

Human Development in Sudan *from the perspective of Agenda 21 (Rio 1992)*

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1. Introduction:

Human development as a concept is easier to comprehend than to define or conceptualize. Generally, it is a process striving at the perpetual enhancement of the material and immaterial living conditions of the broad population base while sustaining or improving the environmental quality. It thus a multi-dimensional process to which every human endeavor relates in one way or another, to this or that extent. It is therefore contended that the other four parts of the review report substantiate this part, each from its own perspective.

It is commonplace that the immaterial aspects of human life, like human rights, freedoms and liberties, are inseparable from the material betterment of human life though they cannot all be satisfactorily quantifies. Because of this limitation coupled with time constraint and the multiplicity of indicators which are relevant for the assessment of human development, this part of the review study will address only some of these indicators. The main sections will comprise population; economy, employment and food security; medical services; educational services; drinking water and sanitation; and conclusion.

2. Population:

The comprehensive National strategy has rights acknowledged the need for harmonization of economic growth with population and development. The national policy is this expected to link population growth with development, assign priority to human development and address regional imbalances in development. The balance between population, developmental and environmental protection is to be realized through: improving the economic conditions of families and enabling universal access to primary health care, basic education, and other basic services, together with reducing regional and urban- rural disparities in social development, enhancing the state of women, and mobilizing local communities.

Development polices should be based on the major geographical and demographic characteristics of population. The regional distribution and annual rate of growth of population are expected to be reflected in the regional allocation of development projects and their annual growth. Table (1) show that total population will be above the 30 million figure by the end of the CNS.

Table (1) Population Distribution by Region, Sex and Residences 1993-2002

Former Regions	1993			1996			2002	
	Population 000	Sex Ratio	Urban %	Pop. 000	Sex ratio	Urban % (1998)	Pop. 000	Growth Rate 96-2002
Eastern	3067.1	108	28.9	3367	107	43.1	3360.5	2.25
Northern	1292.8	93	22.9	1316	95	25.4	1392.5	1.85
Khartoum	3512.1	115	83.1	4219	112	85.5	5301.3	4.04
Central	5433.1	98	23.6	6135	97	29.9	6278.7	2.81
Kordofan	3322.8	94	19.6	3550	93	25.6	3512.0	1.53
Darfur	4639.2	96	14.1	5529	96	17.7	6212.6	3.01
N. Sudan	21267.1	101	31.5	24116	100.8	37.8	26057.6	2.58
S. Sudan	4321.8	113	15.6	5471	104	21.4	5283	1.61
Sudan	25588.9	103	28.8	29587	100.8	34.8	31340.6	2.64

Sources: computed from UNICEF, 1996, 1999 and States Encyclopaedia, 2000

Table (2) Population Age Structure, 1996, 2002 (%)

Regions	1996				2002			
	<5	6-24	<15	60+	<5	6-24	<15	60+
Eastern	15.0	44.0	27.0	4.0	17.6	51.5	31.6	4.7
Northern	12.7	42.0	40.0	4.5	18.1	53.6	51.1	6.4
Khartoum	15.0	42.0	37.0	4.0	16.1	42.4	37.3	4.0
Central	17.0	46.0	45.0	4.0	19.5	52.8	51.7	4.6
Kordofan	17.0	48.0	49.0	4.0	18.7	52.9	54.0	4.4
Darfur	17.1	46.0	45.1	3.8	18.5	52.3	51.2	4.4
N. sudan	16.1	44.8	43.8	4.0	17.9	48.6	46.6	4.3
S. Sudan	14.0	38.6	38.6	2.6	18.1	41.2	41.2	2.8
Sudan	15.9	43.8	43.6	3.9	18.0	47.7	46.1	4.5

Source: computed from UNICEF, 1999

But UNHCR argues that by taking into account the 300,000 Southern refugees in Kenya and Uganda in 1993 and the 484,000 displaced now in the northern parts of the country, the rate of population growth for the southern Sudan will be 2.98% instead of 1.61%, and the overall rate for the Sudan will be 2.8%, the same as it was in 1993. If the human conditions are to be improved, development indicators should grow by a rate higher than 3%. Regional disparities in population size and rate of population growth reflect the regional differences in security relative stability of ecosystems, production and employment opportunities, and urbanization. Urban population had increased by over 50% between 1993 and 1996 as a result of massive displacement and accelerated rural-urban migration. Urban populations are increasing in every single State and Greater Khartoum will be dwelling 20% of the total population by the end of the CNS. Urban human and environmental development has to be adequately addressed.

The sex and age structure of the population specifies the need for certain development services, e.g. maternal services for females and immunization and basic education for children. The sex ratio is generally balanced for the country with slight regional deviations but the general trend is towards the balance of sexes. Table (2) shows the age structure by regions in 1996 and that projected for the year 2002.

3. Economy, Employment and Food Security:

3.1. Main factors affecting the Economy:

These main factors which directly affect human development include:

3.1.1. Globalization of the world capitalist system with its major arms: the IBRD, IMF and WTO. Their liberalization/privatization policies and terms of international trade have and will continue to have negative impacts on the national economy and the broad population base. A few examples will suffice:

- (One) Collapse of the national productive enterprises because of their weak competitive position with regard to imported substitutes
- (Two) Stunted economic growth and decline in real per capita income.
- (Three) Growing gap between imports and exports due to price differential between exported primary products and imported manufactured goods and services
- (Four) Galloping inflation reaching 101% in 1995 but dropping to 8.2 in 1999, stabilizing prices of domestic products though at a high level; but prices of imported products continued to shoot high because of the deterioration of the value of the national currency from LS 14 per US dollar in 1990 to LS 800 in 1996 and to LS 2580 in 2001.

(Five) Sever drop in public services due to the increasing erosion of the powers of the national state.

(Six) The provision of development aid and loans has been conditioned by the adoption of a multi-party system and the promotion of human rights and civil liberties. This is a positive effect of globalization, providing international support for the struggle of civil society organizations to established a democratic system and restore dignity which are parts of human developments.

3.1.2. Declared and undeclared economic siege which has curbed the in-flow of development aid, loans and investment. This is because of the international and foreign policies of the regime.

3.1.3. Indebtedness; Foreign loans, instead of solving the economic problems, have themselves become an additional problem. Debt services and repayment of regional loans bear negatively on public developmental expenditure. Furthermore, the need to settle these debts may obligate the country to expand the export sector of the economy at the expense of food production. Sudan's external debts had grown to about 19 billion US dollars in 1997.

3.1.4 The civil war which has extended in geographical coverage and increased in intensity; the very high costs of the war in human capital, national resources, financial resources, built environment, and socio-political instability are serious impediments of human development.

3.1.5. General environmental degradation resulting from the war, drought and resource mismanagement has resulted in lower bio-productivity.

3.1.6. The politicization of the military, security and civil services and the subsequent purge of the qualified cadres therefrom have opened the door wide open for the ideologically committed and the supporters of the ruling party to occupy the senior posts however unqualified and inexperienced they may be.

3.1.7. Decentralization and the local government hierarchical structure; because it is very expensive and undemocratic, the local governments system has significantly increased public non-developmental expenditure, and failed to organized and mobilize local communities. Local governments and councils, with meagre resources and many services to render, have no option other than levying unaffordable taxes and fees on their local communities.

3.1.8. Spatially and socially uneven development; the regional disparities have fuelled the massive rural-urban migration, while the social polarization has dissolved the middle class which usually shoulders the greater burden of development in developing countries.

3.1.9. Production, refining and export of oil have improved the foreign currency of the country through both import substitution and direct exports.

3.1.10. Improvement of some infrastructures elements such as roads and telecommunication. Cheaper means of transport-river transport and railways have lost their former significance.

3.2. Employment:

3.2.1 Economic participation rates; the overall (both sexes) rate of economic participation varies from one state to another, ranging between 25.3% and 42.3%. It is higher in the predominantly agricultural and pastoral States (Table 3). The table does not show the rate for males but it is certainly higher than rate for both sexes. The female rate is significantly higher in the western

states than the other states, e.g. the rate in North Darfur is about nine times the rate in Northern State and more than four times the rate in Khartoum State. The difference between male and female rates is still significant

(1:3-4) for most states, but is much lower in the six states of Kordofan and Darfur. The CNS aims at promoting the general situation of women, but this cannot be achieved without their involvement in economic activities; the increase in their participation rate has been less than 3% between 1990 and 1999.

Table (3) Economic Participation Rate by Sex in Northern Sudan, 1999

State	Female	Both Sexes
Red Sea	9.7	34.9
Kassala	8.2	28.0
Gedaref	8.6	25.7
Northern	4.3	25.3
Nahr El Nile	5.1	25.4
Khartoum	9.3	30.2
Gezira	7.4	25.5
White Nile	8.6	26.4
Sinnar	5.2	26.4
Blue Nile	7.8	29.9
North Kordofan	31.0	28.2
South Kordofan	21.7	31.2
West Kordofan	36.1	41.4
North Darfur	39.5	40.2
South Darfur	35.4	40.9
West Darfur	38.5	42.3

Sources: UNFPA, 1999

3.2.2. Employment situation; According to the 1993 population census, girls and women constituted 27,7% of the total labour force of 6.5 million persons aged 10 years and above in the northern states (Table 4). Total labour force has increased by 40% between 1993 and 1999, male labour by 34% and female labour by 55.6%. Despite the increase in female labour, it still constitutes only 30.8% of the labour forces in 1999.

Between 1990 and 1996 the rate of unemployment increased by 0.1% for the total labour force as well as for male labour. The rate for female labour dropped by 3.7% because of massive migration of male labour to foreign labour markets. Unemployment is highest among children and youth (10-24 years old) for sexes and declines thereafter. It is more prevalent among men in rural areas, but the reverse is true in urban centres, reflecting female poor access to and utilization of education and vocational training which is provided mainly in the gender stereotyped occupations of education, nursing, secretarial work, the arts, and handicrafts (UNICEF, 1996).

Table (4): Labour Force and Employment Situation

		1990/1993	1996	1999
Labour force (million)	Total	6.5 (93)	7.9	9.1
	Male	4.7 (93)	5.5	6.3
	Female	1.8 (93)	2.4	2.8
	Urban	NA	2.5	NA
	Rural	NA	5.4	NA
Unemployment Rate	Total	16.5 (90)	16.6	NA
	Male	13.0 (90)	31.1	NA
	Female	28.0 (90)	24.3	NA
	Urban	NA	19.6	NA
	Rural	NA	15.5	NA

Source: Population census, 1993; MOM, 1996, and 1999.

Regional unemployment rates for urban and rural labour (Table 5) reflect the economic the situation at the regional level more than the situation at the national level. Since the public sector is the largest employer, the privatization policy would certainly and severely cut down current jobs, forcing a large segment of employment out of work to join the unemployed labour reserve.

Table (5) Regional Unemployment Rates, 1996

(Former) Regions	Urban	Rural
Eastern	20.7	24.1
Northern	25.5	29.4
Khartoum	22.3	18.6
Central	16.3	16.4
Kordofan	20.0	14.7
Darfur	13.9	10.0
Northern Sudan	19.6	15.5

Source: MOM, 1997

3.2.3. Child labour: According to the 1993 population census, about 1.43 million children and youth (21.6% of all economically active population) in northern Sudan were economically active; 25% of children (10-14 years) and about (38%) of those in the age group 15-19 years. The numbers of the employed and unemployed children and youth are shown in Table (6). Working children of the state's children are highest in Darfur (45.9%), then Kordfan (35%), but only 10% in Khartoum.

Table 6: Economically Active Children (%) in Northern Sudan, 1993

	10-14 Years			15-19 Year		
	Employed	Unemployed	Total	Employed	Unemployed	Total
Total	16.1	8.4	24.5	29.4	7.4	36.8
Urban	4.0	6.3	10.3	16.6	7.0	23.6
Rural	21.5	9.3	30.8	36.7	7.6	44.3

Source: Derived from population census 1990

If current rates remain unchanged during the period 1996-2002, the number children will increase as in Table (7), ascertaining the need for a high rate of economic growth in order to expand vital services, age oriented activities and employment for their parents if child labour is to be abandoned.

Table 7: Estimated Number of Children (000), 1996-2002

Age Group		10-14	15-19
1996	No. of children	4125	3241
	No. of active children	1043	1248
1999	No. of children	4348	3416
	No. of active children	1100	1308
2002	No. of children	4700	3693
	No. of active children	1189	1921

Source: Computed from Population Census, 1993

Child labour economic participation rate by age, sex residence, and region is shown in Table (8), the data of which gives a total participation rate of 10% out of the total labour force and 24% out of the total child labour.

Table 8: Child Labour Participation Rate for N. Sudan

Classification by		Participation rates in the labour force	Participation Rate out of Total Child population
Age	6	2.7	10.8
	7	3.7	12.9
	8	3.9	12.3
	9	5.9	10.1
	10	11.5	13.7
	11	8.7	7.4
	12	18.7	14.2
	13	17.9	9.2
Age Group	6-9	4.0	46.1
	10-14	10.1	53.9
Sex	Male	9.9	51.6
	Female	10.1	48.4
Residence	Urban	2.5	28.8
	Rural	13.0	71.2
(Former) Regions	Eastern	16.8	13.9
	Northern	7.1	5.7
	Khartoum	3.6	15.1
	Central	3.2	24.2
	Kordofan	13.3	16.0
	Darfur	15.2	25.0

Source: UNICEF, 1999

3.2.4. Street Children: Table (9) shows the regional distribution of street children in 1996 and 1999 and their estimates for the year 2002. The number increased by 5.4% during the period 1996-1999 and will be 13.9% higher in 2002 than in 1996. The share of Khartoum State remains at 39%. Khartoum and the Gezira States together house 73% of all street children in northern Sudan.

This regional distribution may be explained by a number of reasons. The low figures in the Northern Region are explained by the peasantry culture, coherence of society, strong family ties and limited in-migration. Reasons for the Eastern, Kordofan and Darfur Regions are mainly drought, civil war and tribal conflicts. The high percentage of street children in Khartoum and Gezira State are due to the relatively pull factors of displacement, like employment opportunities and urbanization amenities (UNICEF, 1999)

Table 9: No. of Street Children in N. Sudan

Region	1996	1999	2002 (Estimates)
Eastern	2356	2484	2684
Northern	118	124	130
Khartoum	22853	24095	26034
Central	19967	21051	22745
Kordofan	4535	4781	5166
Darfur	8835	9315	10065
Sudan	58664	61850	66824

Source: UNICEF, 1999

3.3 Food Security:

Food security takes priority over all parameters of human development. Since cereals constitute the main item of Sudanese food, agriculture figures prominently in food security and the

economy as a whole. It absorbs two-thirds of the labour force, contributes about 90% of the value of exports excluding petroleum exports, and about 48% of the GDP, in addition to the provision of raw materials for over 85% of the manufacturing industries.

The paradox is that the Sudan, which has been described as the bread basket of the Arab countries, faces recurrent famines in many of its states. Table (10) shows that the food (cereal) deficit amounted to over 1.5 million metric tons, and only eight states had a positive balance in 1998. In the long term only five States will have a surplus.

The average annual rate of population growth is estimated at 2.8%, which directly and synonymously affects the increase in demand for food. The current rate of increase in food production is 3.47%. If this rate remains unchanged, the food gap will continue for a long time.

Table 10: Cereal Balance (000 MT)

State	Consumption 2000 (1)	Average production 1988-92 (2)	Production 1997/98 (3)	Short-term Balance (3)-(1)	Long Term Balance (2)-(1)
Red Sea	123.1	10	14	- 109.1	- 113.1
Kassala	264.8	171	301	+ 36.2	- 93.8
Gedarf	264.2	944	616	+ 351.8	+ 679.8
Northern	105.1	102	210	+ 104.9	- 3.1
Nahr El Nil	162.0	28	90	- 72.0	- 134.0
Khartoum	855.4	2	1	- 854.4	- 853.4
Gezira	428.0	710	672	+ 244.0	+ 282.0
Sinnar	211.5	111	39	- 172.5	- 100.5
Blue Nile	112.0	749	341	+ 229.5	+ 637.0
White Nile	266.0	270	280	+ 14.0	+ 4.0
N. Kordofan	272.7	99	45	- 227.7	- 173.7
W. Kordofan	202.5	NA	234	+ 31.5	NA
S. Kordofan	200.0	218	256	+ 56.0	+ 18.0
North Darfur	262.3	53	172	- 90.3	- 209.3
West Darfur	350.8	NA	219	- 131.8	NA
South Darfur	500.0	238	316	- 184.0	- 262.0
Upper Nile	261.5	78	80	- 181.0	- 183.5
Bahr El Ghazal	417.5	19	39	- 378.5	- 398.5
Equatoria	226.8	20	40	- 186.8	- 206.8

Source: UNICEF, 1999

Insufficiency of food is reflected in nutritional deficiency recorded in every single state. People with severe nutritional deficiency account for about 16% of the total population Nahr El Nil State (Table 11). General (total) nutritional deficiency is highest in North Darfur State affecting about 31% of its population, and the lowest is in South Darfur (8.5%).

Table 11: Nutritional Deficiency in Northern Sudan (%), 1998

State	Severe Deficiency	Moderate Deficiency	Total
Red Sea	9.0	16.2	25.2
Kassala	5.3	14.0	19.3
Gedaref	5.3	9.3	14.6
Northern	5.8	23.3	29.1
Nahr El Nil	15.7	12.7	28.4
Khartoum	4.7	16.4	21.1
Gerzira	6.0	14.4	20.4
Sinnar	8.0	18.6	26.6
White Nile	4.7	12.7	17.4
North Kordofan	3.2	13.2	16.4
North Darfur	11.0	19.7	30.7
South Darfur	1.7	6.8	8.5

Source: CNS Report, 1998

Poverty contributes to nutritional deficiency. In 1996 poverty rate in Northern Sudan stood at 84.6% for the urban areas and 93.3% for rural population, and it must have been higher in Southern Sudan (Table 12). No State had a rate lower than 76% for urban centres and 80% for rural areas. The poverty rate is not expected to drop given the state of the economy (section 3.1 above), especially the actively underway liberalization and privatization policies.

Table 12: Regional, Urban and Rural Poverty Rates (1996)

Region	Rural	Urban
Eastern	94.3	88.4
Northern	92.7	90.0
Khartoum	80.0	76.9
Central	91.2	93.1
Kordofan	93.0	86.5
Darfur	97.0	98.1
Northern Sudan	93.3	84.6

Source: CNS Reports, 1998

One aspect of poverty is the real (purchasing) power of money. The fact that per capita income increased from the equivalence of US\$ 284 in 1996 to US\$ 288 in 1999, is rather misleading because the purchasing value of money has seriously declined. Since the government is the largest employer, the situation of its employees is indicative in this respect. Table (13) shows that the minimum pay in the civil service in 1995 represented only 28%-52% of its value of in 1999, losing 72%-48% of the value of wages. Escalating prices since then and the limited rise in wages indicate that the real value of wages and salaries will deteriorate further. Thus poverty will continue to remain, possibly at a higher level, and its negative bearing on food security and human development will be stronger.

Table 13: Real Salary index for Selected Job Grades of the Civil Service (Base year =1990)

Year	Grade				
	I	IV	IX	XIV	XVII
1990	100	100	100	100	100
1993	39	51	56	74	68
1995	28	36	41	52	36

Source: Computed from Economic Survey, 1994 and 1995

The problems which agriculture (food security) faces include: the war and tribal conflicts; drought in areas of rainfed agriculture; soil deterioration; general economic, fiscal and pricing policies; heavy taxes and fees; marketing bottlenecks; transport problems and cost; poor farm management; slow flow and high cost of inputs; financing policies (many borrowing farmers were driven into default); and the ratio of agricultural financing (7%) to total financing (UNICEF, 1999).

4. Medical services:

Sudan government has adopted the Health for All Strategy by the Year 2000. Health is a multi-faceted parametre of human development. However, some health indicators will be addressed in this section. Table (14) shows that the ratios of all health facilities per 100,000 population, except for health centres, show a decline between 1993 and 2000 for the Sudan as a whole and for most of the regions. What deserves special emphasis is the decline in the ratio of primary health care units in every region despite the fact that the CNS has adopted primary health care as a means of achieving the HFA/2000. Similarly, the ratios of health staff per 100,000 population had declined during the period 1993-2000 for the Sudan as a whole and for almost all the regions (Table 15).

Table 14: Ratios of Health Facilities per 100,000 population, 1993 and 2000

Region	Hospitals		Health Centres		Dispensaries		Dressing Stations		PHC Units	
	1993	2000	1993	2000	1993	2000	1993	2000	1993	2000
Eastern	0.7	1.4	1.4	2.3	5.3	4.7	5.2	4.6	13.7	13.2
Northern	2.4	3.3	9.4	7.6	16.3	10.4	12.5	7.0	11.8	6.2
Khartoum	1.1	0.6	2.1	2.2	4.1	2.1	2.5	0.8	1.7	1.5
Central	1.1	1.4	3.2	4.6	6.9	9.9	14.4	9.1	8.2	6.2
Kordofan	0.8	0.9	1.1	2.0	5.4	4.2	4.1	NA	29.2	NA
Darfur	0.3	0.3	0.5	1.3	2.6	2.2	0.7	0.5	13.8	11.9
Upper Nile	0.6	0.5	0.2	0.6	3.2	1.1	NA	1.9	6.6	3.2
Bahr El Ghazal	0.8	NA	0.2	NA	4.6	NA	NA	NA	3.4	NA
Equatoria	1.4	NA	0.6	NA	5.9	NA	3.4	NA	20.7	NA
Sudan	0.9	0.8	1.9	2.4	5.3	4.3	5.5	3.0	11.9	6.0

Source: Computed from UNICEF, 1999; State Encyclopedia, 2000

4.1. Ratios of Health Facilities and Workers:

Table 15: Health Workers Per 100,000 Population, 1993 and 2000

Region	Specialists		G. Doctors		Medical Assistants		Nurses	
	1993	2000	1993	2000	1993	2000	1993	2000
Eastern	2.1	1.6	5.3	2.7	18.7	7.4	44.7	NA
Northern	2.3	2.4	7.6	6.0	32.8	26.9	126.1	37.1
Khartoum	8.4	6.6	26.0	13.5	36.9	30.0	96.9	74.4
Central	2.0	1.8	5.3	3.5	18.6	8.9	77.0	NA
Kordofan	0.8	0.7	2.2	1.9	16.6	14.7	51.9	5.2
Darfur	0.4	0.4	1.0	0.9	9.8	9.0	21.3	2.0
Upper Nile	0.1	0.1	0.7	0.6	1.7	9.8	56.5	4.2
Bahr El Ghazal	0.1	NA	0.9	0.2	13.0	6.2	52.9	0.6
Equatoria	0.1	NA	1.5	0.3	5.7	0.6	108.4	1.3
Sudan	2.1	2.1	6.2	4.0	18.0	13.2	63.0	23.8

Source: Computed from UNICEF, 1996, and 1999; States Encyclopedia, 2000

Despite the decline in the morbidity rate between 1996 and 1998, the figures are still high, standing at 10.3% for the overall rate in 1996 (Table 16). The leading five diseases have together a morbidity rate 20.2% higher than the national rate, and more than 64.1% higher than the overall rate. We have to bear in mind that a large number of illness cases are not reported because of geographical and financial inaccessibility of medical services, and lack of medical awareness.

4.2. Morbidity and Mortality:

Table 16: Leading Ten causes of Morbidity, 1996 and 1998

Disease	No. of cases		% of total	Rate/1000 population	
	1996	1998		1996	1998
Malaria	4,595,092	4,126,502	15.4	169	139
Diarrhea	4,082,941	3,244,483	14.0	146	109
Diseases of Respiratory System	3,462,046	NA	12.0	123	NA
Dysentery	2,792,018	1,828,708	9.0	100	61
Nutritional Deficiency	2,277,150	1,474,765	7.0	81	49
Diseases of Digestive System	1,395,993	NA	5.0	49	NA
Injuries and Wounds	1,384,532	NA	4.7	49	NA
Eye Diseases	1,116,793	NA	3.8	39	NA
Pneumonia	1,004,870	NA	3.5	35	NA
Tonsillitis	0,896,131	NA	3.1	32	NA
Total	23,007,566	NA	80.0	82	NA
Other Diseases	5,939,106	NA	20.0	21	NA
Grand Total	28,946,672	NA	100.0	103	NA

Source: FMOH, Annual Statistical Report, 1996; CNS Report, 1998

Again, statistical data in Tables (17), (18), and (19) have to be viewed in the light of the limited number of deaths that occur in hospitals and the unrecorded number of diseases, e.g. in 1997 it was estimated that 98% of <5 children and 81% of mothers in North Darfur had anemia (UNICEF, 1999). The tables do not indicate a trend but stress the dominance of certain diseases, especially malaria and diarrhea, which have to be faced if human health is to be improved. The same downward trend is indicated by Table (19) for infant mortality rate during the period 1993-1999 for northern regions, but the rate has increased for southern Sudan. The lowest rates are in Khartoum, but differences among sexes and regions are not very significant, high figures are also encountered in the maternal mortality rate which was 365 per 100,000 live births in 1995 and jumped to 504 in 1999, an increase of 38% in only four years (Ali, 2001).

Table 17: Leading Ten Causes of Death in Hospital, 1996

Disease	No. of Deaths	% of Total
Malaria	1944	18.5
Pneumonia	705	6.7
Diarrhea	593	5.6
Nutritional Deficiency	586	5.5
Septicemia	512	4.8
Dehydration	487	4.6
Tuberculosis	475	4.5
Anemia	468	4.4
Heart Failure	383	3.6
Diabetes	317	3.0
Total	6470	61.6

Source: FMOH, Annual statistical Report, 1996

Table 18: The Leading Ten Causes of Child (<5 year) Morbidity Rates, 1996

Disease	No. of cases	% of total
Diarrhea and Gastro-enteritis	1,222,839	20.3
Malaria	972,876	16.2
Acute Respiration Diseases	768,906	13.0
Nutritional Diseases	578,761	9.6
Dysentery	383,914	6.3
Diseases of Eye	309,015	5.1
Pneumonia	228,568	3.8
Wounds and Injuries	219,155	3.6
Other Diseases of Digestive system	211,807	3.5
Bronchitis	136,072	2.3
Total	5,031,913	83.7

Source: FMOH, Annual Statistical Report, 1996

Table 19: Main Ten Causes of Children (< 5 years) Death in Hospital, 1997

Disease	No of Cases	% of Total
Malaria	613	20.1
Pneumonia	584	19.1
Nutritional Disease	427	14.0
Diarrhea	261	8.5
Dehydration	255	8.3
Anemia	175	5.7
Septicemia	167	5.4
C.S.M	67	2.2
Blood Diseases	64	2.1
Heart Diseases	53	1.7
Total	2666	87.5

Source: UNICEF, 1999

Table 20: Infant Mortality Rate per 1000 L.B., 1993 and 1999

Region	Both Sexes		Male		Female	
	1993	1999	1993	1999	1993	1999
Eastern	119	118	123	125	115	110
Northern	102	97	106	101	97	89
Khartoum	94	92	100	98	87	85
Central	106	108	111	116	101	100
Kordofan	118	117	129	127	107	107
Darfur	113	111	121	120	105	102
Urban (N. Sudan)	109	NA	117	NA	101	NA
Rural (N. Sudan)	110	NA	116	NA	104	NA
All (N. Sudan)	110	107	166	116	104	98
All (S. Sudan)	136	138	146	152	127	130
Sudan	113	122	122	134	108	118

Source: UNICEF, 1999; UNFP A, 1999

4.3. Immunization:

While many states have reported more than 100% coverage based on the 1993 population census, e.g. Khartoum and Northern States, some states, like Blue Nile, North and South Darfur and the southern states, had not even once achieved the targeted 80% annual coverage (Table 21). The obvious reasons are the tribal conflicts, armed robbery and the civil war.

Table (21) Expanded Programme of Immunization (Coverage %)

State	BCG		OPV3		DPT3		Measles	
	1996	1998	1996	1998	1996	1998	1996	1998
Red Sea	144.0	87.8	124.5	82.1	124.2	82.6	129.0	70.4
Kassala	102.3	90.2	80.8	90.2	80.5	90.8	63.5	81.2
Gedaref	104.3	67.3	72.7	67.3	72.7	67.3	102.0	64.6
Northern	147.0	139.0	104.0	101.7	103.0	102.1	126.0	116.1
Nahr El Nil	88.3	103.4	79.6	97.0	79.3	97.0	70.8	106.4
Khartoum	151.3	162.0	144.2	130.3	143.4	146.6	112.8	126.0
Gezira	112.1	91.6	96.6	86.9	97.2	87.0	82.3	79.4
Sinnar	103.5	55.1	95.7	63.1	95.1	63.5	91.7	46.1
Blue Nile	89.3	90.2	63.2	65.6	71.9	54.6	54.3	52.7
White Nile	149.0	74.2	109.1	76.0	109.1	76.0	150.0	64.3
N. Kordofan	94.6	72.6	80.6	61.3	82.0	61.8	80.1	58.5
W. Kordofan	166.3	113.6	88.2	78.9	88.9	78.9	129.4	73.0
S. Kordofan	46.3	100.6	55.8	66.8	55.8	66.8	36.0	52.6
North Darfur	80.0	78.6	68.6	49.5	68.6	49.5	51.2	50.2
West Darfur	36.0	14.1	39.7	20.8	21.4	20.8	24.9	22.8
South Darfur	80.0	42.4	68.6	51.0	68.6	51.0	51.2	24.5
Upper Nile	30.1	32.0	19.0	25.3	17.7	24.6	18.9	26.1
Bahr El Ghazal	13.4	5.0	10.5	2.2	11.5	2.2	14.2	7.6
Bahr El Jabal	57.9	25.6	46.6	25.4	46.7	23.8	46.2	25.9
Total N. States	108.0	93.8	90.7	79.7	89.6	82.8	84.2	72.0
Total S. States	29.4	17.9	22.5	14.8	21.8	14.1	23.7	17.6
Total Sudan	96.1	81.3	80.4	69.0	79.4	71.5	75.0	63.3

Sources: UNICEF, 1999.

4.4 AIDS:

AIDS cases diagnosed rose from 2 in 1986 to 190 in 1989, to 1555 in 1996 and to 2607 up to June 1999 (Table 21). The average annual rate of increase between 1996 and 1999 had been as high as 27%. The number of cases is expected to be much higher than the reported number because of lack of sexual education and public awareness, unwillingness of people to have

voluntary tests, and the influx of refugees from surrounding countries known to have high frequencies of AIDS cases, like Kenya, Uganda and Congo.

Over 71% of the diagnosed cases are males of whom 93% are in the age group 15-49 years. Cases in this age group constitute about 92% of all cases. This is significant in two respects. First, since it is the most productive group, it will bear negatively on economic performance. Second, because it is the most biologically reproductive age group, it will induce the spread of AID on the other sex, and increase the number of babies born with AIDS.

The government has recently formed a council entrusted with taking all the necessary measures to combat the spread of AIDS. Promotion of safe sexual behavior, awareness and education seems to be the most effective means, but very little is done in this respect.

Table 22: Diagnosed AIDS Cases by sex and Age

Age	Male	Female	Unknown	Total	%
< 4	29	9	0	38	1.46
5 – 9	0	0	0	0	0
10-14	23	9	0	32	1.22
15 – 49	1726	669	0	2395	91.86
> 49	72	21	2	95	3.64
Unknown	4	0	43	47	1.80
Total	1854	708	45	2607	
%	71.1	27.1	1.7		

Source: UNICEF, 1999

5. Education:

5.1 Basic Education

Education is both a human value in itself and a strong leverage of human development. The goal of the government is the universalization of basic education by the year 2000. Implied objectives include a fair distribution of educational opportunities among states and between sexes; and education efficiency and near-zero drop-out rate (CNS Report, 1999).

Between 1996 and 1999 the number of basic schools increased by 2.7% for the whole country and by 3.7% for northern Sudan, but decreased by 20.3% for southern Sudan (Table 23). The number of children in the basic school-age (6-14 years) had increased by higher rates during the same period: 10.5% for the country as a whole, 12.9% for northern Sudan and 5.9% for southern Sudan.

Table 23: Basic Schools Availability by Region, 1996 and 1999

Region	1996			1999		
	Child. Pop. 6-14 years	No. of schools	Children/school	Children Pop. 6-14 years	No. of schools	Children/school
Eastern	783854	1035	757	868091	1098	791
Northern	286489	859	336	309559	1008	307
Khartoum	741063	1115	665	879679	1216	723
Central	1344720	2949	456	1562461	2812	556
Kordofan	916512	1822	503	978727	1980	494
Darfur	1316708	2340	563	1487280	2379	625
Upper Nile	355568	128	2778) 1260000	135)
Bahr El Ghazal	585130	120	2786		45) 3695
Equatoria	311955	90	3466		161)
N. Sudan	5389346	10120	533	6085797	10493	569
S. Sudan	1252653	428	2926	1260000	341	3695
All Sudan	6641999	10548	630	7345797	10834	678

Source: FMOE, 1996 and 1999

Table 24: Enrolment in Basic Education by Gender 1993-1999

	Year	Box sexes %	Male %	Female %
All Sudan	1993	35.1	38.1	31.8
N. Sudan	1996	53.0	56.2	49.6
	1999	46.2	48.5	43.7
S. Sudan	1996	13.6	NA	NA
	1999	9.0	10.4	7.5
All Sudan	1996	54.9	56.2	49.6
	1999	39.8	48.5	43.7

Source: Population census, 1993; FMOE, 1996 and 1999

This has resulted in a decreasing rate of enrolment in basic education for both boys and girls as well for northern and southern Sudan (Table 24). The low enrolment rates in southern Sudan are understandable because of the war. Female rates are lower than male rates in all regions, and gender gap is still high although slightly narrowed between 1996 and 1999, the male-female ratio dropping from 113.3 in 1996 to 111 in 1999.

Drop out of school and frequent absenteeism affect achievement and completion of basic education. The completion rate in 1991 was 63% for both sexes, 67% for boys and 59% for girls, but the average annual completion rate for the period 1996-99 dropped to 53.6 for both sexes, 50.8 for boys and 57.2 for girls. Main reasons include high cost of education, absorption by labour force for boys, indifference for female education especially in rural areas, early marriage and much household responsibilities for girls.

School environment and training of teachers directly affect academic attainment and education efficiency. The school environment (school buildings, facilities and teaching-learning materials) are extremely poor in the vast majority of schools (UNICEF, 1999). The percentage of trained teachers for northern Sudan in 1991 was 75% but dropped to 68.3% in 1996 and to 54.7% in 1999. Regional variations are significant, e.g. 86.0% in West Darfur, 67.1% in North Kordofan, and 50.0% in Gezira State. Increasing dependence on female teachers (their percentage of all teachers increased from 61.3 in 1996 to 63.6 in 1999) may pose some problems because they generally refuse teaching in school far away from their homes, because of marriage and pregnancy, and because of household responsibilities.

5.2. Nomads Education:

(Table 25) shows the major parameters of nomads education, but it does not show the trend which is not expected to be different from that in areas of settled population. 41.5% of these schools and 41.7% of their student population are located in South Darfur State. The schools are male-dominated with less than a third female pupils and only 4.5% female teachers. Every school is a one-teacher school, and more poorly equipped and staffed than schools in settled communities. The pupil/teacher ratio is 44 compared to 35 in the main-stream basic education (UNICEF, 1999).

5.3 Displaced Education:

Data on the situation of education among the displaced population is extremely scarce even in Khartoum State. Data reported by Oxfam 1998 and the National Fund for States Support 1999 on the education situation among the displaced in Port Sudan town, as an example, show that the displaced are grossly disadvantaged. Out of the total estimate of 40,000 children at the school-going age, about only 5% were enrolled in 1998 (UNICEF).

Table (25) Nomads Schools, Teachers and Pupils in Northern Sudan, 1996

State	No. of schools	Pupils			No. of teacher			Pupils/ teacher
		total	Boy %	girls	total	M	F	
N. Kordofan	32	600	45.0	55.0	32	32	0	18.8
S. Kprdofan	31	732	54.2	45.8	31	31	0	23.6
W. Kordofan	23	1359	69.6	30.4	23	23	0	59.1
N. Darfur	35	1973	75.2	24.8	35	35	0	56.4
S. Darfur	110	4850	71.2	28.8	110	110	0	44.1
W. Darfur	34	2111	67.6	32.4	34	22	12	62.1
Total	265	11625	68.6	31.4	265	253	12	43.9

Source: UNICEF, 1999

5.4. Education of the Disabled:

No reliable data is available on the distribution of the disabled population by state or sex or type of disability. Education of the disabled is now performed by 7 institutions, 6 of which are located in Greater Khartoum and the seventh in Atbara town. Six of these institutes provide basic education for the blind, the dumb, deaf and the handicapped. Six of them provide basic education while one provides vocational training for the handicapped. The total number of pupils enrolled in 1996 was 476 of whom 260 (54.6%) were males and 216 (45.4%) were girls. Teachers totaled 94 of whom 43.6% were males. These institutes are primarily the fruits of local NGOs and donors.

The very limited educational opportunities open for these special groups of children (the nomads, displaced and disabled) do not need to be emphasized.

5.5 Adult Education:

Eradication of the illiteracy of 7.9 million youth and adults, by the year 2000, has been one of the priority objectives of educational policies in the Sudan since 1992. 8.6% of the target was achieved in 1992/93 and another 11.4% in the year 1994/95. A positive indicator is the increase of adults enrolled in literacy class, e.g. the number increased from 899044 in 1995/96 to 952758 in 1998/99 (an increase of 6%). Another positive indicator is the concentration on adult females who constituted 60.8% and 54.1% of the total enrolled adults in the same years respectively (UNICEF, 1999).

The average annual achievement for the years 1992/93, 1994/95, 1995/96 and 1998/99 is 10.9%, indicating that illiteracy could possibly be eliminated during the coming ten years if this rate of achievement is maintained. However, the current declining rate of intake and the high rate of drop-out and the high illiteracy rate (Table 26) strongly challenge this.

Table (26) Illiteracy Rate in Sample States, 1993

State	Male	Female	Both sexes
North	25.0	43.4	34.8
Khartoum	18.9	35.0	26.4
Gezira	24.5	44.2	34.8
Blue Nile	58.2	79.6	68.7
West Kordofan	52.8	77.3	66.8
South Darfar	43.2	77.0	60.6

Source UNFPA, 1993

5.6. Finance of Basic Education:

Table (27) shows that the share of education budget of the general budget has been continuously increasing from 1.7% in 1991/92 to 12.1% in 1995/96. But the allocated education budget is restricted almost entirely to cover chapter I (salaries) delays of which up to over four months

have, even though, been reported in many states, and chapter II (operational cost). Consequently, provision for development budget has become highly dependent on popular support, which amounted to 58.6% of total development budget in 1994/95. This has seriously jeopardized the educational process by placing unaffordable financial burdens on the shoulders of parents, and by making the school environment more and more unattractive for children.

Table 27: Education and General Budgets, 1991/92-1995/96 (000 SD)

Year	Education Budget (1)	General Budget (2)	(1) as % of (2)
1991/92	110117	6481001	1.7
1992/93	710211	8898530	8.0
1993/94	829550	9877368	8.4
1994/95	950669	8091068	11.7
1995/96	3033600	29457650	10.3

Source: UNICEF, 1999

6. Drinking Water and Sanitation:

6.1 Introduction:

Sudan government has set the goal of universal access to safe drinking water and sanitary means of excreta disposal by the turn of the last century. The CNS gives priority for the following strategies for achieving the set goal: protection of water from pollution; increased community involvement; low-cost appropriate technology; and availing 18 L/C/D for rural areas and 90 L/C/D for urban centres (WHO puts the need at 20 L/C/D for rural areas, 100 for Khartoum and 80 for the other urban centres).

A convenient source of safe and adequate drinking water and sanitary environment are essential for the health and development of human beings. Their lack sets the stage for the danger of serious diseases such as diarrhea, malaria, guinea worm, viral hepatitis and others. According to the WHO, about 90% of major epidemics in the Sudan are water-borne and water-related, and some 40% of deaths in children under 5 years of age are due diarrhea (UNICEF, 1999).

6.2. Rural Water Supply:

6.2.1. Sources and supply:

Water yards constitute the most dominant source of rural water, but 40% of them are completely out of use and the rest are operating at low efficiencies because of aging and lack of repairs. Hand pumps provided by UNICEF, have proven to be a simple affordable and low-cost technological alternative, but to avoid their over-use, they must be supplemented with other sources for livestock use. Hafirs and dams are the most important source in the Savannah belt which lacks underground water, but their designed capacities (5,000-4 million M³) have been reduced to less than 50% because of declining rainfall, siltation, sand encroachment, and lack of repair. Hafir water is generally unsafe, and slow sand filter water is less so. Stagnant surface water, including that of hafirs and dams, tends to be polluted by guinea worm. Only water from boreholes, hand pump and water yards can be considered as safe.

Table (28) shows the sources of rural water supply while table (29) shows its situation in 1999. Nahr El Nil and Khartoum are the only states having no water deficit. Rural areas have a deficit of over half a million cubic metres per day. Average per capita daily consumption ranges between a maximum of 35.3 litres in Khartoum and a minimum of only 2.3 in West Darfur. Out of all states only five have a per capita daily consumption above the targeted amount (18 litres). When safe water is considered the maximum and minimum figures drop to 35.4 and 1.5 L/C/D respectively (Table 29). Local communities are generally willing to participate in the provision, operation and maintenance of water sources.

Table 28: Sources of Rural Water Supply

State/ Region	Boreholes		Hands pumps		Open shaft wells		Hafirs and Dams		Slow sand Filters		Total water supply
	No.	Capacity M ³ /D	No.	Capacity M ³ /D	No.	Capacity M ³ /D	No.	Capacity M ³ /D	No.	Capacity M ³ /D	M ³ /D
Red Sea	10	500	125	750	104	208	4	400	0	0	1858
Kassala	36	7200	3	18	79	158	18	1800	41	4100	13276
Gedaref	105	10500	28	168	33	66	44	4400	22	2200	17334
Northern	143	14200	80	400	68	68	0	0	48	4800	19468
Nahr El Nil	180	18000	7	35	0	0	1	10	57	5700	23745
Khartoum	264	39600	0	0	14	28	1	100	8	800	40528
Gezira	981	88290	23	138	15	30	14	1400	141	14100	103958
Sinnar	346	17300	1389	8344	0	0	62	6200	2	200	32044
Blue Nile	9	630	216	1566	28	56	49	4900	1	100	7252
White Nile	160	16000	330	1980	106	212	98	9800	17	1700	29692
N. Kordofan	238	11900	1000	6000	205	410	104	10400	2	200	28910
W. Kordofan	254	12700	1444	8664	17	38	36	3600	0	0	24998
S. Kordofan	8	400	2000	12000	12	24	20	2000	0	0	14424
N. Darfur	131	6550	901	5406	103	206	66	6600	0	0	18762
W. Darfur	13	520	494	2964	57	114	18	1800	0	0	5398
S. Darfur	267	20025	626	3756	162	334	36	2900	0	0	27015
Total N. Sudan	3164	364315	8711	52189	1003	1948	571	56310	339	33900	408662
Upper Nile	6	600	100	800	10	30	178	5200	0	0	6630
Bahr El Ghazal	6	600	821	6568	70	210	13	866	0	0	8244
Equatoria	3	300	540	4320	60	180	0	0	0	0	4800
Total S. States	15	1500	1461	11688	140	420	191	6066	0	0	19674
Total Sudan	3179	365815	10172	63877	1143	2368	762	62376	339	33900	428336

Source: UNICEF, 1999

Table 29: Rural Water Supply Situation, 1999

State region	Total water supply M ³ /D	Total water loss & animal use M ³ /D	Available water for human M ³ /D	Total human consumption L/C/D	Safe water for human consumption L/C/D/	Water deficit M ³ /D	Water quality	Community participation
Red Sea	1800	900	900	3.0	2.0	2038	Acceptable	Lacking
Kassala	13300	5300	8000	8.2	4.5	18299	Mostly safe	Weak
Gedaref	17300	8600	8700	8.2	5.0	16498	NA	Appreciable
Northern	19500	6800	12700	25.4	19.0	2038	Mostly safe	Effective
Nahr El Nil	23700	8300	15400	25.5	19.3	None	NA	NA
Khartoum	40500	16200	24300	35.3	34.5	None	Safe	Effective
Gezira	104000	36400	67600	25.5	21.7	NA	NA	NA
Sinnar	32000	16000	16000	18.7	15.0	NA	Mostly safe	Appreciable
Blue Nile	7300	3600	3700	7.7	2.3	23179	Mostly safe	Appreciable
White Nile	28700	14300	14400	15.6	9.4	22376	NA	Appreciable
N. Kordofan	28900	14400	14500	13.8	8.5	44431	Mostly safe	Appreciable
W. kordofan	25000	12500	12500	13.8	11.8	67307	Safe	Appreciable
S. Kordofan	14400	7200	7200	8.4	7.8	38679	Mostly safe	Weak
N. Darfur	17500	8700	8800	7.4	4.7	80116	Mostly safe	Appreciable
W. Darfur	5400	2200	3200	2.3	1.5	67468	Mostly safe	Weak
S. Darfur	27100	10800	16300	7.3	6.4	47396	Safe	Appreciable
Total N. Sudan	406400	172200	234200	14.0	11.0	429825		
Upper Nile	7000	2800	4200	3.6	0.7	28787	Unsafe	Lacking
Bahr El Ghazal	8200	2900	5300	2.7	2.3	31656	Mostly safe	NA
Equatoria	4800	1400	3400	3.6	3.5	14146	NA	NA
Total S. States	20000	7100	12900	3.2	2.1	74589		
Total Sudan	426400	179300	247100	11.9	9.2	504414		

Source: Compiled from UNICEF, 1999; NWC, 1999; Water and Sanitation Project 2000

Table 30: Public Investment in Rural Water Supply (000 SD)

Year	Allocation	Disbursement	%
1992/93	67442	22739	34.0
1993/94	161000	9103	5.6
1994/95	460000	26200	5.6
Total	688000	58042	8.4

Source: CNS, Subgroup on Human Development

6.2.2. Finance and Rate of Achievement:

The rural water sector depended for a long time on foreign financing and without community participation. In 1993, the total investment in the rural drinking water supply was about USD 11.8 million, of which 63% was external aid, 20% provided by foreign NGOs, 10% paid by users and 7% provided by the government. Since then more reliance is being made on user communities, and rural water tariff was increased from SD 1.65 per M³ in 1992/93 to 13.75 in 1993/93 (733% increase) when federal subsidies were cancelled (UNICEF, 1996). As a result, actual public investment has greatly subsided, e.g. between 1992 and 1995 (Table 30).

Shrinking public investment has adversely affected the rate of achievement in rural water supply programmes. The three-year programme carried out under the CNS (Table 31) had very low achievement rates during the period 1992/95. The higher rate of achievement in the hand pump programme is attributed to the adequate assistance from the UNICEF, the effective community participation, and the technology. Option, which has proven to be appropriate and cost effective. Achievement rates are also low in the first phase (1997-99) of the water and sanitation project undertaken jointly by Sudan government and UNICEF. This project, which covers 13 northern states and all southern Sudan, costs USD 59,679,000. Commitment was made to cover this cost according to the following ratios: local councils and communities 33.6%, states governments 36.5%, federal government 9.4%, and UNICEF 20.5%. During the first three years of the project (1997-1999), UNICEF provided all its share and the federal government covered 45.8% of its commitment in 1997, 29% in 1998 and 12.2% in 1999, while the fulfillment rates of the commitments of states' governments, local councils and communities dropped from 30% in 1997 to 20% in 1998 and to less than 20% in 1999.

Table 31: Targets and Achievements of the Three-year programme (1992/95)

Services	Targets	Achievements	%
Deep Borehole drilling	1100	255	23
Shallow Boreholes drilling and hand pumps	3500	2450	70
Open shaft well	300	120	40
Construction of Hafirs and Dams	462	21	5
Rehabilitation of Hafirs and Dams	85	14	16
Construction of filtration plants	600	90	15
Insulation of Yards	150	35	23

Source: CNS, Subgroup on Development

Table 32: Targets and Achievement rate of the Water and Sanitation Project (1997/2001)

Services	No.	Achievement
Borehole drilling and installation of pumps	8500	47%
Rehabilitation of pumps	3800	68%
Improvement of surface wells and pumps installation	1020	40%
Rehabilitation of Hafirs	77	16%
Construction of slow sand filters	25	15%
Construction of latrines	295000	28%

Source: Water and Sanitation Project 2000

6.2.3. Future needs:

After the turn of the century and only one year before end of the CNS, the Sudan is far away from meeting the set targets. Estimated water services and their costs required to provide universal access to water in rural areas are given in table (33).

Table 33: Services Required to Avail Sufficient Rural Water

Service	No.	Cost (US\$ 000)
Drilling of Boreholes	4,000	80,000
Pumps and other installations	5,000	125,000
Rehabilitation of Water Yards	2,000	50,000
Slim Boreholes	40,000	16,000
Dug wells	10,000	2,000
Surface reservoir / Earth Dams	3,000	45,000
Rehabilitation of Surface Wells	2,000	10,000
Filtration Units	2,000	600
Total		328,000

Source: NWC, 1999

6.3. Urban Water Supply:

6.3.1. Introduction:

The last decade witnessed a surge in rural-urban migration. Urban population increased from 6.8 millions in 1993 to 10.3 millions in 1999 (51.5% increase). This has increased the pressure on the already limited urban services including water and sanitation. The target of the government is to provide piped water supply connections to 85% of urban population by the year 2002, with the remaining 15% being served by public stand posts.

6.3.2. Urban Water Supply Situation:

The targeted urban water consumption (90 L/C/D) had not been met up to 1999 in any of all northern states and southern regions. The rate target fulfillment was 56.8% for all urban population, 81% (the highest achievement) for Khartoum and 13.6% (the lowest rate) for Bahr El Ghazal region.

Regarding the type of supply, table (34) shows that about 30% of all urban population had in 1999 connections (only 35.1% of the target). No state had over 40% of its urban population with house connections, while others, like South Kordofan had as low as only 10%. Still about 40% of the total urban population get their water from standing posts whereas the targeted percentage is 15%. So the goals, regarding availability of urban water, type of water supply and regional disparities, are not expected to be achieved by the end of the CNS.

Table 34: Urban Water Supply Situation, 1999

State	Available Water M ³	Consumption L/D/C	Type of Supply			water Quality
			House connection	Stand Post	Others	
Red Sea	12800	30.1	30	40	30	NA
Kassala	23400	47.8	40	30	30	safe
Gedaref	19800	48.6	30	30	40	Mostly safe
Northern	4800	57.1	30	40	30	Mostly safe
Nahr El Nil	13600	46.4	40	30	30	Mostly safe
Khartoum	296500	73.0	30	45	25	safe
Gezira	39000	53.6	40	30	30	safe
Sinnar	12800	40.1	40	30	30	NA
Blue Nil	3800	24.5	30	20	50	safe
White Nil	23755	41.7	40	30	30	Mostly safe
N. Kordofan	14900	34.5	30	30	40	NA
W. Kordofan	8300	38.1	20	50	30	NA
S. Kordofan	8200	32.8	10	60	30	Acceptable
N. darfur	10900	40.4	30	40	30	Mostly safe
W. Darfur	4500	24.2	20	50	30	safe
S. Darfur	15400	29.6	30	40	30	NA
Upper Nile	7000	23.6	15	40	45	Acceptable
Bahr El Ghazal	4000	12.2	10	30	60	NA
Equatoria	5000	15.9	10	40	50	NA
Sudan	528455	51.1	29.8	39.1	30.1	

Source: NWC, 1999

6.3.3. Finance:

The new urban water supply projects are financed by the federal and states governments while the costs of operation and repairs are covered by the proceeds of water sale. Water pricing is calculated on the basis of the costs of operation and maintenance plus a 4% profit margin. Since there are no metres to record consumption, pricing depends on the size of water connections. This contributes to the wasteful consumption of water.

6.4. Sudan Water Situation:

The overall water situation in the country is rather dim. Based on the WHO estimates of the per capita needs for urban and rural water, the total water supply required by the end of last century is given in table (35). On the average, people get about 36% of their water needs, the percentage rising to 58.2 for urban population, but dropping to less than 25 for rural population. Regional variations in water sufficiency are still significant. For example, rural water supply in Khartoum State is more than the needs of its rural population, and the ratio of available rural water supply to the needs of rural people and animals in the Gezira State is 81.3%, whereas the ratio is 5.6% in Bahr El Ghazal State and 4.6% in West Darfur State. Likewise, the ratios for urban population are 72.3% in Khartoum, 67.1% in Gezira, 30.2% in West Darfur State and 15.3% in Bahr El Ghazal.

Table 35: Sudan Water Situation, 1999

	Water Needs M ³	Water Available M ³	% of Water Needs
Urban	907920	528455	58.2
Rural	1756336	428336	24.4
Total	2664256	956791	35.9

Source: Water and Sanitation Project 2000; Tables 28 and 34.

6.5 Sanitation:

6.5.1 Introduction:

The major factors, which affect the general environment and contaminate water sources are the discharge of industrial and agricultural effluents and urban waste, use of agro-chemicals including areal spraying, salinity, water logging and soil degradation from extensive irrigation.

Although laboratory tests showed that flood water during 1999 was contaminated by bacteria, causing acute diarrhea and many deaths to users of river water (Water and Sanitation Project 2000), tables (29) and (34) show that water quality is generally acceptable. Urban water supply is generally more safe than rural water supply; but sanitation systems, especially urban, are a source of contamination of underground water.

6.5.2. The Situation of Sanitation Facilities:

Table (36) shows the very limited number of urban and rural people with community sewer and the high percentage of those without access to any sanitation facility. The situation in urban centres is better than in rural areas.

Table 36: % of Population with Access to Sanitation Facilities 1993

Services	Northern Sudan			Southern Sudan	
	Rural	Urban	Total	Rural	Urban
Community sewer	0.2	2.0	0.8	5.0	0.5
Pit Latrine	38.5	56.9	44.7		22.5
Others	14.5	19.2	16.4	NA	25.6
None	46.8	21.9	38.1	NA	51.4

Source: Population Census, 1993

Table (37) shows the regional variations in the availability of sanitation facilities. It is worth noting the low percentage for the national capital, Khartoum, possibly because of the large number of the displaced and rural migrants occupying the outskirts of the city. Lack of comparable data for later years does not allow the identification of trend, but living experience indicates that no appreciable improvement, if any, has been made in the regional sanitation disparities.

Table 37: % of Population with No Sanitation Facilities, 1993, by Region

Region	Rural	Urban	Total
Eastern	37	14	31
Northern	68	34	53
Khartoum	18	15	15
Central	57	31	50
Kordofan	45	38	39
Darfur	35	10	32
Upper Nile	NA	52	NA
Bahr El Ghazal	NA	46	NA
Equatoria	NA	57	NA

Source: Population Census, 1993

Table (38) shows that some improvement had been made in the sanitation situation between 1993 and 1999, but the achievement is still far behind the target of the universal access to sanitary means of excreta disposal by the end of last century.

Table 38: % of Population with Convenient Sanitation Facilities, 1993 and 1999

	1993		1999	
	Rural	Urban	Rural	Urban
Northern Sudan	38.7	58.9	40.0	60.0
Southern Sudan	NA	23.0	5.0	30.0
Total Sudan	NA	50	33.0	57.0

Source: Table 36; UNICEF, 1999

6.5.3. Environmental Health Manpower:

No human development, especially human health, can be achieved without a healthy environment. It has been mentioned earlier that many of the serious diseases are environment-related.

Table (39) shows how limited is the size of environmental health manpower in relation to total population. The regional distribution of this manpower reveals astonishing disparities. Means of promoting environmental health seem to be very inadequate, e.g. for draining or spraying stagnant water on open space even in the national capital.

Table 39: Regional Distribution of Environmental Health Manpower, 2000

State	Inspector	Officer	Worker	Population/Inspector	Population /Officer
Red Sea	5	5	629	134267	134267
Kassala	4	13	536	358750	110384
Gedaref	7	5	572	179201	250840
Northern	3	3	301	170154	170154
Nahr El Nil	7	10	36	126000	88200
Khartoum	64	11	NA	83614	486481
Gezira	130	700	2969	24439	4539
Sinnar	4	10	465	27850	111400
Blue Nile	14	13	NA	99222	106854
White Nile	4	4	232	149653	149653
N. Kordofan	9	5	47	147449	265408
S. Kordofan	2	3	267	548000	365333
W. Kordofan	2	NA	NA	544492	NA
N. Darfur	1	12	255	1326387	110532
S. Darfur	NA	10	NA	NA	334491
W. Darfur	NA	5	35	NA	308261
Upper Nile	17	30	209	22187	18239
Bahr El Ghazal	1	1	66	1560000	1560000
Equatoria	NA	NA	NA	NA	NA
Sudan	274	840	6619	115400	37642

Source: State Encyclopedia, 2000

7. Conclusion:

7.1 The Findings:

The main findings are listed in table (40) which tries to identify the trends (changes) of the major socio-economic indicators which relate to the sections of this review, namely population, economy, employment and food security, medical services, basic education, and water and sanitation.

While the annual rate of population growth has remained the same, total population and urbanization have increased, demanding more material and immaterial provisions and services.

On the other hand, changes in the economic parameters have, in the final analysis, reflected negatively on human development, indicated by a decline in real value of money, decline in calorie intake, increase in the already high percentage of population under the poverty line, as well as the failure to meet the targets set in the fields of health, education, drinking water and sanitation (See Table 40 for details).

7.2 Suggested Agenda Guidelines:

What follows are some pre-requisites and general objectives which the details of the national agenda should aim at achieving:

- (One) Reaping the limited benefits of globalization and ameliorating its adverse effects by, for example, public and/or cooperative ownership of strategic enterprises, promoting the competitiveness of domestic production, expanding the local market and strengthening trade relations with Arab and other developing countries.
- (Two) Bringing the costly civil war to a final end.
- (Three) Dismantling the totalitarian, theological State and establishing a really democratic system.
- (Four) Mobilization and empowerment of lower levels of the administrative hierarchy and local communities through the adoption of a bottom-up planning approach, to ensure effective participation.
- (Five) Planning constituents of human development on top of the national and regional priority lists, especially in terms of finance allocations and distributing these allocations among the states in inverse relation to the states' indices of human development.
- (Six) Increasing the area and productivity of food crops, building up an adequate strategic reserve of cereals, and improving transportation and distribution networks.
- (Seven) Promoting purchasing power by securing and encouraging returns for producers, linking salary levels of wage earners to inflation levels and cost taking effective measures to reduce income disparities.
- (Eight) Taking all necessary measures to execute a strategy of universal, affordable and accessible basic education, health care and safe drinking water by the end of this decade, in addition to promoting environmental health, sanitation and environmental awareness

Table 40: Trends of Main Socio-Economic Indicators

Indicator	Value	Year	Value	Year	Change %
Population (million)	29.47	1996	31.06	1999	+ 5.4
Population under 15 years (%)	43.6	1996	46.1	2002	+ 2.5
Urban population (%)	28.8	1996	33.1	1999	+ 4.3
Annual population growth (%)	2.8	1996	2.8	1999	0
GDP growth (%)	5.0	1996	6.1	1999	+ 1.1
Development budget as % of GDP	5.0	1996	8.0	1999	- 3.0
Government deficit as % of GDP	2.6	1996	0.8	1999	- 1.8
Outstanding foreign debt (USD billion)	17.2	1996	19.3	1999	+ 12.2
Total debt (USD billion)	20.5	1996	22.3	1999	+ 8.8
Balance of trade deficit (USD million)	884.2	1996	1328.9	1999	+ 50.3
Money supply (1996 as base year)	100	1996	169	1999	+ 69
Exchange rate (SD per USD)	80	1996	234	1999	+ 192.5
Inflation rate	101	1996	8.2	1999	- 92.8
Per capita income (USD)	284	1996	288	1999	+ 1.4
Population below poverty line (%)	89.1	1996	90.3	1999	+ 1.3
Male economic participation rate (%)	48.5	1993	49.3	1999	+ 0.8
Female economic participation rate (%)	18.3	1993	15.6	1999	- 2.7
Unemployment rate (%)					
Total	16.5	1993	16.6	1996	+ 0.1
Male	13.0	1993	13.1	1996	+ 0.1
Female	28.0	1993	24.3	1996	- 3.7
Calory supply as % of required	87.0	1990	76.0	1999	- 11.0
Life expectancy at birth (years)	53.0	1996	52.2	1999	- 1.5
No. of specialists per 100000 population	2.1	1993	2.1	2000	0
No. of doctor per 100000 population	6.2	1993	4.0	2000	- 2.2
Malaria cases per 1000 population	169	1996	139	1998	- 30.0
Diarrhea cases per 1000 population	146	1996	109	1998	- 37.0
Infant mortality rate per 100000 live births	113	1993	122	1999	+ 9.0
Maternal mortality rate per 100000 live births	365	1995	504	1999	+ 139.0
AIDS diagnosed cases	1555	1996	2607	July 99	+ 67.7
No. of children in school-going age (million)	6.6	1996	7.3	1999	+ 10.6
No. of basic schools (N. Sudan)	10120	1996	10493	1999	+ 3.7
No. of basic schools (S. Sudan)	428	1996	341	1999	- 20.3
Gross enrolment in basic education (000)	2864	1996	2886	1999	+ 0.8
Annual growth rate of enrolment (1996-99)%	-		0.3	1999	---
Male/female ratio of enrolment	121.9	1996	121.2	1999	- 0.7
% of children enrolled in basic education					
Sudan	45.9	1996	39.8	1999	- 6.1
North Sudan	53.0	1996	46.2	1999	- 6.8
South Sudan	13.6	1996	9.0	1999	- 4.6

Table 40 (Cont.)

Indicator	Value	Year	Value	Year	Change %
% of boys enrolled in basic education	56.2	1996	48.5	1999	- 7.7
% of girls enrolled in basic education	49.6	1996	43.7	1999	- 5.9
No. of children 6-14 years age per school					
Sudan	630	1996	678	1999	+ 7.6
N. Sudan	533	1996	569	1999	+ 6.8
S. Sudan	2926	1996	3695	1999	+ 26.3
Intake percentage (Boys)	76.8	1996	71.9	1999	- 4.9
Intake percentage (Girls)	60.5	1996	60.8	1999	+ 0.3
Drop-out rate (%) Total	NA		46.4	1999	NA
Drop-out rate (%) Boys	NA		49.2	1999	NA
Drop-out rate (%) Girls	NA		42.8	1999	NA
No. of street children	58664	1996	66824	1999	+ 13.9
% of male teachers	38.7	1996	36.4	1999	- 2.3
% of female teachers	61.3	1996	63.6	1999	+ 2.3
No. of teachers per school	7.5	1996	10.2	1999	+ 36.0
No. of pupils per teacher	34.9	1996	25.4	1999	- 27.2
% of trained teachers	68.3	1996	54.7	1999	- 13.6
No of adults & adolescents in literary classes (000)	899	1996	952.8	1999	+ 6.0
Adults literacy rate (%)	40.0	1990	60.0	1999	+20.0
Consumption of safe water as % of target - Urban	39.0	1993	56.8	1999	+ 17.8
Consumption of safe water as % of target - Rural	44.4	1993	51.1	1999	+ 6.7
% of population with convenient sanitation facilities					
Sudan, Urban	50.0	1993	57.0	1999	+ 7.0
Sudan, Rural	NA	1993	33.0	1999	NA
N. Sudan, Urban	58.9	1993	60.0	1999	+ 1.1
N. Sudan, Rural	38.7	1993	40.0	1999	+ 1.3
S. Sudan, Urban	23.3	1993	30.0	1999	+ 6.7
S. Sudan, Rural	NA		5.0	1999	NA

Source: Different sources

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