



**INTERNATIONAL ATOMIC ENERGY AGENCY**



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## **COUNTRY PROGRAMME SUMMARY**

**THE AGENCY'S TECHNICAL CO-OPERATION  
PROGRAMME WITH  
THE ISLAMIC REPUBLIC OF IRAN  
1983 - 1993  
COUNTRY PROGRAMME SUMMARIES**

**DEPARTMENT OF TECHNICAL CO-OPERATION**

**THE AGENCY'S TECHNICAL CO-OPERATION**

**PROGRAMME WITH**

**THE ISLAMIC REPUBLIC OF IRAN**

**1983 - 1993**

**COUNTRY PROGRAMME SUMMARIES**

This report contains a review of the Agency's technical co-operation activities in the Islamic Republic of Iran carried out during 1983 - 1993. 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.

**ISLAMIC REPUBLIC OF IRAN**

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## **INTRODUCTION**

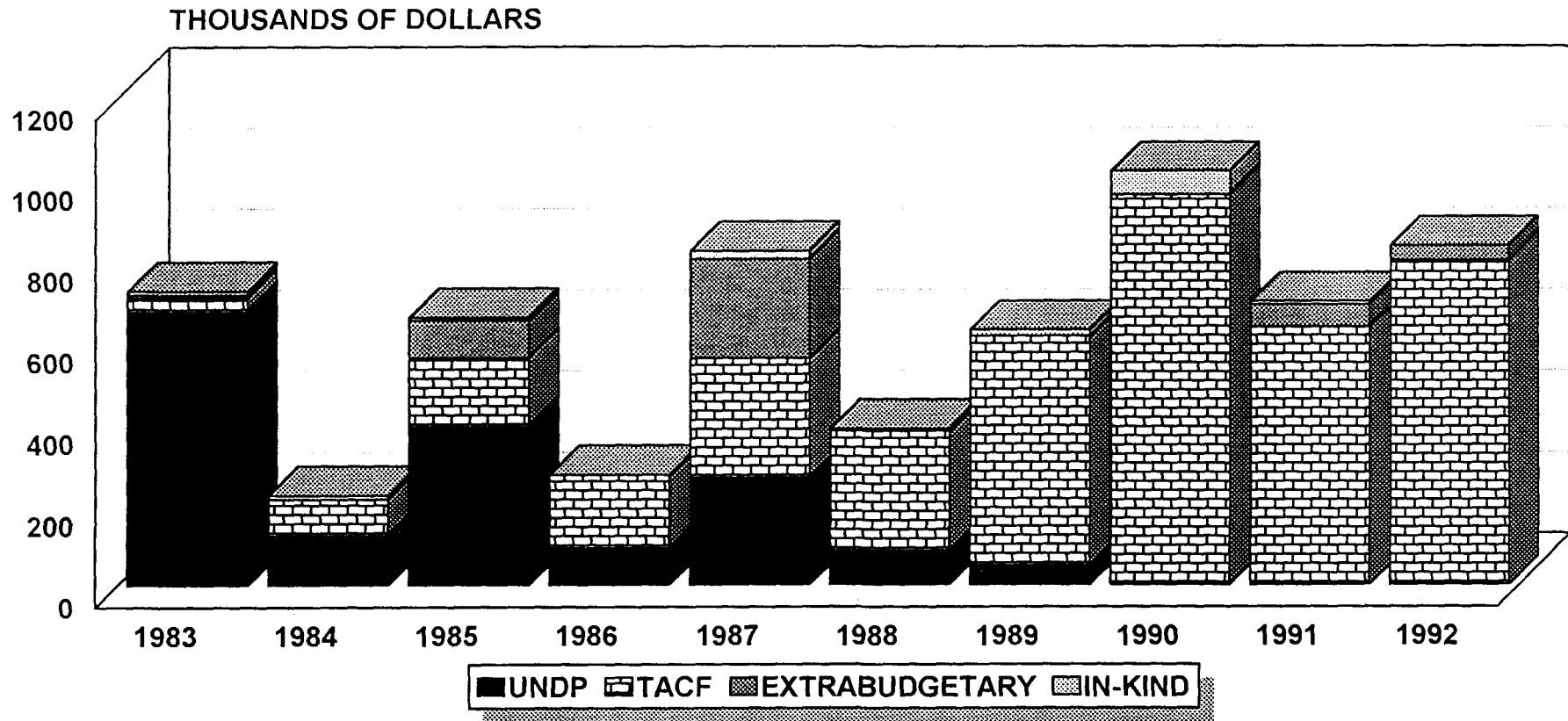
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With \$7.5 million of Agency support received, the Islamic Republic of Iran ranks 26<sup>th</sup> among all recipients of technical assistance during the period 1958 through 1992.

Almost half of the assistance received during the past ten years has been provided in the form of equipment (48%), complemented by expert services (21%) and training (31%). More than half of the resources came from the TACF (64%), a significant share was provided by UNDP (27%), and extrabudgetary contributions and in-kind assistance accounted for 7% and 1% of total resources, respectively.

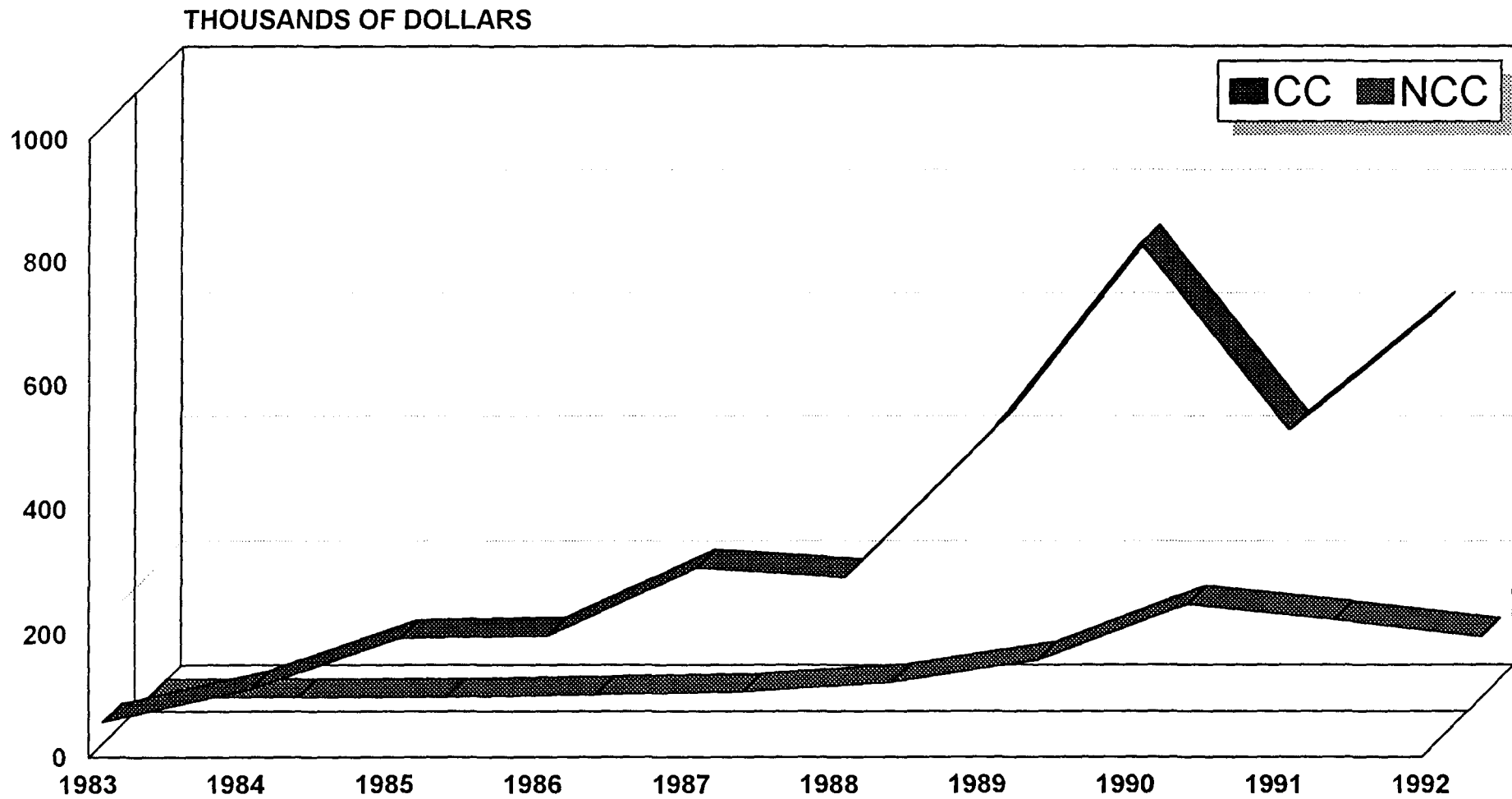
With regard to total disbursements, by sector, under all projects that were operational during the period 1983 through mid-October 1993, the four major areas have been industry and hydrology (31%), nuclear safety (20%), nuclear physics and chemistry (16%) and nuclear raw materials (14%).

During the same period, the country has provided experts and training course lecturers for a total of 65 assignments, and has hosted two scientific visits.

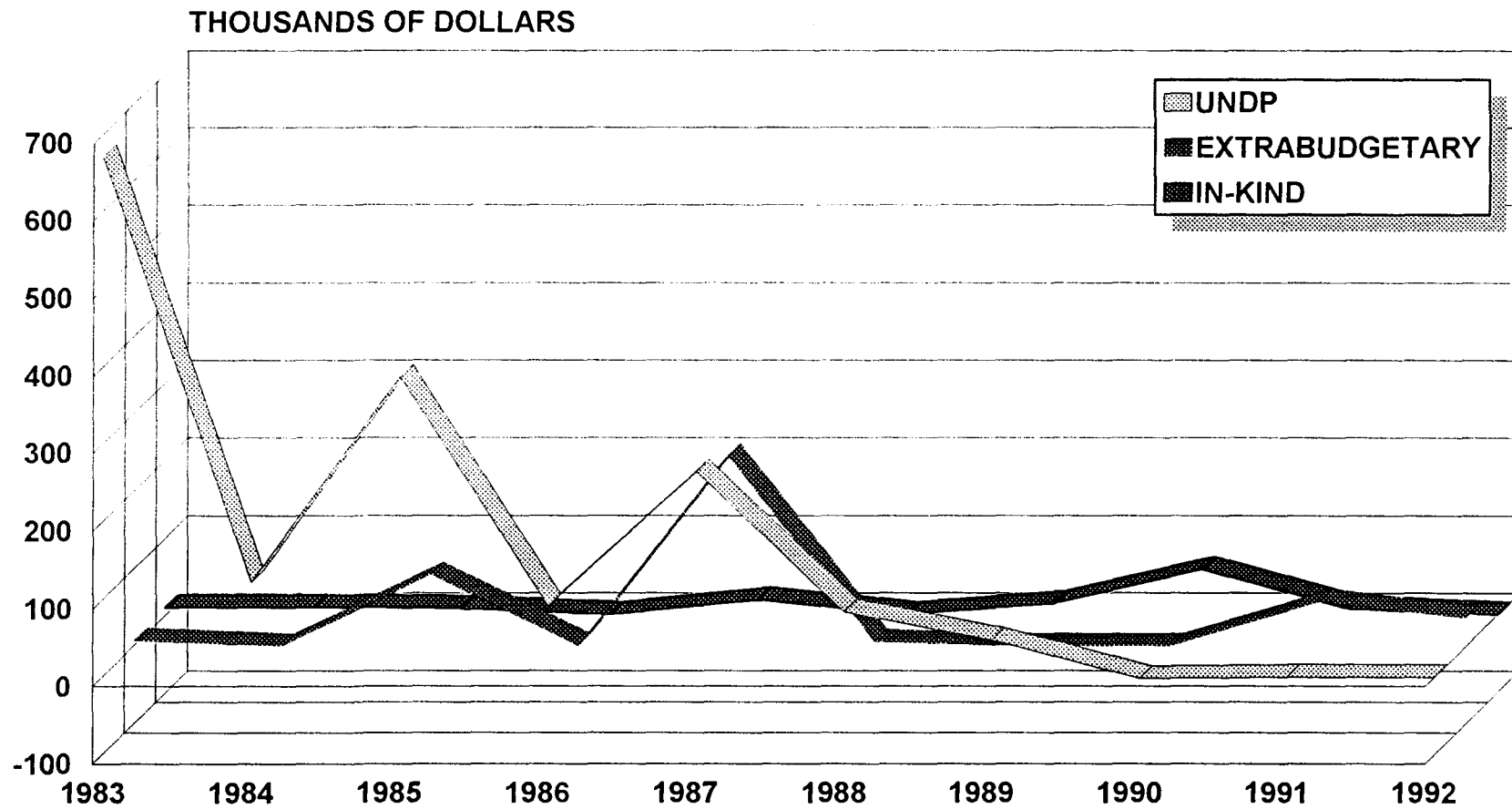
# ASSISTANCE PROVIDED BY THE AGENCY TO IRAN BY SOURCE (1983 - 1992)



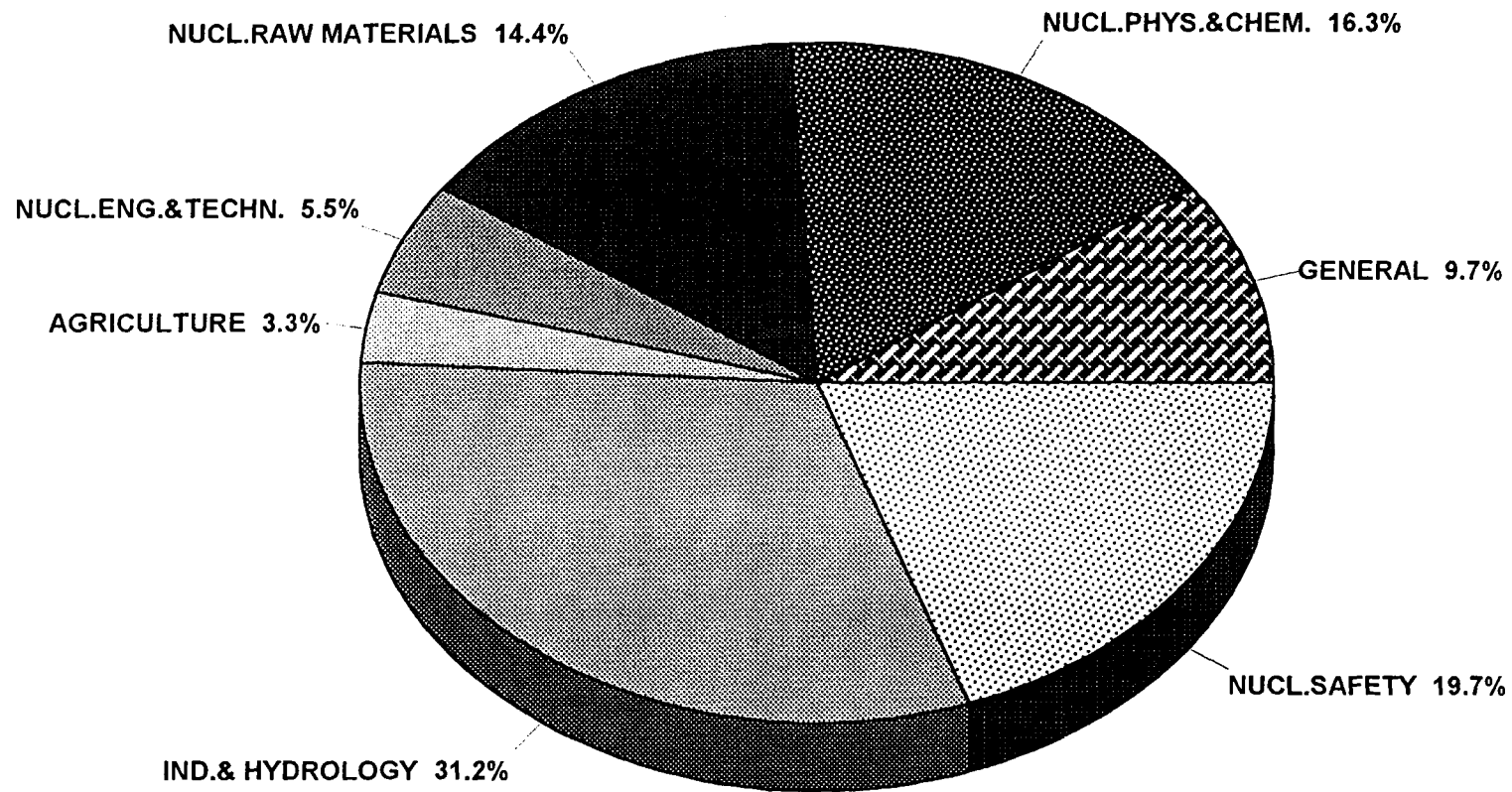
# TACF ASSISTANCE PROVIDED TO IRAN (1983 - 1992) BY CC AND NCC



# UNDP, EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO IRAN (1983 - 1992)

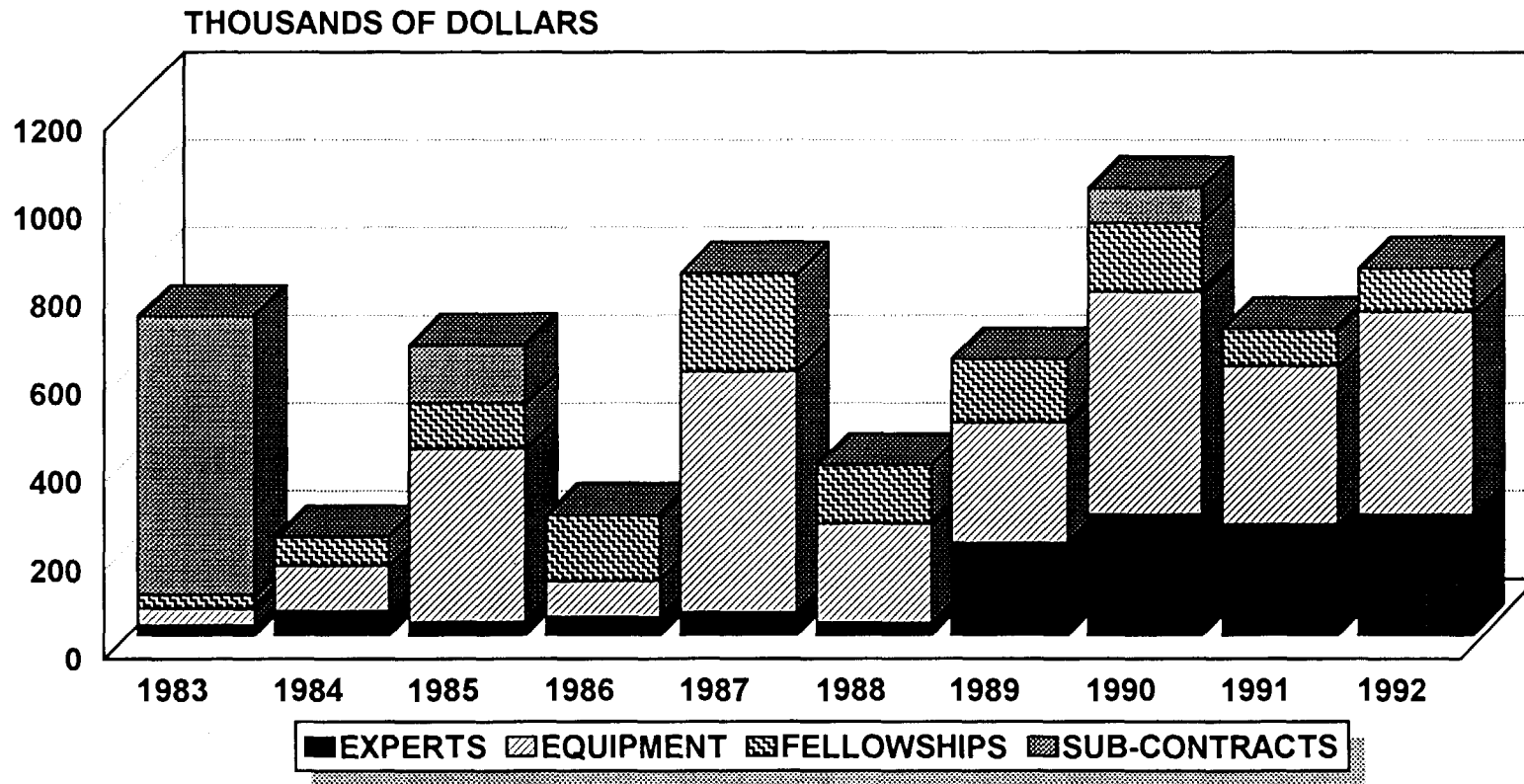


# TC PROJECT DISBURSEMENTS IN IRAN BY SECTOR (1983 - 1993)

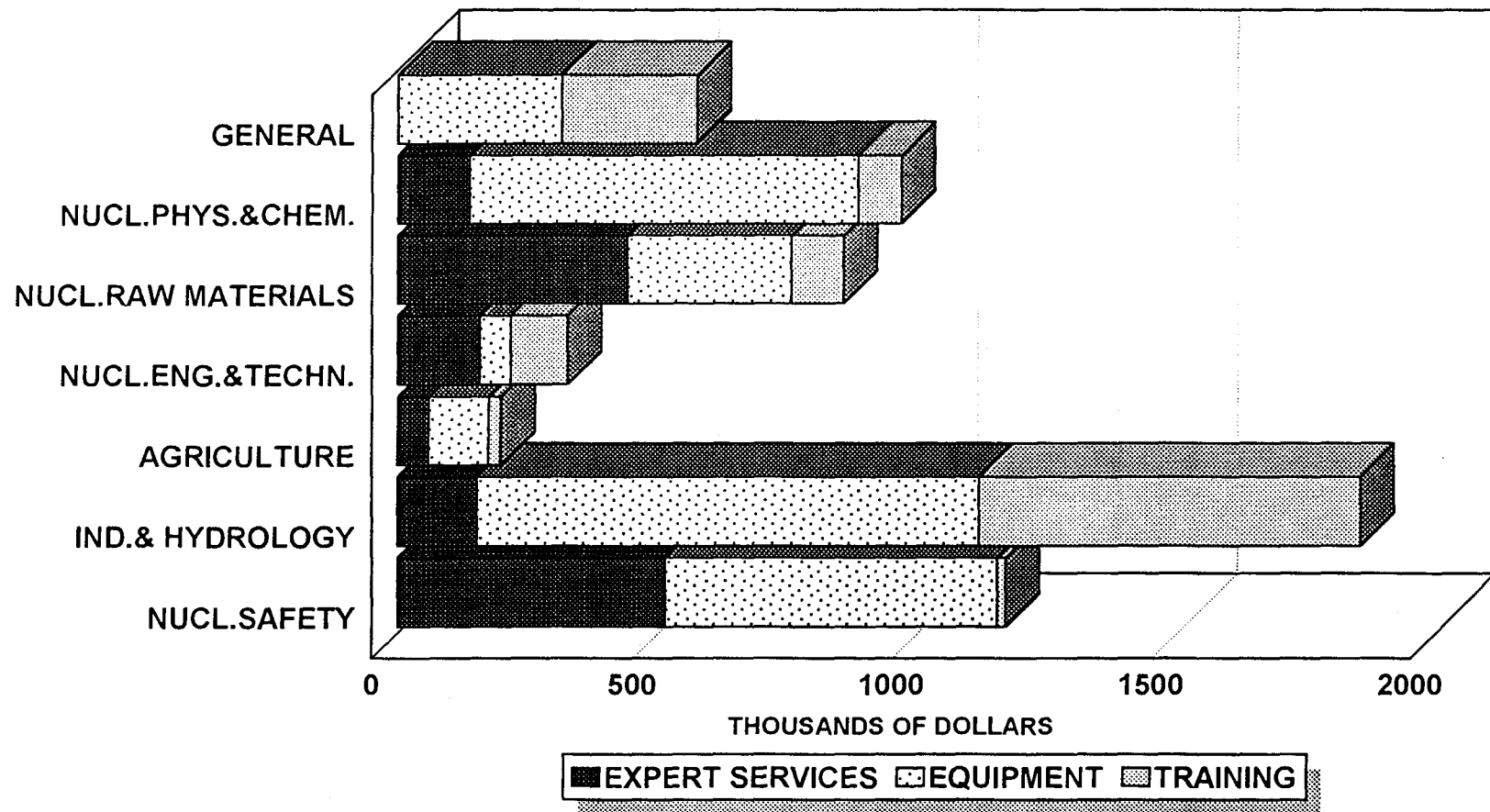




# ASSISTANCE PROVIDED BY THE AGENCY TO IRAN BY TYPE (1983 - 1992)



# EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO IRAN BY SECTOR (1983 - 1993)



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH IRAN

ALL SOURCES

IRAN'S RANKING AS A TC RECIPIENT  
1958 - 1992  
(in \$1000)

YEAR	RANKING	AMOUNT
1958-82	41 <sup>st</sup>	1187.8
1983	5 <sup>th</sup>	722.1
1984	38 <sup>th</sup>	220.1
1985	12 <sup>th</sup>	656.3
1986	39 <sup>th</sup>	270.5
1987	17 <sup>th</sup>	820.2
1988	27 <sup>th</sup>	382.4
1989	15 <sup>th</sup>	624.7
1990	12 <sup>th</sup>	1014.4
1991	16 <sup>th</sup>	694.7
1992	11 <sup>th</sup>	831.9
1958-92	26 <sup>th</sup>	7425.1

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE  
1958 - 1992 (in \$1000)**

**ALL SOURCES**

Year	I	II	III	IV	V	IRAN
1958-82	BRA 8507.3	IND 6849.4	ARG 5528.2	PAK 5492.7	CHI 5240.1	41 <sup>st</sup> - 1187.8
1983	EGY 2077.9	PER 1116.8	VIE 948.1	PHI 778.6	IRA 722.1	5 <sup>th</sup> - 722.1
1984	EGY 3625.9	PER 1750.4	THA 1094.6	CUB 1028.7	PHI 881.2	38 <sup>th</sup> - 220.1
1985	EGY 2494.8	PER 1120.7	THA 1117.4	BGD 1068.2	PHI 963.7	12 <sup>th</sup> - 656.3
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	39 <sup>th</sup> - 270.5
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	17 <sup>th</sup> - 820.2
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	27 <sup>th</sup> - 382.4
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	15 <sup>th</sup> - 624.7
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	12 <sup>th</sup> - 1014.4
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	16 <sup>th</sup> - 694.7
1992	EGY 1586.3	INS 1342.1	CPR 1328.8	MEX 1127.8	POL 1036.4	11 <sup>th</sup> - 831.9
1958-92	EGY 23808.6	BRA 17736.8	THA 15332.0	INS 13725.9	PER 13129.6	26 <sup>th</sup> - 7425.1

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE  
1958 - 1992 (in \$1000)**

**TECHNICAL ASSISTANCE AND CO-OPERATION FUND**

Year	I	II	III	IV	V	IRAN
1958-82	HUN 2971.7	EGY 2405.8	PAK 2340.5	THA 2000.3	BRA 1983.5	53 <sup>rd</sup> - 462.6
1983	EGY 1049.4	VIE 897.4	POL 667.8	PAK 498.5	PHI 430.0	67 <sup>th</sup> - 35.3
1984	EGY 1197.2	CUB 655.6	ECU 565.6	BGD 506.3	BUL 472.4	57 <sup>th</sup> - 88.2
1985	BGD 991.8	VIE 745.0	THA 708.7	BRA 571.8	POR 538.7	41 <sup>st</sup> - 170.4
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	42 <sup>nd</sup> - 178.8
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	33 <sup>rd</sup> - 292.1
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	24 <sup>th</sup> - 292.6
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	8 <sup>th</sup> - 562.9
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	4 <sup>th</sup> - 958.0
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	8 <sup>th</sup> - 630.5
1992	EGY 1255.7	CPR 1009.0	VIE 872.8	INS 826.6	IRA 795.5	5 <sup>th</sup> - 795.5
1958-92	EGY 10847.0	HUN 8743.7	POL 8486.4	VIE 8199.9	PAK 8115.6	28 <sup>th</sup> - 4466.9

**ASSISTANCE PROVIDED BY THE AGENCY TO IRAN**

Financial Summary 1983 - 1992  
(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
1983	21.6	37.4	33.1	-	630.0	722.1	670.3	35.3	-	7.1	9.4	722.1
1984	54.5	101.8	63.8	-	-	220.1	122.1	88.2	-	-	9.8	220.1
1985	29.3	391.2	104.3	-	131.5	656.3	387.0	170.4	-	91.5	7.4	656.3
1986	41.3	80.3	148.9	-	-	270.5	91.4	174.4	4.4	-	0.3	270.5
1987	50.7	545.5	224.0	-	-	820.2	263.7	283.3	8.8	245.0	19.4	820.2
1988	28.2	222.7	131.5	-	-	382.4	84.0	268.0	24.6	5.3	0.5	382.4
1989	207.5	272.9	144.3	-	-	624.7	47.5	502.7	60.2	-	14.3	624.7
1990	271.5	506.8	155.9	-	80.2	1 014.4	(2.0)	808.0	150.0	-	58.4	1 014.4
1991	250.2	358.6	85.9	-	-	694.7	-	504.7	125.8	56.8	7.4	694.7
1992	271.2	460.9	99.8	-	-	831.9	-	697.8	97.7	36.4	-	831.9
1983-92	1 226.0	2 978.1	1 191.5	-	841.7	6 237.3	1 664.0	3 532.8	471.5	442.1	126.9	6 237.3

TECHNICAL CO-OPERATION PROJECTS IN IRAN  
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1983 - 1993

TOTAL PROJECT ALLOTMENTS AND DISBURSEMENTS  
(as of mid-October 1993)

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	2	696 860	9.1	574 591	9.7
Nuclear physics and chemistry	4	1 008 023	13.2	967 084	16.3
Nuclear raw materials	2	757 328	9.9	855 871	14.4
Nuclear engineering and technology	8	989 449	13.0	324 008	5.4
Nuclear techniques in agriculture	2	344 416	4.5	195 916	3.3
Nuclear medicine	-	-	-	-	-
Nuclear techniques in biology	-	-	-	-	-
Nuclear techniques in industry and hydrology	5	2 343 254	30.7	1 854 071	31.2
Nuclear safety	8	1 494 855	19.6	1 169 781	19.7
TOTAL	31	7 634 185	100.0	5 941 322	100.0

TECHNICAL CO-OPERATION PROJECTS IN IRAN  
COMPLETED AND OPERATIONAL, BY SECTOR, 1983 - 1993  
(As of mid-October 1993)

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	1	312 693	312 693
Nuclear physics and chemistry	2	45 181	44 530
Nuclear raw materials	-	-	-
Nuclear engineering and technology	3	147 435	140 702
Nuclear techniques in agriculture	-	-	-
Nuclear medicine	-	-	-
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	3	1 691 504	1 692 381
Nuclear safety	3	97 716	107 399
TOTAL	12	2 294 529	2 297 705
<u>Operational projects</u>			
General atomic energy development	1	384 167	261 898
Nuclear physics and chemistry	2	962 842	922 554
Nuclear raw materials	2	757 328	855 871
Nuclear engineering and technology	5	842 014	183 306
Nuclear techniques in agriculture	2	344 416	195 916
Nuclear medicine	-	-	-
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	2	651 750	161 690
Nuclear safety	5	1 397 139	1 062 382
TOTAL	19	5 339 656	3 643 617



**EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO IRAN, BY SECTOR  
PROJECTS COMPLETED AND OPERATIONAL 1983 - 1993  
(As of mid-October 1993)**

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	0/15	4 650	312 693	379 517	0/07	-	312 693	261 898
Nuclear physics and chemistry	15/10	128 627	793 341	86 055	12/11	135 563	748 081	83 440
Nuclear raw materials	35/28	312 100	349 192	96 036	30/25	441 080	315 900	98 891
Nuclear engineering and technology	27/21	273 445	598 000	118 004	10/17	156 766	57 951	109 291
Nuclear techniques in agriculture	9/03	88 250	232 095	24 071	4/12	59 927	112 459	23 530
Nuclear medicine	-	-	-	-	-	-	-	-
Nuclear techniques in biology	-	-	-	-	-	-	-	-
Nuclear techniques in industry & hydrology	18/24	189 082	1 418 225	735 947	14/18	151 238	966 886	735 947
Nuclear safety	49/04	520 630	951 075	23 150	38/00	514 232	639 614	15 935
<b>TOTAL</b>	<b>156/15</b>	<b>1 516 784</b>	<b>4 654 621</b>	<b>1 462 780</b>	<b>111/00</b>	<b>1 458 806</b>	<b>3 153 584</b>	<b>1 328 932</b>

AGENCY FELLOWS FROM IRAN

1983 - 1993<sup>1</sup>  
(As of mid-October 1993)

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	5	21/05	RUS, IAEA
Nuclear physics	10	37/05	DEN, POR, GDR, GER, RUS, UK, IAEA
Nuclear chemistry	17	53/25	IND, GRE, GER, ITA, YUG, RUS, HUN, UK, IAEA
Nuclear raw materials	25	52/12	YUG, ARG, CPR, AUL, AUS, CAN, IND, PAK, HUN
Nuclear engineering and technology	52	248/06	GER, BEL, AUS, BRA, PAK, ARG, POL, GDR, SPA, HUN, IND, RUS, GRE, SLO, SLR, UK, IAEA
Nuclear techniques in agriculture	4	25/08	NET, BEL, FRA, ITA, UK, IAEA
Nuclear medicine	6	12/09	IND, HUN, CZE, GER, GRE
Nuclear techniques in biology	4	4/29	NET, CAN, YUG, HUN, UK, IAEA
Nuclear techniques in industry and hydrology	13	64/15	YUG, HUN, GDR, POL, FRA, SPA, IND, MAL, IAEA
Nuclear safety	40	210/08	GER, ITA, ARG, AUS, IND, POL, RUS, GDR, HUN, UKR, IRE, INS, EGY, UK, IAEA
TOTAL	176	730/02	

<sup>1/</sup> Only includes fellows who have completed or at least started training.

**IRAN**  
**LONG-TERM FELLOWSHIPS**  
**1983 - 1993**  
**(As of mid-October 1993)**

Name	Field of study	Host country	Date	Duration	Project
PAZIRANDEH	Reactor physics	GER	Oct.86 - Sep.87	12/00	-
GHODS MAHMOUDZADEH	Research reactors	BEL	Mar.83 - Mar.84	12/00	-
HABASHI ZADEH	Reactor technology	BEL	Nov.84 - Nov.85	12/00	-
HOSSEINI	NPP control and instrumentation	GER	Jun.86 - Jun.87	12/00	-
MANSOURI	Nuclear instrumentation	BEL	Sep.87 - Sep.88	12/00	-
NADJI AZARLI	Reactor metallurgy	BEL	Feb.86 - Feb.87	12/00	-
SADEGHIAN ESFAHAN	Reactor technology	GER	Oct.86 - Oct.87	12/00	-
SANG	Corrosion of nuclear systems	UK	Oct.87 - Nov.88	13/04	-
ZOOFAN	Non-destructive testing of NPPs	UK	Sep.85 - Nov.86	13/15	-
ALEMZADEH	Soil science	BEL	Feb.88 - Feb.89	12/00	IRA/5/008
RAHIMI	Radioisotopes in industry	HUN	Jan.87 - Jan.88	12/00	-
DOUROUDIAN	Radiation protection	UK	Nov.86 - Nov.87	12/00	IRA/9/007

IRAN  
LONG-TERM FELLOWSHIPS  
1983 - 1993  
(As of mid-October 1993)

Name	Field of study	Host country	Date	Duration	Project
OMOUMI	Radiation protection	UK	Oct.86 - Oct.87	12/00	-
PHILSOUFI SABET	Radiation protection	UK	Aug.85 - Sep.87	25/10	IRA/9/007

IRANIAN NATIONALS WHO WERE AWARDED MORE THAN ONE  
FELLOWSHIP OR SCIENTIFIC VISIT  
1983 - 1993  
(As of mid-October 1993)

Name	Field of study	Host country	Date	Duration	Project
ABDOLLAHPOUR	1. Radioisotope and radiopharmaceutical production 2. Radiopharmacy	GER IND	Aug.91 - Nov.91 Oct.92 - Nov.92	3/01 0/23	IRA/2/004 IRA/0/006
ABEDINZADEH	1. General industrial applications 2. General industrial applications	GDR HUN	May 88 - Nov.88 Sep.91 - Mar.92	6/01 6/00	IRA/2/004 RER/0/005
AFARIDEN	1. Nuclear instrumentation 2. Accelerator technology 3. Irradiation effects	GRE RUS GRE	Apr.83 - Oct.83 May 90 - Jun.90 Started: Oct.93	6/00 0/05 1/00	- RER/0/003 IRA/0/006
GHAHREMANI	1. Radiopharmaceuticals 2. Production of radioisotopes 3. Production of radioisotopes 4. Treatment and disposal of radioactive wastes	IND GDR HUN/GDR EGY	Dec.85 - Jan.86 Jan.88 - Feb.88 Feb.90 - Mar.90 Apr.92	1/01 0/12 1/11 0/20	IRA/2/003 IRA/2/004 IRA/2/004 RER/0/005
HADJINIA LAIL ABADI	1. Radiometry and dosimetry 2. General industrial applications	DEN HUN	Jan.84 - Mar.84 Nov.86	1/18 0/29	IRA/8/006 IRA/8/006
HAFEZI VAHABZADEH	1. Environmental protection 2. Analytical chemistry	GER IAEA	Jul.90 - Oct.90 Started: Sep.93	3/01 1/14	RER/0/003 IRA/0/006
MOGHADDERI	1. Prospecting of nuclear raw materials 2. Prospecting of nuclear raw materials	CPR PAK	May 88 - Sep.88 Sep.92 - Oct.92	4/01 0/29	IRA/3/002 IRA/0/006
MOHARAMZADEH	1. Radiopharmacy 2. Analytical chemistry	HUN/CZE/GER HUN	Feb.91 - Mar.91 Aug.92 - Nov.92	0/26 3/01	IRA/2/004 IRA/2/004
MOSAVI ESHKEVARI	1. Uranium prospecting 2. Prospecting of nuclear raw materials	YUG PAK	Sep.87 - Mar.88 Sep.92 - Oct.92	6/00 0/29	IRA/3/002 IRA/0/006

**IRANIAN NATIONALS WHO WERE AWARDED MORE THAN ONE  
FELLOWSHIP OR SCIENTIFIC VISIT  
1983 - 1993  
(As of mid-October 1993)**

Name	Field of study	Host country	Date	Duration	Project
NABARDI	1. Radiopharmaceuticals	IND	Feb.85 - May 85	2/25	IRA/2/003
	2. Production of radioisotopes	GDR	Jun.88 - Jul.88	0/11	IRA/2/004
	3. Production of radioisotopes	HUN/GDR	Feb.90 - Mar.90	1/11	IRA/2/004
	4. Production and control of radiopharmaceuticals	GER	Oct.91 - Nov.91	1/23	RER/0/005
NAJAFI ASADOLLAHI	1. Radiopharmaceuticals	IND	Dec.84 - Mar.85	3/01	IRA/2/003
	2. Production of radioisotopes	GDR	Jan.88 - Feb.88	0/12	IRA/2/004
	3. Radioisotope and radiopharmaceutical production	GER	Aug.91 - Nov.91	3/01	IRA/2/004
OURANG	1. Nuclear electronic instruments	IAEA	Jan.84 - Feb.84	1/18	-
	2. Nuclear instrumentation, electronics and reactor control	AUS	Jan.93 - Jul.93	6/03	IRA/0/006
PEYROVAN	1. Analytical nuclear physics	POR	Mar.85 - Apr.85	0/19	-
	2. Nuclear physics	GDR	Sep.86 - Mar.87	6/01	-
	3. Analytical nuclear physics	UK	Started: Sep.93	3/00	IRA/0/006
SHAKIBA	1. Radiation sterilization	YUG/CAN	May 83 - Jun.83	0/17	IRA/8/006
	2. Radiation processing	FRA/SPA	Mar.87 - Apr.87	0/26	IRA/8/006
SHEIBANI	1. Radiation protection	AUS	Aug.86 - Feb.87	6/01	-
	2. Radiation protection	UK	Jan.89 - May 89	3/24	RER/0/003
SOHRABPOUR	1. Radiation sterilization	CAN/IAEA	Jun.83	0/15	IRA/8/006
	2. Radiometry and dosimetry	UK	Feb.86 - Aug.86	6/16	IRA/8/006
TAYMOORI	1. Research reactor operation	PAK	Oct.87 - Feb.88	4/01	-
	2. Safety evaluation	RUS	Started: May 93	4/00	IRA/0/006
YARAGHCHI	1. Production of radioisotopes	GDR	Dec.89 - Mar.90	3/01	IRA/2/004
	2. Radiopharmacy	IND	Oct.92 - Nov.92	0/23	IRA/0/006

AGENCY TRAINING COURSES WITH IRANIAN PARTICIPATION

1983 - 1993  
(As of mid-October 1993)

Field	Number of participants	Number of courses
General atomic energy development	13	8
Nuclear physics	10	10
Nuclear chemistry	2	2
Nuclear raw materials	3	3
Nuclear engineering and technology	30	23
Nuclear techniques in agriculture	13	11
Nuclear medicine	12	8
Nuclear techniques in biology	2	2
Nuclear techniques in industry & hydrology	5	3
Nuclear safety	40	24
TOTAL	130	94

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
 BY IRANIAN NATIONALS  
 1983 - 1993  
 (As of mid-October 1993)**

Name	Course No.	Course title	Year	Location
ARBABI	INT/1/033 (001)	Interregional study tour on primary and secondary standard dosimetry laboratories for technical staff of SSDLs	1985	GFR HUN USSR
	INT/1/050 (001)	ITC on dosimetry calibration procedures	1992	SWE SWE
	RER/6/003 (001)	RTC on dosimetry in radiotherapy	1991	FIN CZE
EIZADI	INT/4/113 (001)	ITC on interfacing in nuclear experiments	1992	INS
	RER/4/004 (001)	RTC on nuclear electronics (maintenance oriented)	1990	TUR
GOUDARZI-BROUJERDI	INT/4/080 (001)	ITC on quality assurance in NPP operation	1985	GFR
	INT/9/051 (001)	ITC on safety analysis	1984	GFR
	INT/9/120 (001)	ITC on decontamination of research reactors and small nuclear facilities	1991	FRA
HADGISHAMS-ABYANEH	INT/9/110 (001)	ITC on the management of radioactive wastes	1990	FRA
	RER/9/009 (001)	RTC on management of radioactive wastes from hospitals and other nuclear application activities	1991	TUR
HAJI-SAEID	INT/1/031 (001)	Study tour on the utilization of low energy accelerators	1985	GFR HUN ITA
	RER/6/002 (007)	RWS on generator and cyclotron-produced radiopharmaceuticals	1991	USSR SAU



**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY IRANIAN NATIONALS  
1983 - 1993  
(As of mid-October 1993)**

Name	Course No.	Course title	Year	Location
KHABIR	INT/0/051 (001)	ITC on project management strengthening with emphasis on quality assurance (tools and methods)	1990	IND
	INT/4/067 (001)	ITC on quality assurance	1984	GFR
	INT/9/051 (001)	ITC on safety analysis	1984	GFR
MIRZAE RAMHORMOZI	INT/9/090 (001)	ITC on the determination of radionuclides in food and environmental samples	1988	GFR
	RER/9/008 (001)	Advanced RTC on determination of radionuclides in food and environmental samples	1991	GFR
MOMEN BEITOLLAHI	RER/9/003 (007)	RWS on radiochemical measurements in food and environmental samples	1990	YUG
	RER/9/003 (008)	RWS on advanced radiochemical techniques for the monitoring of food and environmental samples	1991	SYR
NAJAFI ASADOLLAHI	INT/4/069 (001)	Interregional study tour on isotope production including radiopharmaceuticals	1984	CZE GDR HUN USSR
	INT/6/037 (001)	ITC on modern aspects in radiopharmacy	1989	CZE
REZA ESMAILI	INT/9/120 (001)	ITC on decontamination of research reactors and small nuclear facilities	1991	FRA
	RER/9/007 (004)	RTC on regulatory practices for radiation safety	1992	UAR
SAGHEB	INT/5/103 (001)	ITC on the use of isotope and radiation techniques in studies on biological nitrogen fixation	1986	AUS
	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	1991	SYR
	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 agricultural areas	1992	TUR

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY IRANIAN NATIONALS  
1983 - 1993  
(As of mid-October 1993)**

Name	Course No.	Course title	Year	Location
SHAKIBA	INT/0/039 (001) INT/5/104 (001)	IWS on IAEA technical co-operation practices and procedures Study tour on radiation disinfestation of grain	1984 1986	SUD NET HUN USSR
SOHRABPOUR	RER/5/003 (001) RER/8/003 (001)	RWS for evaluation of techno-economic feasibility studies for food irradiation RWS on process control and quality assurance for radiation processing	1988 1993	SYR CZE

PROJECTS COMPLETED IN IRAN SINCE 1983  
(As of mid-October 1993)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1985	IRA/0/005	Procurement assistance <sup>1/</sup>	-	-	312 693	-	-	-	312 693	-	1992
1987	IRA/1/007	Calibration facilities for dosimetry	0/05	1 200	15 509	6 000	0/07	2 587	15 509	5 386	1992
1983	IRA/2/003	Quality control of radioisotopes	1/13	8 887	13 585	-	1/12	7 463	13 585	-	1986
1984	IRA/4/014	Quality assurance <sup>2/</sup>	-	-	-	102 718	-	-	-	94 006	1985
1985	IRA/4/016	Nuclear reactor design	1/13	10 405	11 000	14 912	1/14	19 527	10 648	14 911	1991
1990	IRA/4/018	Review of bids for a variable energy cyclotron	1/00	8 400	-	-	0/03	1 610	-	-	1991
1982	IRA/8/006	Radiation technology <sup>3/</sup>	8/00	82 513	742 658	735 947	8/00	82 513	742 658	735 947	1989

<sup>1/</sup> Funds-in-Trust

<sup>2/</sup> Sub-contracted group training; includes \$26 818 Funds-in-Trust

<sup>3/</sup> Figures for training include \$667 447 for sub-contracted group training.

**PROJECTS COMPLETED IN IRAN SINCE 1983**  
(As of mid-October 1993)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1983	IRA/8/007	Nuclear techniques in hydrology	2/15	24 200	-	-	2/14	25 077	-	-	1985
1987	IRA/8/008	Strengthening the water resources research institute	1/09	12 619	93 567	-	1/09	12 619	93 567	-	1990
1983	IRA/9/007	Radiation protection	2/00	12 400	-	-	2/02	10 959	-	-	1984
1985	IRA/9/009	Bushehr Nuclear Power Plant (BNPP)	1/00	6 900	500	-	1/03	12 945	242	-	1985
1987	IRA/9/010	Nuclear techniques in environmental studies	1/00	7 050	70 866	-	1/05	12 387	70 866	-	1989
	TOTAL	12 projects	19/25	174 574	1 260 378	859 577	19/09	187 687	1 259 768	850 250	

**OPERATIONAL PROJECTS IN IRAN**  
(As of mid-October 1993)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1991	IRA/0/006	Manpower development	0/15	4 650	-	379 517	0/07	-	-	261 898
1982	IRA/2/004	Radioisotope production <sup>1/</sup>	10/22	85 990	695 847	80 055	10/22	125 513	695 393	78 054
1993	IRA/2/005	Development of RIA kits	3/00	32 550	68 400	-	-	-	23 594	-
1985	IRA/3/002	Uranium exploration	34/10	295 900	310 860	96 036	30/07	431 193	307 568	98 891
1991	IRA/3/003	Ore dressing and leaching of uranium ores	1/18	16 200	38 332	-	0/18	9 887	8 332	-
1987	IRA/4/017	Research reactor core conversion	6/08	58 140	17 670	374	3/04	44 850	6 179	374
1991	IRA/4/019	Variable energy cyclotron laboratory	3/00	28 500	368 000	-	2/20	46 068	-	-
1991	IRA/4/020	Accelerator-based analytical techniques	4/00	39 300	121 330	-	2/24	38 828	41 124	-

<sup>1/</sup> Amounts for equipment include Funds-in-Trust (\$98 854 allotted; \$98 757 disbursed).

OPERATIONAL PROJECTS IN IRAN  
(As of mid-October 1993)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1993	IRA/4/021	Radionuclide production with cyclotron	4/00	43 200	60 000	-	-	-	-	-
1993	IRA/4/022	Preparation of AEOI staff for NPP construction	8/00	85 500	20 000	-	0/12	5 883	-	-
1987	IRA/5/008	Nuclear techniques in wheat production	4/03	32 900	192 095	24 071	3/15	50 808	102 332	23 530
1993	IRA/5/009	Sero-monitoring of rinderpest using nuclear techniques	5/00	55 350	40 000	-	0/27	9 119	10 127	-
1991	IRA/8/009	Industrial application of radiotracers and sealed sources	5/00	48 600	562 000	-	2/25	31 029	130 661	-
1993	IRA/8/010	Gamma spectroscopy in the mineral industry	2/00	21 150	20 000	-	-	-	-	-
1985	IRA/9/008	Environmental radioactivity monitoring	-	-	168 283	3 000	-	-	168 283	3 993

**OPERATIONAL PROJECTS IN IRAN**  
(As of mid-October 1993)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1989	IRA/9/011	Review of the Bushehr nuclear power plant <sup>2/</sup>	39/12	439 190	246 146	20 150	32/17	463 399	245 207	11 942
1991	IRA/9/012	Strengthening radiation protection in Iran	2/22	27 640	465 280	-	0/22	7 820	155 016	-
1991	IRA/9/013	Installation of incinerator	2/00	18 150	-	-	0/11	6 722	-	-
1991	IRA/9/014	Waste management of uranium tailing	1/00	9 300	-	-	-	-	-	-
	TOTAL	19 projects	136/20	1 342 210	3 394 243	603 203	91/21	1 271 119	1 893 816	478 682

<sup>2/</sup> Amounts for experts include \$80 150 for a sub-contract.

**COUNTERPART INSTITUTIONS IN IRAN (I)**  
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>GENERAL ATOMIC ENERGY DEVELOPMENT</u>		
IRA/0/005	Atomic Energy Organization of Iran, Teheran	SOLTANIEH
IRA/0/006	Atomic Energy Organization of Iran, Education and Manpower Department, Teheran	SOLTANIEH
<u>NUCLEAR PHYSICS AND CHEMISTRY</u>		
IRA/1/007	1. Atomic Energy Organization of Iran, Teheran 2. Nuclear Research Centre in Medicine and Agriculture, Secondary Standard Dosimetry Laboratory, Karadj	GAVAHI -
IRA/2/003	Atomic Energy Organization of Iran, Nuclear Research Centre, Radioisotope Department, Teheran	OWLYA
IRA/2/004	Atomic Energy Organization of Iran, Nuclear Research Centre, Radioisotope Department, Teheran	OWLYA
IRA/2/005	Atomic Energy Organization of Iran, Nuclear Research Centre, Radioisotope Department, Teheran	OWLYA NAJAFI ASADOLLAHI
<u>NUCLEAR RAW MATERIALS</u>		
IRA/3/002	Atomic Energy Organization of Iran, Nuclear Research Centre, Exploration Department, Geophysics Division, Teheran	SALEIMANI
IRA/3/003	Atomic Energy Organization of Iran, Nuclear Research Centre, Teheran	KAMALI



**COUNTERPART INSTITUTIONS IN IRAN (I)**

(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY</u>		
IRA/4/014	Atomic Energy Organization of Iran, Teheran	-
IRA/4/016	Atomic Energy Organization of Iran, Esfahan Nuclear Technology Centre, Esfahan	SABA
IRA/4/017	Atomic Energy Organization of Iran, Nuclear Research Centre, Reactor Operation Department, Teheran	GHARIB
IRA/4/018	Atomic Energy Organization of Iran, Teheran	HAJI-SAEID
IRA/4/019	Atomic Energy Organization of Iran, Research and Development Department, Karadj	HAJI-SAEID
IRA/4/020	Atomic Energy Organization of Iran, Nuclear Research Centre, Van de Graaff Laboratory, Teheran	AFARIDEH
IRA/4/021	Atomic Energy Organization of Iran, Karadj Nuclear Research Centre, Karadj	OWLYA
IRA/4/022	1. Atomic Energy Organization of Iran, Nuclear Power Plant Division, Teheran 2. Atomic Energy Organization of Iran, Nuclear Safety Department, Teheran	HADJI-AZIM  ETEMAD
<u>AGRICULTURE</u>		
IRA/5/008	Atomic Energy Organization of Iran, Karadj Nuclear Research Centre, Agricultural Department, Karadj	MAJD
IRA/5/009	Veterinary Organization of Iran, Teheran	KIANIA

**COUNTERPART INSTITUTIONS IN IRAN (I)**  
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY</u>		
IRA/8/006	Atomic Energy Organization of Iran, Gamma Irradiation Centre, Teheran	SOHRABPOUR
IRA/8/007	Ministry of Energy, Teheran	-
IRA/8/008	Ministry of Energy, Water Resources Research Institute, Teheran	-
IRA/8/009	Atomic Energy Organization of Iran, Nuclear Research Centre, Radioisotope Department, Teheran	RAHIMI GHAREMANI
IRA/8/010	Atomic Energy Organization of Iran, Nuclear Research Centre, Neutron Physics Division, Teheran	SOLTANIEH
<u>NUCLEAR SAFETY</u>		
IRA/9/007	Atomic Energy Organization of Iran, National Radiation Protection Department, Teheran	-
IRA/9/008	Atomic Energy Organization of Iran, National Radiation Protection Department, Teheran	SOHRABI
IRA/9/009	Atomic Energy Organization of Iran, Bushehr Nuclear Power Plant, Bushehr	-
IRA/9/010	Atomic Energy Organization of Iran, Gamma Irradiation Centre, Teheran	SOHRABPOUR
IRA/9/011	Atomic Energy Organization of Iran, Teheran	HADJI-AZIM SOLTANIEH

**COUNTERPART INSTITUTIONS IN IRAN (I)**  
(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR SAFETY (cont'd)</u>		
IRA/9/012	Atomic Energy Organization of Iran, National Radiation Protection Department, Teheran	SOHRABI
IRA/9/013	Atomic Energy Organization of Iran, Esfahan Nuclear Technology Centre, Esfahan	RASOULI
IRA/9/014	Atomic Energy Organization of Iran, Nuclear Research Centre, Teheran	BAYAT

**COUNTERPART INSTITUTIONS IN IRAN (II)**  
(By Institute)

**TEHERAN**

**Atomic Energy Organization of Iran  
Teheran**

IRA/0/005	Procurement Assistance
IRA/1/007	Calibration Facilities for Dosimetry
IRA/4/014	Quality Assurance
IRA/4/018	Review of Bids for a Variable Energy Cyclotron
IRA/9/011	Review of the Bushehr Nuclear Power Plant

**Atomic Energy Organization of Iran  
Education and Manpower Department  
Teheran**

IRA/0/006	Manpower Development
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**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Teheran**

IRA/3/003	Ore Dressing and Leaching of Uranium Ores
IRA/9/014	Waste Management of Uranium Tailing

**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Radiotope Department  
Teheran**

IRA/2/003	Quality Control of Radioisotopes
IRA/2/004	Quality Assurance
IRA/2/005	Development of RIA kits
IRA/8/009	Industrial Application of Radiotracers and Sealed Sources

**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Exploration Department  
Geophysics Division  
Teheran**

IRA/3/002	Uranium Exploration
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**COUNTERPART INSTITUTIONS IN IRAN (II)**  
(By Institute)

**TEHERAN** (cont'd)

**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Reactor Operation Department  
Teheran**

IRA/4/017      Research Reactor Core Conversion

**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Van de Graaff Laboratory  
Teheran**

IRA/4/020      Accelerator-Based Analytical Techniques

**Atomic Energy Organization of Iran  
Nuclear Research Centre  
Neutron Physics Division  
Teheran**

IRA/8/010      Gamma Spectroscopy in the Mineral Industry

**Atomic Energy Organization of Iran  
Nuclear Power Plant Division  
Teheran**

IRA/4/022      Preparation of AEOI Staff for NPP Construction

**Atomic Energy Organization of Iran  
Nuclear Safety Department  
Teheran**

IRA/4/022      Preparation of AEOI Staff for NPP Construction

**Atomic Energy Organization of Iran  
Gamma Irradiation Centre  
Teheran**

IRA/8/006      Radiation Technology  
IRA/9/010      Nuclear Techniques in Environmental Studies

**COUNTERPART INSTITUTIONS IN IRAN (II)**  
(By Institute)

**TEHERAN** (cont'd)

**Atomic Energy Organization of Iran**  
**National Radiation Protection Department**  
**Teheran**

IRA/9/007	Radiation Protection
IRA/9/008	Environmental Radioactivity Monitoring
IRA/9/012	Strengthening Radiation Protection in Iran

**Ministry of Energy**  
**Teheran**

IRA/8/007	Nuclear Techniques in Hydrology
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**Ministry of Energy**  
**Water Resources Research Institute**  
**Teheran**

IRA/8/008	Strengthening the Water Resources Research Institute
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**Veterinary Organization of Iran**  
**Teheran**

IRA/5/009	Sero-Monitoring of Rinderpest Using Nuclear Techniques
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**KARADJ**

**Nuclear Research Centre in Medicine and Agriculture**  
**Secondary Standard Dosimetry Laboratory**  
**Karadj**

IRA/1/007	Calibration Facilities for Dosimetry
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**Atomic Energy Organization of Iran**  
**Research and Development Department**  
**Karadj**

IRA/4/019	Variable Energy Cyclotron Laboratory
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**COUNTERPART INSTITUTIONS IN IRAN (II)**  
(By Institute)

**KARADJ** (cont'd)

**Atomic Energy Organization of Iran  
Karadj Nuclear Research Centre  
Karadj**

IRA/4/021      Radionuclide Production with Cyclotron

**Atomic Energy Organization of Iran  
Karadj Nuclear Research Centre  
Agricultural Department  
Karadj**

IRA/5/008      Nuclear Techniques in Wheat Production

**ESFAHAN**

**Atomic Energy Organization of Iran  
Esfahan Nuclear Technology Centre  
Esfahan**

IRA/4/016      Nuclear Reactor Design  
IRA/9/013      Installation of Incinerator

**BUSHEHR**

**Atomic Energy Organization of Iran  
Bushehr Nuclear Power Plant  
Bushehr**

IRA/9/009      Bushehr Nuclear Power Plant (BNPP)

**THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH**

**IRAN**

**SINCE 1983**

**LONG-TERM EXPERT ASSIGNMENTS**

**NONE**



**RESEARCH CONTRACTS/AGREEMENTS IN IRAN SINCE 1983 <sup>1</sup>**  
**(As of mid-October 1993)**

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear physics	1	9 000
Nuclear chemistry	3	11 000
Nuclear engineering and technology	1	9 000
Nuclear techniques in biology	3	31 800
Safety in nuclear energy	3	10 530
TOTAL	11	71 330

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<sup>1</sup>/ New awards since 1983

**SCIENTISTS FROM IRAN SERVING AS AGENCY  
TECHNICAL CO-OPERATION EXPERTS OR  
TRAINING COURSE LECTURERS  
1983 - 1993  
(As of mid-October 1993)**

Name	No. of assignments	Project(s)
AFARIDEH	1	RER/4/008
AYATOLLAHI	1	RER/8/002
BOLURCHI	1	RER/9/003
DASTAN	1	IRA/9/011
DASTJERDI	1	RER/9/005
FARASHUDDIN	1	IRA/8/006
GHAREMANI	1	IRA/2/004
GHARIB, G.A.	1	IRA/3/002
GHARIB, M.	1	IRA/4/017
HADJI-AZIM	8	IRA/9/011
KHABIR	1	IRA/9/011
MEDNEJAD	1	IRA/3/003
MOHAGHEGHI	1	ROK/5/027
MOHAMMADI	2	RER/9/003
MOMEN BEITOLLAHI	1	RER/9/003
NABBI	20	INS/4/018, INS/4/023, INS/4/030, INS/9/014, MEX/4/037, RLA/4/007
NIAZI	1	CHI/9/011
NIKBIN	1	ROM/9/003
RAHIMIAN	1	URU/6/010
SADEGH AZAR	2	IRA/9/011
SEPANLOO	1	RER/9/005

**SCIENTISTS FROM IRAN SERVING AS AGENCY  
TECHNICAL CO-OPERATION EXPERTS OR  
TRAINING COURSE LECTURERS  
1983 - 1993  
(As of mid-October 1993)**

Name	No. of assignments	Project(s)
SHAKIBA	1	INT/0/038
SOHRABI	3	SYR/9/006, RER/9/007
SOHRABPOUR	6	IRA/9/010, RER/5/003, RER/8/003, RER/9/007
SOLTANIEH	4	IRA/9/011
TOOFANIAN	1	RER/5/003
ZARE	1	RER/8/003
TOTAL	65	

**AGENCY FELLOWSHIPS AND SCIENTIFIC VISITS  
HOSTED BY IRAN  
1983 - 1993  
(As of mid-October 1993)**

Recipient country	No. of fellowships	No. of scientific visits	TOTAL <sup>1</sup>
BANGLADESH	-	1	1
JORDAN	-	1	1
TOTAL	-	2	2

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

**REGIONAL AND INTERREGIONAL GROUP TRAINING EVENTS  
HOSTED BY IRAN  
1983 - 1993  
(As of mid-October 1993)**

NONE