



**INTERNATIONAL ATOMIC ENERGY AGENCY**



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IAEA-CPS-94/03  
19 May 1994  
Original: ENGLISH

## **COUNTRY PROGRAMME SUMMARY**

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

**1984 - 1994**

**COUNTRY PROGRAMME SUMMARIES**

**DEPARTMENT OF TECHNICAL CO-OPERATION**



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BANGLADESH  
  
1984 - 1994  
  
COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION

**DEPARTMENT OF TECHNICAL CO-OPERATION**



**THE AGENCY'S TECHNICAL CO-OPERATION  
PROGRAMME WITH  
BANGLADESH  
1984 - 1994  
COUNTRY PROGRAMME SUMMARIES**

This report contains a review of the Agency's technical co-operation activities in Bangladesh 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.



**BANGLADESH**

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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 \$11.7 million of Agency support received, Bangladesh ranks 8<sup>th</sup> among all recipients of technical assistance during the period 1958 through 1993.

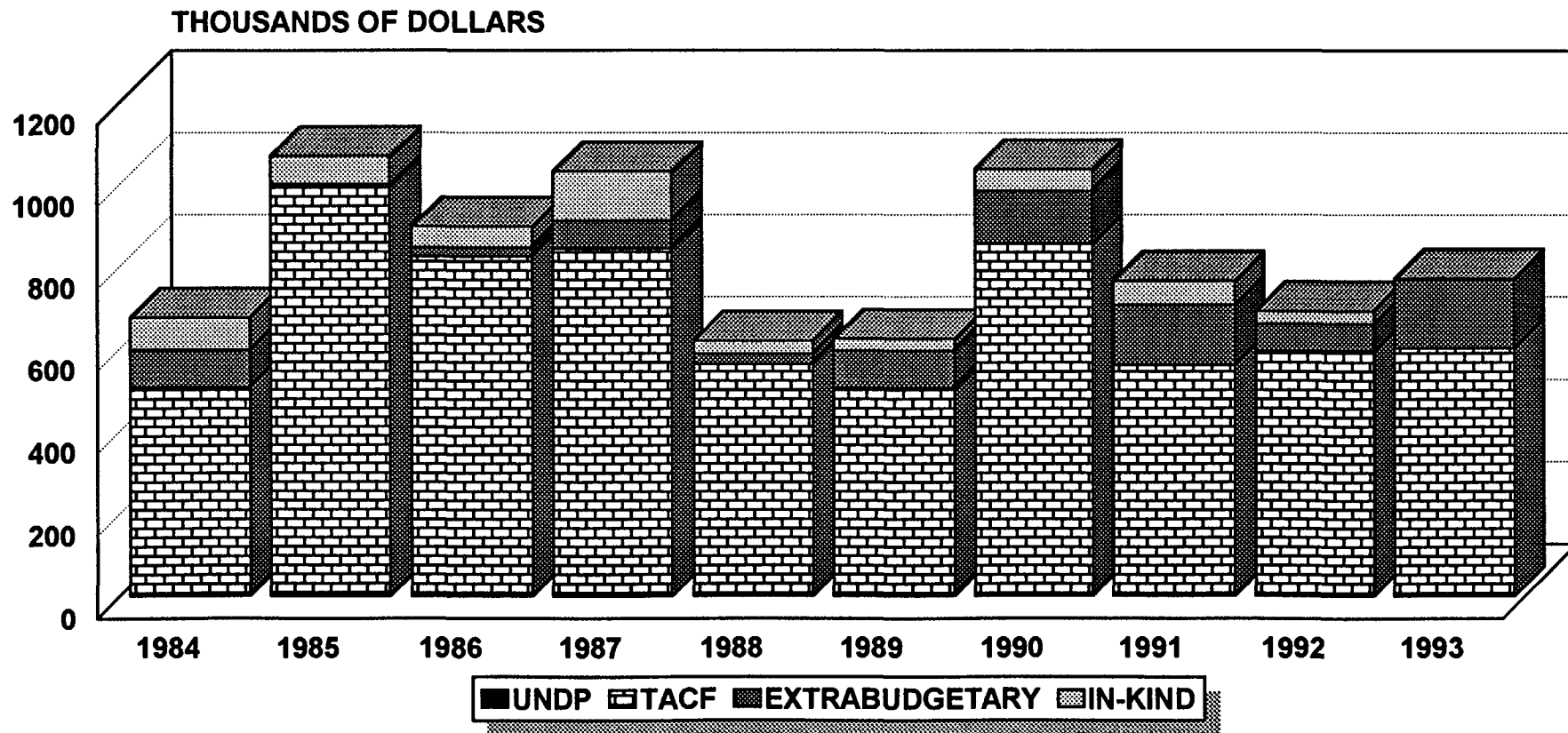
Almost two-thirds of the assistance received during the past ten years has been provided in the form of equipment (64%), complemented by training (27%) and expert services (9%). The bulk of the resources were made available through the TACF (84%), the rest was provided through extrabudgetary contributions (10%) and through assistance in kind (6%).

With regard to total disbursements -- by sector -- under those projects that were operational during the period 1984 through mid-May 1994, the two major sectors have been agriculture (35%) and nuclear engineering and technology (28%), followed by nuclear physics and chemistry (11%), nuclear medicine (9%), industry and hydrology (7%) and nuclear safety (7%).

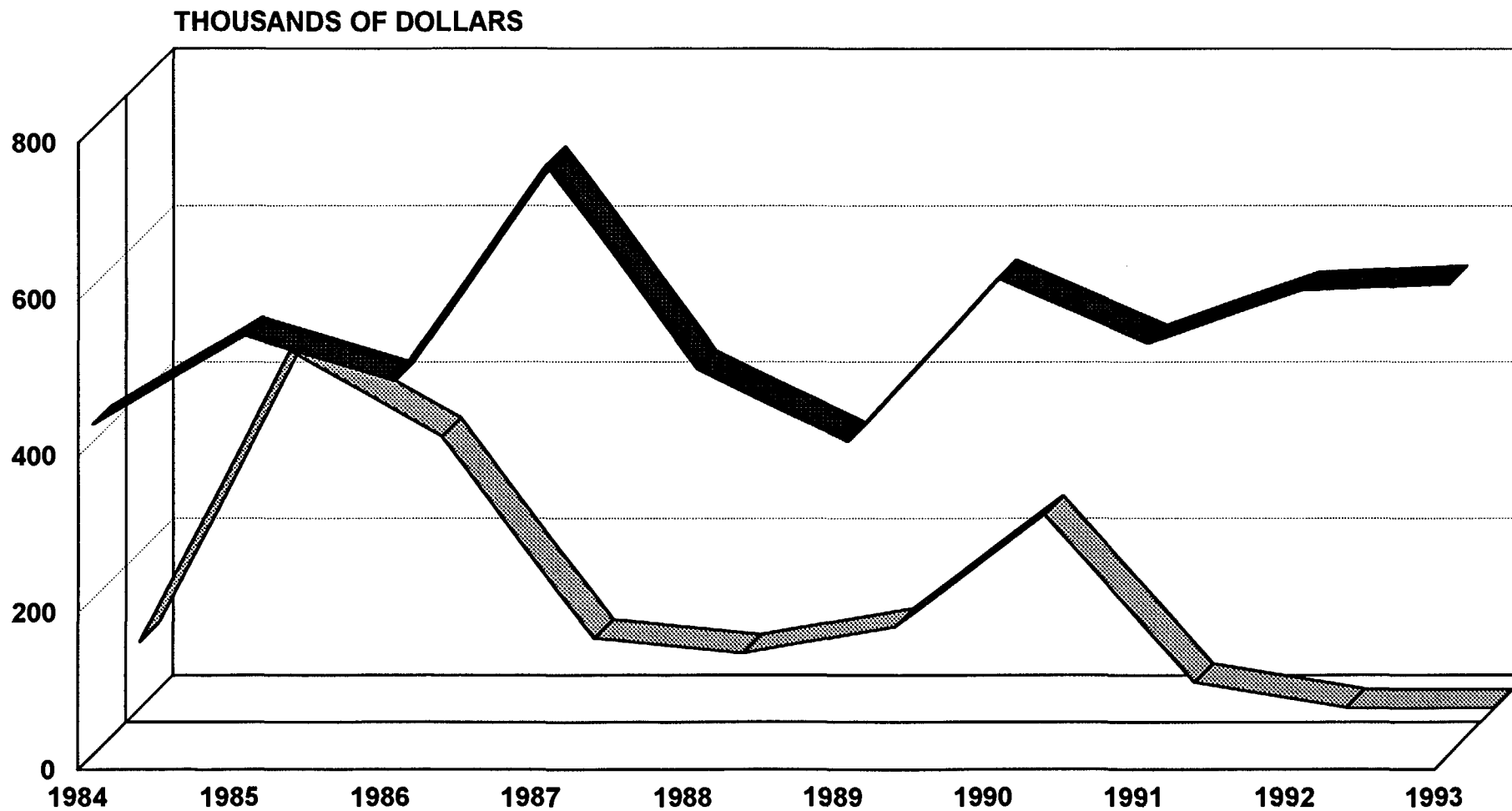
Since 1984, scientists from Bangladesh have completed 71 assignments as Agency experts and training course lecturers or as participants in research co-ordination meetings. During the same period, Bangladesh has hosted one scientific visit as well as two regional group training events for a total of 16 participants.



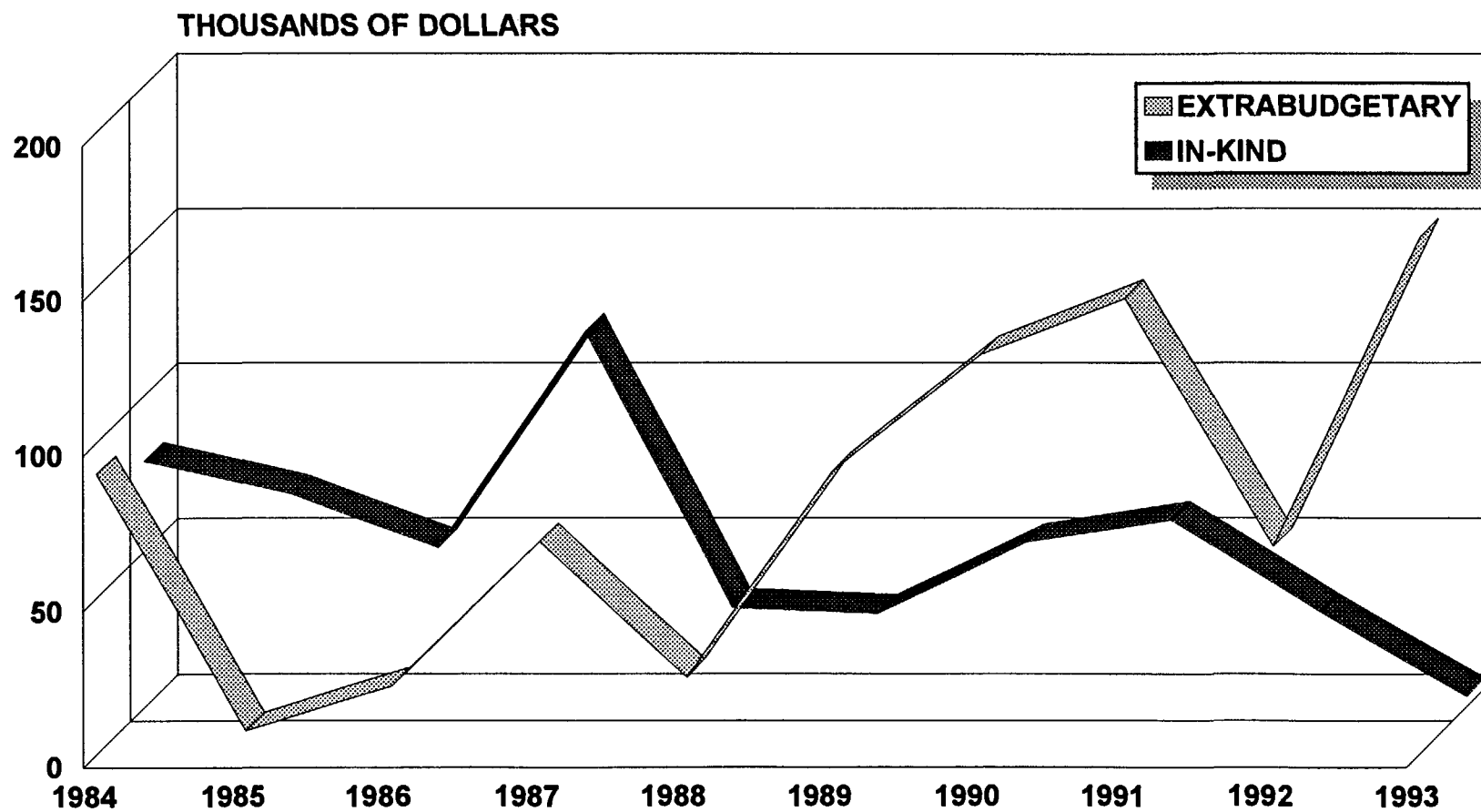
# ASSISTANCE PROVIDED BY THE AGENCY TO BANGLADESH BY SOURCE (1984 - 1993)



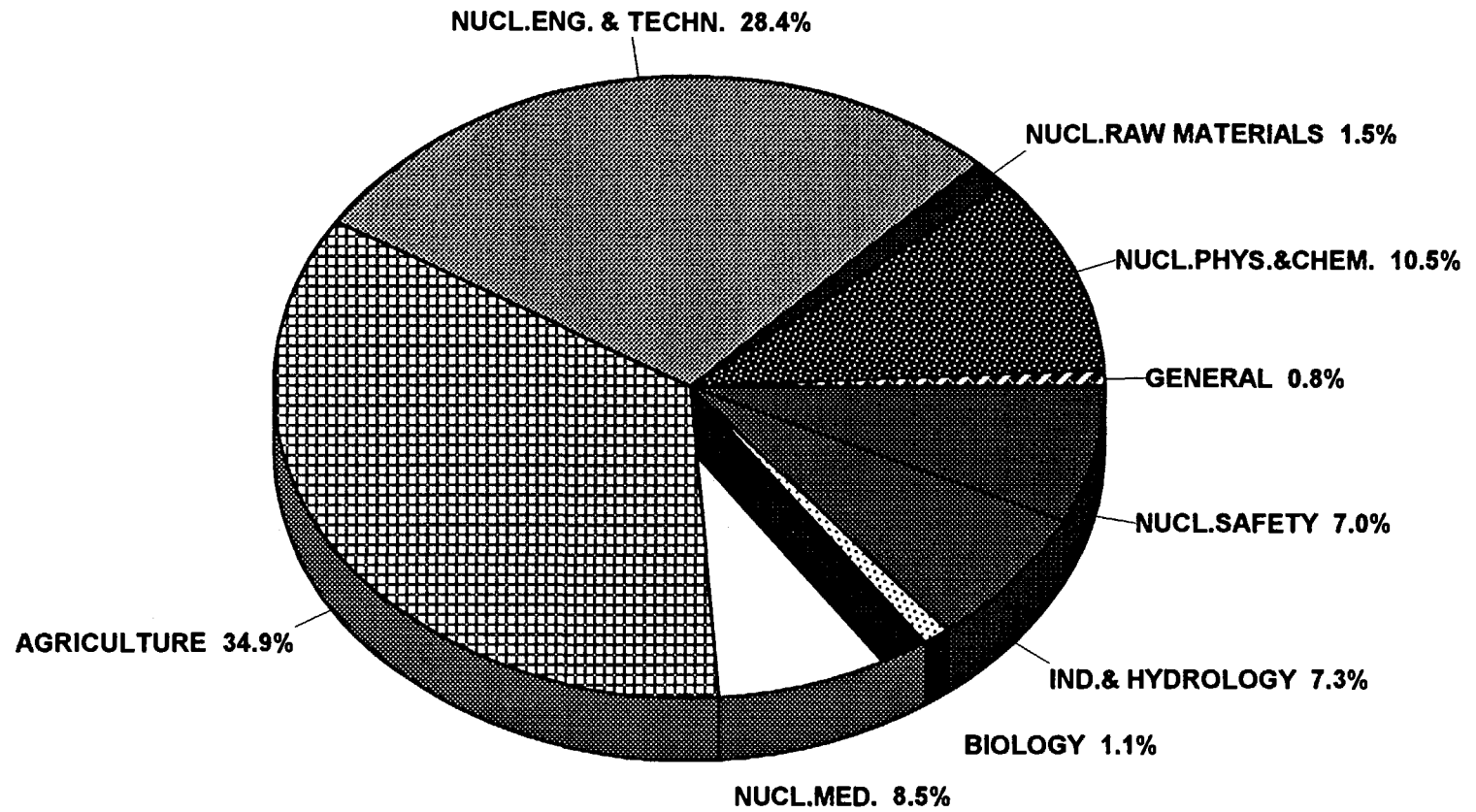
# TACF ASSISTANCE PROVIDED TO BANGLADESH (1984 - 1993) BY CC AND NCC



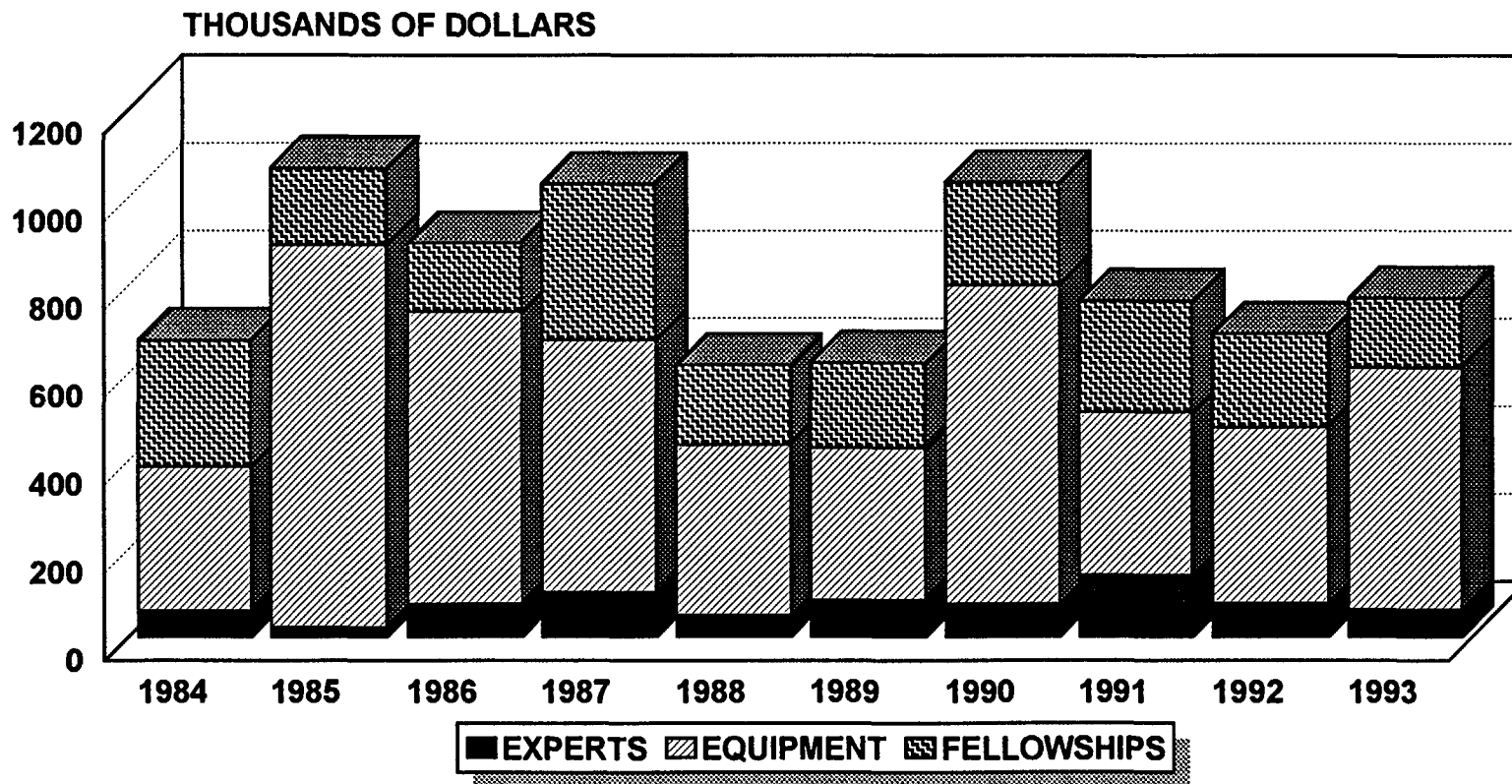
# EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO BANGLADESH (1984 - 1993)



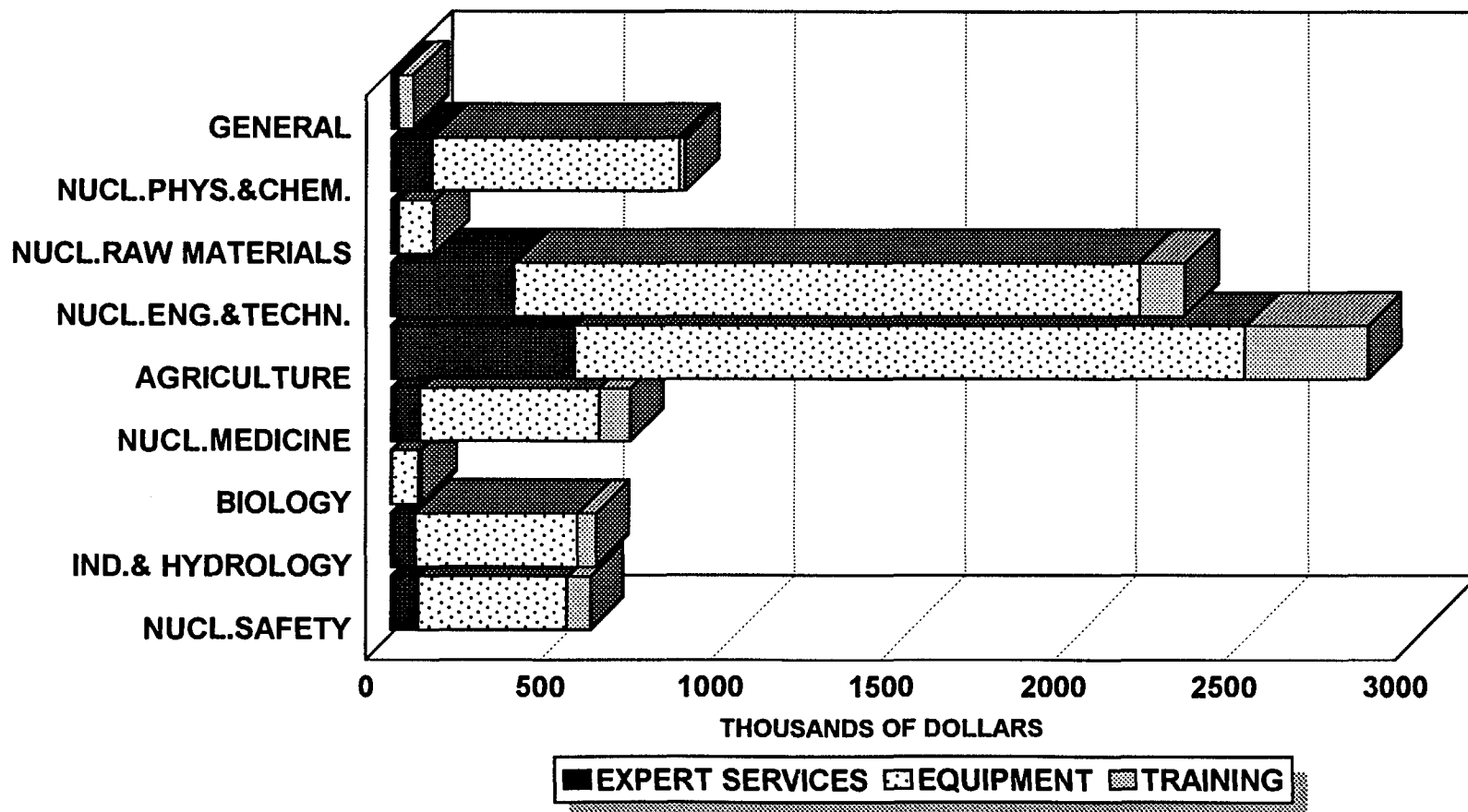
# TC PROJECT DISBURSEMENTS IN BANGLADESH BY SECTOR (1984 - 1994)



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



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





THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH BANGLADESH

ALL SOURCES

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

YEAR	RANKING	AMOUNT
1958-83	18 <sup>th</sup>	3596.1
1984	10 <sup>th</sup>	675.0
1985	4 <sup>th</sup>	1068.2
1986	5 <sup>th</sup>	896.4
1987	8 <sup>th</sup>	1030.9
1988	12 <sup>th</sup>	618.2
1989	16 <sup>th</sup>	623.1
1990	10 <sup>th</sup>	1036.1
1991	14 <sup>th</sup>	764.7
1992	19 <sup>th</sup>	690.3
1993	8 <sup>th</sup>	770.4
1958-93	8 <sup>th</sup>	11769.4

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

**ALL SOURCES**

Year	I	II	III	IV	V	BANGLADESH
1958-83	BRA 8887.6	IND 7197.4	EGY 7024.5	PAK 6008.9	ARG 5912.2	18 <sup>th</sup> - 3596.1
1984	EGY 3625.9	PER 1750.4	THA 1094.6	CUB 1028.7	PHI 881.2	10 <sup>th</sup> - 675.0
1985	EGY 2494.8	PER 1120.7	THA 1117.4	BGD 1068.2	PHI 963.7	4 <sup>th</sup> - 1068.2
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	5 <sup>th</sup> - 896.4
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	8 <sup>th</sup> - 1030.9
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	12 <sup>th</sup> - 618.2
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	16 <sup>th</sup> - 623.1
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	10 <sup>th</sup> - 1036.1
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	14 <sup>th</sup> - 764.7
1992	EGY 1586.3	INS 1342.1	CPR 1328.8	MEX 1127.8	POL 1036.4	19 <sup>th</sup> - 690.3
1993	INS 1285.9	CPR 1091.7	PAK 1012.2	EGY 905.3	IRA 810.1	8 <sup>th</sup> - 770.4
1958-93	EGY 24713.9	BRA 18541.4	THA 16125.1	INS 15011.8	PER 13772.0	8 <sup>th</sup> - 11769.4

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

**TECHNICAL ASSISTANCE AND CO-OPERATION FUND**

Year	I	II	III	IV	V	BANGLADESH
1958-83	EGY 3455.2	HUN 3221.6	PAK 2839.0	THA 2354.1	BRA 2158.9	20 <sup>th</sup> - 1475.6
1984	EGY 1197.2	CUB 655.6	ECU 565.6	BGD 506.3	BUL 472.4	4 <sup>th</sup> - 506.3
1985	BGD 991.8	VIE 745.0	THA 708.7	BRA 571.8	POR 538.7	1 <sup>st</sup> - 991.8
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	4 <sup>th</sup> - 823.9
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	7 <sup>th</sup> - 842.4
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	10 <sup>th</sup> - 562.1
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	14 <sup>th</sup> - 502.9
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	6 <sup>th</sup> - 855.2
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	18 <sup>th</sup> - 558.4
1992	EGY 1255.7	CPR 1009.0	VIE 872.8	INS 826.6	IRA 795.5	14 <sup>th</sup> - 593.6
1993	INS 1040.5	CPR 896.5	PAK 847.6	IRA 807.4	THA 721.5	10 <sup>th</sup> - 600.9
1958-93	EGY 11549.2	PAK 8963.2	VIE 8908.2	POL 8820.1	INS 8814.1	9 <sup>th</sup> - 8313.1

ASSISTANCE PROVIDED BY THE AGENCY TO BANGLADESH

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	59.9	326.4	288.7	-	-	675.0	-	421.8	84.5	89.7	79.0	675.0
1985	21.4	871.1	175.7	-	-	1 068.2	0.8	535.4	456.4	7.2	68.4	1 068.2
1986	74.6	665.0	156.8	-	-	896.4	-	477.2	346.7	21.5	51.0	896.4
1987	100.8	574.9	355.2	-	-	1 030.9	-	753.2	89.2	67.9	120.6	1 030.9
1988	49.4	387.3	181.5	-	-	618.2	-	492.1	70.0	24.4	31.7	618.2
1989	83.7	345.4	194.0	-	-	623.1	-	399.7	103.2	90.4	29.8	623.1
1990	74.9	725.5	235.7	-	-	1 036.1	-	608.7	246.5	128.2	52.7	1 036.1
1991	140.3	371.6	252.8	-	-	764.7	-	525.3	33.1	146.5	59.8	764.7
1992	76.5	400.6	213.2	-	-	690.3	-	593.0	0.6	66.4	30.3	690.3
1993	62.6	550.2	157.6	-	-	770.4	-	600.8	0.1	166.2	3.3	770.4
1984-93	744.1	5 218.0	2 211.2	-	-	8 173.3	0.8	5 407.2	1 430.3	808.4	526.6	8 173.3

TECHNICAL CO-OPERATION PROJECTS IN BANGLADESH  
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1984 - 1994

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

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	2	199 387	2.2	64 033	0.8
Nuclear physics and chemistry	8	886 725	10.0	851 903	10.5
Nuclear raw materials	1	119 170	1.3	121 005	1.5
Nuclear engineering and technology	13	2 552 313	28.7	2 313 533	28.4
Nuclear techniques in agriculture	9	3 040 720	34.1	2 843 817	34.9
Nuclear medicine	5	695 002	7.8	691 918	8.5
Nuclear techniques in biology	1	98 164	1.1	87 123	1.1
Nuclear techniques in industry and hydrology	5	647 182	7.3	591 342	7.3
Nuclear safety	5	671 979	7.5	573 497	7.0
TOTAL	49	8 910 642	100.0	8 138 171	100.0

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

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	1	10 660	20 798
Nuclear physics and chemistry	7	795 392	800 408
Nuclear raw materials	1	119 170	121 005
Nuclear engineering and technology	8	1 943 749	1 944 150
Nuclear techniques in agriculture	5	1 437 541	1 437 499
Nuclear medicine	4	531 082	542 260
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	4	514 482	520 852
Nuclear safety	3	330 332	331 359
<b>TOTAL</b>	<b>33</b>	<b>5 682 408</b>	<b>5 718 331</b>
<u>Operational projects</u>			
General atomic energy development	1	188 727	43 235
Nuclear physics and chemistry	1	91 333	51 495
Nuclear raw materials	-	-	-
Nuclear engineering and technology	5	608 564	369 383
Nuclear techniques in agriculture	4	1 603 179	1 406 318
Nuclear medicine	1	163 920	149 658
Nuclear techniques in biology	1	98 164	87 123
Nuclear techniques in industry & hydrology	1	132 700	70 490
Nuclear safety	2	341 647	242 138
<b>TOTAL</b>	<b>16</b>	<b>3 228 234</b>	<b>2 419 840</b>

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

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	1/22	6 200	4 460	188 727	1/22	19 607	1 191	43 235
Nuclear physics and chemistry	14/06	111 154	750 902	24 669	14/15	116 905	719 264	15 734
Nuclear raw materials	4/09	20 870	98 300	-	4/12	22 592	98 413	-
Nuclear engineering and technology	52/10	401 709	1 934 976	215 628	45/28	352 938	1 828 985	131 610
Nuclear techniques in agriculture	118/01	579 274	2 039 168	422 278	112/16	526 764	1 958 446	358 607
Nuclear medicine	16/20	85 170	515 826	94 006	14/04	84 966	514 572	92 380
Nuclear techniques in biology	1/12	12 810	77 150	8 204	0/14	3 841	75 078	8 204
Nuclear techniques in industry & hydrology	9/13	77 840	498 629	70 713	8/23	71 481	465 076	54 785
Nuclear safety	11/28	90 885	447 214	133 880	10/07	79 607	425 064	68 826
TOTAL	230/01	1 385 912	6 366 625	1 158 105	212/21	1 278 701	6 086 089	773 381

AGENCY FELLOWS FROM BANGLADESH

1984 - 1994<sup>1</sup>  
(As of mid-May 1994)

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	17	48/16	IND, USA, AUL, AUS, GDR, GER, BRA, JPN, RUS, UK, IAEA
Nuclear physics	13	71/07	USA, IND, GER, UKR, HUN, JPN, AUL, FRA, DEN, AUS
Nuclear chemistry	10	61/05	AUS, USA, GDR, AUL, RUS, IND, UK, IAEA
Nuclear raw materials	1	4/20	CAN
Nuclear engineering and technology	31	154/10	SRL, GDR, AUL, ROK, INS, MAL, YUG, USA, RUS, CUB, IND, EGY, IRA, NOR, GER, GRE, AUS, THA, UK, IAEA
Nuclear techniques in agriculture	23	115/01	JPN, USA, PHI, NET, BEL, HUN, GDR, RUS, IND, PAK, MYA, THA, MAL, POL, UK, CEC, IAEA
Nuclear medicine	26	208/11	USA, IND, CAN, AUL, EGY, THA, SIN, UK
Nuclear techniques in biology	3	27/24	AUS, UK
Nuclear techniques in industry and hydrology	8	16/19	MAL, AUL, USA, JPN, IND, UK
Nuclear safety	23	143/12	USA, CAN, INS, AUS, MAL, JPN, AUL, BEL, HUN, UK
TOTAL	155	851/05	

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



**BANGLADESH  
LONG-TERM FELLOWSHIPS  
1984 - 1994  
(As of mid-May 1994)**

Name	Field of study		Host country	Date	Duration	Project
RAHMAN, MAFIZUR	Data processing by computer	0J	USA	Feb.88 - Feb.89	12/00	BGD/4/009
AHMED, F. U.	Neutron physics	1E	CAN	May 84 - May 85	12/01	BGD/4/009
ALI, M.	Nuclear physics	1L	JPN	Mar.90 - Mar.91	12/00	RAS/0/014
BISWAS	Analytical nuclear physics	1L	HUN	Oct.89 - Oct.90	12/01	RAS/0/014
CHOWDHURY, MD.D.A.	Analytical chemistry	2C	UK	Oct.86 - Oct.87	12/01	BGD/4/009
ALI, M.H.	Nuclear instrumentation	4G	UK	Jan.87 - Jan.88	12/01	BGD/4/007
CHOWDHURY, MD.A.	Nuclear instrumentation	4G	USA	Dec.83 - Dec.84	12/01	BGD/4/005
FIROZ	Nuclear instruments	4G	UK	Aug.84 - Sep.85	13/01	BGD/4/007
ISLAM	Nuclear electronics	4G	UK	Oct.87 - Oct.88	12/00	BGD/4/007
MANNAN	Nuclear electronics	4G	USA	Jan.88 - Jan.89	12/01	BGD/4/007
QUAMRUZZAMAN	Nuclear instrumentation	4G	IAEA	Sep.86 - Sep.87	12/00	BGD/4/007
AHMED, G.	Plant breeding and genetics	5C	POL	Started: Jan.94	12/00	BGD/0/004
AHMED, Z.U.	Mutation breeding	5C	AUL	Nov.83 - Jan.85	14/00	BGD/5/003

**BANGLADESH**  
**LONG-TERM FELLOWSHIPS**  
**1984 - 1994**  
**(As of mid-May 1994)**

Name	Field of study		Host country	Date	Duration	Project
LOKMAN HAKIM	Plant breeding and genetics	5C	UK	Feb.92 - Mar.93	13/00	RAS/0/018
NILUFAR	Food preservation	5H	AUL	Oct.86 - Oct.87	12/01	BGD/5/010
RAHMAN, M.S.	Food irradiation	5H	JPN	Aug.85 - Aug.86	12/01	BGD/5/010
RAHMAN, M.S.	Pesticide residues	5G	CEC	Sep.92 - Sep.93	12/00	RAS/0/016
RAHMAN, R.	Food irradiation	5H	IAEA	Jan.87 - Jan.88	12/00	BGD/5/010
RASHID, H.O.	Food irradiation	5H	JPN	Sep.89 - Sep.90	12/00	RAS/0/014
ABU TAHER	Nuclear medicine	6B	USA	Oct.86 - Oct.87	12/01	BGD/6/007
AFROZ	Nuclear medicine	6B	IND	Jul.85 - Jul.86	12/01	BGD/6/008
AHMED, F.U.	Nuclear medicine	6B	AUL	Sep.86 - Sep.87	12/00	-
AHMED, R.	Nuclear medicine	6B	AUL	Jul.91 - Jul.92	12/01	RAS/0/018
ANSARI	Nuclear medicine	6B	AUL	Jan.91 - Jan.92	12/01	RAS/0/014
ISHAQUE	Radiopharmacy	6G	USA	Aug.84 - Sep.85	13/02	BGD/6/008
JEHAN	Nuclear medicine	6B	USA	Oct.89 - Oct.90	12/01	RAS/0/014

**BANGLADESH**  
**LONG-TERM FELLOWSHIPS**  
**1984 - 1994**  
**(As of mid-May 1994)**

Name	Field of study		Host country	Date	Duration	Project
JESMIN	Nuclear medicine instrumentation	6F	USA	Aug.84 - Aug.85	12/01	BGD/6/007
KABIR, F.	Nuclear medicine	6B	UK	Feb.88 - Apr.89	13/29	BGD/6/007
KABIR, M.F.	Nuclear medicine	6B	USA	Feb.87 - Feb.88	12/00	BGD/6/003
KHAN, M.H.	Nuclear medicine	6B	IND	Nov.89 - Nov.90	12/00	RAS/0/014
MOINUL ISLAM	Nuclear medicine	6B	AUL	Jul.91 - Jul.92	12/01	BGD/6/009
NISA	Nuclear medicine	6B	USA	Jul.85 - Jul.86	12/01	-
RASHID, H.	Medical physics	6F	USA	Aug.88 - Oct.89	14/02	BGD/6/003
SHAHABUDDIN	Nuclear medicine	6B	UK	Sep.90 - Sep.91	12/00	BGD/6/007
UDDIN	Medical physics	6F	CAN	Nov.85 - Nov.86	12/00	-
BEGUM	Radiation biology	7E	AUS	Jul.84 - Jul.85	12/01	-
NESSA	Radiation biology	7E	UK	Nov.86 - Feb.88	14/27	-
HAQUE	Non-destructive testing	8C	UK	Mar.87 - Apr.88	12/03	BGD/8/005
ALAM	Radiation protection	9C	USA	Aug.84 - Oct.85	14/09	BGD/9/004

**BANGLADESH**  
**LONG-TERM FELLOWSHIPS**  
**1984 - 1994**  
**(As of mid-May 1994)**

Name	Field of study		Host country	Date	Duration	Project
BOSE	Radiation protection	9C	USA	Sep.86 - Sep.87	12/00	BGD/9/004
JALIL MIAH	Environmental monitoring	9C	UK	Aug.84 - Oct.85	13/12	BGD/9/004
KHAN, M.A.H.	Radiation protection	9C	USA	Apr.91 - Apr.92	12/00	RAS/0/014
NAZNEEN	Radioactive waste management	9E	USA	Jul.89 - Jul.90	12/01	RAS/0/014
ROY	Radiation protection	9C	USA	Sep.86 - Sep.87	12/00	-

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

Name	Field of study	Host country	Date	Duration	Project
AHMED, F.U.	1. Neutron physics	1E	CAN AUL	May 84 - May 85	BGD/4/009
	2. Nuclear medicine	6B		Sep.86 - Sep.87	BGD/6/007
AMIN	1. Food irradiation	5H	HUN/NET USA	Sep.84 - Oct.84	BGD/5/010
	2. Radiation processing	8H		Nov.90 - Feb.91	RAS/0/014
BHUIYAN	1. Neutron physics	1E	UKR IAEA	Sep.87 - Oct.87	INT/1/043
	2. Nuclear data processing	4G		Feb.91 - Jun.91	RAS/0/018
CHOWDHURY, M.A.	1. Food irradiation	5H	RUS INS	Dec.89 - Jan.90	RAS/0/014
	2. Radiation protection	9C		Oct.92 - Jan.93	BGD/4/014
HAQUE	1. Food irradiation	5H	RUS IND	Dec.89 - Jan.90	RAS/0/014
	2. Production of isotopes	4H		Apr.93	BGD/4/014
HASAN	1. Nuclear instrument repair	4G	SRL IND THA	Jun.84 - Aug.84	INT/4/054
	2. Medical physics	6F		Jan.90 - Feb.90	RAS/0/014
	3. Nuclear instrumentation, electronics and reactor control	4G		Oct.93 - Dec.93	BGD/4/017
JALIL MIAH	1. Environmental monitoring	9C	UK BEL/HUN	Aug.84 - Oct.85	BGD/9/004
	2. Radiation protection	9C		Mar.94	BGD/9/008
MATIN	1. Food irradiation	5H	HUN/NET/GDR UK	Mar.89	RAS/0/014
	2. Agricultural biochemistry	5G		Nov.93 - Dec.93	BGD/5/014

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

Name	Field of study	Host country	Date	Duration	Project
MOLLA	1. Nuclear data	0J	Jan.86 - Feb.86	0/19	INT/1/018
	2. Nuclear physics	1D	Jan.93 - Feb.93	0/27	BGD/4/009
RAHMAN	1. Food irradiation	5H	Aug.85 - Aug.86	12/01	BGD/5/010
	2. Pesticide residues	5G	Sep.92 - Sep.93	12/00	RAS/0/016
SIDDIQUI	1. Food preservation	5H	May 89	0/12	RAS/0/014
	2. Radiation processing	8H	Sep.90 - Oct.90	0/12	BGD/5/010
ULLAH	1. Non-destructive testing	8C	Aug.89 - Sep.89	1/01	RAS/0/014
	2. General industrial applications	8C	Jan.93 - Feb.93	0/16	RAS/0/018

AGENCY TRAINING COURSES WITH BANGLADESHI PARTICIPATION

1984 - 1994  
(As of mid-May 1994)

Field	Number of participants	Number of courses
General atomic energy development	29	24
Nuclear physics	14	11
Nuclear chemistry	8	6
Nuclear raw materials	2	2
Nuclear engineering and technology	25	24
Nuclear techniques in agriculture	37	31
Nuclear medicine	31	26
Nuclear techniques in biology	13	10
Nuclear techniques in industry & hydrology	78	70
Nuclear safety	28	25
TOTAL	265	229

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

Name	Course No.	Course title	Year	Location
AHSAN	RAS/8/061 (072)	RTC on non-destructive testing of ultrasonics (level III)	1990	INS
	RAS/8/061 (105)	RTC on non-destructive testing of magnetic particle and liquid penetrant (level III)	1991	INS
AL-SIDDIQUE	INT/4/069 (001)	Interregional study tour on isotope production, including radiopharmaceuticals	1984	CZE GDR HUN USSR
	RAS/8/008 (041)	Regional training demonstration on radiation cross-linking applications in the wire and cable industry	1985	CPR
AMIN	RAS/5/020 (006)	RWS on food irradiation process control	1992	CPR
	RAS/8/061 (011)	RTC on industrial radiation sterilization - quality control and sterility assurance	1987	THA
	RAS/8/061 (074)	RWS on industrial sterilization of medical products - regulatory aspects	1990	MAL
ATIQUZZAMAN	RAS/8/061 (005)	RTC on non-destructive testing of radiography (level II)	1987	IND
	RAS/8/061 (053)	RTC on non-destructive testing of radiography (level III)	1989	MAL
AWAL	INT/1/031 (001)	Interregional study tour on the utilization of low-energy accelerators	1985	GFR HUN ITA USSR
	INT/1/034 (001)	ITC on basic and applied nuclear physics	1985	ITA
BEGUM, REHANA	RAS/7/003 (001)	RTC on radiation sterilization of tissue grafts for safe clinical use in health care	1988	CPR
	RAS/7/003 (005)	RWS on radiation sterilization of tissues: An open learning programme	1993	VIE
	RAS/7/003 (006)	RWS on total quality systems for tissue banking of radiation-sterilized surgical grafts	1993	INS



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

Name	Course No.	Course title	Year	Location
BISWAS	RAS/1/006 (001)	RWS on neutron activation analysis	1985	IND
	RAS/8/061 (019)	Third regional training demonstration on the use of tracer technology in industry	1988	CPR
	RAS/8/071 (001)	RWS on environmental and industrial applications to nuclear analytical techniques	1994	IND
CHOWDHURY, MD.M.I.	RAS/3/007 (001)	RTC on spatial data integration for uranium exploration, resource assessment and environmental studies	1993	CPR
	RAS/8/063 (001)	RTC on advanced methodologies of isotope applications in hydrology	1988	MAL
CHOWDHURY, N.A.	RAS/8/061 (027)	RTC on industrial radiation sterilization selection and compatibility of materials	1988	IND
	RAS/8/061 (048)	RTC on industrial radiation sterilization - quality control and sterility assurance	1989	THA
DAS	RAS/5/021 (004)	Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia	1991	THA
	RAS/5/021 (005)	Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia	1992	CPR
	RAS/5/021 (007)	Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia	1993	AUL
FALAQUE	RAS/8/008 (028)	RTC on tracer technology in industry	1984	IND
	RAS/8/061 (049)	RTC on the use of tracer technology in industry	1989	SIN MAL
HAQUE, MD. MONZURUL	RAS/0/015 (003)	RTC on research reactor safety principles	1990	IND
	RAS/4/011 (007)	RTC on calculations and measurement of neutron flux spectrum for research reactors	1993	INS
HAQUE, MD. MUZAMMEL	RAS/0/015 (006)	RTC on nuclear power pre-project activities and manpower development	1991	ROK
	RAS/8/061 (029)	Regional executive management seminar on the use of nucleonic instrumental techniques in civil engineering	1988	JPN

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

Name	Course No.	Course title	Year	Location
IDRISS ALI	RAS/8/008 (041)	Regional training demonstration on radiation cross-linking applications in the wire and cable industry	1985	CPR
	RAS/8/008 (057)	Regional third training demonstration on radiation curing of surface coating of wood products	1986	INS JPN
	RAS/8/061 (012)	RTC on radiation engineering - electron beam facilities	1987	JPN
	RAS/8/061 (070)	RTC on formulation technology for radiation cross-linking applications	1989	CPR
ISLAM, MD. ASHRAFUL	INT/8/003 (001)	ITC on the applications of nuclear analytical techniques to air pollution	1991	USA
	RAS/1/008 (001)	RTC on nuclear analytical techniques and their applications	1987	JPN
ISLAM, MONIRUL	INT/0/056 (001)	ITC on strengthening project management	1993	IND
	RAS/8/062 (014)	Regional executive management seminar on the use of nucleonic instrument techniques in civil engineering	1989	JPN
KARIM, C.S.	INT/0/050 (001)	ITC on electrical system expansion planning (WASP)	1990	USA
	RAS/0/013 (003)	RTC on nuclear power project planning and implementation	1989	ROK
	RAS/0/013 (005)	Fourth RWS on energy, electricity and nuclear power planning	1990	ROK
KARIM MIAH	RAS/9/006 (002)	RTC on radiation protection	1989	JPN
	RAS/9/006 (004)	RWS on intercomparison for personal dosimeters	1990	JPN
	RAS/9/006 (011)	RWS on applications of the ICRP's 1990 recommendations for radiation protection	1993	MAL
	RAS/9/011 (001)	RTC on safety and regulation of radiation sources	1991	MAL
KAZI, F.A.	INT/9/135 (001)	ITC on physical protection of nuclear facilities and materials	1993	USA
	RAS/4/011 (004)	RTC on measurement of basic parameters of research reactors	1992	INS
KAZI, O.A.	INT/9/093 (001)	ITC on safety and regulation of sealed sources of radioactive material	1989	USA
	INT/9/104 (001)	ITC on safety in the operation of research reactors	1990	USA
	RAS/9/006 (011)	RWS on applications of the ICRP's 1990 recommendations for radiation protection	1993	MAL

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

Name	Course No.	Course title	Year	Location
KHAN, H.MD.M.	INT/4/104 (001)	ITC on planning of management of the nuclear fuel cycle RTC on national infrastructure for radioactive waste management	1990	ARG
	RAS/9/009 (001)		1991	INS
KHAN, M.A.	INT/4/097 (001)	ITC on radiation technology and engineering RWS on radiation engineering - electron beam facilities RTC on environmental applications of radiation technology (basics)	1988	HUN
	RAS/8/062 (015)		1989	JPN
	RAS/8/070 (001)		1993	JPN
MAROOF	INT/2/006 (001)	Advanced ITC on sampling, sample preparation and data evaluation for multi-element and radionuclide analysis by nuclear and instrumental methods RTC on the use of nuclear techniques in health-related environmental research and monitoring RTC on tracer application in industry	1989	GFR
	RAS/6/009 (001)		1986	AUL
	RAS/8/061 (106)		1991	INS
MATIN	RAS/5/017 (001)	Study tour on food irradiation development Regional RCM for RPF1 - phase III RTC on nuclear and associated techniques for pesticide research	1986	CPR
	RAS/5/020 (008)		1993	ROK
	RAS/5/024 (001)		1992	THA
MOLLA, M.E.U.	RAS/8/008 (040)	Fifth RTC on advanced non-destructive testing RWS on non-destructive testing of non-metallic materials RTC on model (NDT) qualifying examination for radiography (level III)	1985	JPN
	RAS/8/061 (006)		1987	JPN
	RAS/8/061 (107)		1991	MAL
MOLLAH	INT/1/046 (001)	ITC on nuclear measurements and methods in reactor and personal neutron dosimetry ITC on management of radioactive waste ITC on the determination of radionuclides in food and environmental samples ITC on safety assessment methodologies for near-surface radioactive waste disposal facilities RTC on standardization of dose measurements through secondary standard dosimetry laboratories (SSDLs)	1989	USSR
	INT/9/079 (001)		1987	GFR
	INT/9/090 (001)		1988	GFR
	INT/9/139 (001)		1994	USA
	RAS/4/014 (001)		1993	AUL
MOSLEM	INT/6/031 (001)	ITC and study tour on nuclear medicine RTC on diagnosis of viral hepatitis infection by radioimmunoassay	1985	USSR
	RAS/6/011 (004)		1991	CPR

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

Name	Course No.	Course title	Year	Location
PODDER	RAS/5/021 (003)	RWS on rhizobium technology	1991	THA
	RAS/5/021 (005)	Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia	1992	CPR
RAHMAN, MD. MATIUR	INT/4/086 (001)	Interregional study tour on research reactor utilization	1986	FRA GFR USSR YUG CPR INS
	RAS/0/015 (009)	RWS on neutron transmutation doping technology	1992	
	RAS/0/017 (001)	RWS on project management and evaluation techniques for TC projects	1990	
RAHMAN, MD. MUNSUR	INT/1/014 (001)	RWS on calibration procedures in dosimetry (SSDL)	1987	MAL
	RAS/9/009 (001)	RTC on national infrastructure for radioactive waste management	1991	INS
ROUF	RAS/2/003 (001)	RTC on preparation and control of radiopharmaceuticals	1990	CPR
	RAS/8/062 (005)	RTC on radioisotope production in research reactors	1989	IND
SADIQUE	RAS/0/015 (014)	RTC on non-destructive testing and evaluation in nuclear power plants	1992	ROK
	RAS/8/061 (008)	RTC on non-destructive testing of ultrasonics (level II)	1987	ROK
	RAS/8/061 (050)	RTC on non-destructive testing of ultrasonics (level III)	1989	PHI
	RAS/8/061 (105)	RTC on non-destructive testing of magnetic particle & liquid penetrant (level III)	1991	INS
	RAS/8/062 (022)	RWS on fabrication of NDT test pieces	1990	JPN
SARKER	RAS/6/014 (001)	RTC on hospital radiopharmacy	1988	AUL
	RAS/6/018 (001)	RTC on the preparation of basic reagents for the RIA of hepatitis B markers	1993	CPR
SATTAR	INT/5/103 (001)	ITC on the use of isotope and radiation techniques in studies on biological nitrogen fixation	1986	AUS
	RAS/5/021 (007)	Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia	1993	AUL

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

Name	Course No.	Course title	Year	Location
SHAHIDULLAH	RAS/8/061 (021) RAS/8/061 (080)	RTC on non-destructive testing of radiography (level II) RTC on non-destructive testing of surface methods (level II)	1988 1990	IND MAL
SHARIF	RAS/1/006 (001) RAS/1/008 (001) RAS/8/062 (006)	RWS on neutron activation analysis RTC on nuclear analytical techniques and their applications RTC on neutron activation analysis for mineral resource prospecting and mineral characterization	1985 1987 1989	IND JPN IND
SIDDIQUI	RAS/8/008 (032) RAS/8/061 (048)	RTC on radiation sterilization of medical products RTC on industrial radiation sterilization - quality control and sterility assurance	1984 1989	IND ROK THA
ULLAH	RAS/8/008 (052) RAS/8/061 (107)	Regional UNDP/IAEA/RCA train-the-trainers course on ultrasonic testing RTC on model (NDT) qualifying examination for radiography (level III)	1986 1991	CPR MAL
YUNUS, SHEIKH MOHAMMAD	RAS/4/011 (006) RAS/6/017 (001)	RTC on materials characterization using low and medium neutron flux reactors RTC on radiotherapy for medical physicists	1992 1989	CPR PAK

**PROJECTS COMPLETED IN BANGLADESH SINCE 1984**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1983	BGD/0/003	Database development	1/22	6 200	4 460	-	1/22	19 607	1 191	-	1992
1981	BGD/1/005	Neutron physics	3/00	14 400	119 000	-	3/04	13 874	121 743	-	1984
1983	BGD/1/007	Neutron dosimetry	0/29	7 147	29 749	-	0/29	7 147	29 749	-	1989
1985	BGD/1/008	Secondary standards dosimetry laboratory	3/27	30 165	300 622	-	3/27	28 050	300 622	-	1994
1986	BGD/1/010	Trace analytical laboratory	2/05	15 300	118 807	-	2/04	21 987	119 099	-	1992
1989	BGD/1/011	Utilization of the neutron generator	3/00	32 592	37 024	-	3/03	32 592	34 812	-	1993
1984	BGD/2/007	Elemental analysis	-	-	16 000	-	-	-	16 224	-	1984
1988	BGD/2/008	Development of nuclear analytical facilities	0/05	1 200	69 700	3 686	0/05	1 435	69 802	3 272	1991
1980	BGD/3/005	Nuclear materials prospection	4/09	20 870	98 300	-	4/12	22 592	98 413	-	1987

**PROJECTS COMPLETED IN BANGLADESH SINCE 1984**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1980	BGD/4/005	Nuclear electronics	4/00	18 000	42 000	-	3/26	26 133	41 520	-	1985
1982	BGD/4/006	Reactor utilization (isotope production)	11/20	74 900	850 490	-	11/20	67 564	850 490	-	1991
1982	BGD/4/007	Repair and maintenance of nuclear instruments	5/24	37 325	56 714	-	5/24	37 325	57 062	-	1989
1983	BGD/4/008	Research reactor utilization	2/00	13 100	57 722	-	1/27	19 522	58 710	-	1990
1983	BGD/4/009	Research reactor utilization	7/20	59 994	603 206	20 488	7/20	65 505	587 580	20 323	1994
1987	BGD/4/010	Training of manpower for quality assurance	3/00	22 200	-	-	3/03	12 453	-	-	1989
1988	BGD/4/012	Research reactor database and computer code development	3/07	24 460	12 000	-	3/07	31 123	11 876	5 546	1990
1989	BGD/4/013	Repair and maintenance of nuclear instruments (Dhaka)	1/25	17 300	33 850	-	1/25	18 020	33 398	-	1994

**PROJECTS COMPLETED IN BANGLADESH SINCE 1984**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1974	BGD/5/003	Development of the Institute of Nuclear Agriculture	91/09	374 990	466 199	296 638	91/08	374 990	466 199	296 638	1985
1978	BGD/5/007	Food preservation	6/00	21 000	-	-	5/20	29 164	-	-	1986
1982	BGD/5/009	Isotopes in agriculture	-	-	14 639	-	-	-	14 639	-	1987
1985	BGD/5/012	Nitrogen fixation in grain legumes	2/03	14 505	108 989	-	2/03	6 650	108 891	-	1990
1988	BGD/5/013	Nuclear techniques in agriculture	3/07	24 972	115 609	-	2/17	25 062	115 266	-	1992
1976	BGD/6/003	Radioisotopes in medicine	8/00	24 000	22 000	-	7/05	36 255	23 734	-	1985
1982	BGD/6/006	Nuclear medicine	3/00	16 200	40 500	-	3/04	17 138	42 074	-	1984
1983	BGD/6/007	Nuclear medicine	4/09	29 970	261 728	41 000	3/13	28 263	259 647	40 766	1991
1989	BGD/6/009	Nuclear medicine (phase II)	0/04	1 080	41 598	53 006	0/04	997	41 772	51 614	1992



**PROJECTS COMPLETED IN BANGLADESH SINCE 1984**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1984	BGD/8/004	Tracers in sedimentology	2/11	18 300	121 994	2 951	2/16	20 271	122 691	2 950	1992
1986	BGD/8/006	Development of non-destructive testing	2/00	13 950	138 900	6 600	2/01	14 511	139 165	6 797	1991
1988	BGD/8/008	Radiation processing technology	3/00	25 350	89 465	20 982	3/04	29 870	89 465	20 982	1994
1990	BGD/8/009	Radiation induced vulcanization of natural rubber latex	1/02	9 440	63 270	3 280	1/02	6 829	63 174	4 147	1992
1981	BGD/9/004	Radiation protection	4/00	20 400	102 455	-	4/11	16 380	102 453	-	1989
1984	BGD/9/005	Radioactive waste management	0/28	6 160	66 300	-	0/28	9 308	66 880	-	1989
1989	BGD/9/006	Occupational radiation monitoring	2/08	18 440	99 719	16 858	2/08	19 427	100 053	16 858	1992
	TOTAL	33 Projects	192/04	1 013 910	4 203 009	465 489	190/12	1 060 044	4 188 394	469 893	

**OPERATIONAL PROJECTS IN BANGLADESH**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1993	BGD/0/004	Manpower development	-	-	-	188 727	-	-	-	43 235
1993	BGD/2/009	Van de Graaff utilization	1/00	10 350	60 000	20 983	1/03	11 820	27 213	12 462
1991	BGD/4/014	Reactor utilization - isotope production (phase II)	2/15	23 010	125 626	46 800	1/24	16 064	107 121	42 296
1991	BGD/4/016	Thermal stress analysis programme	2/15	23 850	43 000	18 900	2/09	27 973	42 537	15 884
1993	BGD/4/017	Repair and maintenance of nuclear instruments (phase II)	1/12	15 030	40 000	28 740	1/09	15 006	37 562	18 080
1993	BGD/4/018	Research reactor utilization (phase II)	4/22	50 340	40 368	52 200	1/14	16 250	1 129	29 481
1993	BGD/4/019	Development of computer codes for reactor engineering	2/00	22 200	30 000	48 500	-	-	-	-
1983	BGD/5/010	Food irradiation	5/04	39 932	1 064 307	29 200	5/14	43 844	1 060 809	28 482
1989	BGD/5/014	Agrochemical residues	4/08	39 375	139 425	8 700	3/22	30 694	135 021	7 320

**OPERATIONAL PROJECTS IN BANGLADESH**  
(As of mid-May 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1993	BGD/5/015	Nuclear techniques to improve agricultural production	4/00	42 300	100 000	58 490	1/16	13 017	57 621	26 167
1993	BGD/5/016	Insect pest management by genetic manipulation	2/00	22 200	30 000	29 250	0/06	3 343	-	-
1993	BGD/6/011	Modernization of nuclear medicine	1/07	13 920	150 000	-	0/08	2 313	147 345	-
1991	BGD/7/005	Tissue banking	1/12	12 810	77 150	8 204	0/14	3 841	75 078	8 204
1993	BGD/8/012	Non-destructive testing	1/00	10 800	85 000	36 900	-	-	50 581	19 909
1991	BGD/9/007	Safe management of radioactive waste	3/15	33 645	67 440	56 257	1/13	21 929	51 728	20 653
1991	BGD/9/008	Strengthening of radiation protection infrastructure	1/07	12 240	111 300	60 765	1/07	12 563	103 950	31 315
	<b>TOTAL</b>	<b>16 Projects</b>	<b>37/27</b>	<b>372 002</b>	<b>2 163 616</b>	<b>692 616</b>	<b>22/09</b>	<b>218 657</b>	<b>1 897 695</b>	<b>303 488</b>

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>GENERAL ATOMIC ENERGY DEVELOPMENT</u>		
BGD/0/003	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Computer Science, Savar, Dhaka	MUSA
BGD/0/004	Bangladesh Atomic Energy Commission, Dhaka	AHSAN
<u>NUCLEAR PHYSICS AND CHEMISTRY</u>		
BGD/1/005	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Dhaka	MOLLA
BGD/1/007	Bangladesh Atomic Energy Commission, Dhaka	KASIM
BGD/1/008	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	RAHMAN
BGD/1/010	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Dhaka	KHAN
BGD/1/011	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	MOLLA
BGD/2/007	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Chemistry Division, Dhaka	KHAN
BGD/2/008	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	ALAMGIR
BGD/2/009	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Dhaka	KHALIQUZZAMAN

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR RAW MATERIALS</u>		
BGD/3/005	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Savar, Dhaka	FARUQUEE
<u>NUCLEAR ENGINEERING AND TECHNOLOGY</u>		
BGD/4/005	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Electronics, Savar, Dhaka	HUSSAIN
BGD/4/006	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	RAHMAN
BGD/4/007	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Electronics, Savar, Dhaka	HUSSAIN
BGD/4/008	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	AHMED
BGD/4/009	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	MOLLA
BGD/4/010	Bangladesh Atomic Energy Commission, Nuclear Power and Energy Division, Dhaka	QUAIYUM
BGD/4/012	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	BHUIYAN
BGD/4/013	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Electronics Division, Dhaka	TAHER

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY (cont'd)</u>		
BGD/4/014	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	RAHMAN
BGD/4/016	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	KARIM
BGD/4/017	1. Bangladesh Atomic Energy Commission, Atomic Energy Centre, Electronics Division, Dhaka 2. Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Electronics, Savar, Dhaka	ZAHUR  TAHER
BGD/4/018	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	MOLLA
BGD/4/019	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Savar, Dhaka	BHUIYAN
<u>AGRICULTURE</u>		
BGD/5/003	Bangladesh Institute of Nuclear Agriculture, Mymensingh	MIA
BGD/5/007	Bangladesh Atomic Energy Commission, Irradiation and Pest Control Research Institute, Dhaka	HOSSAIN
BGD/5/009	Bangladesh Institute of Nuclear Agriculture, Mymensingh	PATWARY

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>AGRICULTURE (cont'd)</u>		
BGD/5/010	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Food and Radiation Biology, Savar, Dhaka	BHUIYA
BGD/5/012	Bangladesh Institute of Nuclear Agriculture, Mymensingh	MIAH
BGD/5/013	Bangladesh Institute of Nuclear Agriculture, Mymensingh	MIAH
BGD/5/014	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Food and Radiation Biology, Savar, Dhaka	MATIN
BGD/5/015	Bangladesh Institute of Nuclear Agriculture, Mymensingh	IDRISS ALI SHAIKH
BGD/5/016	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Food and Radiation Biology, Savar, Dhaka	BHUIYAN SHAHJAHAN
<u>NUCLEAR MEDICINE</u>		
BGD/6/003	Bangladesh Atomic Energy Commission, Nuclear Medicine Centre, Chittagong	AHMED, K.
BGD/6/006	Bangladesh Atomic Energy Commission, Nuclear Medicine Centre, Chittagong	AHMED, R.
BGD/6/007	Bangladesh Atomic Energy Commission, Institute of Nuclear Medicine, Dhaka	AHMED, K.
BGD/6/009	Bangladesh Atomic Energy Commission, Nuclear Medicine Centre, Chittagong	KARIM

**COUNTERPART INSTITUTIONS IN BANGLADESH (I)**  
{By Project}

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR MEDICINE (cont'd)</u>		
BGD/6/011	Bangladesh Atomic Energy Commission, Institute of Nuclear Medicine, Dhaka	KARIM
<u>NUCLEAR TECHNIQUES IN BIOLOGY</u>		
BGD/7/005	Bangladesh Atomic Energy Commission, Institute of Food and Radiation Biology, Dhaka	ISLAM
<u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY</u>		
BGD/8/004	Bangladesh Atomic Energy Commission, Institute of Nuclear Science and Technology, Isotope Hydrology Division, Dhaka	SIKDER
BGD/8/006	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Isotope Application Division, Dhaka	ULLAH
BGD/8/008	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	ALI
BGD/8/009	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Nuclear Chemistry Division, Savar, Dhaka	AL-SIDDIQUE
BGD/8/012	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Non-Destructive Testing Division, Dhaka	ULLAH



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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>SAFETY IN NUCLEAR ENERGY</u>		
BGD/9/004	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Health Physics Division, Savar, Dhaka	MOLLA JALIL MIAH
BGD/9/005	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Institute of Nuclear Science and Technology, Savar, Dhaka	HUSAIN
BGD/9/006	Bangladesh Atomic Energy Commission, Atomic Energy Centre, Dhaka	MOLLA
BGD/9/007	Bangladesh Atomic Energy Commission, Atomic Energy Research Establishment, Health Physics Division, Savar, Dhaka	KHAN RAHMAN
BGD/9/008	Bangladesh Atomic Energy Commission, Nuclear Safety and Radiation Protection Division, Dhaka	RAHMAN

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

**DHAKA**

**Bangladesh Atomic Energy Commission  
Dhaka**

BGD/0/004      Manpower Development  
BGD/1/007      Neutron Dosimetry

**Bangladesh Atomic Energy Commission  
Nuclear Power and Energy Division  
Dhaka**

BGD/4/010      Training of Manpower for Quality Assurance

**Bangladesh Atomic Energy Commission  
Nuclear Safety and Radiation Protection Division  
Dhaka**

BGD/9/008      Strengthening of Radiation Protection Infrastructure

**Bangladesh Atomic Energy Commission  
Irradiation and Pest Control Research Institute  
Dhaka**

BGD/5/007      Food Preservation

**Bangladesh Atomic Energy Commission  
Institute of Nuclear Medicine  
Dhaka**

BGD/6/007      Nuclear Medicine  
BGD/6/011      Modernization of Nuclear Medicine

**Bangladesh Atomic Energy Commission  
Institute of Food and Radiation Biology  
Dhaka**

BGD/7/005      Tissue Banking

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

**DHAKA** (cont'd)

**Bangladesh Atomic Energy Commission**  
**Institute of Nuclear Science and Technology**  
**Isotope Hydrology Division**  
**Dhaka**

BGD/8/004 Tracers in Sedimentology

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Centre**  
**Dhaka**

BGD/1/005 Neutron Physics  
BGD/1/010 Trace Analytical Laboratory  
BGD/2/009 Van de Graaff Utilization  
BGD/9/006 Occupational Radiation Monitoring

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Centre**  
**Chemistry Division**  
**Dhaka**

BGD/2/007 Elemental Analysis

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Centre**  
**Electronics Division**  
**Dhaka**

BGD/4/013 Repair and Maintenance of Nuclear Instruments  
BGD/4/017 Repair and Maintenance of Nuclear Instruments (Phase II)

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Centre**  
**Isotope Application Division**  
**Dhaka**

BGD/8/006 Development of Non-Destructive Testing

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

**DHAKA** (cont'd)

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Centre**  
**Non-Destructive Testing Division**  
**Dhaka**

BGD/8/012 Non-Destructive Testing

**SAVAR, DHAKA**

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Savar, Dhaka**

BGD/3/005 Nuclear Materials Prospection  
BGD/4/019 Development of Computer Codes for Reactor Engineering

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Institute of Nuclear Science and Technology**  
**Savar, Dhaka**

BGD/1/008 Secondary Standards Dosimetry Laboratory  
BGD/1/011 Utilization of the Neutron Generator  
BGD/2/008 Development of Nuclear Analytical Facilities  
BGD/4/006 Reactor Utilization - Isotope Production  
BGD/4/008 Research Reactor Utilization  
BGD/4/009 Research Reactor Utilization  
BGD/4/012 Research Reactor Database and Computer Code Development  
BGD/4/014 Reactor Utilization - Isotope Production (Phase II)  
BGD/4/016 Thermal Stress Analysis Programme  
BGD/4/018 Research Reactor Utilization (Phase II)  
BGD/8/008 Radiation Processing Technology  
BGD/9/005 Radioactive Waste Management

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Institute of Computer Science**  
**Savar, Dhaka**

BGD/0/003 Database Development

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

**SAVAR, DHAKA** (cont'd)

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Institute of Electronics**  
**Savar, Dhaka**

BGD/4/005 Nuclear Electronics  
BGD/4/007 Repair and Maintenance of Nuclear Instruments  
BGD/4/017 Repair and Maintenance of Nuclear Instruments (Phase II)

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Institute of Food and Radiation Biology**  
**Savar, Dhaka**

BGD/5/010 Food Irradiation  
BGD/5/014 Agrochemical Residues  
BGD/5/016 Insect Pest Management by Genetic Manipulation

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Nuclear Chemistry Division**  
**Savar, Dhaka**

BGD/8/009 Radiation Induced Vulcanization of Natural Rubber Latex

**Bangladesh Atomic Energy Commission**  
**Atomic Energy Research Establishment**  
**Health Physics Division**  
**Savar, Dhaka**

BGD/9/004 Radiation Protection  
BGD/9/007 Safe Management of Radioactive Waste

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

**MYMENSINGH**

**Bangladesh Institute of Nuclear Agriculture**  
**Mymensingh**

BGD/5/003	Development of the Institute of Nuclear Agriculture
BGD/5/009	Isotopes in Agriculture
BGD/5/012	Nitrogen Fixation in Grain Legumes
BGD/5/013	Nuclear Techniques in Agriculture
BGD/5/015	Nuclear Techniques to Improve Agricultural Production

**CHITTAGONG**

**Bangladesh Atomic Energy Commission**  
**Nuclear Medicine Centre**  
**Chittagong**

BGD/6/003	Radioisotopes in Medicine
BGD/6/006	Nuclear Medicine
BGD/6/009	Nuclear Medicine (Phase II)

**THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH  
BANGLADESH  
SINCE 1984**

**LONG TERM EXPERT ASSIGNMENTS**

NONE

**RESEARCH CONTRACTS/AGREEMENTS IN BANGLADESH SINCE 1984 <sup>1</sup>**  
**(As of mid-May 1994)**

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear physics	4	34 500
Nuclear chemistry	1	16 000
Nuclear engineering and technology	5	41 000
Nuclear techniques in agriculture	24	296 300
Nuclear medicine	6	59 200
Nuclear techniques in biology	7	86 400
Nuclear techniques in industry & hydrology	2	17 000
Safety in nuclear energy	3	20 000
TOTAL	52	570 400

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<sup>1</sup>/ New awards since 1984



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

Name	No. of assignments	Project(s)
AHMAD	1	INT/0/045
AHMED, K.	10	ETH/6/003, KEN/6/009, SIL/6/004, INT/6/035, RAS/6/004, RAS/6/011, RAS/6/018
AHMED, M.	3	CUB/5/006, GHA/5/008, LIB/5/005
AL-SIDDIQUE	5	RAS/8/011, RAS/8/062
HAQUE	1	RAS/0/019
HOSSAIN, M.	1	RAS/4/009
HOSSAIN, MD.A.	1	RAS/4/008
HOSSAIN, M.E.	2	RAS/8/061
IDRISS ALI	1	RAS/8/070
ISHAQUE	1	RAS/6/011
ISLAM	2	RAS/8/011
KARIM, C.S.	2	RAS/0/013
KARIM, M.	3	RAS/8/008, RAS/8/061
KARIM MIAH	3	RAS/9/006
KAZI	2	BGD/9/008
KHAN, A.H.	2	RAS/8/061, RAS/8/071
KHAN, MD.A.H.	2	RAS/8/008, RAS/8/061
MATIN	1	RAF/5/021
MD. LABIBULLAH	1	RAS/8/064
MOINUL ISLAM	1	RAS/6/018
MOLLA, M.A.R.	3	RAS/9/006
MOLLA, N.I.	1	RAS/4/011

**SCIENTISTS FROM BANGLADESH SERVING AS AGENCY  
TECHNICAL CO-OPERATION EXPERTS AND  
TRAINING COURSE LECTURERS**

**OR**

**PARTICIPATING IN CO-ORDINATION MEETINGS**

**1984 - 1994**

**(As of mid-May 1994)**

Name	No. of assignments	Project(s)
RAHMAN, M.	1	BGD/4/014
RAHMAN, MD.M.	2	BGD/4/014
SHAIKH	7	MYA/5/005, INT/5/092, INT/5/101, INT/5/108, INT/5/112, INT/5/116, RAS/5/015
SIDDIQUE	2	RAS/8/062
SIKDER	2	BGD/8/004
ULLAH	9	SRL/8/011, RAS/8/008, RAS/8/011, RAS/8/061, RAS/8/071
TOTAL	71	

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

Recipient country	No. of fellowships	No. of scientific visits	TOTAL <sup>1</sup>
MALAYSIA	-	1	1

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

**REGIONAL AND INTERREGIONAL GROUP TRAINING EVENTS  
HOSTED BY BANGLADESH  
1984 - 1994  
(As of mid-May 1994)**

Course No.	Course Title	Partici- pants	Year
RAS/4/011 (005)	RTC on Safety Documentation for Research Reactors	11	1992
RAS/8/008 (049)	Regional First Executive Management Seminar on Industrial Tracer Applications	5	1986
	TOTAL	16	

In addition, one national training course was organized in 1988 under project BGD/8/006, Development of Non-destructive Testing:

001 - NTC on non-destructive testing (radiographic testing, level II)