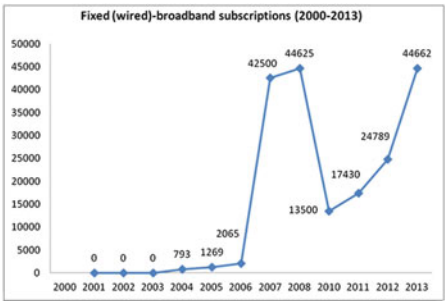


Fig. 2.2 Fixed (wired) broadband subscriptions per 100 inhabitants in Sudan 2000–2013. According to the ITU database (2014) before 2004 the fixed (wired)-broadband subscriptions (and per 100 inhabitants) were zero. Fixed (wired)-broadband subscriptions over the period (2004–2013) increased from 793 in 2004 to 1,269; 2065; 43,500 and to 44,662 in 2005; 2006; 2007 and 2008 respectively, but decreased substantially from 44,625 in 2008 to 13,500 in 2010, then increased to 17,430; 24,789 and to 44,662 in 2011; 2012 and 2013 respectively (see Table 2.6 and Figs. 2.5 and 2.6). (*Source* Adapted from ITU World Telecommunication/ICT Indicators database)

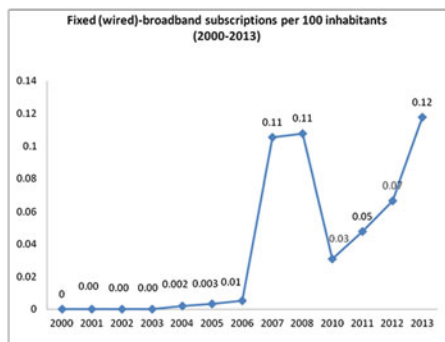


Fig. 2.3 Fixed (wired) broadband subscriptions per 100 inhabitants in Sudan 2000–2013. According to the ITU database (2014) fixed (wired)-broadband subscriptions per 100 inhabitants over the period (2004–2013) increased from 0.002 in 2004 to 0.003; 0.01; 0.11 and to 0.11 in 2005; 2006; 2007 and 2008 respectively, but decreased substantially from 0.11 in 2008 to 0.03 in 2010 then increased to 0.05; 0.07 and to 0.12 in 2011; 2012 and 2013 respectively (see Table 2.6 and Figs. 2.5 and 2.6). (*Source* Adapted from ITU World Telecommunication/ICT Indicators database)

from 0.03 in 2000 to 1.29, 16.7 and to 22.7 in 2005, 2010 and 2013 respectively (see Table 2.7 and Fig. 2.1).

The rapid increase in ICT indicators in Sudan that appear from the increasing use of Internet and mobile-cellular telephone in Sudan over the period (2000–2013), are above that of Africa but below Arab region and World region, whereas the use of fixed-telephone in Sudan is less than Africa, Arab region and World region. This implies that by regional and international standards, ICT indicators in Sudan are below compared to Arab countries and World regions. The status of ICT indicators in Sudan in 2013 can be explained by regional and international standards compared to Arab countries and world regions respectively. We find that by regional standard compared to Arab countries fixed-telephone subscriptions per 100 in Sudan (1.09 in 2013) ranked in the second bottom place in the Arab countries after Somalia, the top performance in the Arab region that reported in the United Arab Emirates (22.32) is equivalent to 20.48 times that of Sudan. By international standard, compared to world region, fixed-telephone subscriptions per 100 in Sudan is below the level of all World regions: developed countries, developing countries, World, Africa, Arab States, Asia and Pacific, CIS, Europe and the Americas (see Table 2.4 and Fig. 2.4). We find that by regional standard compared to Arab countries, mobile-cellular telephone subscriptions per 100 in Sudan (72.85 in 2013) ranked in the sixth bottom place in the Arab countries after Djibouti, Comoros, Somalia, Syria and Yemen respectively, the top performance in the Arab region that reported in Kuwait (190.29), is equivalent to 2.61 times that of Sudan. By international standard compared to world region, mobile-cellular telephone subscriptions per 100 inhabitants in 2013 in Sudan is only above the level of Africa, but below the level of developed countries, developing countries, World, Arab States, Asia and Pacific, CIS, Europe and the Americas (see Table 2.5 and

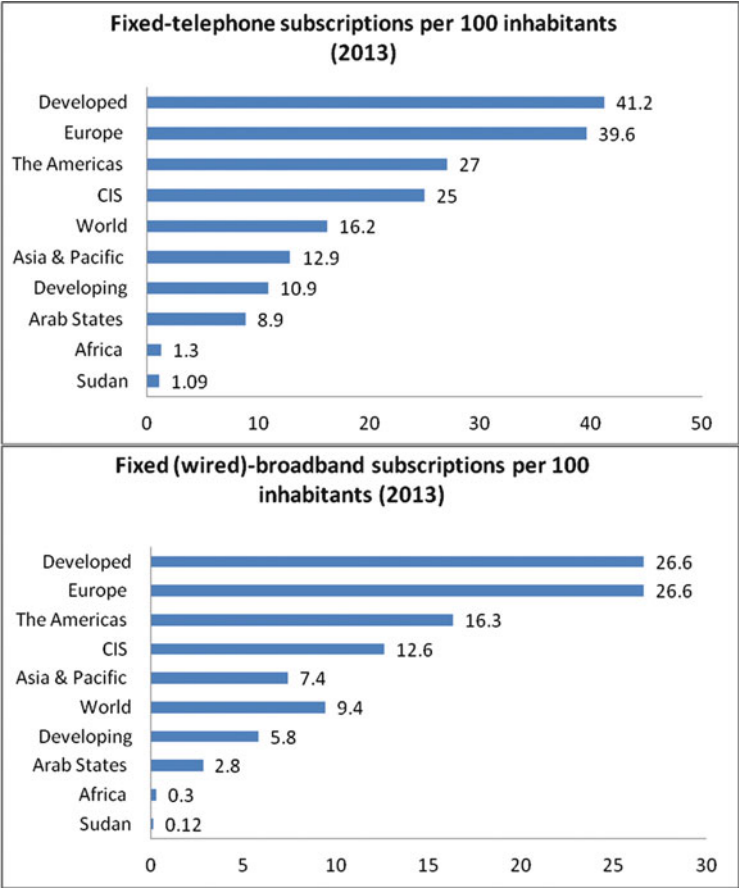


Fig. 2.4 (continued)

Fig. 2.4). We find that by regional standard compared to Arab countries, fixed (wired)-broadband subscriptions per 100 in Sudan (0.12 in 2013) ranked in the bottom place in the Arab countries, the top performance in the Arab region that reported in Bahrain (13.15) is equivalent to 109.58 times that of Sudan. By international standard compared to world region, fixed (wired)-broadband subscriptions per 100 inhabitants in 2013 in Sudan is below the level of all World regions: developed countries, developing countries, World, Africa, Arab States, Asia and Pacific, CIS, Europe and the Americas (see Table 2.6 and Fig. 2.4). We find that by regional standard compared to Arab countries, the percentage of individuals using the Internet in Sudan (22.7 in 2013) ranked in the ninth bottom place in the Arab countries after Somalia, Mauritania, Comoros, Djibouti, Iraq, Libya, Algeria and Yemen respectively, the top performance in the Arab region that reported in Bahrain (90), is equivalent to 3.96 times that of Sudan. By international standard compared to world region, the percentage of individuals using the Internet

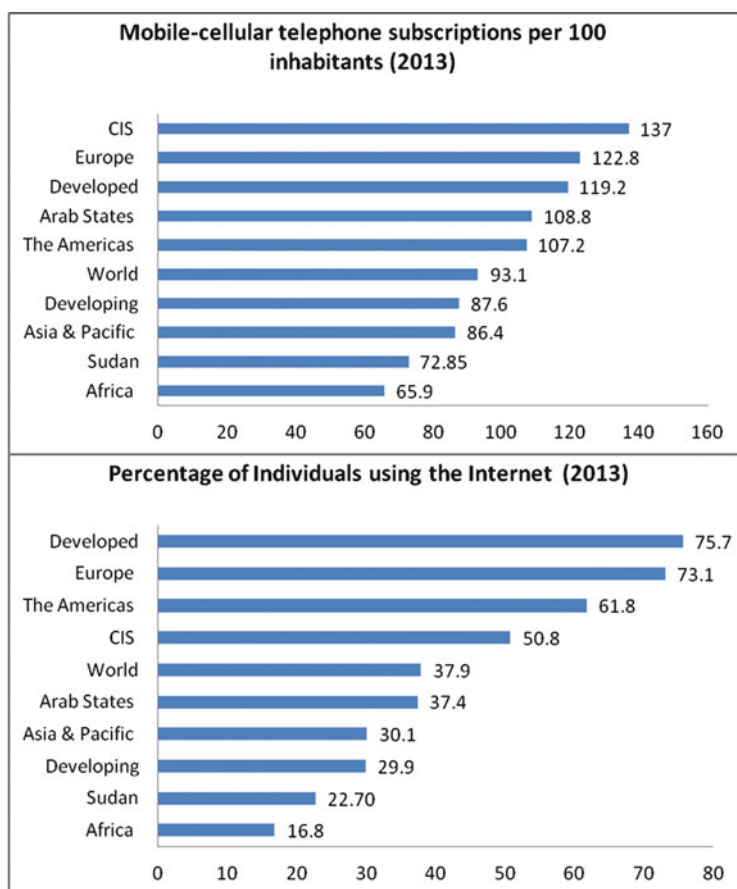


Fig. 2.4 Fixed telephone, mobile cellular telephone and Fixed (wired)-broadband subscriptions and percentage of individuals using the Internet in Sudan compared to World Regions (2013) (Source Adapted from ITU World Telecommunication/ICT Indicators database)

Table 2.8 ICT development index (IDI), access sub-index, use sub-index and skills sub-index in Sudan 2011–2012

	Rank	Access	Rank	Access	Change in rank	Change in access
	2012	2012	2011	2011	2011–2012	2011–2012
ICT development index (IDI)	119	2.33	118	2.19	–1	0.14
IDI access sub-index	115	2.62	120	2.37	5	0.25
IDI use sub-index	104	1.26	101	1.16	–3	0.10
IDI skills sub-index	130	3.88	129	3.88	–1	0

Source ITU (2013), pp. 24, 40, 46, 50, 54

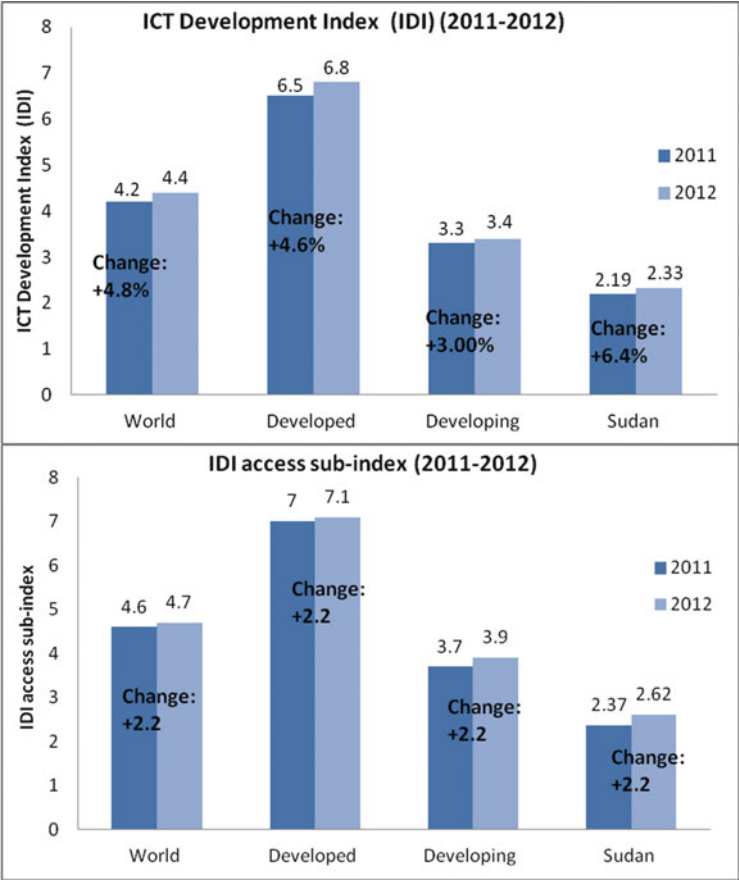


Fig. 2.5 (continued)

in 2013 in Sudan is only above the level of Africa, but below the level of developed countries, developing countries, World, Arab States, Asia and Pacific, CIS, Europe and the Americas (see Table 2.7 and Fig. 2.4). We find that by regional standard compared to Arab countries, the proportion of households with Internet access at home in Sudan (29.3 in 2013), ranked in the fifth bottom place in the Arab region after Djibouti, Yemen, Algeria and Tunisia respectively, the top performance in the Arab region that reported in Qatar (96.4) is equivalent to 3.29 times that of Sudan. By international standard compared to world region, the proportion of households with Internet access at home in Sudan is above only the level of developing countries, Africa, Asia and Pacific, but below the level of developed countries, World, Arab States, CIS, Europe and the Americas. We find that by regional standard compared to Arab countries, the proportion of households with computer in Sudan (14), ranked in the second bottom place in the Arab countries after Djibouti,

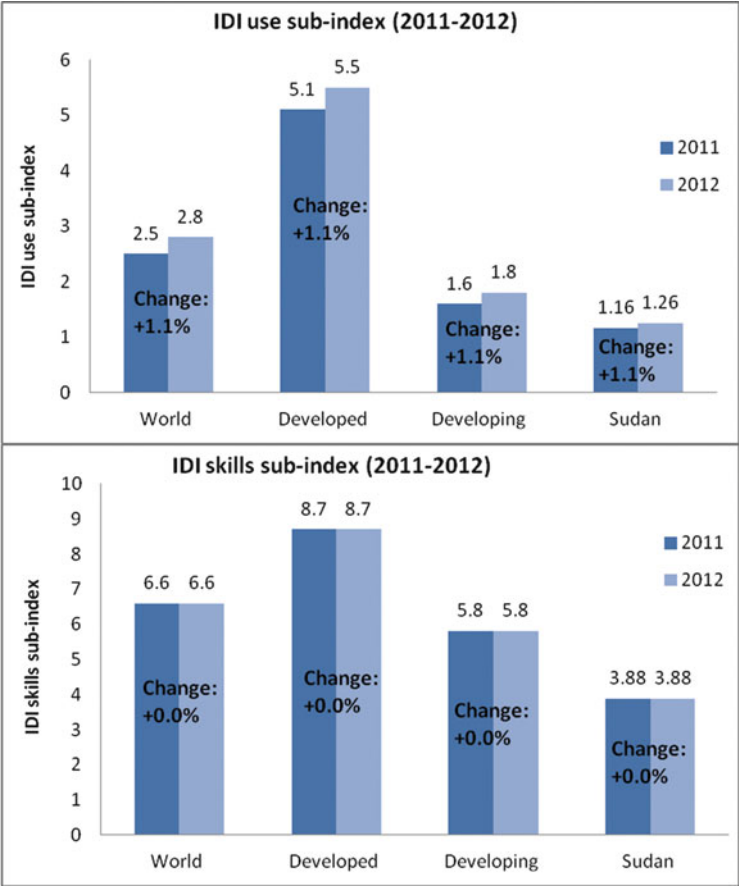


Fig. 2.5 ICT Development Index (IDI), and access sub-index, use sub-index and skills sub-index in Sudan 2011–2012 (Source Adapted from ITU (2013), p. 40)

the top performance in the Arab region that reported in Qatar (97.1) is equivalent to 6.94 times that of Sudan. By international standard compared to world region, the proportion of households with computer in Sudan is above only the level of Africa, but below the level of developed countries, developing countries, World, Arab States, Asia and Pacific, CIS, Europe and the Americas (see Table 2.7 and Fig. 2.4).

The performance in terms of ICT Development Index (IDI) implies slight improvement in Sudan’s score value from 2.19 in 2011 to 2.33 in 2012, but in terms of global IDI ranking, Sudan fell in the rankings between 2011 and 2012, Sudan is ranked at 119 place globally in 2012 compared to 118 place globally in 2011 out of 157 countries in the World. In the Arab region, Sudan is ranked at 13 place regionally out of 17 countries in the Arab region, it is ranked at fifth bottom place in Arab region in 2012 (see Table 2.8, Fig. 2.5). The status and trend of ICT indicators in Sudan appears from the status and trend of ICT Development Index

(IDI), access sub-index, use sub-index and skills sub-index over the period (2011–2012). For instance, ICT Development Index (IDI) increased from 2.19 in 2011 to 2.33 in 2012; access sub-index increased from 2.37 in 2011 to 2.62 in 2012; use sub-index increased from 1.16 in 2011 to 1.26 in 2012 and skills sub-index remained unchanged 3.88 in 2011 and 2012 (see Table 2.8, Fig. 2.5). We find that evidences in support of the incidence of the global digital divide between Sudan and the World countries, developed countries and developing countries appear from ICT Development Index (IDI), access sub-index, use sub-index and skills sub-index over the period (2011–2012) (see Fig. 2.5) (See ITU 2013, p. 40).

2.4 Conclusions

This chapter presents an overview of Sudanese economy and the trend and status of ICT in Sudan. Section 2.2 explains some stylised facts along with other strategic problems confronting economic development in Sudan. Section 2.2 explains that Sudan's economy has been characterised by low GDP per capita income, presence of high rates of poverty, unemployment and inequalities in resources sharing. But following the increasing dependence on oil, structural change in the economy and improvement in the economic performance has led to sound economic growth; Sudan has turned from a low income economy into a lower medium income economy according to the World Bank classification. However, the secession of the South in 2011 had seriously and critically affected the Sudan economy (UNDP-HDR 2014), particularly, because of the loss of greater part of Sudan's oil production and export revenues.

Section 2.3 explains the trend and status of core ICT indicators in Sudan. We show that in the recent years, Sudan has shown growing telecommunication networks and Internet services and the diffusion of ICT in Sudan has increased significantly. We explain that recent indicators from International Telecommunication Union (ITU) (2014) show the trend of core ICT indicators and illustrate that despite recent slowdown in terms of fixed telephone, the recent average growth rate of the total online population, Internet, fixed (wired)-broadband and mobile-cellular subscribers in Sudan during the period 2000–2013 has been significant. ITU (2014) data for 2000–2013 indicates that in Sudan the growth rate of mobile-cellular telephone (1,039.71) is faster than Internet (755.67), fixed (wired)-broadband (59) and fixed telephone (−0.04) respectively (see Tables 2.4, 2.5, 2.6, and 2.7). We show that the status of ICT indicators in Sudan in 2013 can be explained by regional and international standards compared to Arab countries and world regions respectively. We find that ITU (2014) data for 2000–2013 indicates that by regional and international standards the rapid increase in ICT indicators in Sudan that appear from the increasing use of Internet and mobile-cellular telephone and the increasing proportion of households with Internet and proportion of households with computer are above that of Africa but below Arab region and World region, whereas the use of fixed-telephone in Sudan is less than Africa, Arab region and World region. This

implies that by regional and international standards, ICT indicators in Sudan are below compared to Arab countries and World regions. Our findings indicate that the reported increasing trend of mobile and Internet usage at the aggregate macro level in Sudan seems consistent with the observed increasing trend at the regional and international levels. We find evidences in support of the incidence of the global digital divide between Sudan and the World countries, developed countries and developing countries that appear from ICT Development Index (IDI), access sub-index, use sub-index and skills sub-index over the period (2011–2012). Our results indicate that the reported digital gap in core ICT indicators at the aggregate macro level in Sudan compared to world regions seems consistent with the observed development gap in social, economic, human development and education indicators in Sudan compared to world regions.

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