



INTERNATIONAL ATOMIC ENERGY AGENCY

IAEA-CPS-92/11
8 September 1992
Original: ENGLISH

COUNTRY PROGRAMME SUMMARY

THE AGENCY'S TECHNICAL CO-OPERATION

PROGRAMME WITH

SUDAN

1982 - 1992

COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION

DEPARTMENT OF TECHNICAL CO-OPERATION

XN 93 03 983



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COUNTRY PROGRAMME SUMMARIES

This report contains a review of the Agency's technical co-operation activities in Sudan carried out during 1982 - 1992. In terms of coverage and analytical depth, country programme summaries stand somewhere midway between in-depth country programme evaluations and individual project evaluations. They attempt to provide a comprehensive, descriptive picture of the Agency's co-operation with a Member State in a manner that will be particularly useful for programming decisions. The attempt is very much to describe -- largely through statistical data -- not to provide independent analysis and evaluation.

SUDAN

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INTRODUCTION

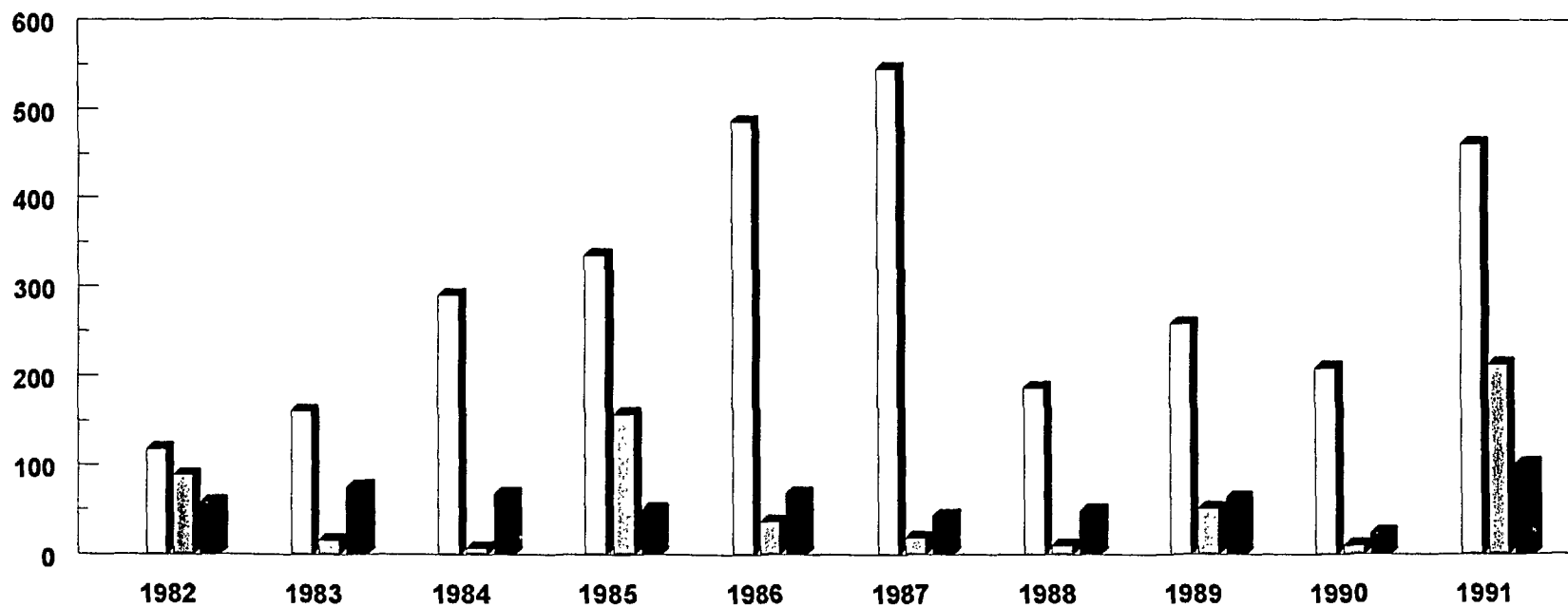
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With over \$5.7 million of Agency support received, Sudan ranks 31st among all recipients of technical assistance in the period 1958 through 1991.

Over the past ten years, almost equal shares of this assistance were provided in the form of equipment (46%) and training (42%), and only a small percentage was provided in the form of expert services (12%). The best part of the resources was made available through the Technical Assistance and Co-operation Fund (77%), while in-kind and extrabudgetary contributions account for 13% and 10% of the resources, respectively.

With regard to project disbursements during the past ten years, by sector, the two largest areas have been general atomic energy development (37%) and agriculture (21%), followed by nuclear medicine (14%). Smaller shares (6% each) have gone to nuclear physics and chemistry, nuclear engineering and technology, hydrology, and nuclear safety.

ASSISTANCE PROVIDED BY THE AGENCY TO SUDAN, BY SOURCE, 1982 - 1991

THOUSANDS OF DOLLARS

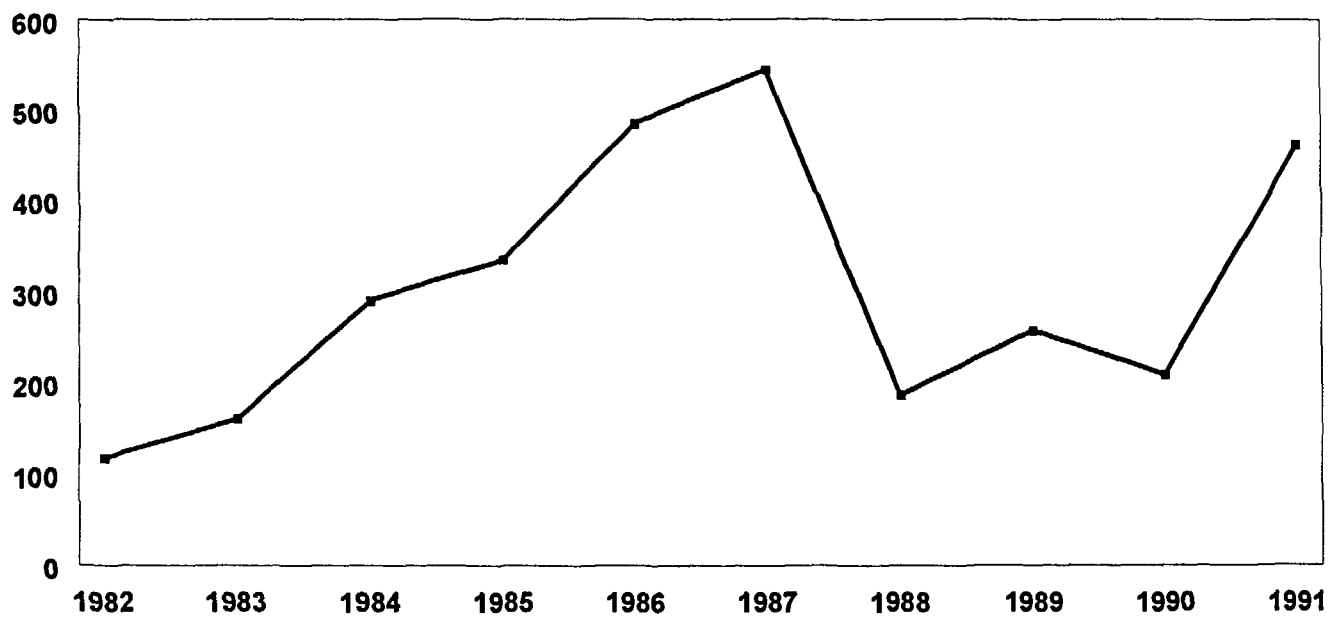


UNDP
 TACF
 EXTRABUDGETARY
 IN-KIND

TACF ASSISTANCE PROVIDED TO SUDAN

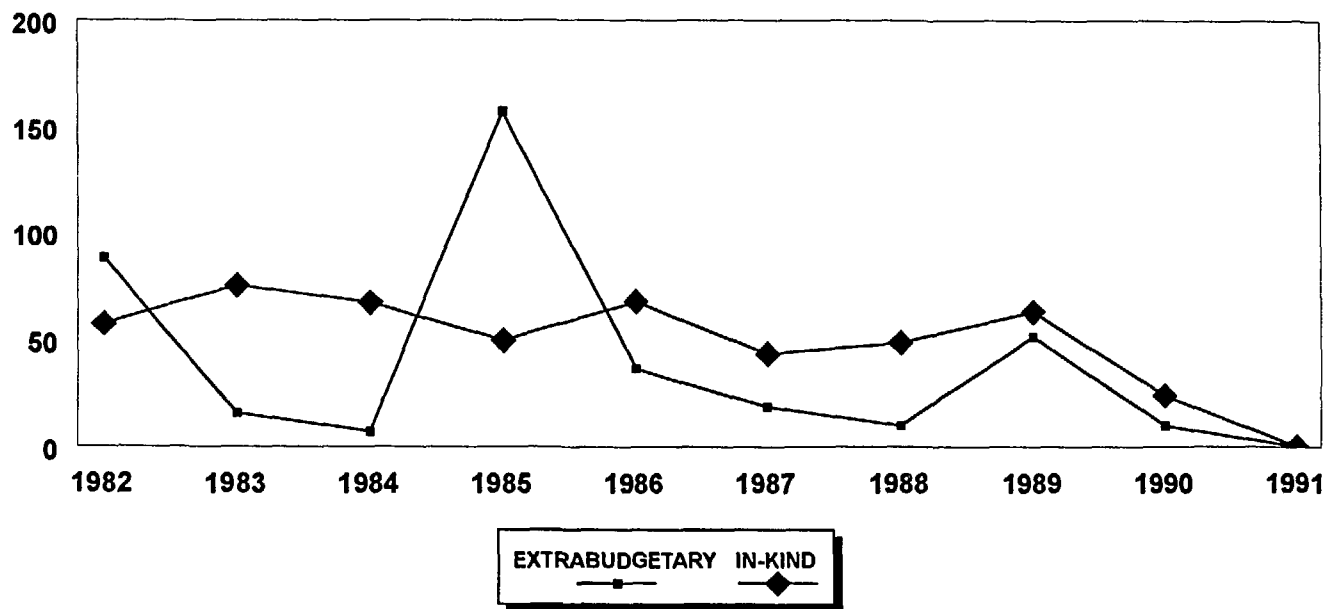
1982 - 1991

THOUSANDS OF DOLLARS

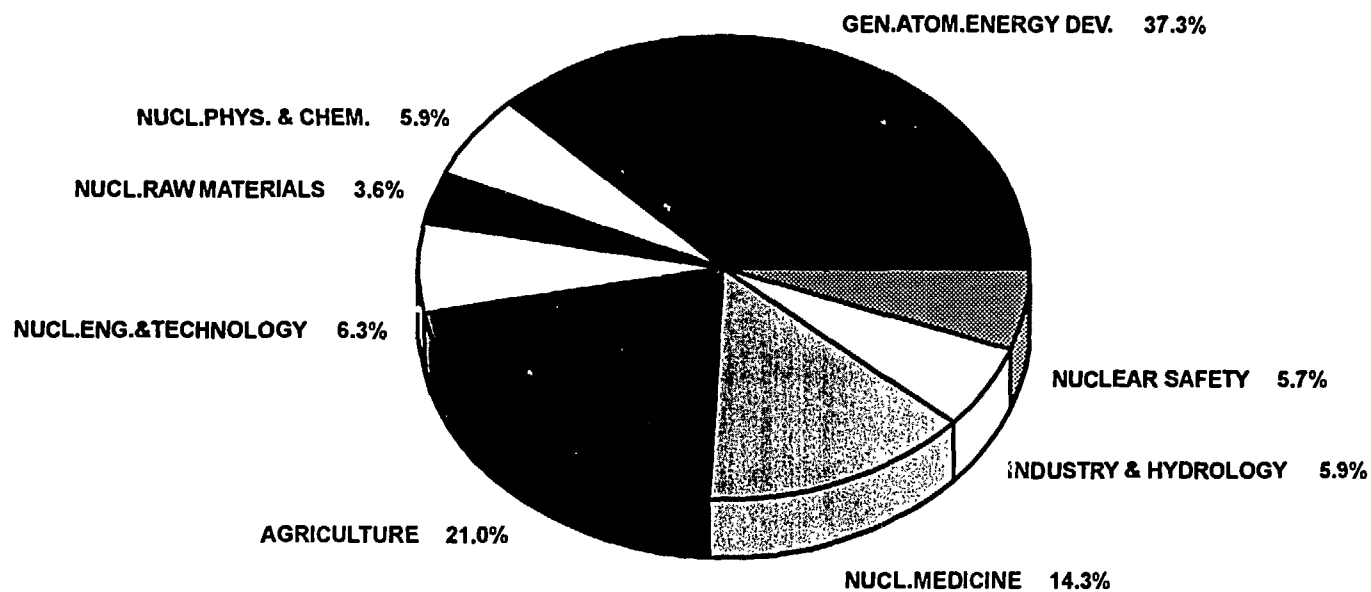


**EXTRABUDGETARY AND IN-KIND ASSISTANCE
PROVIDED TO SUDAN, 1982 - 1991**

THOUSANDS OF DOLLARS

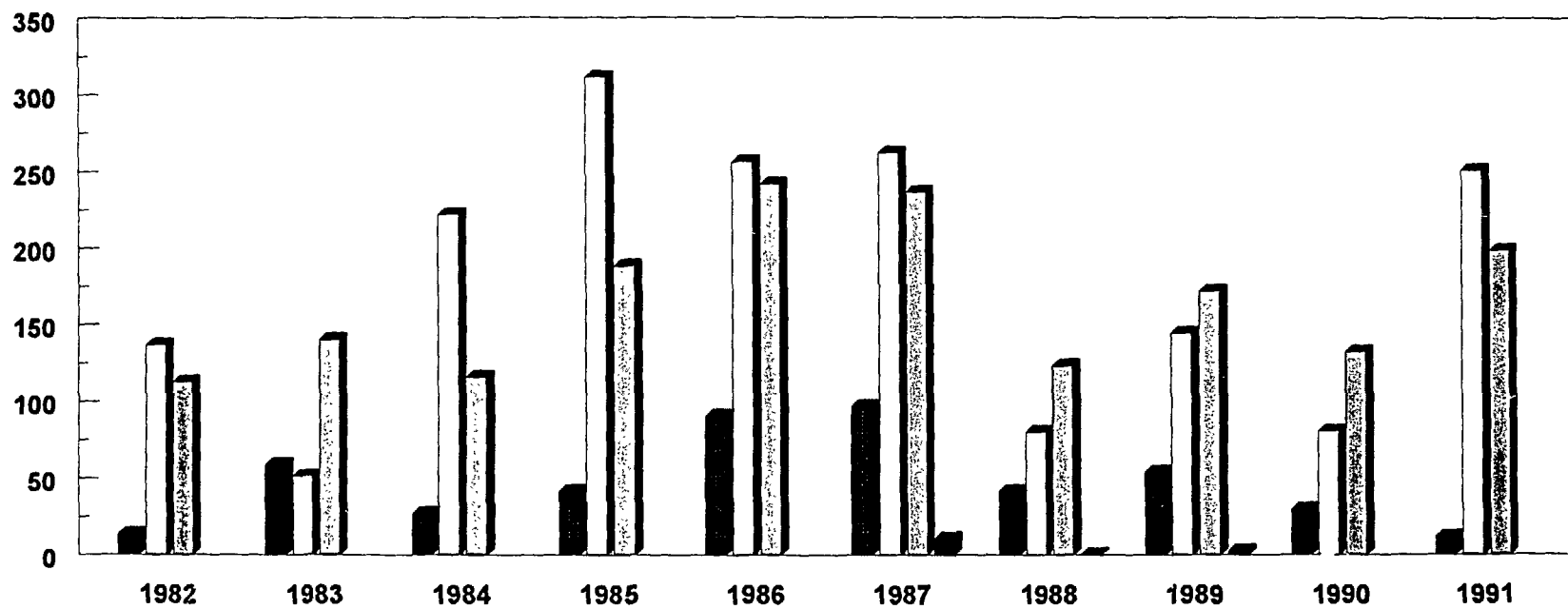


**TC PROJECT DISBURSEMENTS IN SUDAN,
BY SECTOR, 1982 - 1992**



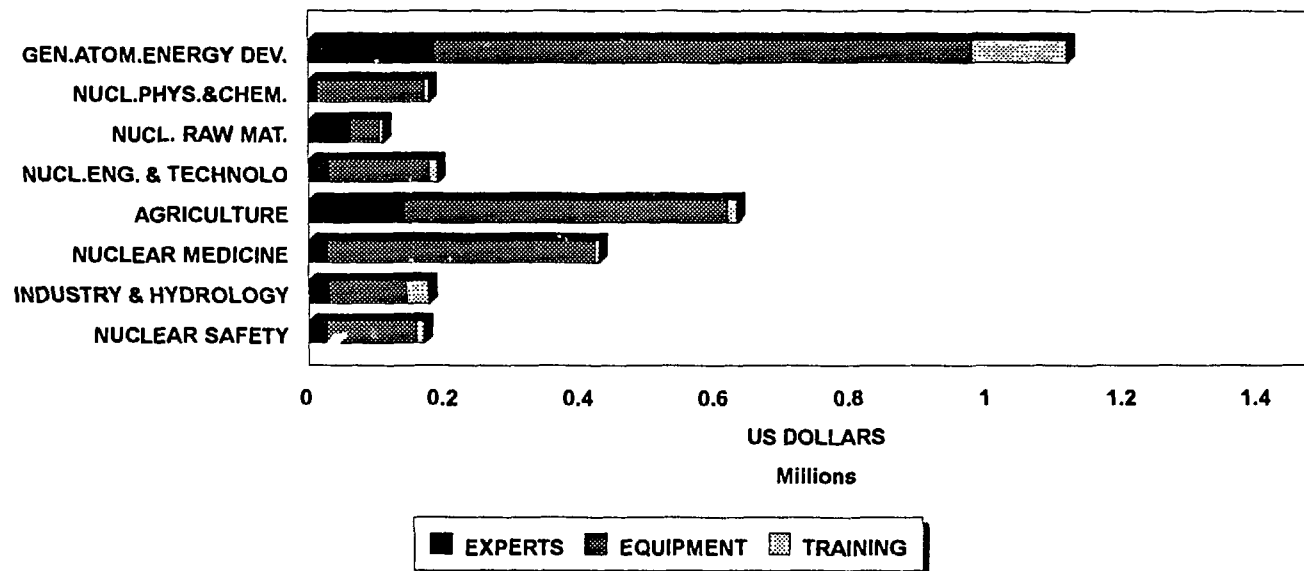
ASSISTANCE PROVIDED BY THE AGENCY TO SUDAN, BY TYPE, 1982 -1991

THOUSANDS OF DOLLARS



EXPERTS
 EQUIPMENT
 FELLOWSHIPS
 SUBCONTRACTS

**EXPERT SERVICES, EQUIPMENT, AND PROJECT-FUNDED TRAINING PROVIDED TO SUDAN
BY SECTOR, 1982 - 1992**



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH SUDAN

ALL SOURCES

SUDAN'S RANKING AS A TC RECIPIENT
1958 - 1991
(in \$1000)

YEAR	RANKING	AMOUNT
1958-81	28 th	1810.8
1982	32 nd	263.5
1983	32 nd	251.5
1984	22 nd	364.5
1985	14 th	541.4
1986	18 th	589.4
1987	21 st	606.3
1988	40 th	244.7
1989	28 th	372.5
1990	49 th	242.6
1991	31 st	461.2
1958-91	31 st	5748.4

"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1991 (in \$1000)

ALL SOURCES

Year	I	II	III	IV	V	SUDAN
1958-81	BRA 7907.9	IND 6670.7	ARG 5200.4	PAK 5091.2	CHI 5005.7	28 th - 1810.8
1982	EGY 807.5	PER 746.4	CUB 715.7	COL 667.7	THA 654.3	32 nd - 263.5
1983	EGY 2077.9	PER 1116.8	VIE 948.1	PHI 778.6	IRA 722.1	32 nd - 251.5
1984	EGY 3625.9	PER 1750.4	THA 1094.6	CUB 1028.7	PHI 881.2	22 nd - 364.5
1985	EGY 2494.8	PER 1120.7	THA 1117.4	BGD 1068.2	PHI 963.7	14 th - 541.4
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	18 th - 589.4
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	21 st - 606.3
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	40 th - 244.7
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	28 th - 372.5
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	49 th - 242.6
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	31 st - 461.2
1958-91	EGY 22222.3	BRA 17021.1	THA 14596.1	PER 12631.1	INS 12383.8	31 st - 5748.4

"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1991 (in \$1000)

TECHNICAL ASSISTANCE AND CO-OPERATION FUND

Year	I	II	III	IV	V	SUDAN
1958-81	HUN 2533.0	PAK 2010.9	EGY 1898.7	THA 1712.8	BRA 1704.8	20 th - 1122.4
1982	EGY 507.1	HUN 438.2	CUB 430.7	ECU 398.4	ZAM 354.9	40 th - 117.9
1983	EGY 1049.4	VIE 897.4	POL 667.8	PAK 498.5	PHI 430.0	37 th - 160.5
1984	EGY 1197.2	CUB 655.6	ECU 565.6	BGD 506.3	BUL 472.4	19 th - 290.1
1985	BGD 991.8	VIE 745.0	THA 708.7	BRA 571.8	POR 538.7	19 th - 334.6
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	19 th - 485.0
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	19 th - 544.3
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	41 st - 186.3
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	38 th - 257.9
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	46 th - 208.7
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	23 rd - 461.2
1958-91	EGY 9591.3	HUN 8256.5	POL 7793.5	BRA 7433.5	PAK 7346.0	26 th - 4168.9

ASSISTANCE PROVIDED BY THE AGENCY TO SUDAN

Financial Summary 1982 - 1991
(In thousands of dollars)

Year	ASSISTANCE PROVIDED, BY TYPE						ASSISTANCE PROVIDED, BY SOURCE					
	Experts	Equipment	Fellowships	Group training	Sub-contracts	Total	UNDP	TACF CC	TACF NCC	Extra-budgetary	In-kind	Total
1982	14.0	136.7	112.8	-	-	263.5	-	115.7	2.2	88.3	57.3	263.5
1983	59.5	51.6	140.4	-	-	251.5	-	160.5	-	15.7	75.3	251.5
1984	27.2	221.6	115.7	-	-	364.5	-	290.1	-	7.1	67.3	364.5
1985	41.6	311.4	188.4	-	-	541.4	-	333.9	0.7	157.2	49.6	541.4
1986	91.0	256.4	242.0	-	-	589.4	-	484.9	0.1	36.5	67.9	589.4
1987	96.9	262.1	236.6	-	10.7	606.3	-	522.8	21.5	18.6	43.4	606.3
1988	41.3	80.0	123.2	-	0.2	244.7	-	186.3	-	9.8	48.6	244.7
1989	54.1	144.1	171.8	-	2.5	372.5	-	256.8	1.1	51.5	63.1	372.5
1990	29.7	80.7	132.2	-	-	242.6	-	201.9	6.8	9.9	24.0	242.6
1991	11.9	251.0	198.3	-	-	461.2	-	461.2	-	-	-	461.2
1982-91	467.2	1 795.6	1 661.4	-	13.4	3 937.6	-	3 014.1	32.4	394.6	496.5	3 937.6

TECHNICAL CO-OPERATION PROJECTS IN SUDAN
BY SECTOR
PROJECTS COMPLETED AND OPERATIONAL 1982 - 1992
TOTAL PROJECT ALLOTMENTS AND DISBURSEMENTS
(as of 31 August 1992)

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	1	1 084 474	32.0	1 120 736	37.3
Nuclear physics and chemistry	4	230 848	6.8	177 476	5.9
Nuclear raw materials	2	93 851	2.8	108 618	3.6
Nuclear engineering and technology	3	251 109	7.4	189 800	6.3
Nuclear techniques in agriculture	7	598 088	17.6	631 676	21.0
Nuclear medicine	6	587 619	17.3	427 983	14.3
Nuclear techniques in biology	-	-	-	-	-
Nuclear techniques in industry and hydrology	2	256 083	7.6	176 980	5.9
Nuclear safety	3	287 951	8.5	169 882	5.7
TOTAL	28	3 390 023	100.0	3 003 151	100.0

TECHNICAL CO-OPERATION PROJECTS IN SUDAN
COMPLETED AND OPERATIONAL, BY SECTOR, 1982 - 1992
(As of 31 August 1992)

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	-	-	-
Nuclear physics and chemistry	3	98 739	88 276
Nuclear raw materials	2	93 851	108 618
Nuclear engineering and technology	2	123 859	124 288
Nuclear techniques in agriculture	6	474 059	505 690
Nuclear medicine	3	128 895	118 214
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	1	163 633	162 131
Nuclear safety	2	116 191	126 078
TOTAL	19	1 199 227	1 233 295
<u>Operational projects</u>			
General atomic energy development	1	1 084 474	1 120 736
Nuclear physics and chemistry	1	132 109	89 200
Nuclear raw materials	-	-	-
Nuclear engineering and technology	1	127 250	65 512
Nuclear techniques in agriculture	1	124 029	125 986
Nuclear medicine	3	458 724	309 769
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	1	92 450	14 849
Nuclear safety	1	171 760	43 804
TOTAL	9	2 190 796	1 769 856

EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO SUDAN, BY SECTOR
 PROJECTS COMPLETED AND OPERATIONAL 1982 - 1992
 (As of 31 August 1992)

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	21/26	144 790	796 034	143 650	21/26	185 546	795 430	139 760
Nuclear physics and chemistry	4/14	28 930	195 199	6 719	2/13	13 193	157 565	6 718
Nuclear raw materials	6/07	41 960	46 000	5 891	5/29	61 148	41 580	5 890
Nuclear engineering and technology	4/09	37 785	174 294	39 030	3/11	30 561	146 755	12 484
Nuclear techniques in agriculture	21/26	110 415	474 606	13 067	18/27	139 507	479 101	13 068
Nuclear medicine	11/24	89 715	452 604	45 300	5/00	27 648	394 612	5 723
Nuclear techniques in biology	-	-	-	-	-	-	-	-
Nuclear techniques in industry & hydrology	6/22	48 415	163 675	43 993	4/27	30 618	112 269	34 093
Nuclear safety	7/18	63 150	184 301	40 500	2/13	26 088	131 871	11 923
TOTAL	84/26	565 160	2 486 713	338 150	64/26	514 309	2 259 183	229 659

AGENCY FELLOWS FROM SUDAN

1982 - 1992¹
(As of 31 August 1992)

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	2	7/27	EGY, UK
Nuclear physics	14	116/25	BEL, USA, IND, GER, NET, UKR, THA, SWE, HUN, UK
Nuclear chemistry	7	51/12	GER, BEL, SWE, AUS, UK, IAEA
Nuclear raw materials	5	24/26	CAN, GER
Nuclear engineering and technology	9	90/04	KEN, NET, UK, IAEA
Nuclear techniques in agriculture	35	297/03	USA, MEX, BEL, SWE, NET, NZE, CAN, POL, EGY, KEN, IND, GER, PAK, UK, IAEA
Nuclear medicine	27	254/14	AUS, SWE, HUN, NET, EGY, USA, UK
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry and hydrology	6	30/25	GER, IAEA
Nuclear safety	9	46/09	USA, AUS, GER, HUN, IAEA
TOTAL	114	917/25	

¹ Only includes fellows who have completed or at least started training.

SUDAN
FELLOWSHIPS LONGER THAN 12 M/M
1982 - 1992
(As of 31 August 1992)

Name	Field of study	Host country	Date	Duration	Project
ABDELBAGI	Analytical nuclear physics	NET	Aug.87 - Sep.89	25/10	SUD/0/006
ABDELGADIR	Moessbauer spectroscopy	USA	Aug.89 - Sep.90	14/00	SUD/0/006
GISMELSEED	Solid state physics	GER	Jan.86 - Jan.88	24/01	SUD/0/006
ELTAYEB	X-ray fluorescence analysis	BEL	Oct.87 - Oct.89	12/03	SUD/0/006
MOHAMED, A.R.I.	Uranium exploration	CAN	Jun.90 - Jun.91	12/00	RAF/0/003
ABDEL RAHMAN, I.E.S.	Electronic instruments	UK	Aug.82 - Jan.84	17/01	SUD/6/006
OSMAN, S.K.	Nuclear instruments	IAEA	May 84 - May 85	12/01	SUD/0/006
YASSIEN	Electronic instrument technology	UK	Sep.82 - Dec.83	15/00	SUD/0/006
YOUSSEF	Nuclear instrumentation, electronics and reactor control	UK	Started: Sep.91	15/00	SUD/4/004
ABDALLA, A.B.	Plant breeding	POL EGY	Jan.90 - May 91	16/03	RAF/0/003
ABDALLA, A.R.	Soil/plant/water relationships	BEL	Oct.85 - Apr.87	18/02	-
ABDALLA, Y.H.	Animal parasitology	UK	Jul.85 - Oct.86	14/19	SUD/5/007

SUDAN
FELLOWSHIPS LONGER THAN 12 M/M
1982 - 1992
(As of 31 August 1992)

Name	Field of study	Host country	Date	Duration	Project
ABDEL MAJID	Animal immunology	UK	Aug.84 - Sep.85	14/00	-
AHMED, S.B.	Mutation breeding in cotton	PAK	Apr.91 - Apr.92	12/00	SUD/5/018
ALI-DINAR	Plant physiology	USA	Sep.87 - Sep.88	12/00	-
DUKEEN	Sterile insect technique	UK	Aug.84 - Oct.85	14/18	-
ELHUSSEIN	Plant physiology	USA	Nov.85 - Nov.86	12/00	-
FARAH	Animal science	USA	Aug.82 - Aug.83	12/01	SUD/5/007
IDRIS, M.A.	Isotopes in parasitology	FRA UK	Aug.81 - Mar.83	17/14	SUD/0/006
MOHAMED, O.A.S.	Radiation entomology	IAEA	Feb.82 - Feb.83	12/00	-
OMER	Pesticide residues	USA	Apr.88 - Apr.89	13/00	SUD/5/012
AHMED ABBASS	Radiation oncology	EGY	Oct.86 - Sep.87	12/00	EGY/6/004
ALI ELBESHIR	Nuclear medicine instrumentation	UK	Aug.87 - Feb.89	17/08	SUD/6/012
EL HASSAN	Nuclear medicine	SWE	Apr.85 - Aug.86	16/00	SUD/6/009
EL RUFAl	Radiotherapy	EGY	Oct.89 - Apr.92	30/17	RAF/0/003

SUDAN
 FELLOWSHIPS LONGER THAN 12 M/M
 1982 - 1992
 (As of 31 August 1992)

Name	Field of study	Host country	Date	Duration	Project
GASMELBARI	Medical physics	UK	Aug.86 - Sep.87	13/01	SUD/6/012
HAMAD MOHAMED	Nuclear medicine	AUS	Oct.83 - Oct.84	12/01	-
HUSSEIN	Nuclear medicine	UK	Jul.85 - Apr.87	20/24	SUD/6/012
MAGZOUN	Nuclear medicine technology	HUN	Jun.83 - Jun.85	24/19	SUD/6/009
MUSTAFA, S.M.	Nuclear medicine	UK	Oct.90 - Jan.92	15/02	RAF/0/003
OSMAN, M.Y.	Medical physics	UK	Aug.82 - Dec.84	28/01	SUD/6/009
SULEIMAN, O.E.A.	Nuclear medicine	UK	Sep.86 - Sep.87	12/03	SUD/6/012
ELATAYA	Radiation protection	USA	Sep.81 - Feb.83	18/00	-

SUDANESE NATIONALS WHO WERE AWARDED MORE THAN ONE
FELLOWSHIP OR SCIENTIFIC VISIT
1982 - 1992
(As of 31 August 1992)

Name	Field of study	Host country	Date	Duration	Project
ALI ELBESHIR	1. Medical physics 2. Nuclear medicine instrumentation	NET UK	Oct.84 - Nov.84 Aug.87 - Feb.89	1/15 17/08	SUD/6/012 SUD/6/012
AWIN	1. Laboratory technician 2. Pesticide residues	EGY UK	Sep.82 - Jan.83 Aug.90 - Mar.91	4/00 6/21	SUD/5/012 RAF/0/003
GISMELSEED	1. Solid state physics 2. Analytical techniques in physics	GER SWE	Jan.86 - Jan.88 Mar.91 - Sep.91	24/01 6/01	SUD/0/006 RAF/0/007
HABBANI	1. Neutron physics 2. Nuclear physics	UKR THA IND	Sep.87 - Oct.87 Sep.88 - Oct.88	0/12 0/19	INT/1/043 SUD/0/006
HASSAN, H.S.	1. Nuclear electronics technology 2. Analytical chemistry	UK IAEA	Oct.84 - Jul.85 Apr.91 - Jul.91	9/01 3/00	SUD/4/002 SUD/0/006
OSMAN, M.Y.	1. Medical physics 2. Radiation protection	UK IAEA	Aug.82 - Sep.83 Sep.86 - Dec.86	13/01 3/13	SUD/6/009 SUD/1/002

AGENCY TRAINING COURSES WITH SUDANESE PARTICIPATION

1982 - 1992
(As of 31 August 1992)

Field	Number of participants	Number of courses
General atomic energy development	6	4
Nuclear physics	15	14
Nuclear chemistry	6	4
Nuclear raw materials	-	-
Nuclear engineering and technology	11	9
Nuclear techniques in agriculture	32	27
Nuclear medicine	15	13
Nuclear techniques in biology	-	-
Nuclear techniques in industry & hydrology	1	1
Nuclear safety	13	11
TOTAL	99	83

MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SUDANESE NATIONALS
1982 - 1992
(As of 31 August 1992)

Name	Course No.	Course title	Year	Location
ABDALLA, M.A.	INT/4/100 (001)	ITC on interfacing in nuclear experiments	1989	THA
	INT/4/105 (001)	Advanced ITC on nuclear electronics	1991	MEX
AHMED, M.O.	INT/1/012 (001)	ITC and study tour on neutron physics and nuclear data measurements with accelerators and research reactors	1983	USSR
	INT/1/040 (001)	ITC on the use of neutron generators in material and analytical research	1986	THA
ALI ELBESHIR	INT/4/085 (001)	ITC on advanced nuclear electronics	1986	JAM
	RAF/9/003 (001)	RTC on radiation protection	1987	EGY
EL-AMIN	INT/1/014 (002)	Interregional seminar and workshop on calibration procedures in SSDL	1988	TUR
	INT/6/030 (001)	ITC on nuclear medical equipment with special attention to the gamma camera	1984	UK
	RAF/9/005 (002)	Meeting on regional co-operation in radiation protection in Africa	1989	URT
	RAF/9/005 (008)	Regional meeting on co-operation in radiation protection in Africa	1992	URT
EL-KHANGI	INT/1/031 (001)	Study tour on the utilization of low-energy accelerators	1985	GFR HUN ITA
	INT/9/090 (001)	ITC on the determination of radionuclides in food and environmental samples	1988	USSR GFR
ELTAYEB	INT/1/025 (001)	ITC on the research and application of energy dispersive X-ray fluorescence analysis	1984	SIN
	RAF/1/003 (001)	RTC on advanced X-ray fluorescence analysis	1987	GHA
HABBANI	INT/1/020 (001)	ITC on the utilization of neutron generators	1982	HUN
	INT/1/038 (001)	ITC on neutron physics and nuclear data measurements in research reactors	1987	USSR

MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SUDANESE NATIONALS
1982 - 1992
(As of 31 August 1992)

Name	Course No.	Course title	Year	Location
HAG MUSA	INT/1/029 (001)	ITC on dosimetry	1984	BRA
	INT/9/093 (001)	ITC on safety and regulation of sealed sources of radioactive material	1989	USA
	RAF/6/005 (001)	RTC on dosimetry in radiotherapy, including treatment planning	1991	EGY
	RAF/9/003 (001)	RTC on radiation protection	1987	EGY
	RAF/9/005 (007)	RWS on emergency planning, preparedness and international co-operation	1991	AUS
HASSAN, A.E.M.	INT/5/113 (001)	ITC on the use of radiation and isotopes in insect control and entomology	1988	USA
	INT/5/120 (001)	ITC on the use of radiation and isotopes in insect control	1990	USA
HUSSEIN	INT/6/027 (001)	ITC and study tour on nuclear medicine	1983	USSR
	RER/6/002 (002)	RWS on radioimmunoassay	1989	KUW
KENYI	INT/0/043 (001)	ITC on interfacing in nuclear experiments	1987	POR
	RAF/0/006 (001)	RTC on design, management and evaluation techniques of IAEA technical co-operation projects	1991	GHA
MOHAMED, O.S.	INT/2/007 (001)	ITC on determination of radionuclides in food and environmental samples	1990	GFR
	RAF/9/005 (004)	RWS on basic radiation and development of national infrastructure for radiation safety	1990	NIR
	RAF/9/006 (001)	RTC on management of spent sealed radiation sources	1991	KEN
OSMAN	INT/4/098 (001)	Advanced ITC on nuclear electronics	1989	USA
	RAF/4/002 (001)	RTC on nuclear electronics	1983	ZAM
SHADDAD	INT/1/046 (001)	ITC on nuclear measurements and methods in reactor and personal neutron dosimetry	1989	USSR
	INT/1/047 (001)	ITC on experimental neutron spectroscopy	1990	GRE
	RAF/2/003 (001)	RTC on application of nuclear analytical techniques in mineral exploration and exploitation	1991	GHA

MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SUDANESE NATIONALS
1982 - 1992
(As of 31 August 1992)

Name	Course No.	Course title	Year	Location
SHAKIR	INT/1/037 (001) INT/1/044 (001)	ITC on advanced data processing and interpretation in X-ray fluorescence analysis ITC on applied nuclear physics and data measurements at neutron generators	1985 1988	YUG GDR
SULEIMAN	INT/6/029 (001) RAF/9/004 (001)	ITC on nuclear medicine RTC on radiation protection	1984 1988	USSR EGY

PROJECTS COMPLETED IN SUDAN SINCE 1982
(As of 31 August 1992)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1979	SUD/1/002	Secondary standards dosimetry laboratory	3/00	17 600	20 000	-	0/29	7 458	21 855	-	1986
1982	SUD/1/003	Liquid nitrogen plant	-	-	45 531	-	-	-	45 531	-	1983
1985	SUD/1/004	Liquid nitrogen plant	-	-	15 608	-	-	-	13 432	-	1989
1982	SUD/3/002	Nuclear raw materials	1/00	5 400	-	-	0/14	3 230	-	-	1984
1985	SUD/3/003	Uranium geology and exploration methods	5/07	36 560	46 000	5 891	5/15	57 918	41 580	5 890	1989
1982	SUD/4/002	Electronics workshop	-	-	34 423	-	-	-	34 423	-	1985
1984	SUD/4/003	Nuclear instrumentation	2/12	20 565	68 871	-	2/07	20 958	68 907	-	1991
1975	SUD/5/007	Radioisotopes in animal science	4/17	11 983	157 600	-	4/18	27 794	157 895	-	1986
1975	SUD/5/008	Radioisotopes in plant production	6/00	15 000	25 000	-	2/23	17 906	26 469	-	1985
1980	SUD/5/012	Pesticide residues	2/27	26 462	90 204	-	2/27	26 850	91 378	-	1990
1981	SUD/5/013	Isotopes in animal science	2/01	11 180	33 120	-	2/03	14 301	34 404	-	1986

PROJECTS COMPLETED IN SUDAN SINCE 1982
(As of 31 August 1992)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1982	SUD/5/015	Crop-water relations	2/00	10 800	10 000	-	2/00	10 250	9 746	-	1983
1984	SUD/5/016	Animal science	3/10	26 010	56 700	-	3/10	31 658	57 039	-	1991
1980	SUD/6/009	Nuclear medicine	3/20	21 665	72 000	5 700	3/20	14 859	71 967	5 723	1990
1984	SUD/6/011	Intracavitary radiation therapy for cancer	-	-	27 000	-	-	-	21 886	-	1985
1986	SUD/6/013	Nuclear medicine services	0/11	2 530	-	-	0/11	3 779	-	-	1988
1982	SUD/8/004	Isotopes in hydrology	4/22	30 265	99 275	34 093	4/22	28 672	99 366	34 093	1991
1983	SUD/9/003	Planning mission in radiation protection	0/18	2 700	-	-	0/09	2 360	-	-	1983
1984	SUD/9/004	Radiation protection	2/00	13 500	99 991	-	2/04	23 728	99 990	-	1987
	TOTAL	19 projects	43/25	252 220	901 323	45 684	38/02	291 721	895 868	45 706	

OPERATIONAL PROJECTS IN SUDAN
(As of 31 August 1992)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1980	SUD/0/006	Nuclear science laboratory	21/26	144 790	796 034	143 650	21/26	185 546	795 430	139 760
1987	SUD/1/005	Secondary standards dosimetry laboratory	1/14	11 330	114 060	6 719	1/14	5 735	76 747	6 718
1991	SUD/4/004	Nuclear instrumentation (phase II)	1/27	17 220	71 000	39 030	1/04	9 603	43 425	12 484
1989	SUD/5/018	Mutation breeding	1/01	8 980	101 982	13 067	1/06	10 748	102 170	13 068
1984	SUD/6/012	Use of gamma camera	1/23	11 520	266 604	-	0/29	9 010	263 200	-
1988	SUD/6/014	Nuclear medicine (Gezira University)	2/00	17 700	32 000	-	-	-	20 549	-
1991	SUD/6/017	Nuclear medicine (phase II)	4/00	36 300	55 000	39 600	-	-	17 010	-
1991	SUD/8/005	Use of isotopes in groundwater assessment	2/00	18 150	64 400	9 900	0/05	1 946	12 903	-
1991	SUD/9/005	Radiation protection (phase II)	5/00	46 950	84 310	40 500	-	-	31 881	11 923
	TOTAL	9 projects	41/01	312 940	1 585 390	292 466	26/24	222 588	1 363 315	183 953

COUNTERPART INSTITUTIONS IN SUDAN (I)
(By Project)

Project No. Institute Counterpart(s)

GENERAL ATOMIC ENERGY DEVELOPMENT

SUD/0/006 University of Khartoum,
Faculty of Science,
Department of Physics,
Nuclear Science Laboratory,
Khartoum HABBANI

NUCLEAR PHYSICS AND CHEMISTRY

SUD/1/002 Ministry of Health,
Radiation and Isotopes Centre,
Khartoum IBRAHIM

SUD/1/003 Sudan Atomic Energy Commission,
National Council for Research,
Khartoum BURAEI

SUD/1/004 Sudan Atomic Energy Commission,
National Council for Research,
Khartoum BURAEI

SUD/1/005 Ministry of Health,
Radiation and Isotopes Centre,
Khartoum EL-AMIN

NUCLEAR RAW MATERIALS

SUD/3/002 University of Khartoum,
Faculty of Science,
Department of Geology,
Khartoum KHALIL

SUD/3/003 University of Khartoum,
Faculty of Science,
Department of Geology,
Khartoum KHALIL

NUCLEAR ENGINEERING AND TECHNOLOGY

SUD/4/002 Sudan Atomic Energy Commission,
National Council for Research,
Khartoum BURAEI

COUNTERPART INSTITUTIONS IN SUDAN (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY (cont'd)</u>		
SUD/4/003	Sudan Atomic Energy Commission, Khartoum	EL-KHANGI
SUD/4/004	Sudan Atomic Energy Commission, National Council for Research, Khartoum	KENYI
<u>AGRICULTURE</u>		
SUD/5/007	Government Central Veterinary Research Laboratories, Soba	EL HAG ALI
SUD/5/008	Ministry of Agriculture, Agricultural Research Corporation, Shambat Research Station, Cotton Breeding Station, Shambat	KHALIFA
SUD/5/012	Ministry of Agriculture, Agricultural Research Corporation, Gezira Research Station, Wad Medani	EL-ZORGANI
SUD/5/013	University of Khartoum, Faculty of Agriculture, Department of Animal Production, Khartoum	MAGLAD
SUD/5/015	Ministry of Agriculture, Agricultural Research Corporation, Gezira Research Station, Wad Medani	FARAH
SUD/5/016	Faculty of Veterinary Science, Department of Veterinary Preventive Medicine, Pharmacology and Toxicology, Khartoum	EL AMIN ABDEL GADIR
SUD/5/018	Ministry of Agriculture, Agricultural Research Corporation, Wad Medani	FADLALLA

COUNTERPART INSTITUTIONS IN SUDAN (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR MEDICINE</u>		
SUD/6/009	1. Sudan Atomic Energy Commission, Khartoum	SADIG HASSAN
	2. University of Khartoum, Faculty of Medicine, Khartoum	-
	3. Ministry of Health, Khartoum	-
SUD/6/011	Ministry of Health, Radiation and Isotopes Centre, Khartoum (In co-operation with NEMROCK/Cairo)	HAMAD
SUD/6/012	Ministry of Health, Radiation and Isotopes Centre, Khartoum	ABDEL RAHMAN
SUD/6/013	1. University of Gezira, Faculty of Medicine, Wad Medani	MUSTAFA
	2. The High Institute of Radiography and Radiotherapy, Khartoum	ALHADDAD
SUD/6/014	University of Gezira, Faculty of Medicine, Wad Medani	MUSTAFA
SUD/6/017	Ministry of Health, Radiation and Isotopes Centre, Khartoum	HUSSEIN
<u>NUCLEAR TECHNIQUES IN HYDROLOGY</u>		
SUD/8/004	National Water Corporation, The Water Research Centre, Khartoum	MOHAMMED
SUD/8/005	National Water Administration, Groundwater Research Administration, Khartoum	MUKHTAR

COUNTERPART INSTITUTIONS IN SUDAN (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR SAFETY</u>		
SUD/9/003	Sudan Atomic Energy Commission, Khartoum	YOUSIF
SUD/9/004	Sudan Atomic Energy Commission, Radiation Protection Unit, Khartoum	EL-AMIN
SUD/9/005	Sudan Atomic Energy Commission, Radiation Protection Unit, Khartoum	EL-KHANGI

COUNTERPART INSTITUTIONS IN SUDAN (II)
(By Institute)

KHARTOUM

Sudan Atomic Energy Commission
Khartoum

SUD/4/003 Nuclear Instrumentation
SUD/6/009 Nuclear Medicine
SUD/9/003 Planning Mission in Radiation Protection

Sudan Atomic Energy Commission
National Council for Research
Khartoum

SUD/1/003 Liquid Nitrogen Plant
SUD/1/004 Liquid Nitrogen Plant
SUD/4/002 Electronics Workshop
SUD/4/004 Nuclear Instrumentation (Phase II)

Sudan Atomic Energy Commission
Radiation Protection Unit
Khartoum

SUD/9/004 Radiation Protection
SUD/9/005 Radiation Protection (Phase II)

Ministry of Health
Khartoum

SUD/6/009 Nuclear Medicine

Ministry of Health
Radiation and Isotopes Centre
Khartoum

SUD/1/002 Secondary Standards Dosimetry Laboratory
SUD/1/005 Secondary Standards Dosimetry Laboratory
SUD/6/011 Intracavitary Radiation Therapy for Cancer
SUD/6/012 Use of Gamma Camera
SUD/6/017 Nuclear Medicine (Phase II)

COUNTERPART INSTITUTIONS IN SUDAN (II)
(By Institute)

KHARTOUM (cont'd)

**National Water Corporation
The Water Research Centre
Khartoum**

SUD/8/004 Isotopes in Hydrology

**National Water Administration
Groundwater Research Administration
Khartoum**

SUD/8/005 Use of Isotopes in Groundwater Assessment

**University of Khartoum
Faculty of Science
Department of Physics
Nuclear Science Laboratory
Khartoum**

SUD/0/006 Nuclear Science Laboratory

**University of Khartoum
Faculty of Science
Department of Geology
Khartoum**

SUD/3/002 Nuclear Raw Materials
SUD/3/003 Uranium Geology and exploration methods

**University of Khartoum
Faculty of Agriculture
Department of Animal Production
Khartoum**

SUD/5/013 Isotopes in Animal Science

**University of Khartoum
Faculty of Medicine
Khartoum**

SUD/6/009 Nuclear Medicine

COUNTERPART INSTITUTIONS IN SUDAN (II)
(By Institute)

KHARTOUM (cont'd)

Faculty of Veterinary Science
Department of Veterinary Preventive Medicine, Pharmacology and Toxicology
Khartoum

SUD/5/016 Animal Science

The High Institute of Radiography and Radiotherapy
Khartoum

SUD/6/013 Nuclear Medicine Services

WAD MEDANI

Ministry of Agriculture
Agricultural Research Corporation
Medani

SUD/5/018 Mutation Breeding

Ministry of Agriculture
Agricultural Research Corporation
Gezira Research Station
Medani

SUD/5/012 Pesticide Residues
SUD/5/015 Crop-Water Relations

University of Gezira
Faculty of Medicine
Wad Medani

SUD/6/013 Nuclear Medicine Services
SUD/6/014 Nuclear Medicine (Gezira University)

COUNTERPART INSTITUTIONS IN SUDAN (II)
(By Institute)

SOBA

**Government Central Veterinary Research Laboratories
Soba**

SUD/5/007 Radioisotopes in Animal Science

SHAMBAT

**Ministry of Agriculture
Agricultural Research Corporation
Shambat Research Station
Cotton Breeding Station
Shambat**

SUD/5/008 Radioisotopes in Plant Production

THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH SUDAN

**LONG-TERM EXPERT ASSIGNMENTS
(1982 - 1992)**

NONE

RESEARCH CONTRACTS/AGREEMENTS IN SUDAN SINCE 1982 ¹
(As of 31 August 1992)

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear techniques in agriculture	14	97 517
Nuclear medicine	5	78 500
Safety in nuclear energy	1	5 000
TOTAL	20	181 017

¹/ New awards since 1982

**SCIENTISTS FROM SUDAN SERVING AS AGENCY
TECHNICAL CO-OPERATION EXPERTS OR
TRAINING COURSE LECTURERS
1982 - 1992
(As of 31 August 1992)**

Name	No. of assignments	Project(s)
ABD EL SHAFI	1	SUD/8/004
ABDALLA	1	EGY/6/004
ABDEL RAHIM	1	SUD/5/016
ABDELGADIR	1	RER/9/003
AHMED	1	SUD/6/009
AYOUB	4	ETH/5/008, PAK/5/017
DARAG	1	SUD/6/009
GASMELBARI	1	EGY/6/004
HAMAD MOHAMED	1	EGY/6/004
HOUSEIN	1	SUD/6/009
IDRIS	1	SUD/5/016
KENYI	2	INT/4/096, INT/4/100
MAGLAD	1	SUD/5/016
MOUSA	1	RAF/5/021
OSMAN	1	EGY/6/004
SULAIMAN	1	SUD/5/016
SULEIMAN	1	EGY/6/004
TOTAL	21	

**AGENCY FELLOWSHIPS AND SCIENTIFIC VISITS
HOSTED BY SUDAN
1982 - 1992
(As of 31 August 1992)**

Recipient country	No. of fellowships	No. of scientific visits	TOTAL ¹
ETHIOPIA	-	2	2
PAKISTAN	-	1	1
SIERRA LEONE	-	1	1
TOTAL	-	4	4

¹/ Includes trainees who have completed or at least started their studies.

**REGIONAL AND INTERREGIONAL TRAINING EVENTS
HOSTED BY SUDAN
1982 - 1992
(As of 31 August 1992)**

Course No.	Course Title	Participants	Year
INT/0/039 (001)	IWS on IAEA technical co-operation practices and procedures	15	1984
RAF/6/003 (001)	RTC on basic nuclear medicine	12	1989
	TOTAL	27	