

Eastern Mediterranean Regional Office (EMRO)  
Division of Health System and Services Development (DHS)  
Human Resources Development Unit

# **MAPPING OF HUMAN RESOURCES FOR HEALTH SUDAN**

## **FINAL REPORT**

### **Prepared By**

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## **I. Introduction:**

Today, investing in the performance of human resources is a priority concern and primary challenge in achieving a sustainable, effective and efficient health care systems- development and management. This is in part because health is a labor-intensive industry. Staffing costs and wages usually represent a significant part of national health expenditures and a large proportion of recurrent health budgets in most countries. Moreover, in a rapidly changing world in which more and more activities are “knowledge-based,” human resources constitute valuable intellectual capital and are a key element in the success and competitive advantage of any industry, including healthcare. In fact, the World Health Report (2000) states that the human resources are “the most important of the health system’s inputs.”

Sudan is the largest country in Africa with an area of 2.7 million square Km, total population of 35,500,000 million (2005), divided into 25 states with Khartoum as the capital. The Under 5 mortality rate (1999) 104 per 1000 and the GDP per capita (2005) is 572 USD. Due to the costly war and conflicts among other things, the health workforce in Sudan is still operating under serious policy, financial, organizational, and managerial constraints, and, as a result, productivity, morale, and effectiveness are sub-optimal. The effective performance of the human resources in health (HRH) is hampered by a series of structural bottlenecks and imbalances in the health system. For instance, in spite of the limited resources the country is still investing in operating expensive tertiary level facilities rather than more efficient and affordable primary care services. In addition, and in spite of the shift to support policy and health systems development, still substantial sum of WHO budget is being spent on mass training for health workers who end leaving or not using what has been learned to improve performance. The concept of Continuous Professional Development (CPD) has not been widely introduced nor accepted by health practitioners. Therefore, CPD has been rather neglected and as a result, the FMOH ranked CPD among top national priority areas for health sector development. In fact, intensive efforts are currently being undertaken to institutionalize CPD for all major categories of health professions, and a point system is proposed to make CPD requirement a binding law for all practitioners in Sudan. HRH is still facing many challenges, including inappropriate policies and decisions related to personnel budgets lead to deficits of key cadres of staff or inadequate salaries that produce dissatisfaction, turnover, and emigration of the most skilled providers and managers. In many places of the country, the geographical distribution of critical human resources is imbalanced, with the majority of trained providers preferring to work in urban areas. The disproportionate allocation of scarce public budgetary resources for salaries against other recurrent costs often results in providers lacking basic equipment and supplies, including drugs, needed for appropriate healthcare delivery. Similarly, the lack of management practices and incentives that effectively support performance often results in deficient work environments, low workforce motivation and poor results. Migration and brain drain of skilled health personnel is also rated as one of the most crucial challenges for HRH in Sudan. This mapping revealed that data is insufficient regarding migration of HR and current effort are underway to develop national observatory for HRH to include data on migration and its implication on the sustainable HRD for health in Sudan.

## **II. Methodology:**

This profile of Human Resources for Health (HRH) in the Republic of Sudan has been prepared in part for the World Health Report 2006, and thus can serve as a preliminary database of the health workforce. The document follows instructions received from EMRO/HRD with special data collection forms, questionnaires and templates that have been used to map out and analyze HRH country-wide.

A special team has been formed to perform this HRH mapping task for Sudan. The team has been oriented and trained to collect and analyze the data required. Therefore, the task is a teamwork of many individuals and would have not been accomplished without the hard work of its members and cooperation of institutions involved. Technical support and guidance have been provided by Dr. Walid A. Abubaker, WHO Health System Development Adviser and Dr. Ghanim Mustafa Alsheikh, Regional Adviser for HRD/EMRO.

While the FMOH has an institutional Department for Health Information and Statistics with full-time staff, information gaps are evident, which were discovered during the inventory process to compile existing data. For example, the Annual Health Statistical Reports published by the department did not include any data on the private sector, gender nor age categories of the health workforce employed by the public or other sectors. It is also hard to scan health professionals because many of them are working in both governmental and private settings. Moreover, no break down found with regard to urban-rural ratios and data gathered from the states and localities are hard to compile in addition to the fact that major concentration of highly qualified and specialized health professionals is primarily in the health facilities, particularly secondary as well as tertiary hospitals located in major cities. Therefore, some data in the HRH profile has been made as estimates.

### **III. HRH classification mapping:**

The job category of health workers in Sudan has been mapped using the ISCO-88 template provided by WHO/EMRO. National definitions for different categories have been provided showing educational attainment and scope of skills. See annex (A).

### **IV. Health workers profile:**

The origin of modern Sudanese health workers dates back to the 1920s following the inauguration of medical assistants' school in 1918.

In 1924, health workforce was composed of 16 British doctors, 30 Syrian doctors and 20 Sudanese medical assistants (Bayoumi, 1979).

Following from the 1920s, great expansion ensued in health training institutes especially after the country gained its independence in 1956. The result is reflected today in diverse categories of health workers comprising over 20 different professions.

The total number of health workers per category with breakdown in geographical, gender and age variables is shown in annex (B) which represents the WHO template A. However, due to the information shortcomings highlighted in the introduction, some of the variables were estimates. A national human resources for health survey is under implementation to build a comprehensive HR database for the country.

### **V. Health professional institutes in Sudan:**

The formal training of Sudanese health workers started with the appearance of medical assistants' school in 1918 as mentioned earlier. In 1924, the Kitchener School of Medicine - later Faculty of Medicine, University of Khartoum- was opened as the first medical school in tropical Africa.

Subsequently, medical schools and other health training institutions increased to involve several categories of health workers. However, the great expansion in medical education came with the advent of the Revolution of Higher Education (RHE) movement which started in the early 1990s. During the late 1990s the number of medical schools rose from 5 to 24 including 5 private medical schools. The number of graduated doctors increased from 400 to 1400 by the year 2000. Great expansion in nursing schools and health training institutes has also ensued following RHE.

In 2001, Sudan declaration for the upgrading of nursing, midwifery and allied health professions was signed as a joint initiative between Federal Ministry of Health (FMOH), Ministry of Higher Education (MOHE) and the WHO.

This initiative was introduced to upgrade the vocational professional training of nurses and allied health personnel to a university level training. However, the implementation process has been rather slow. A health academy was recently established to take large numbers of these health workers for upgrading programmes at the level of university diploma and BSc. The health personnel training institutions and their types together with students statistics are shown in annex (C) which represents the analysis of WHO/EMRO questionnaire (template B).

## **VI. Health workers migration:**

Sudan is one of the countries affected heavily by health professionals migration. A study done recently by Dr.Badr (2005), one of the authors of this report revealed the following:

- Emigration of health professionals, in particular doctors dates back to 1960s. the trends are increasing with a picture in which now around 800 doctors migrate outside Sudan each year following the expansion in medical education during the 1990s.
- Out of a total of 21.000 doctors registered in the Sudan Medical Council, 12.000 work outside Sudan (nearly 60%).
- The brain drain among pharmacists is also considerable involving 25% of the total country stock. However, internal migration of pharmacists is heavy in Sudan with almost 90% of the remaining pharmacists working in the private sector (pharmaceutical companies and private pharmacies).
- Major destination countries for doctors and pharmacists include Gulf States especially Saudi Arabia besides UK and Ireland.
- Migration of nurses is not common in Sudan, the reason being that highly educated nurses (sisters) are few in number, and being females face the legal and cultural restrictions to migrate unaccompanied.

## **VII. Human resource development (HRD) in Sudan:**

HRD encompassing planning, management and training of health workers will be reviewed briefly here:

- *Human resource planning:*  
This function has been weak for quite a long period in Sudan. Human resource department in the ministry of health has been weak, understaffed and subordinated (Elabbasi, 2004). The human resources projections included in the National Comprehensive Strategy (NCS) for the period 1992-2002 were largely unrealistic and a dichotomy between health policy and human resource policies was largely evident.
- *Human resource managements:*  
Following on the weak planning function, the HR management has also suffered especially in its strategic dimension. Weak management and coordination of HR production, employment, deployment and retention besides lack of motivation and performance appraisal has negatively affected the morale and efficiency of health workforce.
- *Human resource training:*  
In spite of the great expansion of health professional training, the intake, type of personnel and the curriculum are largely not responsive to the health system's needs. This is due to the weak coordination between service and educational authorities. For instance, it is only recently noticed that the great increase in medical schools compared to nursing and allied health workers institutes has started to adversely affect the skill

mix. A shift towards strengthening allied health and technical education is proposed to correct the imbalance.

Overall HRD in Sudan is still under the effect of weak coordination between the different stakeholders concerned. The links among FMOH, MOHE, Ministry of Labour, Ministry of Finance, Sudan Medical Council and Health Workers Union need to be strengthened and maintained if the human resource sector is to be promoted.

A note worthy of mentioning here is that, the human resource domain was recently given great consideration following introduction of a new leadership in the FMOH. The HR department has been undergoing continuous revival and capacity building.

Important HR policies have been prepared and endorsed. The 10 years HR plan for the period 2003-2013 was also prepared and now well considered.

These efforts are providing for an optimistic prospects and a conducive environment to better HRH situation in Sudan.

**Annex (A): National definitions for different health workers job categories**

International Classification			National classification	
Category	Skill level	Definition [ISCO-88]	Name of equivalent national category	National Definition (s)
1. Physicians Also called doctors or medical officers	<i>Generalist</i>	At least 5 years of university, some years of internship depending on the country might be compulsory. They have a full array of clinical skills.	MEDICAL OFFICERS	5-6yrs Of University .16 Month Of Internship Full Array of Clinical Skills
	<i>Specialist</i>	At least have 5 years of university, some years of internship depending on the country might be compulsory, and specialist training. They have a full array of clinical skills and specialization.	CONSULTANTS	As above + specialized training for 3-4 years in certain specialty.
2. Nurses	<i>Professional Registered Nurses</i>	also called professional or licensed nurses (or Infirmiers Diplômés d'Etat). Their education last about 3, 4 or more years in nursing school, and lead to a university or postgraduate university degree, or the <u>equivalent</u> . They have full range of nursing skills.	NURSE TECHNCLOGIST (SISTER NURSE)	4 years of university training in nursing. University or postgraduate degree. Full range of nursing skills.
	<i>Enrolled Nurses</i>	Also called nurse technician or associate nurse. Education last about 3 to 4 years and leads to an award <u>not equivalent</u> to a university first degree (post-secondary school). Common nursing skills. They can perform simple as well as complex medical procedures and usually operate under the supervision of professional registered nurses or physicians.	NURSE	Education last for 2 years and leads to an award not equivalent to a university first degree (Diploma). Common Nursing skills.

	<i>Auxiliary nurses</i>	also called assistants. Some training in secondary school. A period of on-the-job training may be included, and sometimes formalized in apprenticeships. Basic nursing skills, no training in nursing decision-making.	-	-
3. Midwives	<i>Registered Midwives</i>	also called professional or licensed midwives (or Sage-Femmes Diplômés d'Etat). Their education last about 3, 4 or more years in nursing school, and lead to a university or postgraduate university degree, or the <u>equivalent</u> . They have full range of midwifery skills.	-	-
	<i>Enrolled Midwives</i>	also called nurse technician or associate midwife. Education last about 3 to 4 years and leads to an award <u>not equivalent</u> to a university first degree (post-secondary school). Common midwifery skills.	NURSE MIDWIVES	Originally nurse + 2 years of practice. Education lasting for 2 years at Midwifery School.
	<i>Auxiliary Midwives</i>	Also called assistants. Some secondary school training. A period of on-the-job training may be included, and sometimes formalized in apprenticeships Basic midwifery skills.	MIDWIVES	1° or 2° School certificate +1 year training in Midwifery School. Basic midwifery skills.
	<i>Traditional birth attendants</i>	Mainly, on-the-job training and sometimes formalized in apprenticeships. (Matrones traditionnelles, TBA)	TBA VILLAGE MIDWIFE	only vocational training courses
4. Dentists	<i>Dentists</i>	At least 5 years of university leading to a dentistry degree. Full array of dentistry skills	DENTIST	5 years of university training. Full array of dentistry skills.
	<i>Dental technician</i>	From 2 to 3 years in dentistry school, with an award not equivalent to university degree (post-secondary school). Common dentistry skills.	DENTAL TECHNICIAN	2 years in dentistry school with Diploma degree. Common dentistry skills.

	<i>Dental assistant</i>	About 2 to 3 years in secondary school training. A period of on-the-job training may be included, and sometimes formalized in apprenticeships. Basic dentistry skills	DENTAL MEDICAL Assistant	Originally nurse + 2-3 years of practice. Education for 2 years in Dental Medical Assistant Institute. Basic dentistry skills.
5. Pharmacists	<i>Pharmacists</i>	At least 5 years of university leading to a pharmaceutical degree. Full array of pharmaceutical skills	PHARMACIST	5 years of university training. Full array of pharma skills.
	<i>Pharmaceutical technician</i>	From 2 to 3 years in pharmaceutical school, with an award not equivalent to university degree (post-secondary school). Common pharmaceutical skills.	-	-
	<i>Pharmaceutical assistant</i>	About 2 to 3 years in secondary school training. A period of on-the-job training may be included, and sometimes formalized in apprenticeships. Basic pharmaceutical skills.	PHARMACY MEDICAL ASSISTANT	Originally nurse + 2-3 years of practice. Education for 2 years in Pharmacy Assistant Institute and Awarded Diploma. Basic pharmaceutical skills.
6. Physiotherapist		From 2 to 3 years in physiotherapy school, with an award not equivalent to university degree (post-secondary school). Common physiotherapy skills.	PHYSIOTHERAPY MEDICAL ASSISTANT	Originally nurse + 2-3 years of practice. Education for 2 years in Physiotherapy Assistant Institute and Awarded Diploma. Common Physiotherapy skills.
7. Medical Assistants, also called assistants medical officer		From to 2 to 3 years in medical post-secondary school <u>plus</u> at least 1.5 years in an up-grading programme. Advanced clinical skills.	MEDICAL ASSISTANT	Originally nurse + 2-3 years of practice. Education for 2 years in Medical Assistant Institute and Awarded Diploma. Common clinical skills.
8. Clinical officers		From to 2 to 3 years in post-secondary school. Common clinical skills.	-	-
9. Laboratory scientists	<i>Lab scientist</i>	At least 5 years of university degree. Full array of laboratory procedures.	LAB TECNOLOGIST	4yrs of university degree. Full array of laboratory procedures.
	<i>Laboratory technician</i>	From 2 to 3 years in laboratory technology school, with an award not equivalent to university degree (post-secondary school). Common range of laboratory procedures	-	-

	<i>Laboratory assistant</i>	About 2 to 3 years in secondary school training. A period of on-the-job training may be included, and sometimes formalized in apprenticeships. Basic laboratory procedures.	<b>LABORATORY ASSISTANT</b>	Originally nurse + 2-3 years of practice. Education for 2 years in Laboratory Assistant Institute and Awarded Diploma. Basic laboratory procedures.
10. Radiographer Technicians		From 2 to 3 years in school of radiography, with an award not equivalent to university degree (post-secondary school). Common range of radiography skills.	<b>RADIOGRAPHER TECHNOLOGIST</b>	4 yrs of university degree. Advanced range of radiography skills.
11. Environmental and Public Health Officers	<i>Environmental and Public Health Officers Professionals</i>	At least 5 years in university or <u>equivalent</u> . All health workers involved in providing social services to the community looking for a better environment and therefore promoting health with high skill level. For instance epidemiologists or sanitation engineers, among others.	<b>PUBLIC HEALTH OFFICERS</b>	4 yrs of university degree.
	<i>Environmental and Public Health Officers Technicians</i>	From 2-3 years training. This includes all environmental health, health inspectors, health promotion officers, health educators and all who is concerned with public health promotion. (Please provide the full list of what you include under this category)	<b>SANITARY OVERSEERS</b>	2 years of training in Sanitary Overseers Institute and awarded Diploma. Not equivalent to university degree.
12. Other Technicians and Health Cadres		From 2 to 3 years in a determined health school. This category can be used for health cadres like Nutritionist/ Dieticians, Optometrists, Social Worker, among others. (Please provide the full list of what you include under this category)	-	-
13. Community health workers		A period of on-the-job training may be included, and sometimes formalized in apprenticeships.	<b>COMMUNITY HEALTH WORKER</b>	A volunteer with 9 months on-job-training.

14. Administrative and support staff	<i>Skilled administrative staff</i>	Having obtained a professional degree. All those related with tasks like: directors, management, financial services inspector, accountants, statisticians, economists, engineers.	ALL THESE CATOGARIES PRESENT	-
	<i>Other support staff</i>	Have an associate degree or less. All those related with tasks like: secretaries, electrician, drivers, security guards, cooks.	ALL THESE CATOGARIES PRESENT	-
15. Others	Please list the health workers to be include under this category and provide a definition of them		OPHTALMOLOG TECHENOLOGIST	4years in university degree. Full array of optical technologies & procedures.
			NUTRTIONIST	4 years of university degree.
			NUTRITIANAL ASSISTANT	High secondary school graduate with vocational training 3-6 month. Common nutritional knowledge & Skills.
			IMMUNIZATION TECNCION	High secondary school graduate who had training course for 3 month of common immunization skills.
			SATATISTICION	4 years of university degree.
			STATISTICAL ASSISTANT	High secondary school graduate who attended training course in statistical procedures for 4-6 month at professional institute.
			SOCIAL WORKERS	4 years of university degree.
			PSEYCOLOGIST	4 years of university degree.

			MEDICAL ASSIST PSYCHOLOGIST	Originally nurse + 2-3 years of practice. Education for 2 years in Psychic Health Medical Assistant Institute and Awarded Diploma.
			OPHTHAMOLOGY ASSISTANT	Basically a nurse with 2- 3 years of practice. Education for 2 years in Ophthalmic Medical Assistant Institute and Awarded Diploma. Basic ophthalmology Skills.
			HEALTH VISITORS	Nurse with full range of mid wives skills and 2-3years of practice. Education of 2 years at Health Visitors School.

## Annex (B): Health workers profile

→ Variables Category ↓	Total Number	Sector			Area		Gender	Age			Existence of regulations for the occupation (Yes/No)	Unemployment (Number or estimated proportion %)	Year of the data	Source	
		Total Public	Total Private	Total Private not-for-profit	Urban areas	Rural areas	Female (Number or estimated proportion%)	Under 30 years	From 30 to 50 years	Over 50 years				Main sources of Information	Are the sources of Information computerized? (Yes/No)
<b>1. Physicians :</b>	<b>7552</b>			0			55%				Yes		2004	F.M.O.H	Yes
<i>Generalists :</i>		4798	531	0	4220	2074		30	60%	10%	Yes	3%	2004	F.M.O.H	Yes
<i>Specialists :</i>		1806	417	0	1119	422		3%	53%	56%	Yes	2%	2004	F.M.O.H	Yes
<b>2. Nurses :</b>	<b>17656</b>			0			80%				Yes		2004	F.M.O.H	Yes
<i>Registered nurses</i>		12640		0	9820	2820		20%	60%	20%	Yes		2004	F.M.O.H	Yes
<i>Enrolled nurses</i>		5016		0	4616	400		71%	25%	4%	Yes	30%	2004	F.M.O.H	Yes
<i>Auxiliary/Assistant nurses</i>				0							Yes		2004	F.M.O.H	Yes
<b>3. Midwives :</b>	<b>14921</b>			0			100%				Yes		2004	F.M.O.H	Yes
<i>Registered Midwives</i>		11048		0	9017	2031		4%	66%	30%	Yes		2004	F.M.O.H	Yes
<i>Enrolled Midwives</i>		2175		0	980	1195		33%	45%	22%	Yes		2004	F.M.O.H	Yes
<i>Auxiliary/Assistant midwives</i>		617		0	512	105		10%	40%	50%	Yes		2004	F.M.O.H	Yes
<i>Traditional birth attendants (TBA)</i>		1081		0	99	982		2%	72%	26%	Yes	*	2004	F.M.O.H	Yes
<b>4. Dentists :</b>	<b>701</b>			0			51%				Yes		2004	F.M.O.H	Yes
<i>Dentists :</i>		433	268	0	441	260		17%	55%	28%	Yes		2004	F.M.O.H	Yes
<i>Dental technician :</i>		26	60	0	80	6		2%	76%	22%	Yes		2004	F.M.O.H	Yes
<i>Dental assistant :</i>		295		0	270	25		34%	52%	14%	Yes		2004	F.M.O.H	Yes
<b>5. Pharmacists</b>	<b>3558</b>			0			57%				Yes		2004	F.M.O.H	Yes
<i>Pharmacists</i>		697	639	0	1300	36		24%	64%	12%	Yes	14%	2004	F.M.O.H	Yes
<i>Pharmacy technicians</i>		660	1012	0	1420	252		24%	72%	4%	Yes		2004	F.M.O.H	Yes
<i>Pharmacy assistants</i>		550		0	530	20		62%	13%	25%	Yes		2004	F.M.O.H	Yes
<b>6. Physiotherapist</b>	<b>207</b>	190	17	0	180	27	67%	8%	56%	37%	Yes		2004	F.M.O.H	Yes
<b>7. Medical assistants</b>	<b>6746</b>	4221	2525	0	3241	3505	49%	20%	33%	47%	Yes		2004	F.M.O.H	Yes
<b>8. Clinical officers</b>	<b>837</b>			0	430	407	50%	16%	60%	24%	Yes		2004	F.M.O.H	Yes
<b>9. Laboratory</b>	<b>2451</b>			0			53%				Yes		2004	F.M.O.H	Yes
<i>Laboratory scientists</i>		35		0	35	0		0	72%	28%	Yes		2004	F.M.O.H	Yes
<i>Laboratory technologist</i>		774	799	0	257	1316		40%	36%	24%	Yes	15%	2004	F.M.O.H	Yes
<i>Laboratory assistants</i>		843		0	405	429		36%	22%	42%	Yes		2004	F.M.O.H	Yes
<b>10. Radiographer</b>	<b>664</b>	634	30	0	664	0	30%	42%	16%	42%	Yes		2004	F.M.O.H	Yes
<b>11. Environmental and Public Health Officers</b>	<b>2897</b>			0			45%				Yes		2004	F.M.O.H	Yes
<i>Environmental and Public Health Officers Professionals</i>		479		0	440	39		37%	22%	41%	Yes		2004	F.M.O.H	Yes
<i>Environmental and Public Health Officers Technicians</i>		2418		0	2120	298	30%	64%	28%	8%	Yes	18%	2004	F.M.O.H	Yes
<b>12. Other Technicians and Health Care Cadres</b>	<b>1714</b>			0	717	997	15%	18%	71%	11%	Yes		2004	F.M.O.H	Yes
<b>13. Community Health Workers</b>	<b>4716</b>			0	1496	3220		37%	52%	11%	Yes		2004	F.M.O.H	Yes
<b>14. Administrative and support staff</b>	<b>17687</b>			0							Yes		2004	F.M.O.H	Yes
<i>Skilled administrative staff</i>		13420		0	12670	750	55%	18%	61%	21%	Yes	can,t say	2004	F.M.O.H	Yes
<i>Other support staff</i>		4267		0	3910	357	50%	22%	52%	26%	Yes	can,t say	2004	F.M.O.H	Yes
<b>15. Others categories specify *</b>															

\*This Cadre Is Usually not employed

### Annex (C): Health training institutions profile

UNIVERSITY	COLLEGE	NAME OF PROGRAM	LEVEL OF THE TRAINING	OWNERSHIP	Year	TOTAL ENROLLMENT	TOTAL GRADUATES	DURATION OF EDUCATION
BAHR ELGHZAL	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	30	58	6
NILE VALLEY	FACULTY OF MEDICINE & HEALTH SCIENCES	MBBS	PROFESSIONAL	PUBLIC	2003	20	FIRST YEAR	5
GEZIRA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	150	186	5
ALZAEM ALAZHARI	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	100	70	5
UPPER NILE	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	44	FIRST YEAR	6
ALZAEM ALAZHARI	FACULTY OF PUBLIC & ENVIRONMENTAL HEALTH	BSC	PROFESSIONAL	PUBLIC	2003	50	70	4
SUDAN SCIENCE & TECHNOLOGY	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PUBLIC	2003	90	283	4
FASHIR	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	51	22	5
RED SEA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	30	FIRST YEAR	5
DUNGLA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	13	FIRST YEAR	5
KASSALA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	50	136	5
SHENDI	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	158	108	5
EMAM MAHADI	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	16	FIRST YEAR	5
MEDICAL ASSISTANTS INSTITUTE	GENERAL ASSISTANTS MEDICAL	DIPLOMA	ASSOCIATE	PUBLIC	2003	40	40	2
JUBA TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	MEDICAL ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	15	25	2
ELO TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	MEDICAL ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	37	FIRST YEAR	2
PORT TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	THE OPERATIONS REORTS ASSISTANT	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	FIRST YEAR	2
PORT TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	LABORATORIES ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	16	2
PORT TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	MEDICAL ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	28	2
KASSALA TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	MEDICAL ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	36	FIRST YEAR	2
KASSALA TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	PHARMACY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	37	20	2
KASSALA TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	LABORATORIES ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	31	FIRST YEAR	2
KASSALA TRAINING CENTER FOR ALLIED HEALTH	ENVIRONMENTAL HEALTH OBSERVERS	DIPLOMA	ASSOCIATE	PUBLIC	2003	24	FIRST YEAR	2

PROFESSIONAL	INSTITUTE							
KASSALA TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	DENTISTRY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	8	FIRST YEAR	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	MEDICAL ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	32	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	LABORATORIES ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	FIRST YEAR	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	DENTISTRY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	30	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	HEALTH VISITORS SCHOOL	DIPLOMA	ASSOCIATE	PUBLIC	2003	30	FIRST YEAR	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	ENVIRONMENTAL HEALTH OBSERVERS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	31	2
MADANI TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	OPERATIONS REPORTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	FIRST YEAR	2
KHARTOUM TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	ANESTHESIA ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	74	FIRST YEAR	2
KHARTOUM TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	ANESTHESIA ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	FIRST YEAR	2
KHARTOUM TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	OPERATIONS REPORTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	141	36	2
KHARTOUM TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	LABORATORIES TECHNICIANS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	51	2
KHARTOUM TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	PHYSIOTHERAPY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	14	2
KHARTOUM HEALTH OBSERVERS INSTITUTE	ENVIRONMENTAL HEALTH OBSERVERS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	28	FIRST YEAR	2
KHARTOUM TRAINING CENTER OF OPHTHALMOLOGIST ASSISTANTS	OPHTHALMOLOGIST ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	10	2
KHARTOUM TRAINING CENTER OF OPHTHALMOLOGIST ASSISTANTS	OPHTHALMOLOGIST OPERATIONS REPORTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	0	11	2
OMDURMAN TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	PHARMACY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	200	FIRST YEAR	2
OMDURMAN TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	DENTISTRY ASSISTANTS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	32	FIRST YEAR	2
OMDURMAN TRAINING CENTER FOR ALLIED HEALTH PROFESSIONAL	HEALTH VISITORS INSTITUTE	DIPLOMA	ASSOCIATE	PUBLIC	2003	21	34	2
KHARTOUM	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PUBLIC	2003	80	56	5
KHARTOUM	FACULTY OF DENTISTRY	BSC	PROFESSIONAL	PUBLIC	2003	63	58	5

SINNAR	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	30	FIRST YEAR	5
KHARTOUM	FACULTY OF PHARMACY	BSC	PROFESSIONAL	PUBLIC	2003	92	175	6
JUBA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	60	58	6
GEZIRA	FACULTY OF PHARMACY	BSC	PROFESSIONAL	PUBLIC	2003	42	48	5
GEZIRA	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PUBLIC	2003	30	FIRST YEAR	4
KURDFAN	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	51	24	6
ALZAEM ALAZHARI	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PUBLIC	2003	41	349	4
KHARTOUM	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	250	286	6
SUDAN SCIENCE & TECHNOLOGY	MEDICAL RADIOGRAPHY SCIENCE	BSC	PROFESSIONAL	PUBLIC	2003	130	76	4
ELNEELAIN	FACULTY OF MEDICINE	BSC	PROFESSIONAL	PUBLIC	2003	50	57	6
ELNEELAIN	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PUBLIC	2003	44	30	4
ELNEELAIN	FACULTY OF OPTOMETRY & VISUAL SCIENCE	BSC	PROFESSIONAL	PUBLIC	2003	60	53	5
OMDURMAN ISLAMIC	FACULTY OF MEDICINE & HEALTH SCIENCES	MBBS	PROFESSIONAL	PUBLIC	2003	101	80	6
OMDURMAN ISLAMIC	FACULTY OF PHARMACY	BSC	PROFESSIONAL	PUBLIC	2003	56	85	5
KHARTOUM COLLEGE OF MEDICAL SCIENCES	FACULTY OF PHARMACY	BSC	PROFESSIONAL	PUBLIC	2003	76	FIRST YEAR	5
BAKHT ELRIDA	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	20	FIRST YEAR	6
GADARIF	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PUBLIC	2003	51	38	6
AHFAD	FACULTY OF PHARMACY	BSC	PROFESSIONAL	PRIVATE	2003	61	89	5
TECHNOLOGY SCIENCE COLLEGE	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	175	287	4
TECHNOLOGY SCIENCE COLLEGE	FACULTY OF DENTISTRY	BSC	PROFESSIONAL	PRIVATE	2003	38	30	5
KHARTOUM COLLEGE OF MEDICAL SCIENCES	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	64	FIRST YEAR	4
OMDURMAN AHLIA	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	80	55	4
KHARTOUM COLLEGE OF MEDICAL SCIENCES	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PRIVATE	2003	101	FIRST YEAR	5
KHARTOUM COLLEGE OF MEDICAL SCIENCES	FACULTY OF DENTISTRY	BSC	PROFESSIONAL	PRIVATE	2003	40	FIRST YEAR	5
NATIONAL RIBAT	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	145	FIRST YEAR	4
TECHNOLOGY SCIENCE COLLEGE	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PRIVATE	2003	34	FIRST YEAR	6
EAST NILE	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	75	FIRST YEAR	4
ACADEMY FOR MEDICAL SCIENCES	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PRIVATE	2003	69	FIRST YEAR	6
ACADEMY FOR MEDICAL SCIENCES	LABORATORY TECHNOLOGY	BSC	PROFESSIONAL	PRIVATE	2003	42	FIRST YEAR	4
AHFAD	FACULTY OF MEDICINE	MBBS	PROFESSIONAL	PRIVATE	2003	80	85	6

ALRAZI FACULTY FOR MEDICAL SCIENCES	FACULTY OF MEDICINE & HEALTH SCIENCES	MBBS	PROFESSIONAL	PRIVATE	2003	50	0	5
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**Summary of the Higher Education Collages and Institutes Related to the Health Sector:**

The Collage or Institute	The Number		
	Public	Private	Total Number
Medicine and Health Sciences.	19	6	25
Dentistry	2	5	7
Medical Laboratory Sciences	9	6	15
Pharmacy	3	4	7
Public and Environmental Health.	4	-	4
Higher Nursing	3	3	6
Basic and Applied Medical Sciences.	2	-	2
Medical Radiology.	2	1	3
Optics Sciences	1	-	1