



INTERNATIONAL ATOMIC ENERGY AGENCY



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COUNTRY PROGRAMME SUMMARY

**THE AGENCY'S TECHNICAL CO-OPERATION
PROGRAMME WITH THE
SYRIAN ARAB REPUBLIC**

1984 - 1994

COUNTRY PROGRAMME SUMMARIES

DEPARTMENT OF TECHNICAL CO-OPERATION

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EVALUATION SECTION

DEPARTMENT OF TECHNICAL CO-OPERATION

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COUNTRY PROGRAMME SUMMARIES**

This report contains a review of the Agency's technical co-operation activities in the Syrian Arab Republic carried out during 1984 - 1994. 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.

SYRIAN ARAB REPUBLIC

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INTRODUCTION

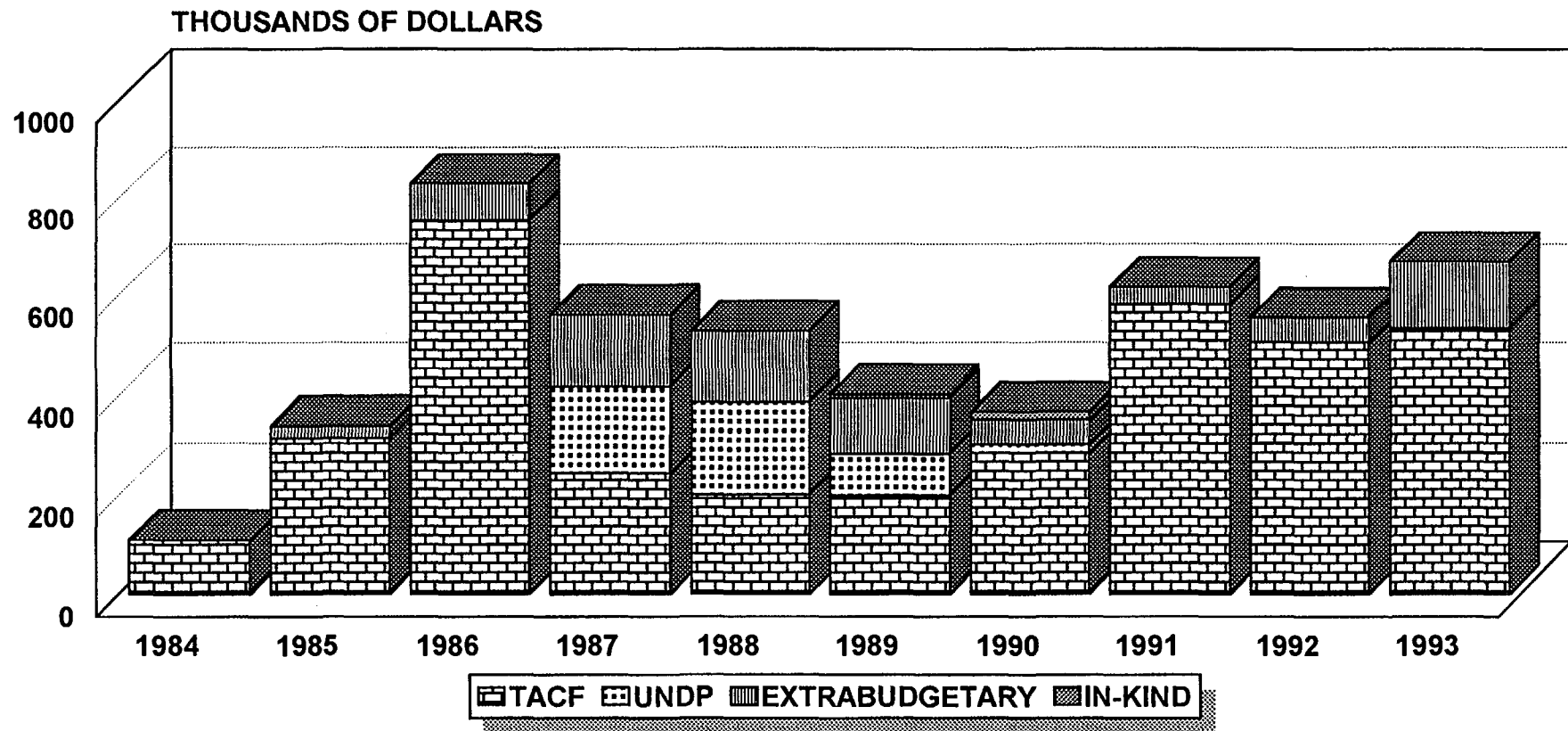
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With over \$5.7 million of Agency support received, the Syrian Arab Republic ranks 35th among all recipients of technical assistance during the period 1958 through 1993.

Almost two-thirds of the assistance received over the past ten years has been provided in the form of equipment (63%), supplemented by expert services (21%) and training (16%). With regard to resources, the greatest part was made available through the TACF (75%), the rest was provided by extrabudgetary contributions (15%), UNDP (9%) and assistance in kind (1%).

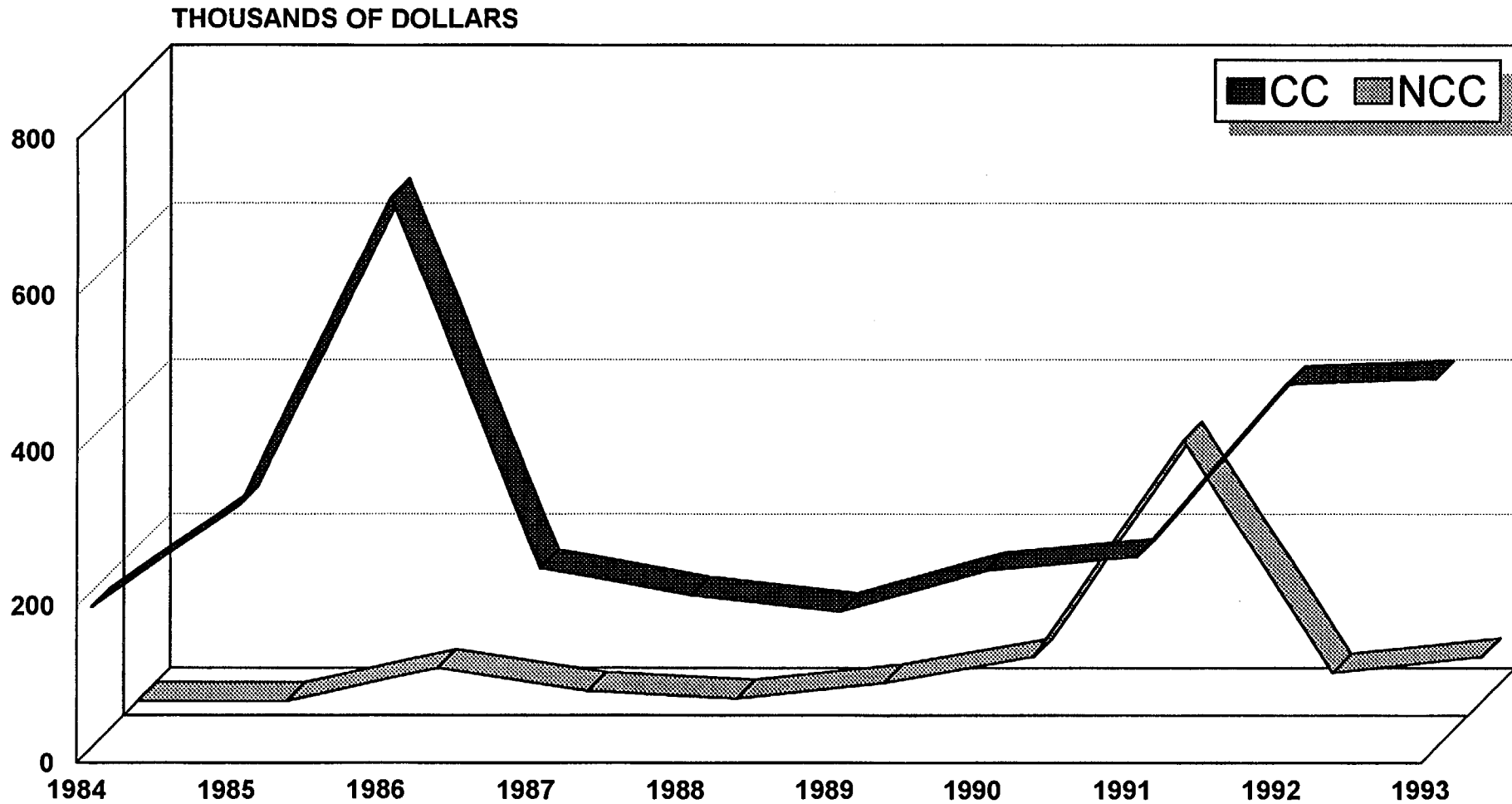
Total disbursements under operational projects and projects completed during the period 1984 through mid-August 1994 were fairly evenly spread among six major areas -- nuclear engineering and technology (20%), nuclear raw materials (18%), general atomic energy development (14%), nuclear safety (13%), biology (12%) and nuclear physics and chemistry (10%), while only small shares, from 3% to 7%, went to nuclear medicine, industry and hydrology, and agriculture.

Since 1984, scientists from the Syrian Arab Republic have completed 75 assignments as Agency experts and training course lecturers or as participants in co-ordination meetings. During the same period, the country has hosted seven fellowships and scientific visits as well as nine regional training courses for a total of 76 participants.

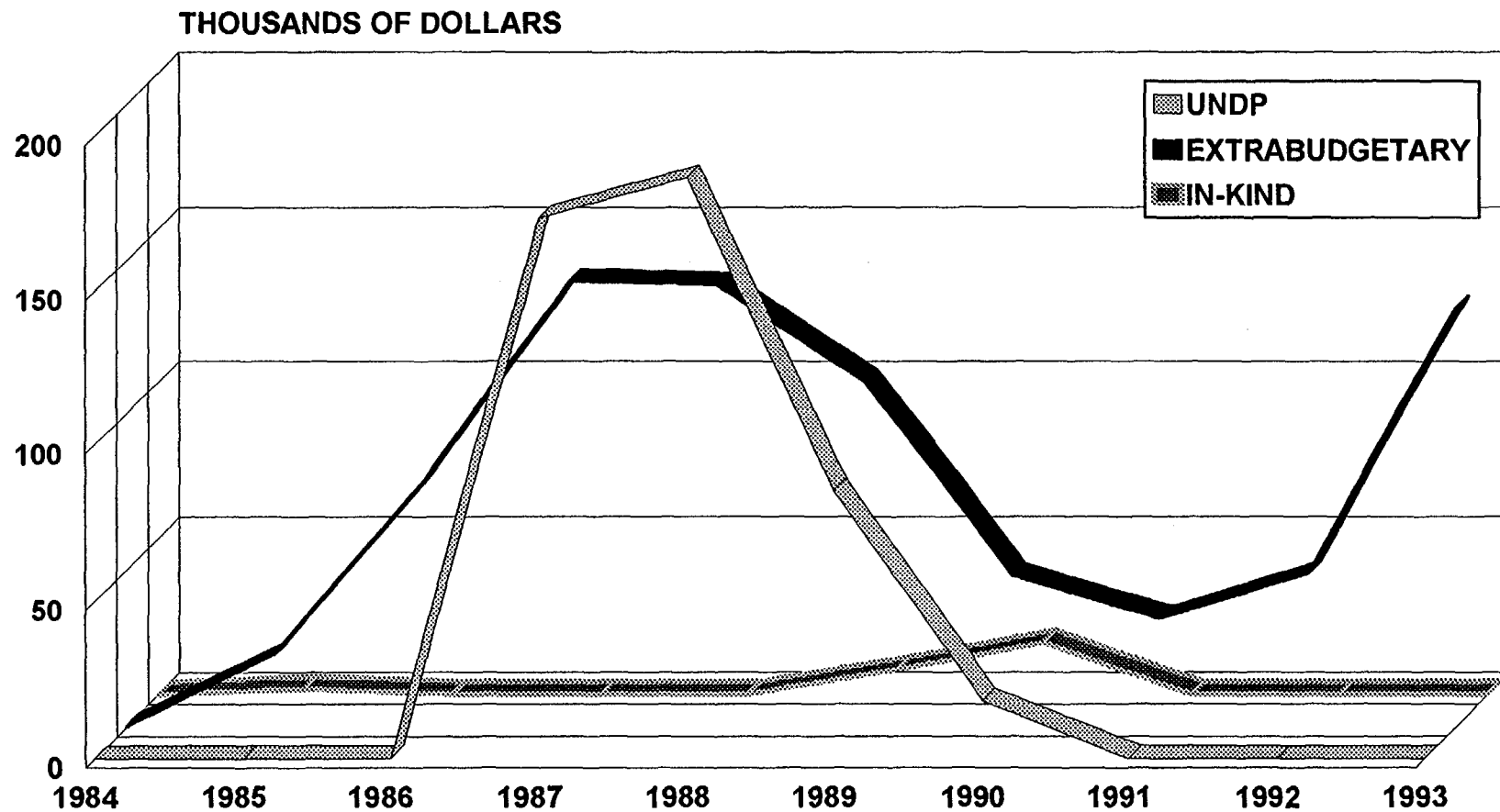
ASSISTANCE PROVIDED BY THE AGENCY TO SYRIA BY SOURCE (1984 - 1993)



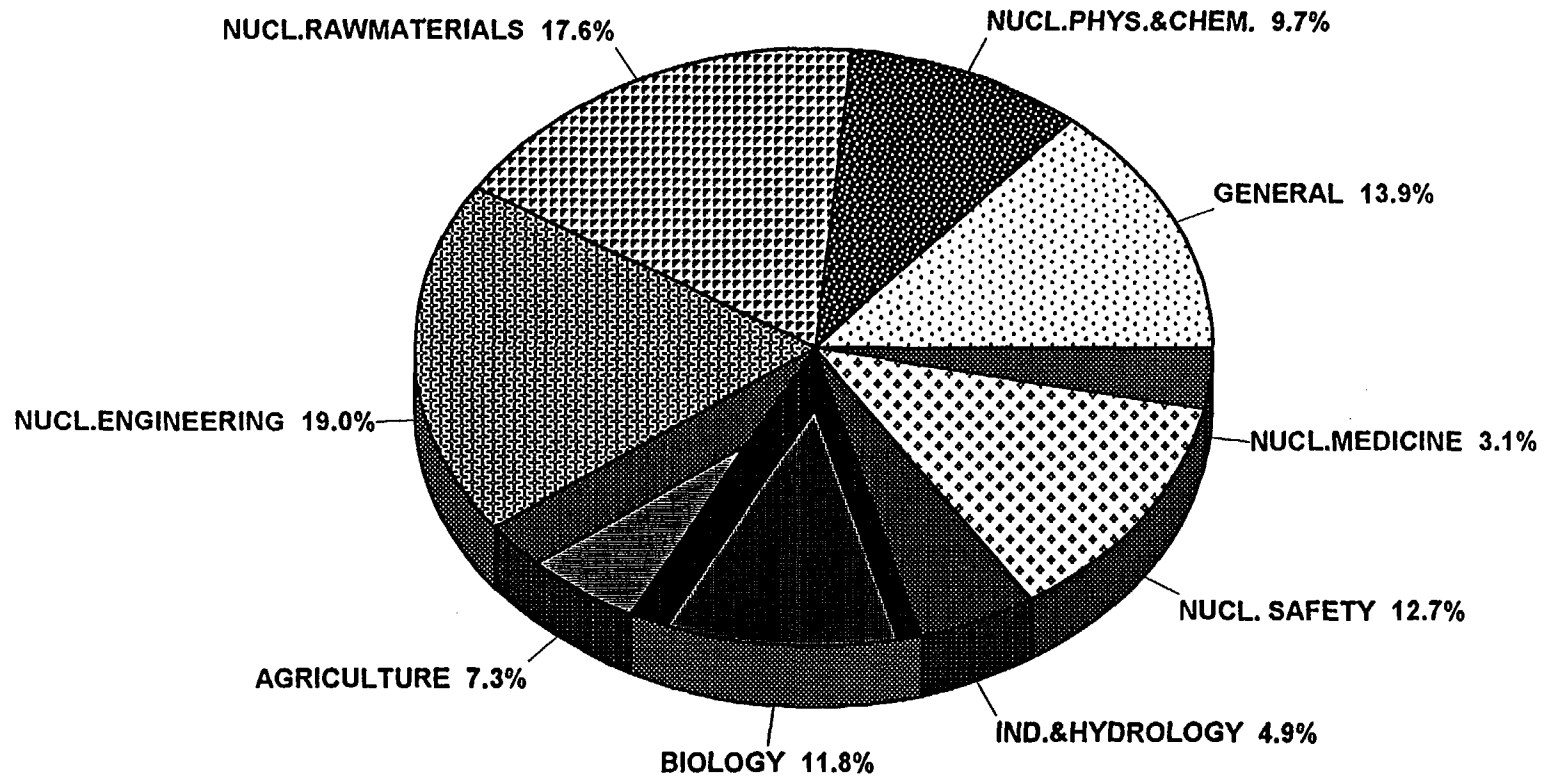
TACF ASSISTANCE PROVIDED TO SYRIA (1984 - 1993)



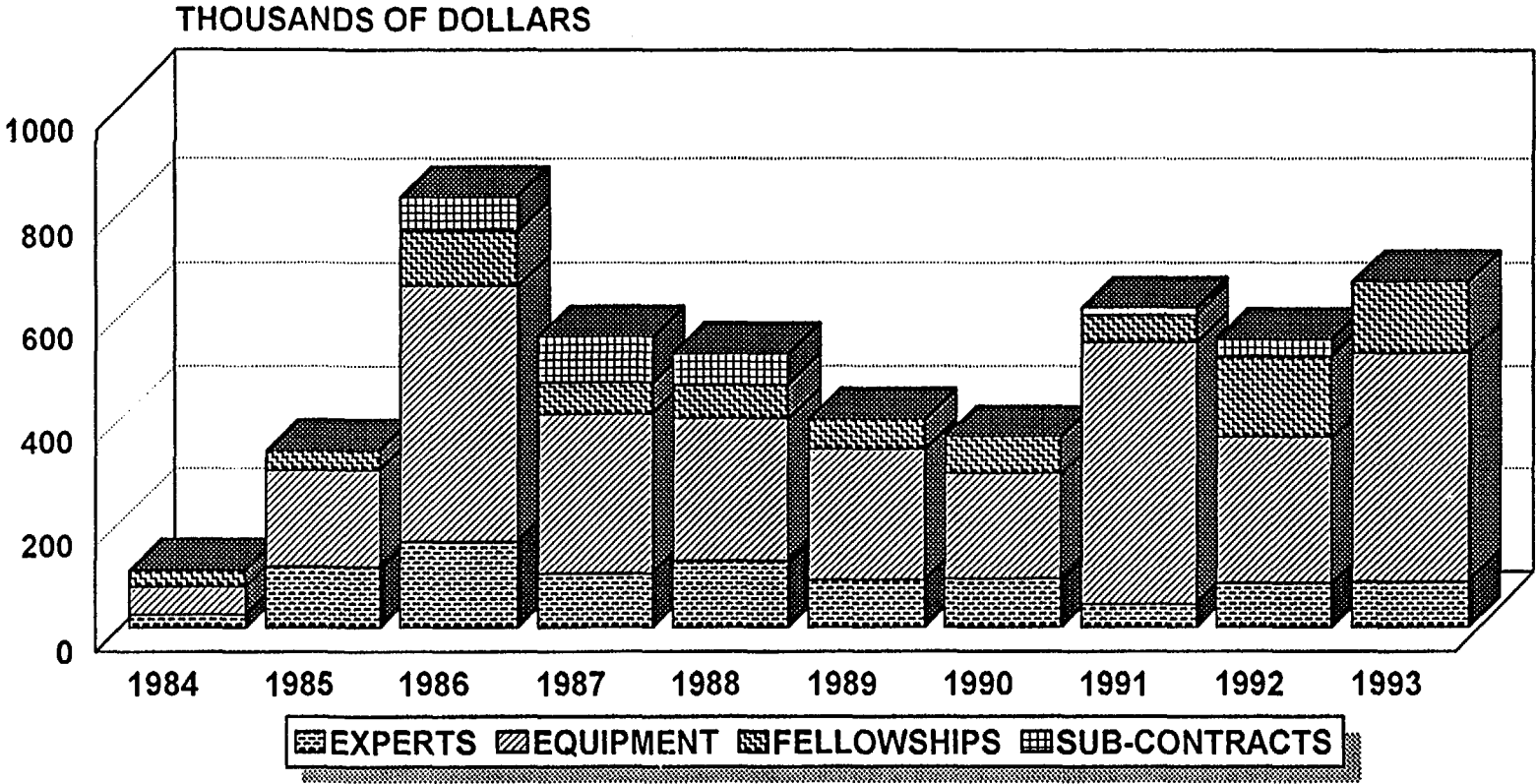
UNDP, EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO SYRIA (1984 - 1993)



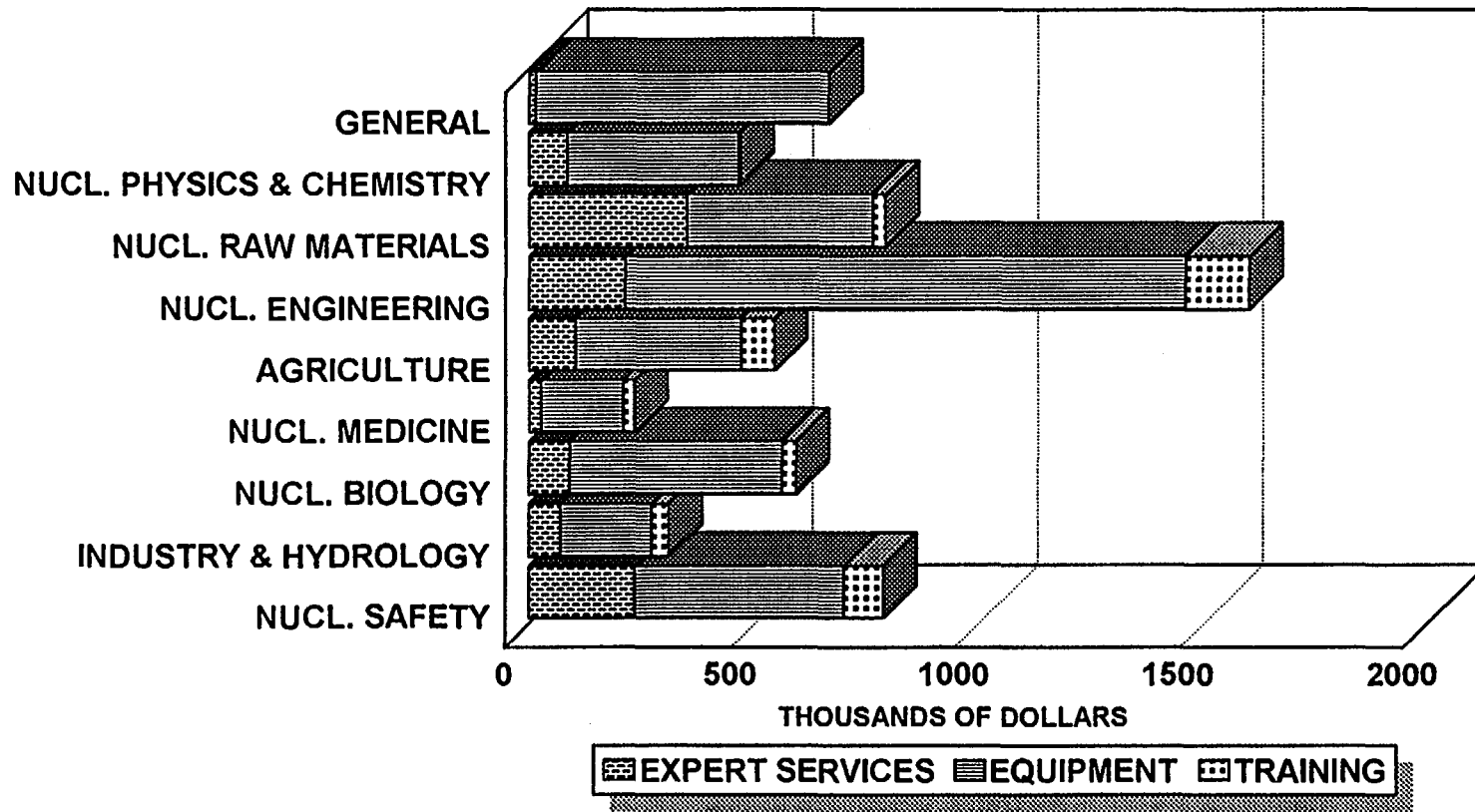
TC PROJECT DISBURSEMENTS IN SYRIA BY SECTOR (1984 - 1994)



ASSISTANCE PROVIDED BY THE AGENCY TO SYRIA BY TYPE (1984 - 1993)



EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO SYRIA BY SECTOR (1984 - 1994)



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH THE SYRIAN ARAB REPUBLIC

ALL SOURCES

SYRIA'S RANKING AS A TC RECIPIENT
1958 - 1993
(in \$1000)

YEAR	RANKING	AMOUNT
1958-83	56 th	790.0
1984	58 th	108.2
1985	27 th	338.8
1986	8 th	829.2
1987	24 th	559.8
1988	17 th	527.2
1989	27 th	400.9
1990	37 th	366.4
1991	21 st	615.7
1992	29 th	554.0
1993	17 th	668.1
1958-93	35 th	5758.3

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1993 (in \$1000)**

ALL SOURCES

Year	I	II	III	IV	V	SYRIAN ARAB REPUBLIC
1958-83	BRA 8887.6	IND 7197.4	EGY 7024.5	PAK 6008.9	ARG 5912.2	56 th - 790.0
1984	EGY 3625.9	PER 1750.4	THA 1094.6	CUB 1028.7	PHI 881.2	58 th - 108.2
1985	EGY 2494.8	PER 1120.7	THA 1117.4	BGD 1068.2	PHI 963.7	27 th - 338.8
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	8 th - 829.2
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	24 th - 559.8
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	17 th - 527.2
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	27 th - 400.9
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	37 th - 366.4
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	21 st - 615.7
1992	EGY 1586.3	INS 1342.1	CPR 1328.8	MEX 1127.8	POL 1036.4	29 th - 554.0
1993	INS 1285.9	CPR 1091.7	PAK 1012.2	EGY 905.3	IRA 810.1	17 th - 668.1
1958-93	EGY 24713.9	BRA 18541.4	THA 16125.1	INS 15011.8	PER 13772.0	35 th - 5758.3

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1993 (in \$1000)**

TECHNICAL ASSISTANCE AND CO-OPERATION FUND

Year	I	II	III	IV	V	SYRIAN ARAB REPUBLIC
1958-83	EGY 3455.2	HUN 3221.6	PAK 2839.0	THA 2354.1	BRA 2158.9	55 th - 471.8
1984	EGY 1197.2	CUB 655.6	ECU 565.6	BGD 506.3	BUL 472.4	53 rd - 108.2
1985	BGD 991.8	VIE 745.0	THA 708.7	BRA 571.8	POR 538.7	21 st - 314.2
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	5 th - 751.8
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	42 nd - 243.1
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	38 th - 198.7
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	47 th - 197.4
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	35 th - 283.9
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	15 th - 581.5
1992	EGY 1255.7	CPR 1009.0	VIE 872.8	INS 826.6	IRA 795.5	26 th - 505.2
1993	INS 1040.5	CPR 896.5	PAK 847.6	IRA 807.4	THA 721.5	13 th - 533.6
1958-93	EGY 11549.2	PAK 8963.2	VIE 8908.2	POL 8820.1	INS 8814.1	33 rd - 4189.4

ASSISTANCE PROVIDED BY THE AGENCY TO THE SYRIAN ARAB REPUBLIC

**Financial Summary 1984 - 1993
(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
1984	24.8	52.8	30.6	-	-	108.2	-	108.2	-	-	-	108.2
1985	115.2	184.9	38.7	-	-	338.8	-	314.2	-	22.8	1.8	338.8
1986	161.9	496.8	107.2	-	63.3	829.2	-	709.6	42.2	77.4	-	829.2
1987	102.4	308.2	62.0	-	87.2	559.8	173.6	230.3	12.8	143.1	-	559.8
1988	126.1	275.5	67.2	-	58.4	527.2	186.6	195.5	3.2	141.9	-	527.2
1989	90.3	250.6	60.0	-	-	400.9	85.4	174.3	23.1	110.2	7.9	400.9
1990	92.5	201.9	72.0	-	-	366.4	18.0	227.1	56.8	48.0	16.5	366.4
1991	43.8	505.0	52.9	-	14.0	615.7	-	244.5	337.0	34.2	-	615.7
1992	83.9	281.6	155.9	-	32.6	554.0	-	468.7	36.5	48.8	-	554.0
1993	85.6	442.8	139.7	-	-	668.1	-	476.7	56.9	134.5	-	668.1
1984-93	926.5	3 000.1	786.2	-	255.5	4 968.3	463.6	3 149.1	568.5	760.9	26.2	4 968.3

TECHNICAL CO-OPERATION PROJECTS IN SYRIA
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1984 - 1994

TOTAL PROJECT ALLOTMENTS AND DISBURSEMENTS
(as of mid-August 1994)

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	3	665 801	11.1	672 315	13.9
Nuclear physics and chemistry	2	464 831	7.8	471 926	9.7
Nuclear raw materials	3	792 218	13.2	852 578	17.6
Nuclear engineering and technology	4	1 600 112	26.7	923 265	19.8
Nuclear techniques in agriculture	4	542 615	9.1	356 104	7.3
Nuclear medicine	1	230 700	3.9	150 984	3.1
Nuclear techniques in biology	1	592 463	9.9	571 592	11.8
Nuclear techniques in industry and hydrology	2	306 608	5.1	238 247	4.9
Nuclear safety	6	787 684	13.2	616 365	12.7
TOTAL	26	5 983 032	100.0	4 853 376	100.0

TECHNICAL CO-OPERATION PROJECTS IN SYRIA
 COMPLETED AND OPERATIONAL, BY SECTOR, 1984 - 1994
 (As of mid-August 1994)

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	3	665 801	672 315
Nuclear physics and chemistry	2	464 831	471 926
Nuclear raw materials	3	792 218	852 578
Nuclear engineering and technology	2	363 724	359 151
Nuclear techniques in agriculture	1	198 090	199 687
Nuclear medicine	-	-	-
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	1	221 618	238 247
Nuclear safety	4	655 192	546 854
TOTAL	16	3 361 474	3 340 758
<u>Operational projects</u>			
General atomic energy development	-	-	-
Nuclear physics and chemistry	-	-	-
Nuclear raw materials	-	-	-
Nuclear engineering and technology	2	1 236 388	564 114
Nuclear techniques in agriculture	3	344 525	156 417
Nuclear medicine	1	230 700	150 984
Nuclear techniques in biology	1	592 463	571 592
Nuclear techniques in industry & hydrology	1	84 990	-
Nuclear safety	2	132 492	69 511
TOTAL	10	2 621 558	1 512 618

**EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO SYRIA, BY SECTOR
PROJECTS COMPLETED AND OPERATIONAL 1984 - 1994
(As of mid-August 1994)**

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	3/28	15 320	650 481	-	3/28	22 105	650 210	-
Nuclear physics and chemistry	12/19	85 250	375 781	3 800	12/19	93 500	375 947	2 479
Nuclear raw materials	35/28	347 508	415 318	29 392	35/23	408 274	414 912	29 392
Nuclear engineering and technology	19/01	210 952	1 248 203	140 957	17/27	199 992	638 075	85 198
Nuclear techniques in agriculture	10/10	103 215	363 650	75 750	5/05	54 116	271 247	30 741
Nuclear medicine	2/15	26 100	180 000	24 600	1/19	18 147	132 837	-
Nuclear techniques in biology	8/00	91 115	468 419	32 929	6/29	83 142	455 521	32 929
Nuclear techniques in industry & hydrology	8/05	70 800	197 708	38 100	8/05	89 418	111 690	37 139
Nuclear safety	26/17	232 020	466 644	89 020	13/03	152 281	406 638	57 446
TOTAL	127/03	1 182 280	4 366 204	434 548	105/08	1 120 975	3 457 077	275 324

AGENCY FELLOWS FROM SYRIA

1984 - 1994¹
(As of mid-August 1994)

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	7	7/15	THA, MAL, CPR, RUS, IAEA
Nuclear physics	4	11/18	USA, SLO, HUN, IAEA
Nuclear chemistry	9	35/28	FIN, INS, YUG, IND, IAEA
Nuclear raw materials	8	34/17	CAN, INS, IND, PAK, TUR, IAEA
Nuclear engineering and technology	31	137/06	POL, YUG, HUN, CAN, JOR, CPR, UK, IAEA
Nuclear techniques in agriculture	15	40/23	IND, CAN, NET, SPA, USA, UK, IAEA
Nuclear medicine	3	26/02	FRA, CZE, UK
Nuclear techniques in biology	5	13/16	YUG, CAN, USA, NET, IAEA
Nuclear techniques in industry and hydrology	12	26/21	YUG, POR, MAL, CAN, HUN, GER, IAEA
Nuclear safety	27	162/00	GER, USA, AUS, FRA, POL, YUG, RUS, FIN, HUN, SPA, POR, UK, IAEA
TOTAL	121	495/26	

^{1/} Only includes fellows who have completed or at least started training.

SYRIA
LONG-TERM FELLOWSHIPS
1984 - 1994
(As of mid-August 1994)

Name	Field of study		Host country	Date	Duration	Project
KARMEH	Mineral exploration	3B	CAN	Jun.87 - Sep.88	15/02	SYR/3/002
ALKABBAZ	Reactor control and instrumentation	4G	POL	Apr.86 - Jul.87	15/00	SYR/4/002
HADIDI	Quality assurance	4M	POL	Oct.86 - Oct.87	12/00	SYR/4/002
HELAL	Nuclear instrumentation and control	4G	POL	Oct.86 - Oct.87	12/00	SYR/4/002
KARMA	Reactor design	4B	POL	Apr.86 - Jun.87	14/00	SYR/4/002
SARKIS	Research reactors	4B	POL	Oct.86 - Oct.87	12/00	SYR/4/002
SUKKARIEH	Quality assurance and control	4M	POL	Apr.86 - Apr.87	12/00	SYR/4/002
MUALLA	Nuclear medicine	6B	FRA	May 88 - May 89	12/00	-
AL-ZEBAK	Radiation protection	9C	UK	Jul.83 - Oct.85	27/00	SYR/9/003
ALI	Radwaste treatment and disposal	9E	POL	Oct.86 - Oct.87	12/00	SYR/4/002
ALWANI	Radiation protection	9C	FRA	Jan.86 - Jan.87	12/00	SYR/9/003
BATAREKH	Environmental protection	9G	AUS	Apr.86 - Apr.87	12/00	SYR/9/003

SYRIA
LONG-TERM FELLOWSHIPS
1984 - 1994
(As of mid-August 1994)

Name	Field of study		Host country	Date	Duration	Project
ELL-SULAIMAN	Nuclear safety	9D	POL	Oct.86 - Oct.87	12/00	SYR/4/002
HAMMAMI	Radiation protection	9C	UK	Jul.83 - Oct.85	27/00	SYR/9/003
KARMA	Reactor safety	9D	POL	Apr.86 - Jun.87	14/00	SYR/4/002
KHEITOU	Waste management	9E	POL	Apr.86 - Jul.87	15/00	SYR/4/002
MRAYATI	Radiation dosimetry	9C	UK	Aug.84 - Oct.85	14/00	SYR/9/003

**SYRIAN NATIONALS WHO WERE AWARDED MORE THAN ONE
FELLOWSHIP OR SCIENTIFIC VISIT
1984 - 1994
(As of mid-August 1994)**

Name	Field of study	Host country	Date	Duration	Project	
AL-SOMEL	1. Research reactors	4B	POL	Sep.91 - Mar.92	6/00	SYR/4/004
	2. Research reactors	4B	CPR	Mar.94 - Apr.94	1/09	SYR/4/004
ALWANI	1. Radiation protection	9C	FRA	Jan.86 - Jan.87	12/00	SYR/9/003
	2. Nuclear safety	9C	POL	Sep.87 - Oct.87	0/28	SYR/9/005
	3. Radiation processing	8H	YUG POR	Feb.90 - Mar.90	0/12	SYR/7/002
BAROUDI	1. Nuclear instrumentation	4G	JOR	Jun.90 - Jul.90	1/11	RER/0/003
	2. Medical physics	6F	UK	Jan.92 - Nov.92	10/01	SYR/4/003
ELL-SULAIMAN	1. Nuclear safety	9D	POL	Oct.86 - Oct.87	12/00	SYR/4/002
	2. Radiation processing	8H	HUN POR	Jun.92 - Jul.92	0/26	SYR/7/002
HADIDI	1. Quality assurance	4M	POL	Oct.86 - Oct.87	12/00	SYR/4/002
	2. Non-destructive testing	8C	MAL	Sep.90 - Dec.90	2/26	SYR/8/003
	3. General industrial applications	8C	CAN	Jun.92 - Sep.92	3/18	RER/0/005
HAJ-HASSAN	1. Nuclear safety	9C	POL	Sep.87 - Nov.87	1/11	SYR/9/005
	2. Research reactor	4B	HUN CPR	Mar.94 - Apr.94	1/09	SYR/4/004
HELAL	1. Nuclear instrumentation and control	4G	POL	Oct.86 - Oct.87	12/00	SYR/4/002
	2. Research reactor	4B	CPR	Mar.94 - Apr.94	1/09	SYR/4/004
ISSA	1. X-ray fluorescence analysis	2C	YUG	Sep.89 - Nov.89	3/00	RER/0/003
	2. Analytical nuclear physics	1L	IAEA	Jun.92 - Oct.92	4/01	SYR/8/003
KHAMIS	1. Reactor physics	1F	SLO	Oct.93 - Dec.93	2/01	SYR/4/004
	2. Research reactor	4B	CPR	Mar.94 - Apr.94	1/09	SYR/4/004

SYRIAN NATIONALS WHO WERE AWARDED MORE THAN ONE
FELLOWSHIP OR SCIENTIFIC VISIT
1984 - 1994
(As of mid-August 1994)

Name	Field of study		Host country	Date	Duration	Project
KHATTAB	1. Reactor physics	1F	HUN	Oct.93 - Dec.93	2/01	SYR/4/004
	2. Research reactor	4B	CPR	Mar.94 - Apr.94	1/09	SUR/4/004
MANSOUR	1. Genetic effect of radiation	7D	CAN	Jul.91	0/24	RER/0/005
	2. Entomology	5D	USA CAN	Jul.93 - Sep.93	2/01	SYR/5/011
MONTHER	1. Nuclear safety	9C	POL	Sep.87 - Nov.87	1/11	SYR/9/005
	2. Safety evaluation	9F	HUN HUN	Oct.89 - Apr.90	6/01	RER/0/003
MOUSSA	1. Radiation sterilization	7E	YUG	Nov.89 - Feb.90	2/27	SYR/7/002
	2. Radiation protection	9C	IND POR	Jan.92 - Mar.92	2/01	SYR/7/002
OTHMAN	1. Radiation protection	9C	UK	Jun.84 - Jul.84	0/20	SYR/9/003
	2. Radwaste management	9E	GER USA USSR FIN	Sep.87	0/12	SYR/9/004
SARKIS	1. Research reactors	4B	POL	Oct.86 - Oct.87	12/00	SYR/4/002
	2. Research reactors	4B	CPR	Mar.94 - Apr.94	1/09	SYR/4/004
SUUKARIEH	1. Quality assurance and control	4M	POL	Apr.86 - Apr.87	12/00	SYR/4/002
	2. Non-destructive testing	8C	MAL	Sep.90 - Dec.90	2/26	SYR/8/003
WEISS	1. Nuclear instrumentation	4G	IAEA	Mar.90 - Apr.90	1/19	RER/0/003
	2. Nuclear instrumentation, electronics and reactor control	4G	HUN	Feb.94 - Apr.94	1/28	SYR/4/005
ZARKAWI	1. Animal production and fisheries	5E	UK	Jun.91	0/12	RER/0/005
	2. Animal production and fisheries	5E	UK	Nov.92 - Dec.92	0/12	RER/0/005

AGENCY TRAINING COURSES WITH SYRIAN PARTICIPATION

1984 - 1994
(As of mid-August 1994)

Field	Number of participants	Number of courses
General atomic energy development	3	3
Nuclear physics	9	8
Nuclear chemistry	4	3
Nuclear raw materials	-	-
Nuclear engineering and technology	18	12
Nuclear techniques in agriculture	27	22
Nuclear medicine	22	16
Nuclear techniques in biology	1	1
Nuclear techniques in industry & hydrology	14	6
Nuclear safety	34	23
TOTAL	132	94

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SYRIAN NATIONALS
1984 - 1994
(As of mid-August 1994)**

Name	Course No.	Course title	Year	Location
ABDUL-RAHIM	INT/9/093 (001) RER/9/007 (004)	ITC on safety and regulation of sealed sources of radioactive material RTC on regulatory practices for radiation safety	1989 1992	USA UAE
AL DROUBI	RER/8/002 (001) RER/8/002 (002) RER/8/002 (004)	Regional co-ordination meeting on isotope hydrology RWS on isotope hydrology RWS on isotope hydrology	1989 1989 1991	JOR JOR TUR
AL SEOUDI	INT/6/035 (001) RER/9/007 (003)	ITC on nuclear medicine RWS on radiation protection in medical applications of ionizing radiation	1987 1990	USSR KUW
AL-HUSSEIN	RER/4/004 (001) RER/9/003 (009)	RTC on nuclear electronics (maintenance oriented) RTC on early warning environmental radiation monitoring systems (EWERMS)	1990 1994	TUR JOR
ALI	RER/9/009 (001) RER/9/017 (001)	RTC on management of radioactive wastes from hospitals and other nuclear application activities RTC on management of spent radiation sources	1991 1993	TUR GRE
ANJAK	INT/1/050 (001) RER/6/004 (001)	ITC on dosimetry calibration procedures RTC on radiotherapy treatment planning	1992 1993	SWE FIN TUR
ASFARI	INT/5/102 (001) RER/5/004 (003)	ITC on the use of isotope and radiation techniques in studies on soil/plant relationships RCM and RWS on the use of nuclear and related techniques in plant nutrient and water balance studies	1986 1993	AUS JOR
AYYOUBI	INT/5/101 (001) RER/5/003 (002)	ITC on the induction and use of mutations in plant breeding RWS on food irradiation technology	1986 1988	AUS POL

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SYRIAN NATIONALS
1984 - 1994
(As of mid-August 1994)**

Name	Course No.	Course title	Year	Location
HAMMAMI	RER/9/003 (003)	RWS on derived intervention levels for Arab Middle East	1988	JOR
	RER/9/003 (006)	Regional co-ordination meeting on intercomparison measurements	1990	JOR
JANAT	INT/5/122 (001)	ITC on the use of isotopes and radiation techniques in studies on soil/plant relationships with emphasis on plant nutrition	1991	AUS
	RER/5/004 (002)	RWS on the use of nuclear and related techniques in plant nutrient and water balance studies in rain-fed legume-cereal crop rotation systems and irrigated agriculture areas	1992	TUR
	RER/5/004 (003)	RCM and RWS on the use of nuclear and related techniques in plant nutrient and water balance studies	1993	JOR
KHALIFA	INT/5/098 (001)	ITC on the use of nitrogen-15 in soil science and plant nutrition	1985	GDR
	RER/5/004 (002)	RWS on the use of nuclear and related techniques in plant nutrient and water balance studies in rain-fed legume-cereal crop rotation systems and irrigated agriculture areas	1992	TUR
	RER/5/004 (003)	RCM and RWS on the use of nuclear and related techniques in plant nutrient and water balance studies	1993	JOR
KHAMIS	RAS/0/013 (001)	RTC on nuclear power project planning and implementation	1988	ROK
	RAS/0/015 (005)	RWS on technology and utilization of low power research reactors	1990	CPR
	RER/4/002 (001)	RWS on in-service inspection of WWER-type reactors	1989	HUN
	RER/4/002 (002)	RWS on in-service inspection standards plus QA	1989	SPA
KHEITOU	INT/9/099 (001)	ITC on management of radioactive wastes with regard to radioisotope applications	1989	GER
	RER/9/014 (001)	RTC on waste management - a systems approach	1992	CZE
KOULI	RER/6/002 (003)	RWS on quality control in hospital radiopharmacy	1989	JOR
	RER/6/002 (008)	RWS on quality control in hospital radiopharmacy	1992	UAE
MANSOUR	INT/5/120 (001)	ITC on the use of radiation and isotopes in insect control	1990	USA
	RER/6/002 (002)	RWS on radioimmunoassay	1989	KUW

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY SYRIAN NATIONALS
1984 - 1994
(As of mid-August 1994)**

Name	Course No.	Course title	Year	Location
MOUSSA	INT/4/097 (001) RER/8/003 (001)	ITC on radiation technology and engineering RWS on process control and quality assurance for radiation processing	1988 1993	HUN CZR
OTHMAN	INT/1/032 (001) INT/9/048 (001) RER/9/003 (006)	ITC on solid state nuclear track detectors and their application ITC on planning, preparedness and response to radiological emergencies Regional co-ordination meeting on intercomparison measurements	1985 1984 1990	GER USA JOR
RA'D	RER/6/002 (003) RER/6/002 (008)	RWS on quality control in hospital radiopharmacy RWS on quality control in hospital radiopharmacy	1989 1992	JOR UAE
SADIYYAH	RER/6/003 (001) RER/9/009 (001)	RTC on dosimetry in radiotherapy RTC on management of radioactive wastes from hospitals and other nuclear application activities	1991 1991	CZE TUR
SHAKHASHIROU	INT/1/037 (001) RAF/1/003 (001)	ITC on advanced data processing and interpretation in X-ray fluorescence analysis RTC on advanced X-ray fluorescence analysis	1985 1987	YUG GHA
YASSINE	INT/6/037 (001) INT/9/134 (001) RER/6/002 (007)	ITC on modern aspects in radiopharmacy ITC on management of occupational exposure to ionizing radiation RWS on generator- and cyclotron-produced radiopharmaceuticals	1989 1993 1991	CZE USA SAU

PROJECTS COMPLETED IN SYRIA SINCE 1984
(As of mid-August 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1979	SYR/0/003	Nuclear energy planning	3/28	15 320	-	-	3/28	22 105	-	-	1986
1984	SYR/0/004	Nuclear training laboratory	-	-	58 300	-	-	-	58 029	-	1987
1984	SYR/0/005	Procurement assistance ^{1/}	-	-	592 181	-	-	-	592 181	-	1993
1982	SYR/1/002	Nuclear analytical laboratory	10/07	66 110	311 250	-	10/07	72 831	311 416	-	1990
1988	SYR/2/002	Radiopharmaceutical production	2/12	19 140	64 531	3 800	2/12	20 669	64 531	2 479	1994
1985	SYR/3/002	Uranium exploration	17/05	118 450	73 302	-	17/03	173 326	72 896	-	1987
1986	SYR/3/003	Uranium recovery ^{2/} from phosphoric acid	4/20	85 875	41 938	9 194	4/17	91 765	41 938	9 194	1992
1987	SYR/3/004	Uranium exploration ^{3/}	14/03	143 183	300 078	20 198	14/03	143 183	300 078	20 198	1990

^{1/} Amounts for equipment include \$242,181 Funds-In-Trust.

^{2/} Amounts for experts include \$46,600 for a sub-contract.

^{3/} Amounts for equipment include \$127,163 for three sub-contracts.

**PROJECTS COMPLETED IN SYRIA SINCE 1984
(As of mid-August 1994)**

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1984	SYR/4/002	Research reactor ^{4/}	4/03	91 362	-	-	4/03	93 541	-	-	1991
1986	SYR/4/003	Nuclear electronics	9/11	65 375	147 400	59 587	9/11	64 267	147 200	54 143	1993
1985	SYR/5/009	Soil nitrogen studies	2/05	15 240	182 850	-	1/27	17 285	182 402	-	1991
1989	SYR/8/003	Non-destructive testing laboratory	8/05	70 800	112 718	38 100	8/05	89 418	111 690	37 139	1993
1982	SYR/9/003	Radiation protection	2/00	13 650	325 433	32 000	2/01	19 763	325 260	31 970	1991
1986	SYR/9/004	Waste management	1/00	6 900	-	-	0/25	9 672	-	-	1990
1986	SYR/9/005	Nuclear safety ^{5/}	19/15	173 530	-	42 045	6/27	82 105	-	11 684	1990
1988	SYR/9/006	Environmental radioactivity	1/09	9 870	41 789	9 975	1/09	14 497	41 928	9 975	1992
	TOTAL	16 Projects	100/03	894 805	2 251 770	214 899	86/28	914 427	2 249 549	176 782	

^{4/} Amounts for experts include \$63,347 allotted and \$63,267 disbursed for a sub-contract.

^{5/} Amounts for experts include \$21,400 allotted and \$18,465 disbursed for two sub-contracts.

OPERATIONAL PROJECTS IN SYRIA
(As of mid-August 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1991	SYR/4/004	Miniature neutron source reactor	3/17	33 065	1 041 803	36 720	2/13	23 324	445 912	12 019
1993	SYR/4/005	Nuclear electronics (phase II)	2/00	21 150	59 000	44 650	2/00	18 860	44 963	19 036
1993	SYR/5/011	Radiation-induced sterility for codling moth control	2/05	22 875	65 000	33 900	0/28	11 880	18 304	21 881
1993	SYR/5/012	ELISA techniques for study of viral infections in ruminants	3/00	32 550	70 800	22 500	1/00	10 274	49 371	8 860
1993	SYR/5/013	Differential diagnosis and seromonitoring of rinderpest	3/00	32 550	45 000	19 350	1/10	14 677	21 170	-
1993	SYR/6/008	Production of Tc-99M generator and RIA kits	2/15	26 100	180 000	24 600	1/19	18 147	132 837	-
1989	SYR/7/002	Medical product sterilization	8/00	91 115	468 419	32 929	6/29	83 142	455 521	32 929
1993	SYR/8/005	Isotope hydrology ^{1/}	-	-	84 990	-	-	-	-	-

^{1/} Allotment for equipment includes \$39,990 Funds-in-Trust.

OPERATIONAL PROJECTS IN SYRIA
(As of mid-August 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1991	SYR/9/007	Radiation protection ^{2/} (phase II)	1/00	9 335	60 607	-	1/00	12 743	37 347	-
1993	SYR/9/008	Environmental radioactivity monitoring in Syria	1/23	18 735	38 815	5 000	1/01	13 501	2 103	3 817
	TOTAL	10 Projects	27/00	287 475	2 114 434	219 649	18/10	206 548	1 207 528	98 542

Footnote-a/ projects not yet upgraded:

SYR/5/010 Effects of different P-32 fertilizers on nitrogen fixation
 SYR/6/007 Radiation therapy

^{2/} Amounts for equipment include \$33,796 allotted and \$10,691 disbursed under Funds-In-Trust.

COUNTERPART INSTITUTIONS IN SYRIA (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>GENERAL ATOMIC ENERGY DEVELOPMENT</u>		
SYR/0/003	1. Syrian Atomic Energy Commission, Damascus	AL-NOURY
	2. Ministry of Electricity, Damascus	HADDAD
SYR/0/004	1. Syrian Atomic Energy Commission, Damascus	MUGHRABI
	2. Arab Centre for Studies of Arid Zones and Drylands, Damascus	
SYR/0/005	Syrian Atomic Energy Commission, Damascus	HADDAD
<u>NUCLEAR PHYSICS AND CHEMISTRY</u>		
SYR/1/002	Syrian Atomic Energy Commission, Damascus	KOUDSI
SYR/2/002	Syrian Atomic Energy Commission, Damascus	OTHMAN
<u>NUCLEAR RAW MATERIALS</u>		
SYR/3/002	Syrian Atomic Energy Commission, Damascus	AL-MALEH
SYR/3/003	Syrian Atomic Energy Commission, Damascus	KOUDSI
SYR/3/004	Syrian Atomic Energy Commission, Damascus	JUBELI
<u>NUCLEAR ENGINEERING AND TECHNOLOGY</u>		
SYR/4/002	Syrian Atomic Energy Commission, Damascus	HADDAD SABOUNI

COUNTERPART INSTITUTIONS IN SYRIA (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY (cont'd)</u>		
SYR/4/003	Syrian Atomic Energy Commission, Damascus	SABOUNI
SYR/4/004	Syrian Atomic Energy Commission, Damascus	SABOUNI
SYR/4/005	Syrian Atomic Energy Commission, Damascus	SABOUNI
<u>AGRICULTURE</u>		
SYR/5/009	Syrian Atomic Energy Commission, Damascus	KHALIFA ASFARI
SYR/5/011	Syrian Atomic Energy Commission, Damascus	MANSOUR
SYR/5/012	Al Baath University, Faculty of Veterinary Medicine, Hama	TABBAA
SYR/5/013	Ministry of Agriculture, Animal Health Directorate, Damascus	KARI
<u>NUCLEAR MEDICINE</u>		
SYR/6/008	Syrian Atomic Energy Commission, Damascus	OTHMAN
<u>NUCLEAR TECHNIQUES IN BIOLOGY</u>		
SYR/7/002	Syrian Atomic Energy Commission, Damascus	OTHMAN

COUNTERPART INSTITUTIONS IN SYRIA (I)
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY</u>		
SYR/8/003	Syrian Atomic Energy Commission, Damascus	SABOUNI
SYR/8/005	Syrian Atomic Energy Commission, Damascus	KATTAN
<u>NUCLEAR SAFETY</u>		
SYR/9/003	Syrian Atomic Energy Commission, Damascus	OTHMAN
SYR/9/004	Syrian Atomic Energy Commission, Damascus	OTHMAN
SYR/9/005	Syrian Atomic Energy Commission, Damascus	OTHMAN
SYR/9/006	Syrian Atomic Energy Commission, Damascus	OTHMAN
SYR/9/007	Syrian Atomic Energy Commission, Damascus	OTHMAN
SYR/9/008	Syrian Atomic Energy Commission, Damascus	OTHMAN

COUNTERPART INSTITUTIONS IN SYRIA (II)
(By Institute)

DAMASCUS

Syrian Atomic Energy Commission
Damascus

SYR/0/003	Nuclear Energy Planning
SYR/0/004	Nuclear Training Laboratory
SYR/0/005	Procurement Assistance
SYR/1/002	Nuclear Analytical Laboratory
SYR/2/002	Radiopharmaceutical Production
SYR/3/002	Uranium Exploration
SYR/3/003	Uranium Recovery from Phosphoric Acid
SYR/3/004	Uranium Exploration
SYR/4/002	Research Reactor
SYR/4/003	Nuclear Electronics
SYR/4/004	Miniature Neutron Source Reactor
SYR/4/005	Nuclear Electronics (Phase II)
SYR/5/009	Soil Nitrogen Studies
SYR/5/011	Radiation-Induced Sterility for Codling Moth Control
SYR/6/008	Production of Tc-99M Generator and RIA Kits
SYR/7/002	Medical Product Sterilization
SYR/8/003	Non-Destructive Testing Laboratory
SYR/8/005	Isotope Hydrology
SYR/9/003	Radiation Protection
SYR/9/004	Waste Management
SYR/9/005	Nuclear Safety
SYR/9/006	Environmental Radioactivity
SYR/9/007	Radiation Protection (Phase II)
SYR/9/008	Environmental Radioactivity Monitoring in Syria

Ministry of Electricity
Damascus

SYR/0/003	Nuclear Energy Planning
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Arab Centre for Studies of Arid Zones and Drylands
Damascus

SYR/0/004	Nuclear Training Laboratory
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COUNTERPART INSTITUTIONS IN SYRIA (II)
(By Institute)

DAMASCUS

**Ministry of Agriculture
Animal Health Directorate
Damascus**

SYR/5/013 Differential Diagnosis and Seromonitoring of Rinderpest

HAMA

**Al Baath University
Faculty of Veterinary Medicine
Hama**

SYR/5/012 ELISA Techniques for Study of Viral Infections in Ruminants

**THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH
SYRIA
(1984 - 1994)**

LONG-TERM EXPERT ASSIGNMENTS

SYR/3/002 Uranium Exploration

- Task 02 - Uranium Exploration Techniques

J. TAYLOR (AUL)

Jul 1985 - Jul 1986

12 months

- To provide assistance to the technical staff of the Geology Division of the Syrian Atomic Energy Commission with the overall planning and general supervision of the uranium exploration programme in the country; and
- To provide general training on conventional uranium exploration techniques applicable at the different stages of normal exploration activity.

RESEARCH CONTRACTS/AGREEMENTS IN SYRIA SINCE 1984 ¹
(As of mid-August 1994)

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear techniques in agriculture	6	20 000
Safety in nuclear energy	4	13 300
TOTAL	10	33 300

¹/ New awards since 1984

**SCIENTISTS FROM SYRIA SERVING AS AGENCY
TECHNICAL CO-OPERATION EXPERTS AND
TRAINING COURSE LECTURERS
OR
PARTICIPATING IN CO-ORDINATION MEETINGS
1984 - 1994
(As of mid-August 1994)**

Name	No. of assignments	Project(s)
ABDUL-RAHIM	1	SYR/4/004
ABO-ROMIEH	1	INT/9/066
AISSA	1	SYR/3/004
AL DROUBI	1	RER/8/002
AL HAKEEM	1	INT/9/066
AL-BASHIRE	2	RER/5/003
AL-KAWADRI	1	SYR/3/004
AL-MALEH	1	INT/9/054
AL-NAAL	1	RER/8/003
ALWANI	1	SYR/4/002
ASFARI	1	RER/5/004
ATIEH	1	JOR/0/005
DAHDOUH	3	SYR/3/003
ELIAN	1	JOR/3/002
HADDAD	2	SYR/4/002, SYR/9/004
HANNA BAKARJI	3	RER/4/008, RER/8/003
HARARA	2	RER/8/003
JUBELI	1	SYR/3/004
KHALIFA	1	RER/5/004
MAHMANDAR	1	INT/9/054
MAHROUKA	2	RER/9/003, RER/9/007
MANSOUR	1	RER/5/003
MOHAMMED	1	RER/5/004

**SCIENTISTS FROM SYRIA SERVING AS AGENCY
TECHNICAL CO-OPERATION EXPERTS AND
TRAINING COURSE LECTURERS
OR
PARTICIPATING IN CO-ORDINATION MEETINGS
1984 - 1994
(As of mid-August 1994)**

Name	No. of assignments	Project(s)
MOURAD	3	SYR/3/003
MOUSSA	1	RER/9/007
MOUTY	6	INT/9/006, RER/8/002
OTHMAN	20	INT/9/055, RAF/9/005, RER/4/008, RER/8/003, RER/9/003, RER/9/007, SYR/7/002, UAE/9/002
OYOUN	3	RER/9/003, SYR/7/002
SABOUNI	2	INT/0/038, INT/0/048
SAFADI	1	INT/9/054
SHAMMA	1	RER/8/003
SHLEWIT	1	SYR/3/003
WEISS	4	INT/4/102, INT/4/108, INT/4/113, INT/4/120
YASIN	1	RER/8/003
YASSINE	1	RER/9/003
TOTAL	75	

**AGENCY FELLOWSHIPS AND SCIENTIFIC VISITS
HOSTED BY SYRIA
1984 - 1994
(As of mid-August 1994)**

Recipient country	No. of fellowships	No. of scientific visits	TOTAL ¹
ALGERIA	2	-	2
JORDAN	-	1	1
LIBYA	-	2	2
PERU	-	2	2
TOTAL	2	5	7

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

**REGIONAL AND INTERREGIONAL TRAINING EVENTS
HOSTED BY SYRIA
1984 - 1994
(As of mid-August 1994)**

Course No.	Course Title	Partici- pants	Year
RER/5/003 (001)	RWS for Evaluation of Techno-Economic Feasibility Studies for Food Irradiation	6	1988
RER/5/004 (001)	RWS on the Use of Nuclear and Related Techniques in Plant Nutrient and Water Balance Studies in Legume-Cereal Crop Rotation Systems	12	1991
RER/6/002 (005)	RTC on Radioimmunoassay	10	1990
RER/8/002 (003)	Second Regional Co-ordination Meeting and Workshop on Isotope Hydrology in the Middle East	15	1989
RER/8/002 (005)	RWS on Isotope Hydrology in the Middle East	11	1993
RER/9/003 (001)	RWS on Derived Intervention Levels for Arab Countries	5	1987
RER/9/003 (004)	RWS on SAPOS Network - Operators	3	1990
RER/9/003 (005)	RWS on SAPOS Network - Maintenance Technicians and Engineers	6	1990
RER/9/003 (008)	RWS on Advanced Radiochemical Techniques for the Monitoring of Food and Environmental Samples	8	1991
	TOTAL	76	