



**INTERNATIONAL ATOMIC ENERGY AGENCY**



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IAEA-CPS-94/01  
23 March 1994  
Original: ENGLISH

## **COUNTRY PROGRAMME SUMMARY**

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

**DEPARTMENT OF TECHNICAL CO-OPERATION**

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INDONESIA  
  
1984 - 1994  
  
COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION

**DEPARTMENT OF TECHNICAL CO-OPERATION**

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

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

**INDONESIA**

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**T****A****B****L****E****OF****C****O****N****T****E****N****T****S**

## INTRODUCTION

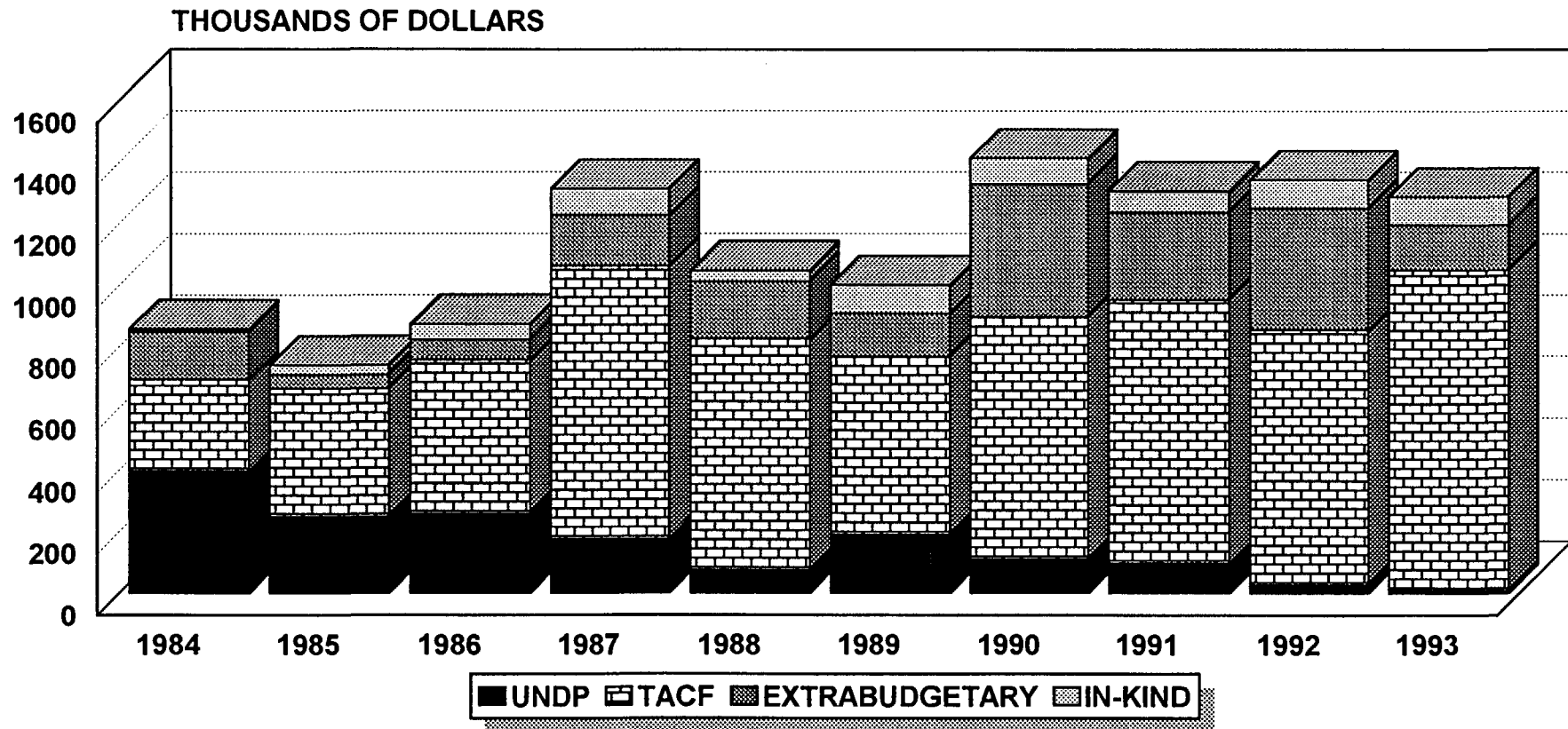
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With over \$15 million of Agency support received, Indonesia ranks 4<sup>th</sup> among all recipients of technical assistance during the period 1958 through 1993.

Of the assistance received over the past ten years, similar shares went to equipment (40%) and expert services (38%), with a significantly smaller share for training (22%). Almost two-thirds of the resources were made available through the TACF (62%), the rest was provided through UNDP (14%), through extrabudgetary contributions (18%), and through assistance in kind (6%).

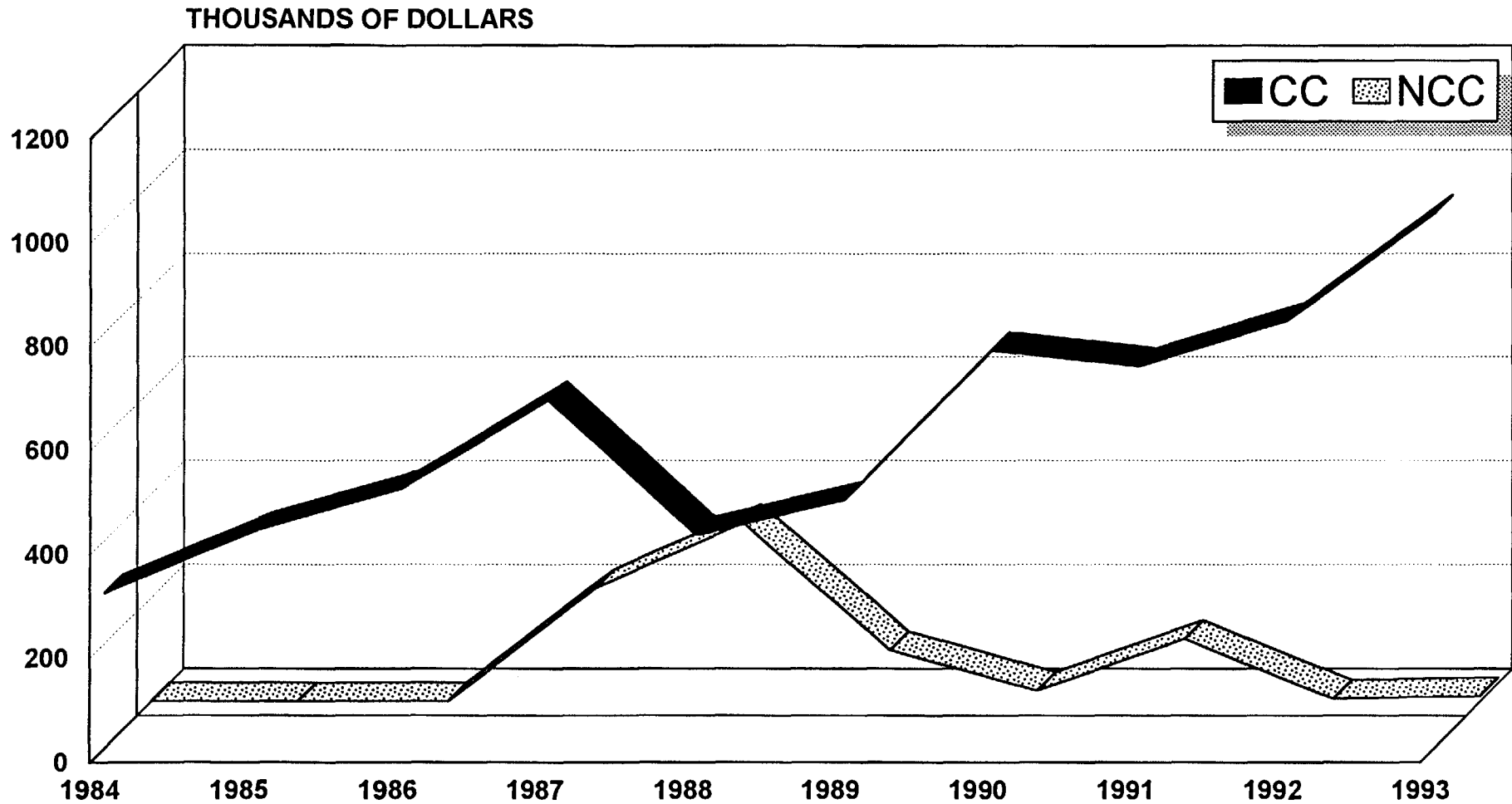
With regard to total disbursements -- by sector -- under those projects that were operational during the period 1984 through mid-March 1994, the leading sector has been agriculture (20%), followed by nuclear engineering and technology (14%), industry and hydrology (13%), general atomic energy development (13%), nuclear physics and chemistry (13%) and nuclear safety (13%). Smaller shares went to the sectors of nuclear raw materials (8%) and nuclear medicine (6%).

Since 1984, scientists from Indonesia have completed 121 assignments as Agency experts and training course lecturers or as participants in research co-ordination meetings. During the same period, Indonesia has hosted 48 fellowships and scientific visits, as well as 25 regional and interregional group training events for a total of 269 participants.

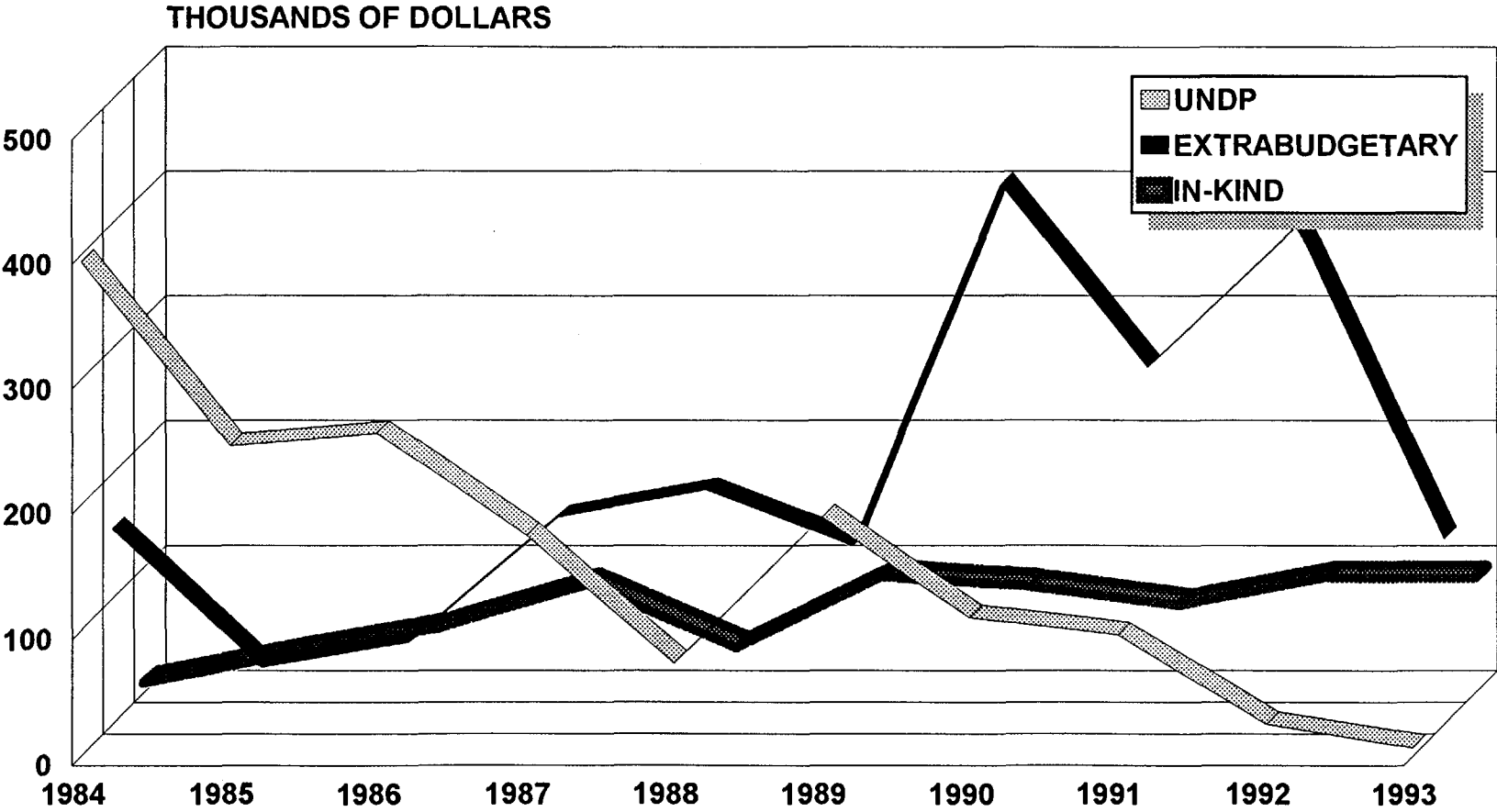
# ASSISTANCE PROVIDED BY THE AGENCY TO INDONESIA BY SOURCE (1984 - 1993)



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

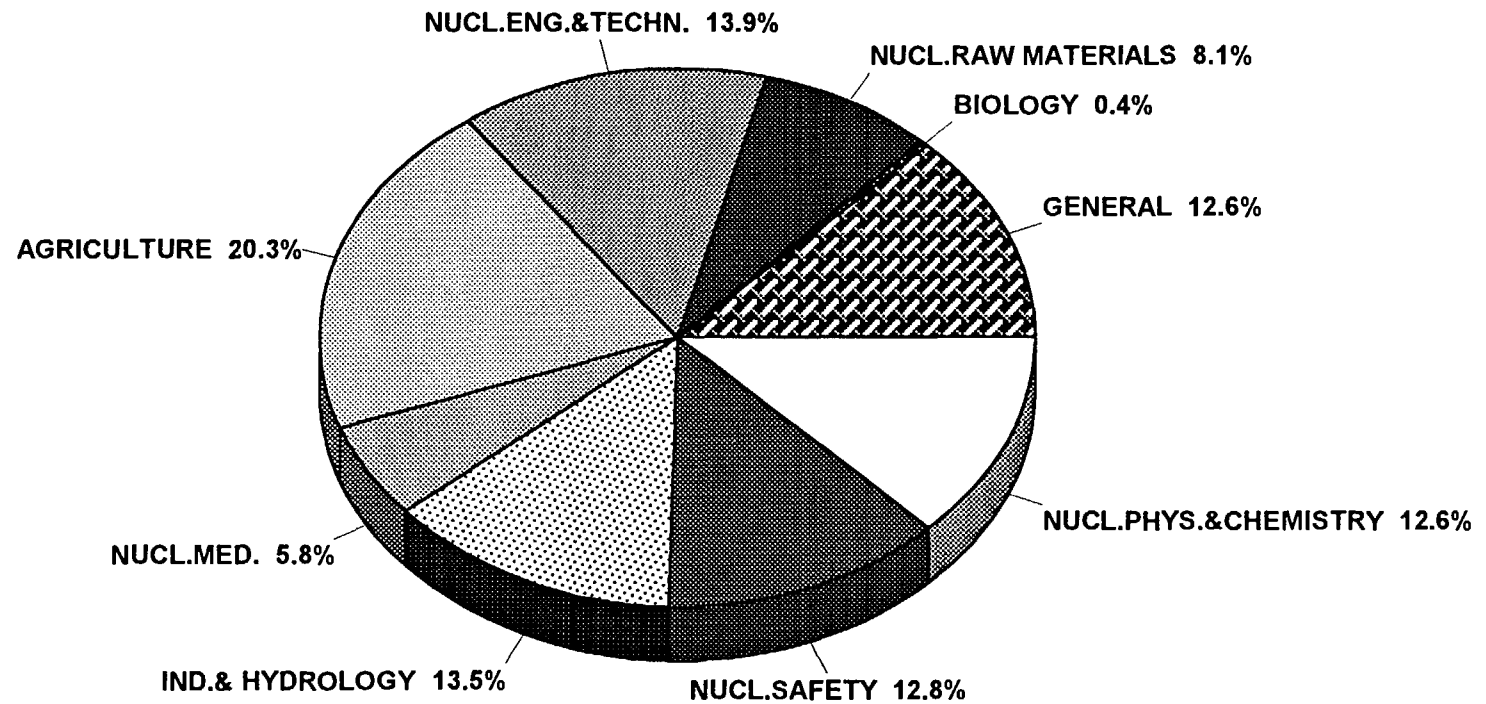


# UNDP, EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO INDONESIA (1984 - 1993)

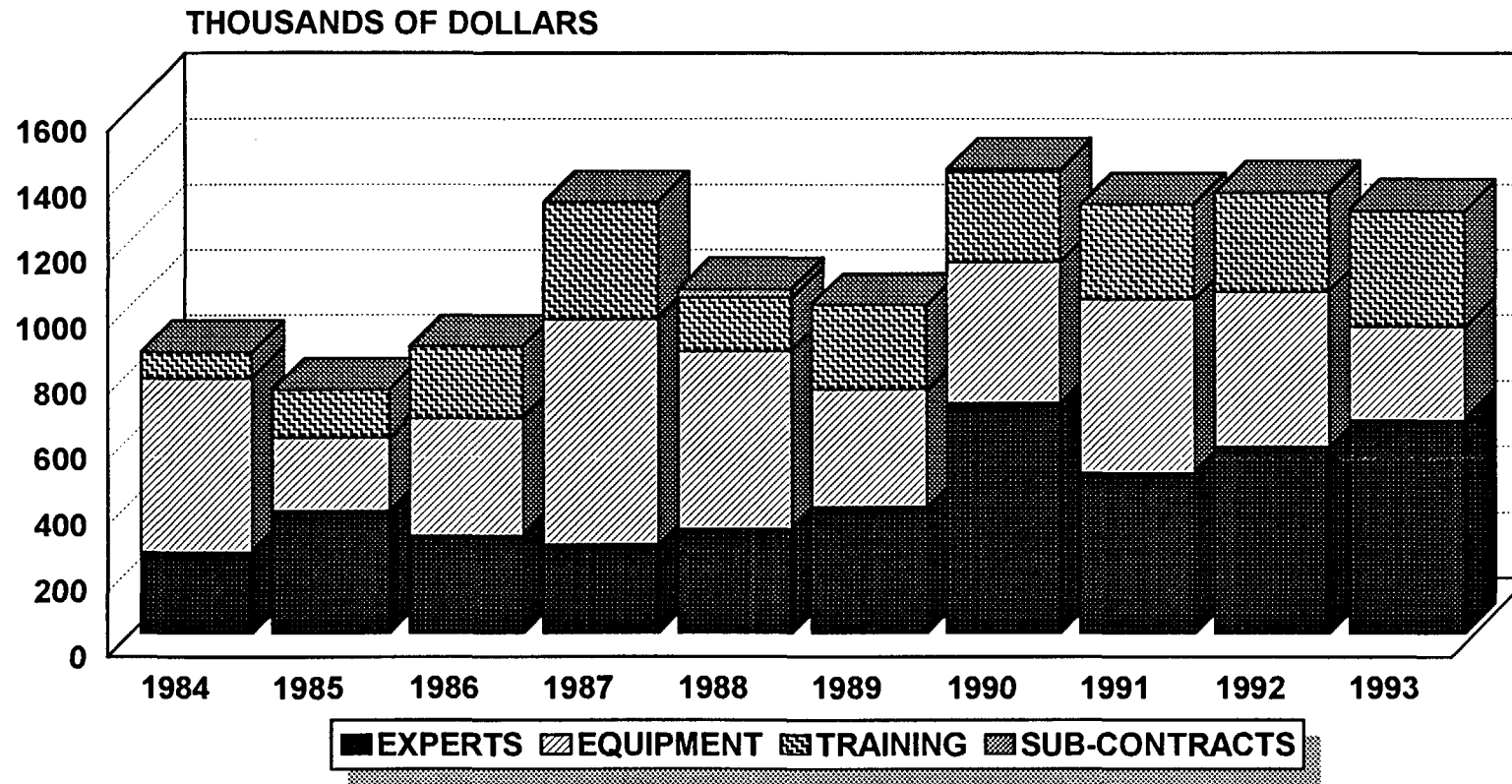




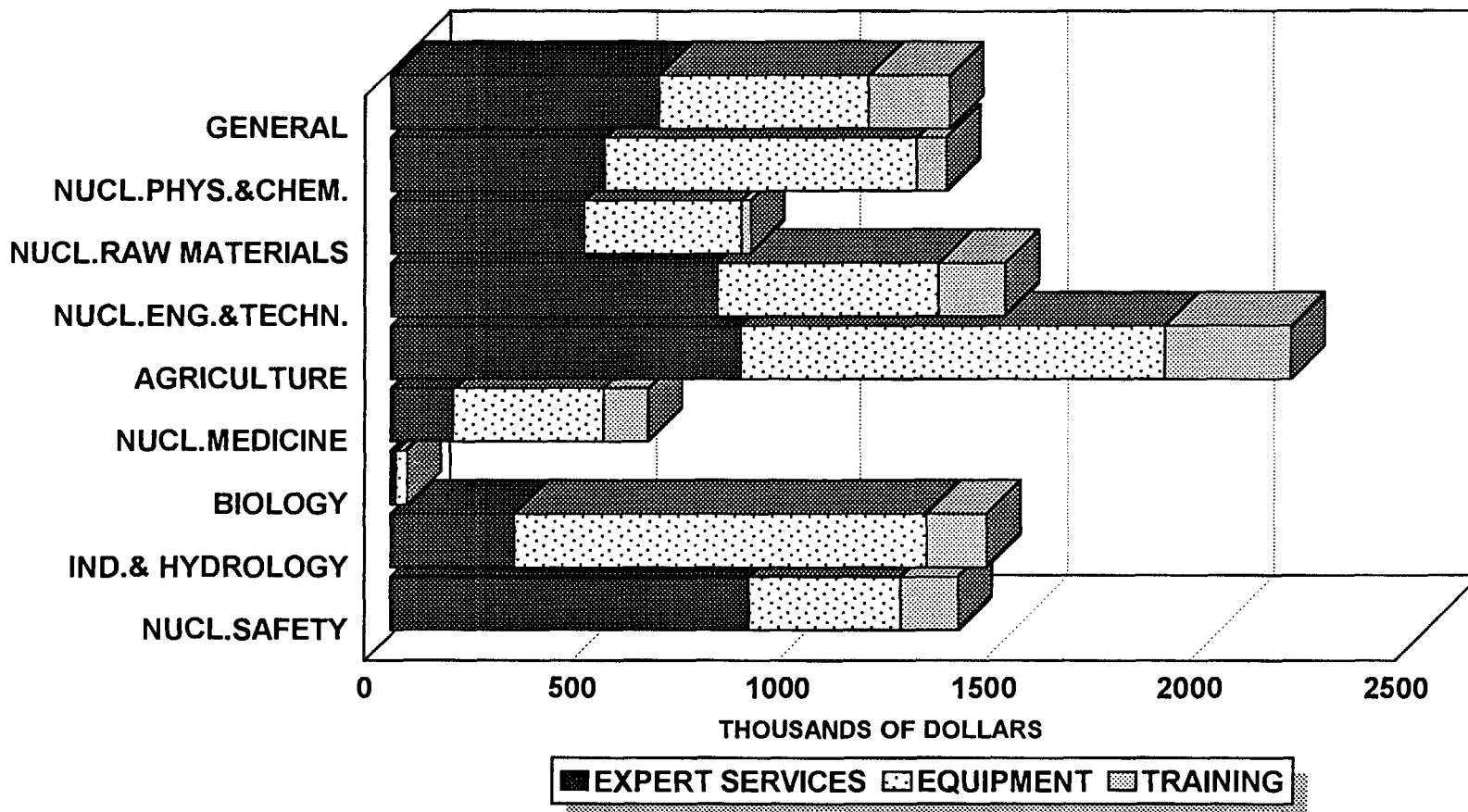
# TC PROJECT DISBURSEMENTS IN INDONESIA BY SECTOR (1984 - 1994)



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



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



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH INDONESIA

ALL SOURCES

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

YEAR	RANKING	AMOUNT
1958-83	17 <sup>th</sup>	3841.6
1984	6 <sup>th</sup>	855.5
1985	8 <sup>th</sup>	738.9
1986	6 <sup>th</sup>	871.5
1987	4 <sup>th</sup>	1312.5
1988	6 <sup>th</sup>	1046.9
1989	5 <sup>th</sup>	999.1
1990	4 <sup>th</sup>	1412.6
1991	1 <sup>st</sup>	1305.2
1992	2 <sup>nd</sup>	1342.1
1993	1 <sup>st</sup>	1285.9
1958-93	4 <sup>th</sup>	15011.8

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

**ALL SOURCES**

Year	I	II	III	IV	V	INDONESIA
1958-83	BRA 8887.6	IND 7197.4	EGY 7024.5	PAK 6008.9	ARG 5912.2	17 <sup>th</sup> - 3841.6
1984	EGY 3625.9	PER 1750.4	THA 1094.6	CUB 1028.7	PHI 881.2	6 <sup>th</sup> - 855.5
1985	EGY 2494.8	PER 1120.7	THA 1117.4	BGD 1068.2	PHI 963.7	8 <sup>th</sup> - 738.9
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	6 <sup>th</sup> - 871.5
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	4 <sup>th</sup> - 1312.5
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	6 <sup>th</sup> - 1046.9
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	5 <sup>th</sup> - 999.1
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	4 <sup>th</sup> - 1412.6
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	1 <sup>st</sup> - 1305.2
1992	EGY 1586.3	INS 1342.1	CPR 1328.8	MEX 1127.8	POL 1036.4	2 <sup>nd</sup> - 1342.1
1993	INS 1285.9	CPR 1091.7	PAK 1012.2	EGY 905.3	IRA 810.1	1 <sup>st</sup> - 1285.9
1958-93	EGY 24713.9	BRA 18541.4	THA 16125.1	INS 15011.8	PER 13772.0	4 <sup>th</sup> - 15011.8

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

**TECHNICAL ASSISTANCE AND CO-OPERATION FUND**

Year	I	II	III	IV	V	INDONESIA
1958-83	EGY 3455.2	HUN 3221.6	PAK 2839.0	THA 2354.1	BRA 2158.9	12 <sup>th</sup> - 1882.9
1984	EGY 1197.2	CUB 655.6	ECU 565.6	BGD 506.3	BUL 472.4	18 <sup>th</sup> - 297.4
1985	BGD 991.8	VIE 745.0	THA 708.7	BRA 571.8	POR 538.7	13 <sup>th</sup> - 415.7
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	18 <sup>th</sup> - 498.0
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	4 <sup>th</sup> - 885.8
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	4 <sup>th</sup> - 751.7
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	7 <sup>th</sup> - 574.5
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	9 <sup>th</sup> - 785.9
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	3 <sup>rd</sup> - 855.1
1992	EGY 1255.7	CPR 1009.0	VIE 872.8	INS 826.6	IRA 795.5	4 <sup>th</sup> - 826.6
1993	INS 1040.5	CPR 896.5	PAK 847.6	IRA 807.4	THA 721.5	1 <sup>st</sup> - 1040.5
1958-93	EGY 11549.2	PAK 8963.2	VIE 8908.2	POL 8820.1	INS 8814.1	5 <sup>th</sup> - 8814.1

ASSISTANCE PROVIDED BY THE AGENCY TO INDONESIA

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	245.0	528.7	81.8	-	-	855.5	394.5	297.4	-	155.8	7.8	855.5
1985	370.8	222.8	145.3	-	-	738.9	247.2	415.2	0.5	45.1	30.9	738.9
1986	296.9	354.4	220.2	-	-	871.5	257.2	498.0	-	64.9	51.4	871.5
1987	268.6	686.3	357.6	-	-	1 312.5	175.6	668.9	216.9	164.7	86.4	1 312.5
1988	316.2	540.1	165.6	-	25.0	1 046.9	73.3	408.4	343.3	186.6	35.3	1 046.9
1989	384.0	357.0	250.9	7.2	-	999.1	190.3	476.2	98.3	141.7	92.6	999.1
1990	698.4	430.9	275.3	-	8.0	1 412.6	110.1	764.9	21.0	431.9	84.7	1 412.6
1991	485.3	529.9	290.0	-	-	1 305.2	96.1	734.3	120.8	284.7	69.3	1 305.2
1992	567.0	471.8	300.8	-	2.5	1 342.1	25.1	820.8	5.8	398.3	92.1	1 342.1
1993	646.6	285.2	351.6	-	2.5	1 285.9	6.8	1 029.9	10.6	147.4	91.2	1 285.9
1984-93	4 278.8	4 407.1	2 439.1	7.2	38.0	11 170.2	1 576.2	6 114.0	817.2	2 021.1	641.7	11 170.2

TECHNICAL CO-OPERATION PROJECTS IN INDONESIA  
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1984 - 1994

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

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	11	1 560 822	13.4	1 357 378	12.6
Nuclear physics and chemistry	14	1 605 358	13.7	1 349 801	12.6
Nuclear raw materials	4	887 916	7.6	874 963	8.1
Nuclear engineering and technology	14	1 794 534	15.4	1 492 304	13.9
Nuclear techniques in agriculture	4	2 283 692	19.6	2 185 191	20.3
Nuclear medicine	7	632 380	5.4	623 379	5.8
Nuclear techniques in biology	1	37 950	0.3	39 145	0.4
Nuclear techniques in industry and hydrology	9	1 425 494	12.2	1 447 453	13.5
Nuclear safety	14	1 445 340	12.4	1 378 692	12.8
TOTAL	78	11 673 486	100.0	10 748 306	100.0



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

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	6	256 197	295 561
Nuclear physics and chemistry	9	828 758	852 651
Nuclear raw materials	3	526 816	524 110
Nuclear engineering and technology	7	748 555	805 311
Nuclear techniques in agriculture	2	1 643 715	1 643 715
Nuclear medicine	3	170 100	172 483
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	5	744 081	753 119
Nuclear safety	6	573 930	643 774
TOTAL	41	5 492 152	5 690 724
<u>Operational projects</u>			
General atomic energy development	5	1 304 625	1 061 817
Nuclear physics and chemistry	5	776 600	497 150
Nuclear raw materials	1	361 100	350 853
Nuclear engineering and technology	7	1 045 979	686 993
Nuclear techniques in agriculture	2	639 977	541 476
Nuclear medicine	4	462 280	450 896
Nuclear techniques in biology	1	37 950	39 145
Nuclear techniques in industry & hydrology	4	681 413	694 334
Nuclear safety	8	871 410	734 918
TOTAL	37	6 181 334	5 057 582

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

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	69/22	606 945	521 585	432 292	62/08	649 499	515 675	192 204
Nuclear physics and chemistry	70/20	545 118	888 137	172 103	64/28	519 687	759 156	70 958
Nuclear raw materials	60/00	449 950	413 919	24 047	60/11	469 723	381 889	23 351
Nuclear engineering and technology	100/20	833 363	645 727	315 444	84/28	792 142	537 095	163 067
Nuclear techniques in agriculture	106/10	881 412	1 098 636	303 644	102/27	849 330	1 032 217	303 644
Nuclear medicine	17/13	142 503	377 407	112 470	17/17	150 537	365 481	107 361
Nuclear techniques in biology	1/00	10 345	27 605	-	1/01	11 912	27 233	-
Nuclear techniques in industry & hydrology	29/00	256 801	1 013 523	155 170	26/05	297 574	1 004 986	144 893
Nuclear safety	85/21	749 235	464 726	231 379	72/27	870 535	370 668	137 489
<b>TOTAL</b>	<b>540/16</b>	<b>4 475 672</b>	<b>5 451 265</b>	<b>1 746 549</b>	<b>493/02</b>	<b>4 610 939</b>	<b>4 994 400</b>	<b>1 142 967</b>

AGENCY FELLOWS FROM INDONESIA

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

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	28	46/15	USA, AUS, GER, YUG, IND, JPN, ROK, CAN, AUL, RUS, USSR, IAEA
Nuclear physics	24	128/29	GER, AUL, UKR, SWI, NET, MAL, HUN, IND, UK, IAEA
Nuclear chemistry	15	42/27	JPN, AUL, USA, PAK, HUN, AUS, IND, CPR, UK, USSR
Nuclear raw materials	21	43/14	USA, FRA, IND, PAK, AUL, CAN, CPR
Nuclear engineering and technology	53	158/24	SRL, USA, FRA, GER, IND, JPN, NET, ARG, AUS, HUN, DEN, ITA, YUG, SAU, SPA, BRA, ARG, POL, CPR, CAN, PAK, UK, USSR, IAEA
Nuclear techniques in agriculture	47	202/09	PHI, NOR, CAN, NET, FRA, AUS, USA, GER, DEN, AUL, BEL, JPN, SWE, MAL, GDR, POL, THA, UK, IAEA
Nuclear medicine	20	68/15	POL, USA, CAN, SWE, SWI, AUL, PAK, NET, ITA, SIN, FRA, IND, UK
Nuclear techniques in biology	1	6/00	USA
Nuclear techniques in industry and hydrology	20	103/26	JPN, POL, GER, IND, ITA, AUL, MAL, USA, NZE, IAEA
Nuclear safety	30	86/11	AUL, JPN, USA, GER, FRA, AUS, HUN, NET, CAN, IND, SPA, MEX, UK, IAEA
TOTAL	259	887/20	

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

**INDONESIA**  
**LONG-TERM FELLOWSHIPS**  
**1984 - 1994**  
**(As of mid-March 1994)**

Name	Field of study		Host country	Date	Duration	Project
PRANOWO	Nuclear data processing	0J	AUL	Mar.83 - May 84	14/07	INS/1/012
GUNAWAN	Neutron diffraction techniques	1E	GER	Mar.85 - Mar.86	12/01	INS/1/014
IRAM	Neutron and solid state physics	1E	GER	Sep.86 - Sep.87	12/00	INS/1/015
PURNAMA	Neutron scattering	1E	GER	Mar.85 - Mr.86	12/01	INS/1/014
SURYAWINATA	Reactor physics	1F	GER	Oct.88 - Jun.90	20/02	RAS/0/014
TANTO	Neutron physics	1E	AUL	Jul.87 - Jul.88	12/01	INS/1/014
ANDRAWIYANTI	Reactor metallurgy and materials	4E	USA	Aug.90 - Aug.91	12/01	INS/1/015
PRANOWO	Nuclear instrumentation	4G	GER	Nov.86 - Nov.87	12/00	INS/1/012
YAHYA	Nuclear instrumentation	4G	USA	Aug.88 - Dec.89	16/08	-
ABUBAKAR	Plant nutrition	5B	BEL	Oct.84 - Oct.86	24/02	INS/5/018
DJAJAKIRANA	Soil fertility	5B	CAN	Feb.86 - Jun.87	16/22	INS/5/018
LOEKMAN	Plant breeding	5C	JPN	Sep.84 - Dec.85	15/00	INS/5/013
SOERANTO	Plant breeding	5C	NOR	Mar.86 - Apr.88	25/09	INS/5/018

INDONESIA  
LONG-TERM FELLOWSHIPS  
1984 - 1994  
(As of mid-March 1994)

Name	Field of study		Host country	Date	Duration	Project
TUNGGULDIHARDJO	Pesticide studies	5G	NET/IAEA	Jan.84 - Feb.85	12/09	INS/5/018
DANU	Radiation processing	8H	JPN	Apr.85 - Apr.86	12/09	RAS/8/011
MEDAN	Radiation processing	8H	JPN	Sep.88 - Aug.89	12/00	INS/8/014
ZAINUDDIN	Radiation processing	8H	POL	Oct.92 - Oct.93	12/01	INS/8/017
DARMOWARSITO	Radiation protection	9C	USA	Aug.86 - Sep.87	13/01	INS/9/008
SUYATNO	Radwaste management	9E	USA	Feb.89 - Jan.90	12/00	INS/9/010

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

Name	Field of study	Host country	Date	Duration	Project	
ABIDIN	1. Isotope hydrology	8M	IAEA NZE	Mar.87 - Nov.87	8/00	INS/8/011
	2. Groundwater hydrology	8M		Feb.93 - Nov.93	9/00	INS/8/019
AGOES	1. Uranium geology	3B	USA CPR	Feb.86	0/12	INS/3/008
	2. Prospecting, mining & processing of nuclear materials	3A		May 90 - Jun.90	0/12	RAS/0/014
AHIMSA	1. Overall programming	0B	IAEA USSR SPA BRA ARG	Jun.87	0/06	INS/9/007
	2. Production of isotopes	4H		May 90	0/14	INS/4/024
ALILUDIN	1. Production of isotopes	4H	ARG UK	Mar.92 - Apr.92	0/12	INS/4/024
	2. Production of isotopes	4H		Jun.93 - Aug.93	2/03	INS/0/013
GUNAWAN	1. Neutron diffraction techniques	1E	GER IND	Mar.85 - Mar.86	12/01	INS/1/014
	2. Radiation processing	8H		Mar.92 - Jun.92	3/01	INS/8/017
HENDRATNO	1. Animal nutrition	5E	MAL UK IAEA THA	Aug.87 - Sep.87	0/19	INS/5/018
	2. Animal production and fisheries	5E		Dec.91	0/05	INS/5/021
HUTABARAT	1. Plant breeding	5C	IAEA BEL NET GDR GER	Aug.85	0/05	INS/5/018
	2. Mutation breeding	5C		Apr.89 - May 89	1/01	INS/5/021
JUJURATISBELA	1. Reactor physics	1F	GER NET	May 92 - Aug.92	3/01	INS/4/023
	2. Research reactors	4B		Started: Feb.94	4/00	INS/0/013

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

Name	Field of study		Host country	Date	Duration	Project
KUSUMO	1. Research reactor regulation 2. Safety standards, regulations and procedures	0D 9B	USA SPA MEX	Mar.87 - Jun.87 Oct.92	4/00 0/26	INS/9/007 RAS/0/018
LIZAM	1. Radiopharmacy 2. Preparation of labelled compounds	6G 2F	POL IND CPR	Sep.87 - Feb.88 Mar.93 - Apr.93	6/00 0/26	INS/2/010 INS/2/011
MASOARA	1. Quality assurance 2. Quality assurance	4M 4M	USA ARG	Mar.87 - Jun.87 Nov.90	4/00 0/12	INS/9/007 INS/4/025
MUKHRI	1. Radiation biology 2. Plant breeding	7D 5C	JPN USA	Aug.84 - Mar.85 Mar.90 - Sep.90	7/10 6/01	INS/5/013 RAS/5/015
POERNOMO	1. Regulatory body 2. Safety standards, regulations and procedures	0D 9B	USA SPA MEX	Jun.88 - Aug.88 Oct.92	3/00 0/26	- RAS/0/018
PRANOWO	1. Nuclear data processing 2. Nuclear instrumentation	0J 4G	AUL GER	Mar.83 - May 84 Nov.86 - Nov.87	14/07 12/00	INS/1/012 INS/1/012
RONODIRDJO	1. Radioactive waste management 2. Analytical chemistry 3. Radwaste management	9E 2C 9E	FRA USSR GER UK	Feb.86 - Mar.86 Jul.88 Jul.89	0/26 0/07 0/26	- - RAS/0/014
SANTOSO, B.	1. General atomic energy development 2. Reactor physics	0A 1F	IND IAEA IND	Jul.92 Nov.93 - Dec.93	0/26 0/28	INS/4/027 INS/4/027

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

Name	Field of study	Host country	Date	Duration	Project	
SANTOSO, E.	1. Nuclear instrumentation	4G	AUL	Mar.83 - May 84	14/07	INS/1/012
	2. Nuclear instrumentation	4G	GER	Dec.86 - Sep.87	9/01	INS/1/015
SISWORO	1. Plant physiology	5B	AUL	May 86 - Nov.86	6/01	INS/5/018
	2. Soil science, irrigation and and plant nutrition	5B	THA PHI MAL	Jan.91	0/19	RAS/0/018
SOENARJO	1. Radioisotope production	4H	SAU	Mar.90 - Apr.90	1/15	INS/4/024
	2. Production of isotopes	4H	GER CPR JPN	Oct.93 - Nov.93	0/21	INS/1/021
SOEPARDJO	1. Manpower development	0A	USA	Apr.91 - May 91	1/03	INS/0/009
	2. Administration in nuclear fields	0G	IAEA IND IAEA	Jul.93 - Aug.93	0/19	INS/4/028
SUDIYANTO	1. Medical physics	6F	AUL	Jun.90 - Dec.90	6/00	INS/6/007
	2. Nuclear instrumentation, electronics and reactor control	4G	JPN	Oct.93 - Dec.93	2/03	INS/0/013
SURATNO	1. Nuclear safety	9A	USA	Aug.85	0/20	-
	2. Nuclear regulatory system	0D	USA CAN	Jun.87 - Jul.87	1/00	-
TJOKROKARDONO	1. Uranium prospection	3B	UK	Sep.84 - Mar.85	5/27	INS/3/006
	2. Uranium mineralogy and metallurgy	3B	USA	Feb.90 - May 90	2/28	INS/3/008



AGENCY TRAINING COURSES WITH INDONESIAN PARTICIPATION

1984 - 1994  
(As of mid-March 1994)

Field	Number of participants	Number of courses
General atomic energy development	57	31
Nuclear physics	15	14
Nuclear chemistry	8	5
Nuclear raw materials	5	4
Nuclear engineering and technology	43	36
Nuclear techniques in agriculture	34	29
Nuclear medicine	34	24
Nuclear techniques in biology	16	9
Nuclear techniques in industry & hydrology	104	81
Nuclear safety	57	44
TOTAL	373	277

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

Name	Course No.	Course title	Year	Location
ABBAS	RAS/7/003 (003) RAS/7/003 (005)	RTC on radiation sterilization of tissue grafts for clinical use in health care RWS on radiation sterilization of tissues: an open learning programme	1990 1993	ROK VIE
ARBIE	INT/0/041 (001) RAS/0/015 (009)	ITC on nuclear power planning and feasibility studies RTC on research reactor safety principles	1986 1992	FRA IND
BAGIAWATI	RAS/2/003 (001) RAS/8/008 (032)	RTC on preparation and control of radiopharmaceuticals RTC on radiation sterilization of medical products	1990 1984	CPR IND ROK
BARDAN	RAS/0/015 (014) RAS/8/061 (051)	RTC on non-destructive testing and evaluation in nuclear power plants RTC on non-destructive testing of eddy currents (level II)	1992 1990	ROK PAK
BUDIONO	INT/4/085 (001) RAS/4/008 (001)	ITC on advanced nuclear electronics RWS on maintenance of nuclear medical instruments	1986 1990	JAM IND
DJOHAN	INT/6/038 (001) INT/6/041 (001)	ITC on nuclear medicine ITC on advanced single photon emission computerized tomography with emphasis on brain and heart studies	1989 1992	GDR ITA
HARIYONO	RAS/0/015 (012) RAS/8/061 (079)	RWS on nucleonic control systems in the steel industry RTC on tracer applications in industry	1992 1990	CPR PAK
HISWARA	INT/1/029 (001) RAS/9/012 (001)	ITC on dosimetry RTC on dosimetric assessment of internal contamination	1984 1992	BRA AUL
ISA SATHRIAWAN	INT/9/051 (001) INT/9/104 (001)	ITC on safety analysis ITC on safety in the operation of research reactors	1984 1990	GFR USA

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

Name	Course No.	Course title	Year	Location
KARTAMIHARDJA	INT/6/035 (001)	ITC on nuclear medicine	1987	USSR
	RAS/6/016 (002)	RTC on the use of computers in technetium-99M imaging	1990	AUL
KASIM	RAS/0/015 (004)	RTC on nuclear power project planning and implementation	1990	ROK
	RER/0/006 (001)	RTC on bidding, evaluation procedure, contracting and financing of NPPs	1992	SPA
KUSNOWO	RAS/0/015 (005)	RWS on technology and utilization of low power research reactors	1987	CPR
	RAS/8/062 (010)	RWS on neutron radiography	1990	JPN
KUSTIONO	INT/9/093 (001)	ITC on safety and regulation of sealed sources of radioactive material	1989	USA
	INT/9/114 (001)	ITC on planning, preparedness and response to radiological emergencies	1991	USA
	RAS/8/062 (001)	Regional (RCA) workshop on photon, electron and neutron dosimetry in radiotherapy	1987	ROK
LUMBAN TOBING, M.P.	RAS/8/008 (028)	RTC on tracer technology in industry	1984	IND
	RAS/8/008 (040)	Fifth RTC on advanced non-destructive testing	1985	SIN
	RAS/8/061 (008)	RTC on non-destructive testing of ultrasonics (level II)	1987	ROK
	RER/0/006 (001)	RTC on bidding, evaluation procedure, contracting and financing of NPPs	1992	SPA
LUMBAN TOBING, R.D.	INT/9/077 (001)	RTC for radiation protection officers in regulatory bodies	1987	GDR
	RAS/8/062 (015)	RWS on radiation engineering - electron beam facilities	1989	JPN
MAHA	RAS/5/017 (001)	Study tour on food irradiation development	1986	CPR
	RAS/5/020 (008)	Regional Research Co-ordination Meeting for RPFII - Phase III	1993	ROK
MASDIN	INT/0/054 (001)	ITC on integrated energy and electricity planning for nuclear power development with emphasis on the ENPEP package	1992	USA
	RAS/0/013 (006)	RTC on electric system expansion planning	1992	PAK

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

Name	Course No.	Course title	Year	Location
MASDJA	RAS/3/005 (001) RAS/8/062 (006)	RTC on nuclear techniques in geology and mineralogy RTC on neutron activation analysis for mineral resource prospecting and minerals characterization	1986 1989	PHI IND
MOHAMAD ROCHILI	RAS/8/061 (102) RAS/8/070 (001)	RTC on radiation crosslinking technology RTC on environmental applications of radiation technology (basics)	1990 1993	CPR JPN
MUDJITO	RAS/8/008 (054) RAS/8/061 (003) RAS/8/061 (050)	Sixth RTC on non-destructive testing (level II) RWS on qualification and certification of NDT personnel RTC on non-destructive testing of ultrasonics (level III)	1986 1987 1989	JPN MAL PHI
MUNTARA	RAS/8/061 (023) RAS/8/062 (017)	RTC on non-destructive testing of ultrasonics (level II) RWS on non-destructive examination on non-metallic materials	1988 1989	PAK JPN
NOOR NOVIYANTI	INT/9/098 (001) INT/9/129 (001)	ITC on safety and regulation of unsealed sources of radioactive material ITC on planning, organization and implementation of radiation protection on a national level	1989 1992	IRE USA
RAHARDJO	RAS/8/061 (021) RAS/8/061 (076)	RTC on non-destructive testing of radiography (level II) RTC on non-destructive testing of radiography (level III)	1988 1990	IND PHI
RAJAGUKGUK	INT/1/014 (001) RAS/6/015 (001)	RWS on calibration procedures in dosimetry (SSDL) RTC on radiation dosimetry	1987 1989	MAL CPR
RAMAIN	INT/1/032 (001) RAS/9/006 (001)	ITC on solid state nuclear track detectors and their application RTC on development of infrastructure for ensuring radiation protection	1985 1988	GFR AUL

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

Name	Course No.	Course title	Year	Location
RONODIRDJO	INT/9/083 (001)	ITC on planning, preparedness and response to nuclear accidents or radiological emergencies	1987	USA
	RAS/0/015 (006)	RTC on nuclear power pre-project activities and manpower development	1991	ROK
RUSLAN	INT/0/051 (001)	ITC on project management strengthening with emphasis on quality assurance (tools and methods)	1990	IND
	INT/9/135 (001)	ITC on physical protection of nuclear facilities and materials	1993	USA
SALIMIN	INT/4/076 (001)	Interregional study tour on spent fuel management	1986	CZE FRA GFR SWE UK FRA
	INT/9/110 (001)	ITC on the management of radioactive wastes	1990	
SANTOSO, S.B.	RAS/0/015 (012)	RWS on nucleonic control systems in the steel industry	1992	CPR
	RAS/8/061 (049)	RTC on the use of tracer technology in industry	1989	MAL
SILAEN	INT/0/054 (001)	ITC on integrated energy and electricity planning for nuclear power development with emphasis on the ENPEP package	1992	USA
	RAS/0/015 (006)	RTC on nuclear power pre-project activities and manpower development	1991	ROK
SINAGA	INT/9/062 (001)	ITC on radiation protection	1984	IND
	INT/9/077 (001)	ITC for radiation protection officers in regulatory bodies	1987	GDR
SJAHBUDI	RAS/6/021 (001)	RTC on radiotherapy treatment planning	1993	THA
	RAS/9/006 (009)	RWS on computer-assisted planning and dosimetry for carcinoma of the cervix	1992	IND

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

Name	Course No.	Course title	Year	Location
SJAMSOE	INT/0/052 (001)	ITC on integrated energy and electricity planning for nuclear power development with emphasis on ENPEP	1991	USA
	RAS/0/013 (002)	RTC on electric system expansion planning	1989	MAL
	RAS/0/013 (005)	Fourth RWS on energy, electricity and nuclear power planning	1990	ROK
SJOEIB	INT/5/111 (001)	ITC on nuclear and related techniques in pesticide research	1987	USA
	INT/5/129 (001)	ITC on radiotracer and conventional techniques for studies of pesticides in food and the environment	1993	AUS
SOEMARSONO	INT/1/035 (001)	ITC on the preparation of nuclear data for use in reactor calculations	1986	IND
	INT/4/092 (001)	ITC on the application of small computers to research reactor operations	1987	YUG
SUPARNA	RAS/6/011 (001)	RTC on the use and preparation of bulk reagents for radioimmunoassay of thyroid related hormones	1986	THA
	RAS/6/011 (002)	RTC on external quality assessment schemes for radioimmunoassay of thyroid hormones	1989	THA
	RAS/6/011 (003)	RTC on optimization of production techniques and distribution schemes for reagents for radioimmunoassay	1989	THA
SYARIF	RAS/0/015 (007)	RTC on environmental monitoring related to the assessment of the safety of nuclear facilities	1991	CPR
	RAS/9/006 (001)	RTC on development of infrastructures for ensuring radiation protection	1988	AUL
SYARIP	INT/9/127 (001)	ITC on safe operation and utilization of research reactors	1992	FRA
	RAS/0/015 (005)	RWS on technology and utilization of low power research reactors	1990	CPR
SYARWANTO	INT/9/090 (001)	ITC on the determination of radionuclides in food and environmental samples	1988	GFR
	RAS/0/015 (007)	RTC on environmental monitoring related to the assessment of the safety of nuclear facilities	1991	CPR

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

Name	Course No.	Course title	Year	Location
TJIPTONO	INT/1/038 (001)	ITC on neutron physics and nuclear data measurements in research reactors	1987	USSR
	RAS/4/011 (006)	RTC on materials characterization using low and medium neutron flux reactors	1992	CPR
TRIJONO	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
	RAS/8/062 (026)	RWS on weld defect sizing using NDT	1991	JPN
WASITO	INT/9/058 (001)	ITC on radioactive waste management	1985	FRA
	INT/9/110 (001)	ITC on the management of radioactive wastes	1990	FRA
WASKITO	RAS/8/061 (012)	RTC on radiation engineering - electron beam facilities	1987	JPN
	RAS/8/061 (020)	RTC on radiation engineering - gamma radiation facilities	1988	IND
WIDARTO	RAS/4/009 (001)	RTC on research reactor operators	1989	THA
	RAS/4/011 (005)	RTC on safe documentation for research reactors	1992	BGD
YATIM	INT/9/088 (001)	ITC on radiological accident consequence assessment	1988	IRE
	INT/9/114 (001)	ITC on planning, preparedness and response to radiological emergencies	1991	USA
	INT/9/136 (001)	ITC on management of radioactive waste from nuclear power plants	1993	USA CAN
ZAHIR	INT/1/033 (001)	Interregional study tour on primary and secondary dosimetry laboratories for technical staff of SSDLs	1985	GFR HUN USSR
	RAS/4/014 (001)	RTC on standardization of dose measurements through SSDLs	1993	SWE AUL
ZAINUDDIN, M.	INT/4/093 (001)	ITC on advanced nuclear electronics	1987	JAM
	INT/4/108 (001)	ITC on interfacing in nuclear experiments	1991	MAG

**PROJECTS COMPLETED IN INDONESIA SINCE 1984**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1980	INS/0/003	Nuclear power programme	17/02	94 960	-	-	17/02	134 493	-	-	1989
1986	INS/0/004	Nuclear materials accounting	3/09	25 275	62 433	-	3/09	25 230	62 433	-	1990
1985	INS/0/005	Nuclear manpower development	2/18	15 340	-	-	2/18	22 250	-	-	1987
1985	INS/0/006	Reorganization of BATAN's management and administration	2/00	12 000	-	-	0/29	4 602	-	-	1987
1988	INS/0/008	Nuclear database development	2/00	14 400	-	-	2/04	14 811	-	-	1989
1989	INS/0/010	Nuclear information system	-	-	24 061	7 728	-	-	24 014	7 728	1992
1979	INS/1/009	Secondary standards dosimetry laboratory	6/00	22 800	-	-	5/25	34 538	-	-	1985
1980	INS/1/010	Secondary standards dosimetry laboratory	6/04	32 270	294 207	-	6/04	32 059	294 160	-	1988
1981	INS/1/012	Neutron scattering study	6/00	28 800	-	-	6/01	28 330	-	-	1986



**PROJECTS COMPLETED IN INDONESIA SINCE 1984**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1981	INS/1/013	Nuclear magnetic resonance (NMR)	6/20	33 400	-	-	6/18	32 066	-	-	1985
1983	INS/1/014	Use of neutron beam in materials research	0/14	5 005	213 330	-	0/14	5 005	213 113	-	1989
1986	INS/1/016	Radionuclide standardization	2/02	14 570	78 450	12 454	2/01	22 116	78 451	13 437	1991
1989	INS/1/017	Nuclear analytical techniques	0/15	4 050	-	-	0/15	6 116	-	-	1990
1989	INS/1/018	Neutron activation analysis	2/00	17 250	14 972	-	2/01	24 160	14 972	-	1991
1983	INS/2/010	Production of radio-immunoassay kits	6/00	37 200	20 000	-	6/04	32 845	21 283	-	1986
1979	INS/3/005	Nuclear materials analysis	9/00	34 200	16 200	-	9/08	42 306	15 176	-	1987
1980	INS/3/007	Uranium ore processing	9/00	44 600	142 530	-	8/28	44 343	111 524	-	1985
1982	INS/3/008	Uranium exploration	24/06	161 820	114 937	12 529	24/10	183 424	114 937	12 400	1990

**PROJECTS COMPLETED IN INDONESIA SINCE 1984**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1982	INS/4/017	Fuel element technology	3/25	27 270	103 993	-	3/26	46 586	103 992	-	1991
1982	INS/4/018	Reactor physics	22/17	152 699	102 748	-	22/17	153 981	102 748	-	1990
1982	INS/4/019	Nuclear electronics	2/00	15 289	22 467	-	2/02	15 289	22 467	-	1985
1985	INS/4/020	Nuclear instrument maintenance	7/00	48 300	23 000	-	7/00	41 033	22 573	-	1987
1987	INS/4/021	Research reactor commissioning	8/14	63 020	-	-	8/14	75 664	-	-	1990
1989	INS/4/025	Quality assurance and quality control programmes	4/00	33 000	84 274	12 551	4/04	55 162	84 274	12 551	1991
1989	INS/4/026	Neutron transmutation doping of silicon	1/16	12 995	38 645	8 304	1/16	22 042	38 645	8 304	1992
1982	INS/5/018	Agricultural production	76/06	566 103	761 293	247 593	76/06	566 103	761 293	247 593	1988
1987	INS/5/020	Soil water management studies	3/05	25 236	40 289	3 201	3/02	25 236	40 289	3 201	1991

**PROJECTS COMPLETED IN INDONESIA SINCE 1984  
(As of mid-March 1994)**

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1983	INS/6/003	Radioimmunoassay services	4/00	25 793	37 859	-	4/05	25 793	37 859	-	1985
1988	INS/6/005	Training course on radioimmunoassay	0/19	4 560	17 638	-	0/19	3 777	17 638	-	1989
1989	INS/6/007	Quality control and maintenance of nuclear medical equipment	2/00	16 950	40 600	26 700	2/01	21 263	40 152	26 001	1992
1983	INS/8/011	Groundwater hydrology	3/05	33 411	129 425	-	3/05	33 411	129 425	-	1989
1985	INS/8/012	Neutron radiography	2/00	13 800	-	-	1/20	10 213	-	-	1986
1986	INS/8/014	Industrial biomass conversion	5/00	35 400	66 080	-	5/01	46 419	66 292	-	1990
1987	INS/8/015	Radiation processing with an electron beam machine	2/18	19 470	438 395	-	2/19	25 422	433 921	-	1991
1989	INS/8/016	Radiation technology in packaging	1/00	8 100	-	-	0/13	8 016	-	-	1989
1984	INS/9/006	Radioactive waste management	8/00	53 850	144 309	-	8/03	66 700	144 309	-	1990

**PROJECTS COMPLETED IN INDONESIA SINCE 1984**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1984	INS/9/007	Reactor safety	11/15	79 445	-	32 471	11/19	110 323	-	32 470	1991
1985	INS/9/008	Environmental radio-activity laboratory	6/00	42 000	78 500	27 545	6/01	52 190	79 421	27 544	1989
1986	INS/9/009	Radiation physics	0/29	6 670	-	-	0/29	8 419	-	-	1988
1986	INS/9/010	Underground waste disposal	6/07	47 430	-	-	6/10	55 627	-	-	1991
1989	INS/9/014	Research reactor safety	3/03	32 580	18 417	10 713	3/00	37 641	18 417	10 713	1992
	<b>TOTAL</b>	<b>41 Projects</b>	<b>289/29</b>	<b>1 961 311</b>	<b>3 129 052</b>	<b>401 789</b>	<b>289/03</b>	<b>2 195 004</b>	<b>3 093 778</b>	<b>401 942</b>	

**OPERATIONAL PROJECTS IN INDONESIA**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1987	INS/0/007	Energy economics calculations with nuclear options	7/04	67 907	14 628	39 314	7/06	91 594	14 628	39 313
1989	INS/0/009	Training in nuclear science and technology	10/21	96 645	197 400	30 400	9/21	107 022	191 570	31 888
1989	INS/0/011	University research and training	14/06	161 033	223 063	-	14/06	160 517	223 030	-
1993	INS/0/012	Energy economic calculations with nuclear option (phase II)	10/22	119 385	-	42 900	5/03	88 980	-	-
1993	INS/0/013	Manpower development	-	-	-	311 950	-	-	-	113 275
1985	INS/1/015	Utilization of multi-purpose research reactor	26/00	256 698	137 178	35 299	26/02	264 509	137 177	35 299
1991	INS/1/020	Neutron scattering data processing	2/00	19 500	-	42 900	1/02	13 226	-	-
1993	INS/1/021	Utilization of cyclotron	2/00	21 150	-	40 650	1/06	17 787	-	5 208
1993	INS/2/011	Production of labelled isotopes	2/25	30 225	30 000	18 000	0/25	6 930	-	17 014

**OPERATIONAL PROJECTS IN INDONESIA**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1993	INS/2/013	Instrumental chemical analysis	2/00	22 200	100 000	22 800	-	-	-	-
1989	INS/3/009	Uranium exploration and development	17/24	209 330	140 252	11 518	17/25	199 650	140 252	10 951
1988	INS/4/022	Experimental silicide fuel element	8/13	73 785	-	28 500	7/17	73 882	-	5 005
1989	INS/4/023	Research reactor calculations and experiments	8/14	72 470	125 549	29 050	8/14	80 293	121 388	30 449
1989	INS/4/024	Cyclotron production of radionuclides	5/24	48 390	-	75 875	5/28	71 518	-	74 889
1991	INS/4/027	Reactor physics codes	4/01	37 895	24 400	15 984	4/01	45 121	24 296	9 489
1993	INS/4/028	Support for the first nuclear power plant	17/14	173 310	-	84 400	5/26	73 517	-	6 122
1993	INS/4/029	Upgrading safety instrumentation of Bandung research reactor	2/00	21 150	100 000	37 200	0/22	9 110	-	10 134
1993	INS/4/030	Research reactor calculations and experiments (phase II)	5/02	53 790	20 651	23 580	2/21	28 944	16 712	6 124

**OPERATIONAL PROJECTS IN INDONESIA**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1988	INS/5/021	Agricultural production (phase II)	19/03	201 123	197 054	52 850	19/03	200 836	195 240	52 850
1993	INS/5/022	University research and teaching in agriculture	7/26	88 950	100 000	-	4/16	57 155	35 395	-
1987	INS/6/004	Nuclear medicine services	6/00	46 950	7 140	64 783	6/03	49 647	7 140	61 373
1989	INS/6/006	Radiation therapy	1/00	8 850	166 770	9 839	1/05	13 486	165 681	9 839
1991	INS/6/008	Medical physics	2/00	18 600	55 600	11 148	2/03	19 741	46 255	10 148
1991	INS/6/009	Establishment of a radio-immunoassay laboratory	1/24	20 800	51 800	-	1/11	16 830	50 756	-
1988	INS/7/002	Radiobiological laboratory	1/00	10 345	27 605	-	1/01	11 912	27 233	-
1985	INS/8/013	Radiocarbon dating	2/10	27 280	79 976	27 277	2/13	28 072	79 832	27 176
1991	INS/8/017	Radiation processing of medical products	6/00	54 900	86 000	50 426	5/03	67 410	85 129	45 773
1991	INS/8/018	Radiation processing technology	3/00	27 450	105 580	9 000	2/21	38 114	105 415	6 047
1991	INS/8/019	Isotopic ratios in geothermal exploration	3/27	36 990	108 067	68 467	3/00	40 497	104 972	65 897

**OPERATIONAL PROJECTS IN INDONESIA**  
(As of mid-March 1994)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1988	INS/9/012	Nuclear power plant siting	30/14	296 730	-	24 600	23/09	380 246	-	4 418
1989	INS/9/013	Strengthening nuclear safety infrastructure	4/25	42 310	-	-	4/16	57 226	-	-
1991	INS/9/015	Regulatory aspect of radiation protection	2/00	19 650	-	47 400	2/02	19 870	-	26 425
1991	INS/9/016	Environmental radioactivity measurements (phase II)	2/15	22 800	33 500	24 500	2/16	25 958	33 571	18 033
1991	INS/9/017	Establishment of a de-contamination facility	1/14	13 190	-	17 800	1/14	19 280	-	14 900
1991	INS/9/018	Internal dosimetry service	3/15	38 100	90 000	-	2/03	26 440	89 330	-
1993	INS/9/019	Radiomedical dosimetry	3/00	31 950	50 000	27 900	-	-	5 620	-
1993	INS/9/020	Environmental monitoring system development	2/04	22 530	50 000	18 450	0/25	10 615	-	2 986
	<b>TOTAL</b>	<b>37 Projects</b>	<b>250/17</b>	<b>2 514 361</b>	<b>2 322 213</b>	<b>1 344 760</b>	<b>203/29</b>	<b>2 415 935</b>	<b>1 900 622</b>	<b>741 025</b>



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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>GENERAL ATOMIC ENERGY DEVELOPMENT</u>		
INS/0/003	National Atomic Energy Agency, Nuclear Energy Assessment Centre, Jakarta	SUDARSONO ILJAS
INS/0/004	National Atomic Energy Agency, Nuclear Fuel Element Centre, Serpong, Tangerang	SURIPTO
INS/0/005	National Atomic Energy Agency, Jakarta	-
INS/0/006	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	AHIMSA
INS/0/007	National Atomic Energy Agency, Nuclear Energy Assessment Centre, Jakarta	SILALAH
INS/0/008	National Atomic Energy Agency, Nuclear Technology Assessment Centre, Jakarta	WIRANTO
INS/0/009	National Atomic Energy Agency, Education and Training Centre, Jakarta	THAYIB
INS/0/010	National Atomic Energy Agency, Informatics Development Centre, Serpong, Tangerang	SURTIPANTI
INS/0/011	National Atomic Energy Agency, Jakarta	ABDULLAH
INS/0/012	National Atomic Energy Agency, Nuclear Energy Assessment Centre, Jakarta	ISKANDAR
INS/0/013	National Atomic Energy Agency, Jakarta	WIDJANG

**COUNTERPART INSTITUTIONS IN INDONESIA (I)**

(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR PHYSICS AND CHEMISTRY</u>		
INS/1/009	National Atomic Energy Agency, Secondary Standards Dosimetry Laboratory, Jakarta	WIRYOSIMIN
INS/1/010	National Atomic Energy Agency, Secondary Standards Dosimetry Laboratory, Jakarta	KUSTIONO
INS/1/012	National Atomic Energy Agency, Bandung Research Reactor Centre, Bandung	MARSONGKOHADI
INS/1/013	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	WIRANTO
INS/1/014	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	LASIJO
INS/1/015	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	DJAJUSMAN
INS/1/016	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	SUNARYO
INS/1/017	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	LASIJO
INS/1/018	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	SUPRAWARDHANA
INS/1/020	National Atomic Energy Agency, Materials and Science Research Centre, Serpong, Tangerang	PRANOWO
INS/1/021	National Atomic Energy Agency, Radioisotope Production Centre, Cyclotron Division, Serpong, Tangerang	SOENARJO

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR PHYSICS AND CHEMISTRY (cont'd)</u>		
INS/2/010	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	HUBEIS
INS/2/011	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	LIZAM
INS/2/013	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	SURTIPANTI
<u>NUCLEAR RAW MATERIALS</u>		
INS/3/005	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	AMINJOYO
INS/3/007	National Atomic Energy Agency, Centre for Exploration and Processing of Nuclear Materials, Jakarta	ZOEBAR SUJADI
INS/3/008	National Atomic Energy Agency, Nuclear Minerals Development Centre, Jakarta	DJODJO TJOKROKARDONO
INS/3/009	National Atomic Energy Agency, Nuclear Minerals Development Centre, Jakarta	TJOKROKARDONO
<u>NUCLEAR ENGINEERING AND TECHNOLOGY</u>		
INS/4/017	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	GANDANA
INS/4/018	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	KUSNOWO

**COUNTERPART INSTITUTIONS IN INDONESIA (I)**

(By Project)

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY (cont'd)</u>		
INS/4/019	National Atomic Energy Agency, Research Centre for Nuclear Materials and Instrumentation, Yogyakarta	SUSETYO
INS/4/020	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	WANDOWO
INS/4/021	National Atomic Energy Agency, G.A. Siwabessy Multipurpose Reactor Centre, Serpong, Tangerang	HASTOWO
INS/4/022	National Atomic Energy Agency, Nuclear Fuel Element Centre, Serpong, Tangerang	SURIPTO
INS/4/023	National Atomic Energy Agency, G.A. Siwabessy Multipurpose Reactor Centre, Serpong, Tangerang	JUJURATISBELA
INS/4/024	National Atomic Energy Agency, Radioisotope Production Centre, Serpong, Tangerang	HUBEIS
INS/4/025	National Atomic Energy Agency, Nuclear Component Development and Engineering Centre, Serpong, Tangerang	MASOARA
INS/4/026	National Atomic Energy Agency, G.A. Siwabessy Multipurpose Reactor Centre, Serpong, Tangerang	SUNARYADI
INS/4/027	National Atomic Energy Agency, Nuclear Technology Assessment Centre, Jakarta	SANTOSO
INS/4/028	1. National Atomic Energy Agency, Nuclear Energy Assessment Centre, Jakarta 2. National Atomic Energy Agency, Education and Training Centre, Jakarta	KASIM DJOKOLELONO  THAYIB

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR ENGINEERING AND TECHNOLOGY (cont'd)</u>		
INS/4/029	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	ALFA
INS/4/030	National Atomic Energy Agency, G.A. Siwabessy Multipurpose Reactor Centre, Serpong, Tangerang	JUJURATISBELA
<u>AGRICULTURE</u>		
INS/5/018	1. National Atomic Energy Agency, Jakarta 2. Ministry of Agriculture, Jakarta	HENDRATNO -
INS/5/020	1. National Atomic Energy Agency, Jakarta 2. Brawijaya University, Faculty of Agriculture, Malang	ABDULLAH GURITNO
INS/5/021	1. National Atomic Energy Agency, Jakarta 2. Ministry of Agriculture, Jakarta	HENDRATNO -
INS/5/022	1. National Atomic Energy Agency, Jakarta 2. Andalas University, Padang 3. Brawijaya University, Malang 4. Hasanuddin University, Ujung Padang	ABDULLAH HAKIM PRIYONO DARISE
<u>NUCLEAR MEDICINE</u>		
INS/6/003	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	TJOKROSUKARTO

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR MEDICINE (cont'd)</u>		
INS/6/004	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	SUMANTO
INS/6/005	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	HUBEIS
INS/6/006	Persahabatan Hospital, Jakarta	ZAHIR
INS/6/007	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	ISARIS
INS/6/008	Bandung Institute of Technology, Department of Physics, Bandung	RUKMANTARA
INS/6/009	National Atomic Energy Agency, Radioisotope Production Centre, Serpong, Tangerang	TAMAT
<u>NUCLEAR TECHNIQUES IN BIOLOGY</u>		
INS/7/002	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	SUGIARTO DANUSUPADMO
<u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY</u>		
INS/8/011	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	WANDOWO
INS/8/012	National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	KUSNOWO

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY (cont'd)</u>		
INS/8/013	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	LAHAGU
INS/8/014	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	HILMY
INS/8/015	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	CHOSDU
INS/8/016	National Atomic Energy Agency, Jakarta	THAYIB
INS/8/017	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	RAZZAK
INS/8/018	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	CHOSDU
INS/8/019	National Atomic Energy Agency, Centre for the Application of Isotopes and Radiation, Jakarta	WANDOWO
<u>NUCLEAR SAFETY</u>		
INS/9/006	1. National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung 2. National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	HALIM  AMINJOYO
INS/9/007	National Atomic Energy Agency, Atomic Energy Control Bureau, Jakarta	SURATNO

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR SAFETY</u> (cont'd)		
INS/9/008	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	ISMONO
INS/9/009	1. Bandung Institute of Technology, Bandung 2. National Atomic Energy Agency, Research Centre for Nuclear Techniques, Bandung	SUTRISNO ISMUNTOYO
INS/9/010	National Atomic Energy Agency, Radioactive Waste Management Technology Centre, Serpong, Tangerang	ETIM
INS/9/012	National Atomic Energy Agency, Nuclear Energy Assessment Centre, Jakarta	YO
INS/9/013	National Atomic Energy Agency, Reactor Safety Technology Research Centre, Serpong, Tangerang	ISMUNTOYO
INS/9/014	National Atomic Energy Agency, G.A. Siwabessy Multipurpose Reactor Centre, Serpong, Tangerang	MARDI
INS/9/015	National Atomic Energy Agency, Atomic Energy Control Bureau, Jakarta	SURATNO
INS/9/016	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	ZOEBAR ISMONO
INS/9/017	National Atomic Energy Agency, Radioactive Waste Management Technology Centre, Serpong, Tangerang	DARJOKO
INS/9/018	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	ZAHIR



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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR SAFETY</u> (cont'd)		
INS/9/019	National Atomic Energy Agency, Centre for Standardization and Radiological Safety Research, Jakarta	NASUKHA
INS/9/020	National Atomic Energy Agency, Yogyakarta Nuclear Research Centre, Yogyakarta	SISWOHARTOYO

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

**JAKARTA**

**National Atomic Energy Agency  
Jakarta**

INS/0/005	Nuclear Manpower Development
INS/0/011	University Research and Training
INS/0/013	Manpower Development
INS/5/018	Agricultural Production
INS/5/020	Soil Water Management Studies
INS/5/021	Agricultural Production (Phase II)
INS/5/022	University Research and Teaching in Agriculture
INS/8/016	Radiation Technology in Packaging

**National Atomic Energy Agency  
Nuclear Energy Assessment Centre  
Jakarta**

INS/0/003	Nuclear Power Programme
INS/0/007	Energy Economics Calculations with Nuclear Options
INS/0/012	Energy Economics Calculations with Nuclear Options (Phase II)
INS/4/028	Support for the First Nuclear Power Plant
INS/9/012	Nuclear Power Plant Siting

**National Atomic Energy Agency  
Centre for the Application of Isotopes and Radiation  
Jakarta**

INS/0/006	Reorganization of BATAN's Management and Administration
INS/2/013	Instrumental Chemical Analysis
INS/4/020	Nuclear Instrument Maintenance
INS/6/003	Radioimmunoassay Services
INS/8/011	Groundwater Hydrology
INS/8/014	Industrial Biomass Conversion
INS/8/015	Radiation Processing with an Electron Beam Machine
INS/8/017	Radiation Processing of Medical Products
INS/8/018	Radiation Processing Technology
INS/8/019	Isotopic Ratios in Geothermal Exploration

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

**JAKARTA**

**National Atomic Energy Agency  
Nuclear Technology Assessment Centre  
Jakarta**

INS/0/008      Nuclear Database Development  
INS/4/027      Reactor Physics Codes

**National Atomic Energy Agency  
Education and Training Centre  
Jakarta**

INS/0/009      Training in Nuclear Science and Technology  
INS/4/028      Support for the First Nuclear Power Plant

**National Atomic Energy Agency  
Secondary Standards Dosimetry Laboratory  
Jakarta**

INS/1/009      Secondary Standards Dosimetry Laboratory  
INS/1/010      Secondary Standards Dosimetry Laboratory

**National Atomic Energy Agency  
Centre for Standardization and Radiological Safety Research  
Jakarta**

INS/1/016      Radionuclide Standardization  
INS/6/004      Nuclear Medicine Services  
INS/7/002      Radiobiological Laboratory  
INS/9/008      Environmental Radioactivity Laboratory  
INS/9/016      Environmental Radioactivity Measurements (Phase II)  
INS/9/018      Internal Dosimetry Service  
INS/9/019      Radiomedical Dosimetry

**National Atomic Energy Agency  
Centre for Exploration and Processing of Nuclear Materials  
Jakarta**

INS/3/007      Uranium Ore Processing

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

**JAKARTA**

**National Atomic Energy Agency  
Nuclear Minerals Development Centre  
Jakarta**

INS/3/008	Uranium Exploration
INS/3/009	Uranium Exploration and Development

**National Atomic Energy Agency  
Atomic Energy Control Bureau  
Jakarta**

INS/9/007	Reactor Safety
INS/9/015	Regulatory Aspects of Radiation Protection

**Ministry of Agriculture  
Jakarta**

INS/5/018	Agricultural Production
INS/5/021	Agricultural Production (Phase II)

**Persahabatan Hospital  
Jakarta**

INS/6/006	Radiation Therapy
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**YOGYAKARTA**

**National Atomic Energy Agency  
Yogyakarta Nuclear Research Centre  
Yogyakarta**

INS/1/013	Nuclear Magnetic Resonance (NMR)
INS/1/018	Neutron Activation Analysis
INS/3/005	Nuclear Materials Analysis
INS/6/007	Quality Control and Maintenance of Nuclear Medical Equipment
INS/8/013	Radiocarbon Dating
INS/9/006	Radioactive Waste Management
INS/9/020	Environmental Monitoring System Development

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

**YOGYAKARTA**

**National Atomic Energy Agency  
Research Centre for Nuclear Materials and Instrumentation  
Yogyakarta**

INS/4/019 Nuclear Electronics

**BANDUNG**

**National Atomic Energy Agency  
Research Centre for Nuclear Techniques  
Bandung**

INS/1/014 Use of Neutron Beam in Materials Research  
INS/1/015 Utilization of Multi-purpose Research Reactor  
INS/1/017 Nuclear Analytical Techniques  
INS/2/010 Production of Radioimmunoassay Kits  
INS/1/011 Production of Labelled Isotopes  
INS/4/017 Fuel Element Technology  
INS/4/018 Reactor Physics  
INS/4/029 Upgrading Safety Instrumentation of Bandung Research Reactor  
INS/6/005 Training Course on Radioimmunoassay  
INS/8/012 Neutron Radiography  
INS/9/006 Radioactive Waste Management  
INS/9/009 Radiation Physics

**National Atomic Energy Agency  
Bandung Research Reactor Centre  
Bandung**

INS/1/012 Neutron Scattering Study

**Bandung Institute of Technology  
Bandung**

INS/6/008 Medical Physics  
INS/9/009 Radiation Physics

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

**SERPONG, TANGERANG**

**National Atomic Energy Agency  
Nuclear Fuel Element Centre  
Serpong, Tangerang**

INS/0/004      Nuclear Materials Accounting  
INS/4/022      Experimental Silicide Fuel Element

**National Atomic Energy Agency  
Informatics Development Centre  
Serpong, Tangerang**

INS/0/010      Nuclear Information System

**National Atomic Energy Agency  
Materials and Science Research Centre  
Serpong, Tangerang**

INS/1/020      Neutron Scattering Data Processing

**National Atomic Energy Agency  
Radioisotope Production Centre  
Serpong, Tangerang**

INS/1/021      Utilization of Cyclotron  
INS/4/024      Cyclotron Production of Radionuclides  
INS/6/009      Establishment of a Radioimmunoassay Laboratory

**National Atomic Energy Agency  
G.A. Siwabessy Multipurpose Reactor Centre  
Serpong, Tangerang**

INS/4/021      Research Reactor Commissioning  
INS/4/023      Research Reactor Calculations and Experiments  
INS/4/026      Neutron Transmutation Doping of Silicon  
INS/4/030      Research Reactor Calculations and Experiments (Phase II)  
INS/9/014      Research Reactor Safety

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

**SERPONG, TANGERANG**

**National Atomic Energy Agency**  
**Nuclear Component Development and Engineering Centre**  
**Serpong, Tangerang**

INS/4/025      Quality Assurance and Quality Control Programmes

**National Atomic Energy Agency**  
**Radioactive Waste Management Technology Centre,**  
**Serpong, Tangerang**

INS/9/010      Underground Waste Disposal  
INS/9/017      Establishment of a Decontamination Facility

**National Atomic Energy Agency**  
**Reactor Safety Technology Research Centre**  
**Serpong, Tangerang**

INS/9/013      Strengthening Nuclear Safety Infrastructure

**MALANG**

**Brawijaya University**  
**Faculty of Agriculture**  
**Malang**

INS/5/020      Soil Water Management Studies  
INS/5/022      University Research and Teaching in Agriculture

**PADANG**

**Andalas University**  
**Padang**

INS/5/022      University Research and Teaching in Agriculture

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

**UJUNG PADANG**

**Hasanuddin University**  
**Ujung Padang**

INS/5/022      University Research and Teaching in Agriculture





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

**LONG TERM ASSIGNMENTS**

**INS/1/015 Utilization of Multi-purpose Research Reactor**

- Task 03 - Assistance and Advice Regarding Programmes
  - A. DJALOEIS (INS) Mar 89 - Mar 91 24 months
    - To advise and assist BATAN in identifying and implementing activities concerning the (i) safe and reliable operation of the rsg-gas research reactor of BATAN in Serpong, and (ii) optimal utilization of the reactor within appropriate R&D programmes.
    - To advise and assist BATAN in establishing and implementing manpower development schemes to provide technical and managerial competence needed for the operation of BATAN facilities and for the implementation of the R&D programme.
    - To advise and assist BATAN in the selection of appropriate research tools and to provide guidance on their layout, design, construction and for acquisition.
    - To advise and assist BATAN in establishing and implementing strategies for opening BATAN's research facilities to potentially interested national institutions and universities, in order to guarantee an optimal use of the investments made, in order to enhance co-operation on the national level and consequently promote the dissemination of the knowledge and experience acquired.
    - To advise and assist BATAN to stimulate, select, manage and co-ordinate appropriate expertise and hardware assistance as well as scientific collaboration offered by foreign and international institutions.

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

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear physics	1	13 000
Nuclear chemistry	6	51 500
Nuclear raw materials	2	20 000
Nuclear engineering and technology	6	48 000
Nuclear techniques in agriculture	25	242 000
Nuclear medicine	9	72 000
Nuclear techniques in biology	3	51 100
Nuclear techniques in industry & hydrology	3	47 900
Safety in nuclear energy	4	26 500
TOTAL	59	572 000

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

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

Name	No. of assignments	Project(s)
AKHADI	1	INS/9/013
ARBIE	2	RAS/4/011
DISARDJONO	1	INS/5/018
DJALOEIS	1	INS/1/015
DJOJOSUBROTO	2	RAS/8/071, RAS/9/006
DJOKOLELONO	3	RAS/0/013
HADITJAHYONO	1	INT/4/115
HENDRATNO, C.	2	INS/0/011, PHI/5/019
HENDRATNO, P.	1	INS/5/021
HILMY	8	MAL/7/003, PAK/7/002, RAS/7/003, RAS/8/061, RAS/8/062, RAS/8/071
HUBEIS	4	RAS/6/011
IBRAHIM	1	INS/0/003
ISARIS	1	INT/4/054
ISHIGAKI	4	INT/0/048, RAS/0/015, RAS/8/011
ISMACHIN	1	INT/0/048
ISMONO	1	RAS/9/006
KARDHA	3	RAS/8/008, RAS/8/061
KARSONO	1	RAS/4/008
KARYONO	1	INS/3/009
KOENTJORO	1	RAS/8/062
MANUABA	2	ALG/1/009
MASHUR	1	RAS/6/011

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

Name	No. of assignments	Project(s)
MASOARA	3	RAS/8/061
MOHAMAD	1	RAS/7/003
MUDJITO	1	RAS/8/061
QOMOROZZAMAN	3	INS/5/018, INS/5/021
RAHMAN	1	INS/0/003
RAZAK	1	MOR/0/003
RAZZAK	3	RAS/8/062, RAS/8/070
RIDWAN	4	INT/0/048, INT/0/053, ROM/9/007
ROSADI	1	RAS/8/062
SETJO	3	RAS/8/061, RAS/8/070, RAS/8/071
SISWORO	1	RAS/8/062
SJARIEF	1	INS/9/012
SJARMUFNI	1	INS/9/012
SOEBIANTO	1	RAS/8/062
SOEGIARTO	1	RAS/9/006
SOEKARNO	3	INS/9/016, RAS/9/006
SOEMARTAPUTRA	1	MAL/5/020
SOENARMO	3	RAS/4/008
SOFYAN IYAD	1	INS/9/012
SUBKI	2	INS/9/012, RAS/8/062
SUDARSONO	5	INS/0/003, RAS/0/012, RAS/0/013
SUDJANA	1	INS/0/003
SUGIARTO DANUSUPADMO	1	RAS/9/006

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

Name	No. of assignments	Project(s)
SUMANTO	1	RAS/9/006
SUNDARDI	10	RAS/8/008, RAS/8/011, RAS/8/062, ZAM/8/003
SUPADI	1	INT/0/045
SUPARNA	2	RAS/6/018
SUTAMTA	1	RAS/8/064
UTAMA	4	BGD/8/008, BGD/8/009, RAS/8/062
WANDOWO	7	RAS/0/015, RAS/8/008, RAS/8/011, RAS/8/061, RAS/8/064, RAS/8/071
WARDOJO	1	RAS/0/013
WIRJATMODJO	1	INS/0/003
WIRYOSIMIN	2	RAS/9/006
YO	3	INS/9/012
ZAINUDDIN	1	INT/4/113
ZOYSA	1	RAS/6/018
TOTAL	121	

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

Recipient country	No. of fellowships	No. of scientific visits	TOTAL <sup>1</sup>
ALGERIA	-	3	3
BANGLADESH	3	1	4
CROATIA	-	1	1
EGYPT	-	1	1
GHANA	-	1	1
HUNGARY	-	1	1
IRAN	1	-	1
JORDAN	1	-	1
KENYA	-	1	1
MALAYSIA	3	2	5
MOROCCO	-	4	4
PAKISTAN	-	3	3
PHILIPPINES	1	1	2
SRI LANKA	2	-	2
SYRIA	2	-	2
TANZANIA	1	1	2
THAILAND	1	5	6
TUNISIA	-	3	3
VIET NAM	2	2	4
ZAMBIA	1	-	1
TOTAL	18	30	48

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

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

Course No.	Course Title	Partici- pants	Year
INT/4/113 (001)	ITC on interfacing in nuclear experiments	18	1992
RAS/0/017 (001)	RWS on project management and evaluation techniques for TC projects	19	1990
RAS/4/011 (003)	RTC on computer application on research reactor control and calculation	9	1991
RAS/4/011 (004)	RTC on measurement of basic parameters of research reactors	9	1992
RAS/4/011 (007)	RTC on calculation and measurement of neutron flux spectrum for research reactors	10	1993
RAS/4/013 (001)	RTC on use of personal computers in research reactor operation	7	1991
RAS/5/019 (001)	RTC on immunoassay techniques in animal production and disease control	15	1990
RAS/6/010 (001)	Regional train-the-trainers course on data processing in radioimmunoassay	14	1987
RAS/7/003 (006)	RWS on total quality systems for tissue banking of radiation-sterilized surgical grafts	15	1993
RAS/8/008 (025)	Regional training-demonstration on radiation vulcanization of natural rubber latex	6	1983 /84
RAS/8/008 (030)	UNDP regional industrial training-demonstration on radiation curing of surface of wood products	4	1984 /85



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

Course No.	Course Title	Partici- pants	Year
RAS/8/008 (031)	RTC on rubber vulcanization	8	1984
RAS/8/008 (042)	Regional third training-demonstration on radiation vulcanization of natural rubber latex	5	1985
RAS/8/008 (044)	Regional second training-demonstration on radiation curing of surface coating of wood products	7	1985
RAS/8/008 (049)	Regional first executive management seminar on industrial tracer application	5	1986
RAS/8/008 (057)	Regional third training-demonstration on radiation curing of surface coating of wood products	8	1986
RAS/8/061 (010)	RTC on non-destructive testing of surface methods (level II)	10	1987
RAS/8/061 (059)	RWS on the fabrication of NDT test pieces	11	1989
RAS/8/061 (072)	RTC on non-destructive testing of ultrasonics (level III)	13	1990
RAS/8/061 (075)	RTC on radiation curing of surface coatings on wood products	13	1990
RAS/8/061 (105)	RTC on non-destructive testing of magnetic particle and liquid penetrant (level III)	12	1991
RAS/8/061 (106)	RTC on tracer application in industry	11	1991

