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**INTERNATIONAL ATOMIC ENERGY AGENCY**

IAEA-CPS-96/01  
25 April 1996  
Original: ENGLISH

## **COUNTRY PROGRAMME SUMMARY**

**THE AGENCY'S TECHNICAL CO-OPERATION  
PROGRAMME WITH  
BOLIVIA  
1986 - 1996  
COUNTRY PROGRAMME SUMMARIES**

**DEPARTMENT OF TECHNICAL CO-OPERATION**

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BOLIVIA  
1986 - 1996  
COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION  
DEPARTMENT OF TECHNICAL CO-OPERATION

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PROGRAMME WITH  
BOLIVIA  
1986 - 1996  
COUNTRY PROGRAMME SUMMARIES**

This report contains a review of the Agency's technical co-operation activities in Bolivia carried out during 1986 - 1996. 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.

**BOLIVIA**

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## **INTRODUCTION**

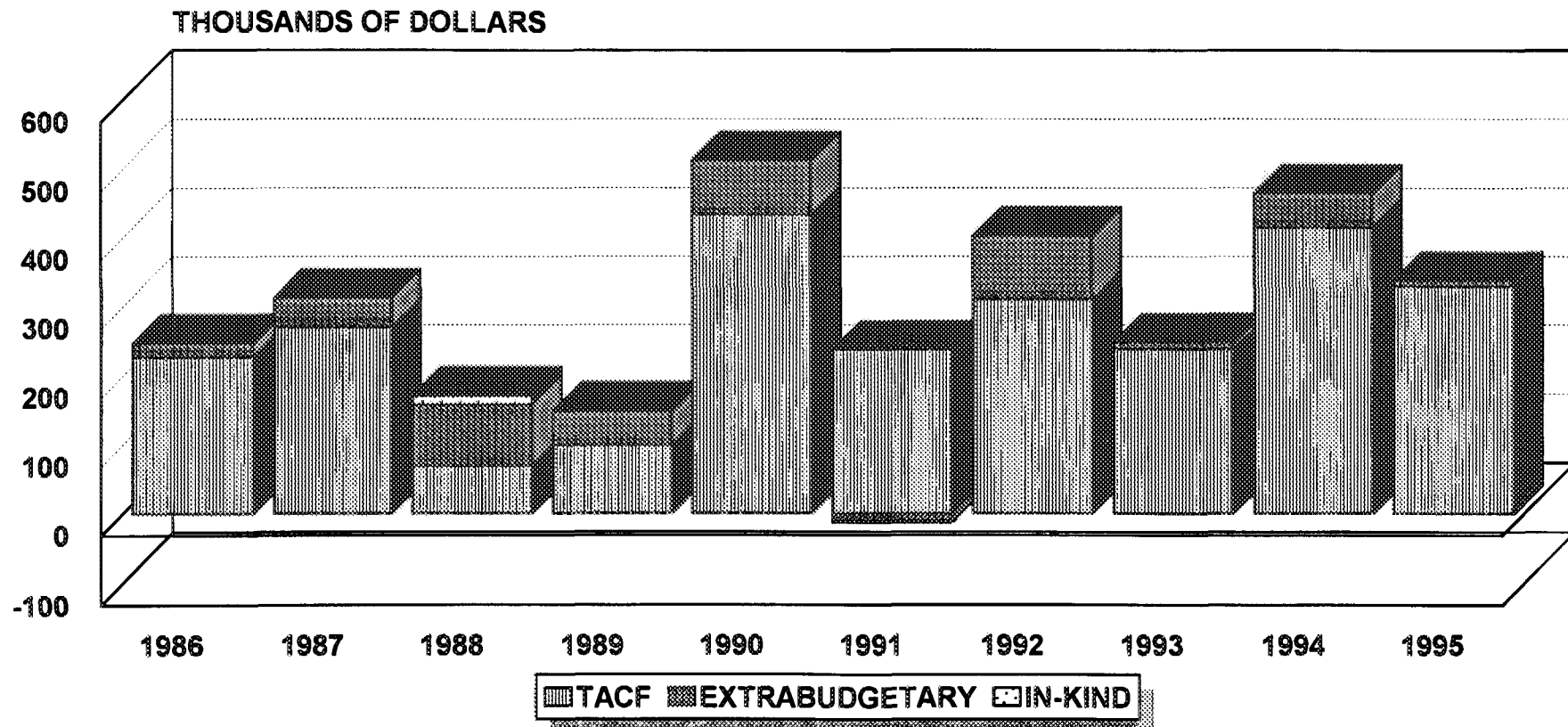
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With almost \$5 million of Agency support received, Bolivia ranks 43<sup>rd</sup> among all recipients of technical assistance during the period 1958 through 1995.

More than three quarters of the assistance received during the past ten years has been provided in the form of equipment (76%), complemented by expert services (13%) and training (11%). The bulk of the resources were provided through the Technical Co-operation Fund (86%), the rest was made available through extrabudgetary contributions (14%), while in-kind contributions accounted for less than 0.5%.

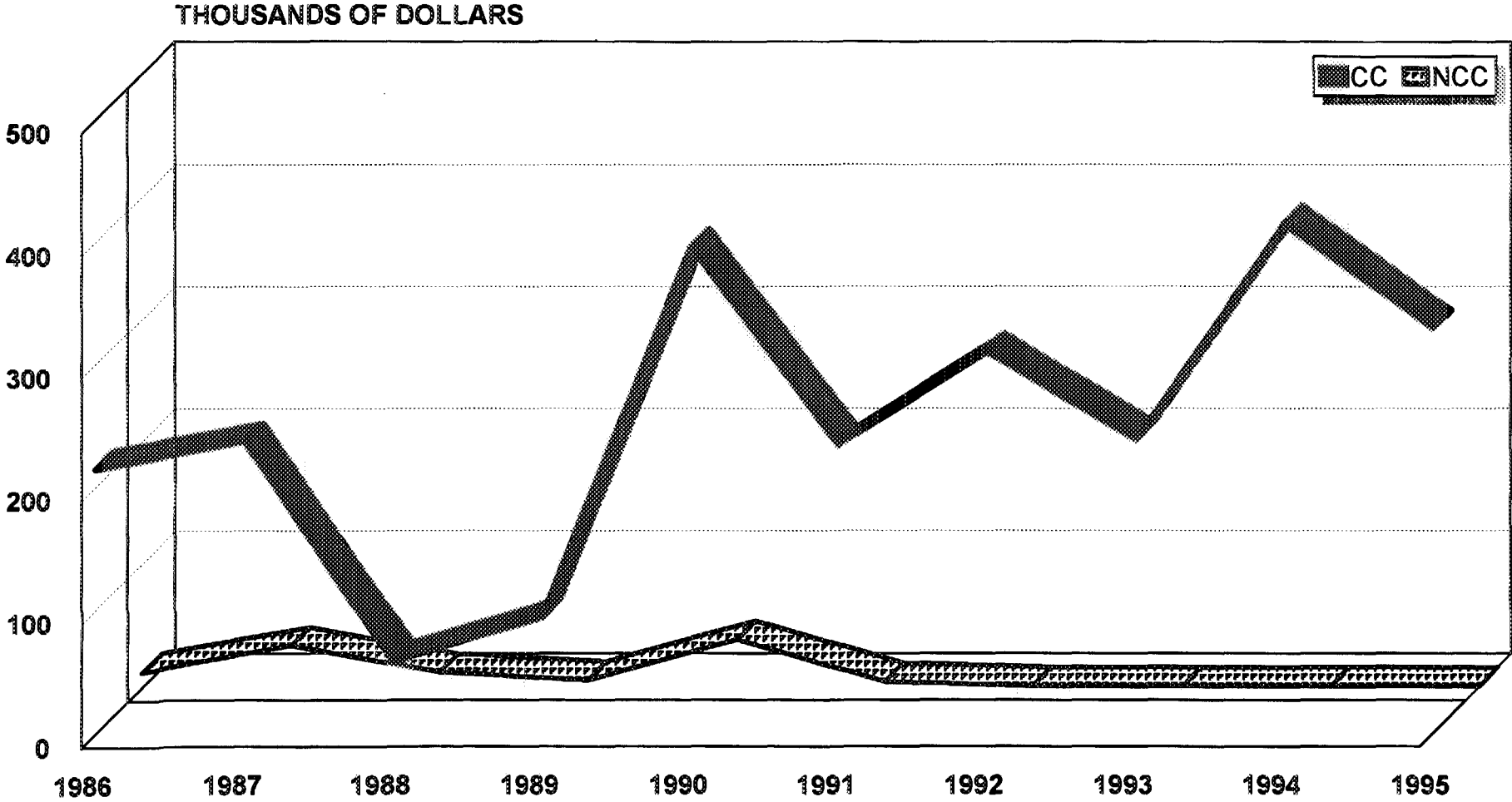
The four major sectors in which project assistance was provided during the past ten years were: Nuclear medicine (51%), agriculture (24%), nuclear safety (11%) and nuclear physics and chemistry (9%).

Since 1986, scientists from Bolivia have completed 59 assignments as Agency experts and training course lecturers or as participants in research co-ordination meetings. During the same period, Bolivia has hosted one fellowship as well as three regional training events for a total of 34 participants.

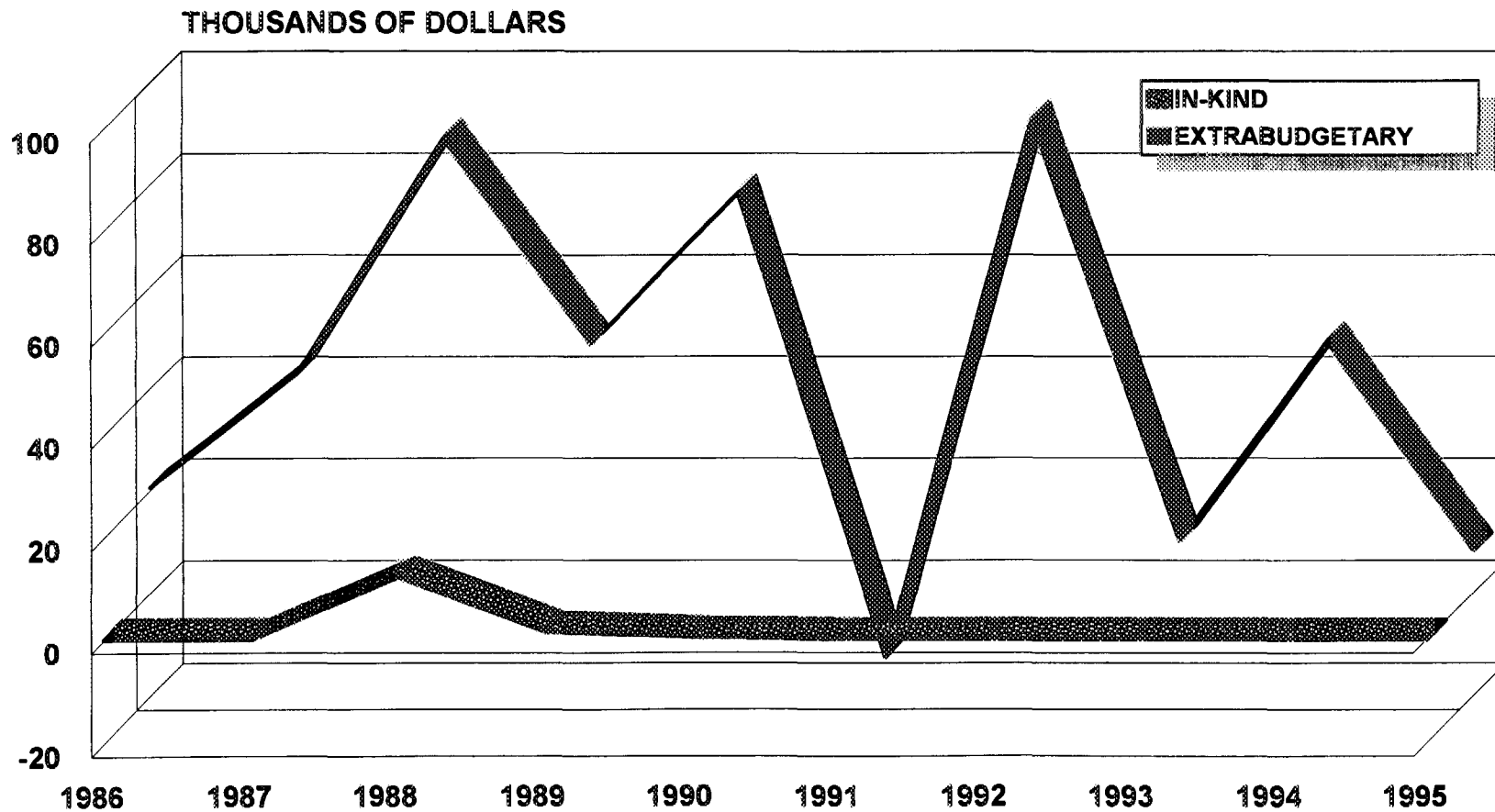
# ASSISTANCE PROVIDED BY THE AGENCY TO BOLIVIA BY SOURCE (1986 - 1995)



# TACF ASSISTANCE PROVIDED TO BOLIVIA (1986 - 1995)

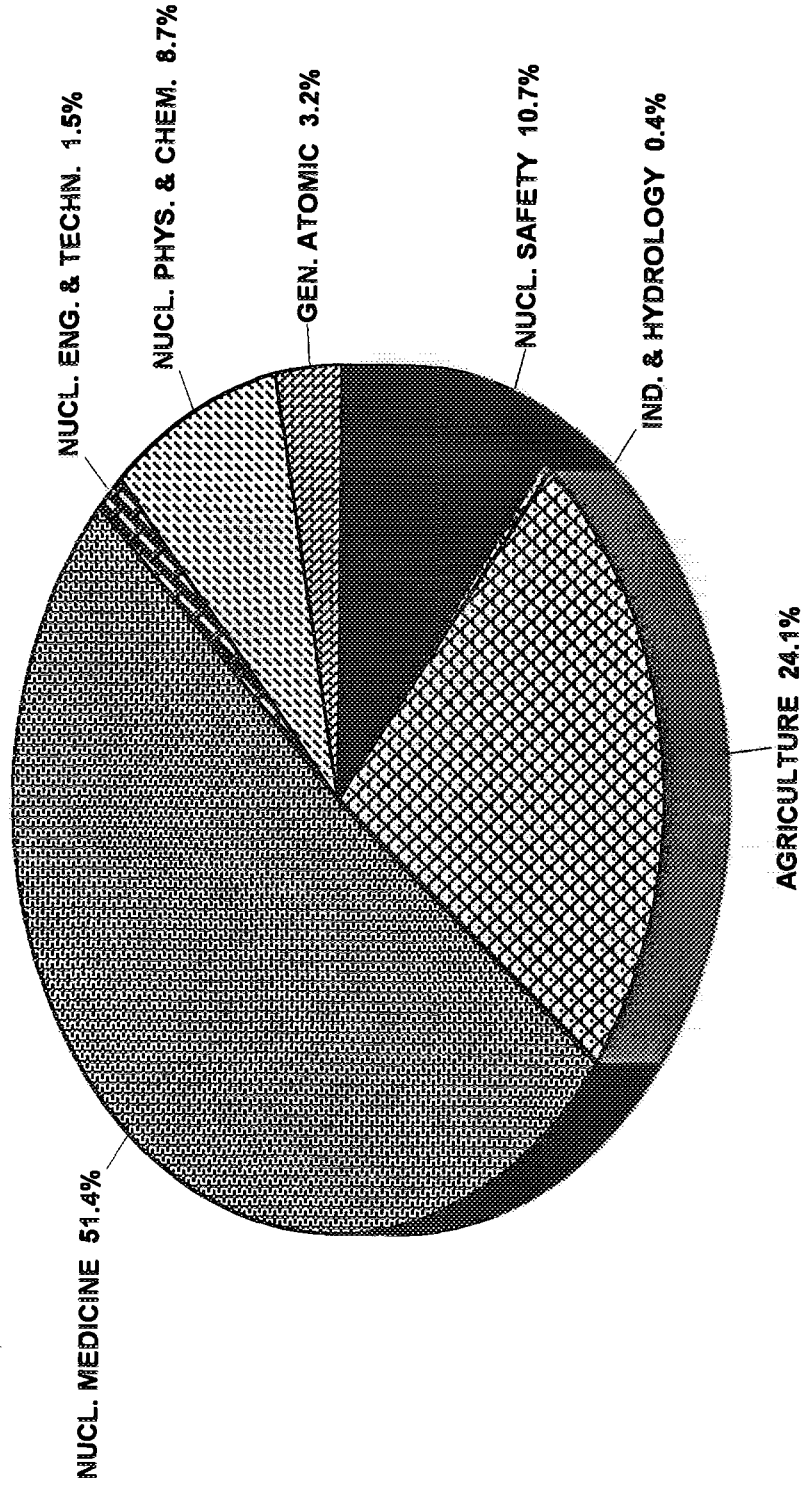


# EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO BOLIVIA (1986 - 1995)

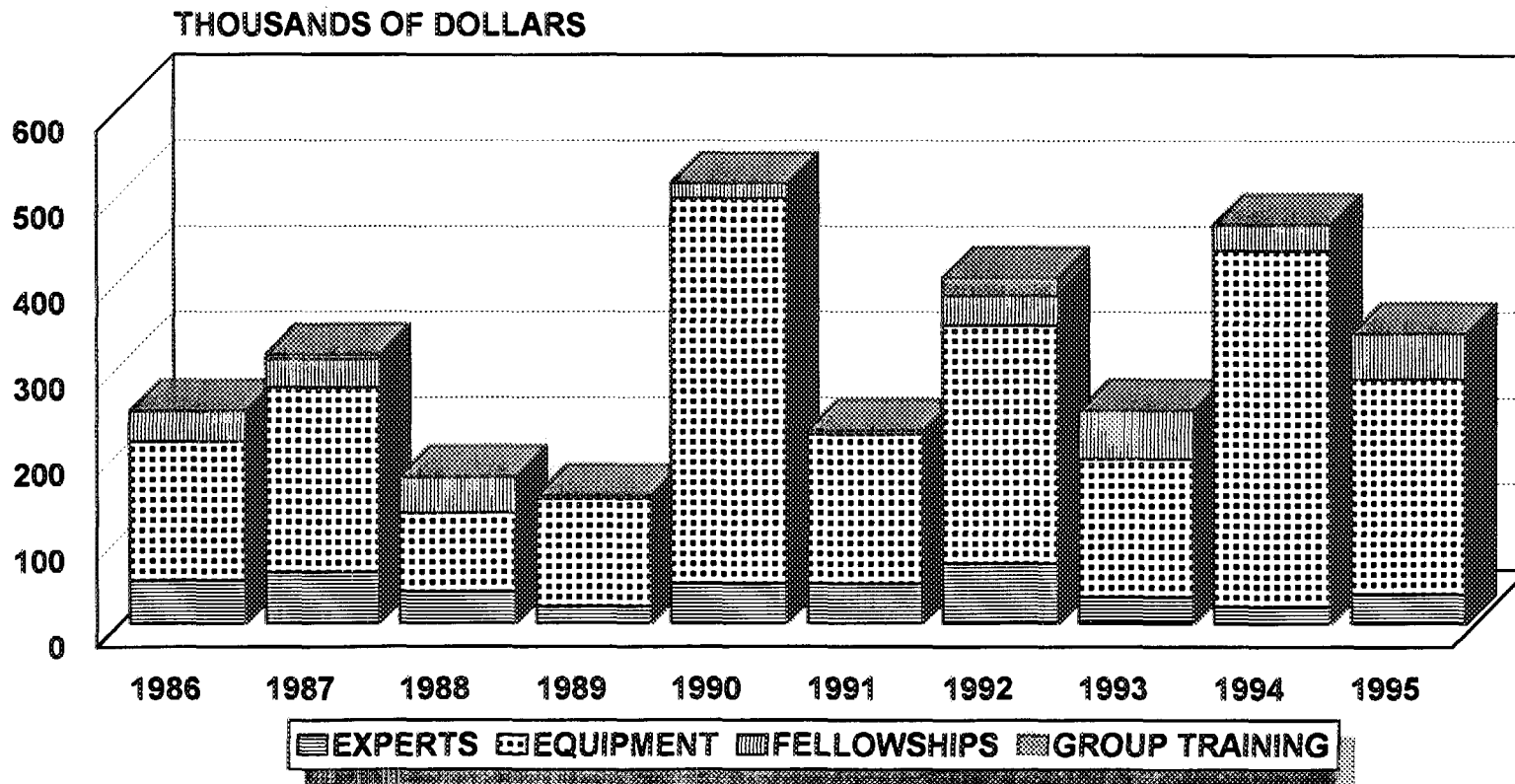




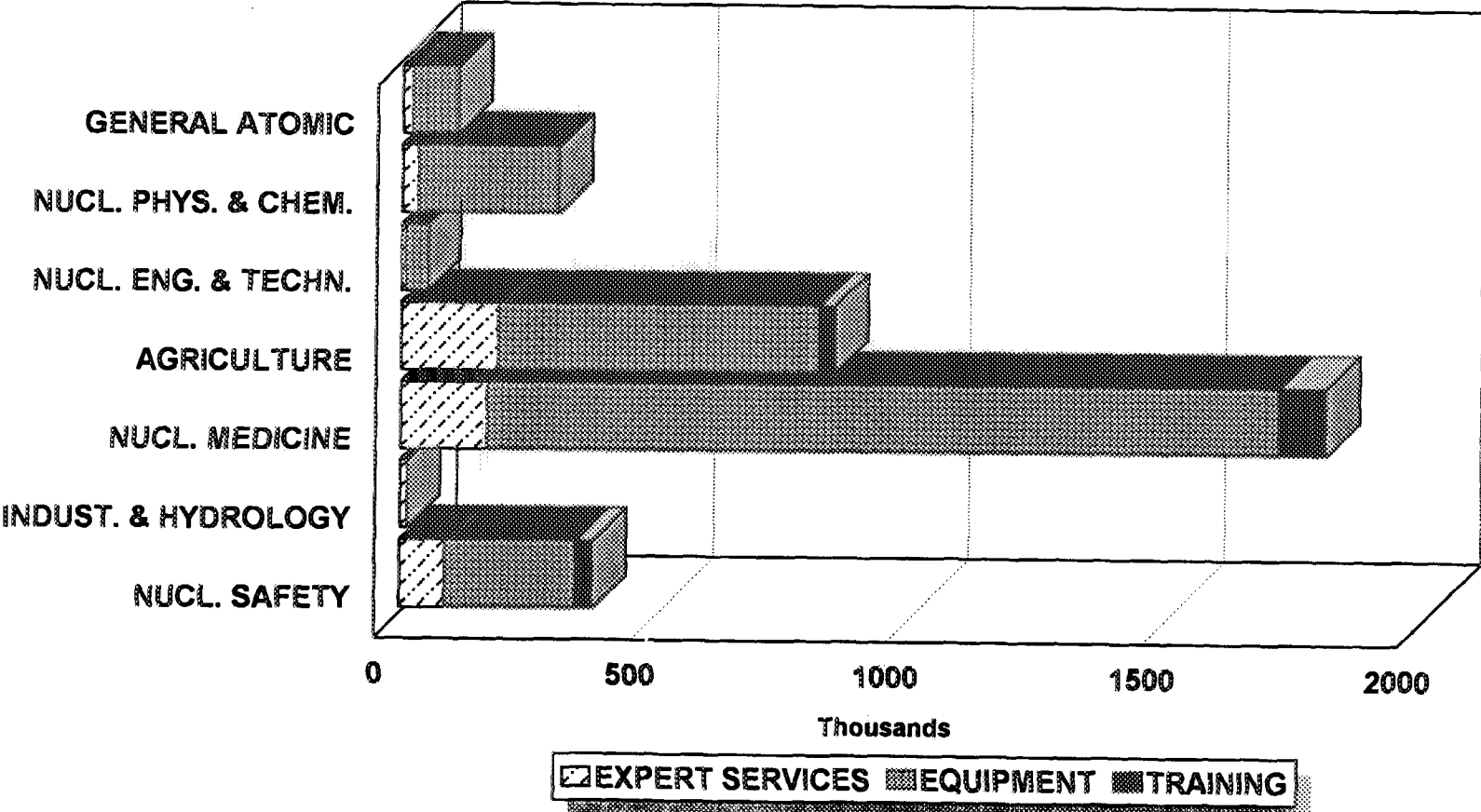
# TC PROJECT DISBURSEMENTS IN BOLIVIA BY SECTOR (1986 - 1996)



# ASSISTANCE PROVIDED BY THE AGENCY TO BOLIVIA BY TYPE (1986 - 1995)



# EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO BOLIVIA BY SECTOR (1986 - 1996)



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH BOLIVIA

ALL SOURCES

BOLIVIA'S RANKING AS A TC RECIPIENT  
1958 - 1995  
(in \$1000)

YEAR	RANKING	AMOUNT
1958-85	39 <sup>th</sup>	1910.9
1986	40 <sup>th</sup>	246.5
1987	39 <sup>th</sup>	312.3
1988	47 <sup>th</sup>	169.9
1989	58 <sup>th</sup>	148.0
1990	27 <sup>th</sup>	512.7
1991	49 <sup>th</sup>	224.1
1992	36 <sup>th</sup>	402.8
1993	50 <sup>th</sup>	247.6
1994	33 <sup>rd</sup>	464.4
1995	50 <sup>th</sup>	337.5
1958-95	43 <sup>rd</sup>	4976.7

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE  
1958 - 1995 (in \$1000)**

**ALL SOURCES**

Year	I	II	III	IV	V	BOLIVIA
1958-85	EGY 13145.2	BRA 10218.2	PER 8694.9	PHI 7642.7	IND 7446.7	39 <sup>th</sup> - 1910.9
1986	EGY 2317.0	BRA 1452.9	THA 1169.4	POL 1050.3	BGD 896.4	40 <sup>th</sup> - 246.5
1987	HUN 3452.6	EGY 1775.4	THA 1742.4	INS 1312.5	YUG 1223.2	39 <sup>th</sup> - 312.3
1988	EGY 1486.9	BUL 1361.6	CPR 1278.5	THA 1158.7	BRA 1096.7	47 <sup>th</sup> - 169.9
1989	CPR 1542.3	EGY 1505.1	THA 1205.3	BRA 1096.5	INS 999.1	58 <sup>th</sup> - 148.0
1990	POL 2308.1	CPR 2005.0	VIE 1589.2	INS 1412.6	BRA 1229.1	27 <sup>th</sup> - 512.7
1991	INS 1305.2	CPR 975.0	EGY 959.8	BRA 951.2	BUL 934.7	49 <sup>th</sup> - 224.1
1992	EGY 1586.3	INS 1342.1	CPR 1328.8	MEX 1127.8	POL 1036.4	36 <sup>th</sup> - 402.8
1993	INS 1285.9	CPR 1091.7	PAK 1012.2	EGY 905.3	IRA 810.1	50 <sup>th</sup> - 247.6
1994	URT 2153.3	IRA 1438.5	CPR 1336.1	ARG 1225.8	GHA 1166.9	33 <sup>rd</sup> - 464.4
1995	CPR 2020.9	URT 1936.5	IRA 1494.5	INS 1330.9	ARG 1322.7	50 <sup>th</sup> - 337.5
1958-95	EGY 26522.4	BRA 20310.7	THA 17671.4	INS 17419.3	PER 15157.4	43 <sup>rd</sup> - 4976.7

**"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE  
1958 - 1995 (in \$1000)**

**TECHNICAL ASSISTANCE AND CO-OPERATION FUND**

Year	I	II	III	IV	V	BOLIVIA
1958-85	EGY 5131.5	HUN 3818.4	PAK 3687.5	THA 3534.1	BRA 3131.1	36 <sup>th</sup> - 1320.4
1986	BRA 1381.8	THA 871.9	POL 833.5	BGD 823.9	SYR 751.8	36 <sup>th</sup> - 226.0
1987	HUN 3305.2	DRK 986.8	BUL 888.5	INS 885.8	EGY 878.9	37 <sup>th</sup> - 269.5
1988	BUL 1195.6	PER 856.5	EGY 768.6	INS 751.7	MAL 656.0	60 <sup>th</sup> - 68.6
1989	EGY 990.9	CPR 868.2	POR 769.6	CHI 756.9	MAL 619.4	62 <sup>nd</sup> - 98.0
1990	POL 1562.3	VIE 1518.8	DRK 1156.2	IRA 958.0	YUG 933.4	23 <sup>rd</sup> - 434.0
1991	BUL 893.1	PAK 868.8	INS 855.1	VIE 817.6	CPR 814.5	46 <sup>th</sup> - 236.8
1992	EGY 1255.7	CPR 1009.0	VIE 872.8	INS 826.6	IRA 795.5	35 <sup>th</sup> - 309.9
1993	INS 1040.5	CPR 896.5	PAK 847.6	IRA 807.4	THA 721.5	43 <sup>rd</sup> - 237.7
1994	URT 1392.9	IRA 1260.8	ARG 1206.5	CPR 1022.8	PAK 933.0	30 <sup>th</sup> - 415.1
1995	IRA 1482.0	CPR 1466.4	ARG 1253.8	URT 1172.7	BRA 1078.9	51 <sup>st</sup> - 329.3
1958-95	EGY 13022.9	PAK 10834.3	INS 10688.5	VIE 10321.5	BRA 10292.4	41 <sup>st</sup> - 3945.3

ASSISTANCE PROVIDED BY THE AGENCY TO BOLIVIA

Financial Summary 1986 - 1995  
(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
1986	50.0	161.0	35.5	-	-	246.5	-	214.3	11.7	20.5	-	246.5
1987	59.2	214.9	32.9	5.3	-	312.3	-	236.6	32.9	42.8	-	312.3
1988	36.1	91.7	41.7	0.4	-	169.9	-	57.4	11.2	89.2	12.1	169.9
1989	19.6	124.6	3.8	-	-	148.0	-	93.3	4.7	48.6	1.4	148.0
1990	46.1	449.1	17.5	-	-	512.7	-	396.2	37.8	78.3	0.4	512.7
1991	46.1	173.2	4.8	-	-	224.1	-	233.2	3.6	(12.7)	-	224.1
1992	69.8	277.1	34.5	21.4	-	402.8	-	309.9	-	92.9	-	402.8
1993	30.8	159.7	57.1	-	-	247.6	-	237.7	-	9.9	-	247.6
1994	19.6	414.5	30.3	-	-	464.4	-	415.1	-	49.3	-	464.4
1995	34.4	249.8	53.3	-	-	337.5	-	329.3	-	8.2	-	337.5
1986-95	411.7	2 315.6	311.4	27.1	-	3 065.8	-	2 523.0	101.9	427.0	13.9	3 065.8

TECHNICAL CO-OPERATION PROJECTS IN BOLIVIA  
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1986 - 1996

TOTAL PROJECT ALLOTMENTS AND DISBURSEMENTS  
(As of mid-April 1996)

SECTOR	NO. OF PROJECTS	ALLOTMENTS \$	% OF TOTAL	DISBURSEMENTS \$	% OF TOTAL
General atomic energy development	1	111 327	2.5	111 327	3.2
Nuclear physics and chemistry	4	310 006	6.9	306 109	8.7
Nuclear raw materials	-	-	-	-	-
Nuclear engineering and technology	1	53 602	1.2	51 996	1.5
Nuclear techniques in agriculture	6	1 056 720	23.7	848 098	24.1
Nuclear medicine	10	2 419 182	54.2	1 810 236	51.4
Nuclear techniques in biology	-	-	-	-	-
Nuclear techniques in industry and hydrology	1	7 050	0.1	14 152	0.4
Nuclear safety	3	509 664	11.4	376 974	10.7
TOTAL	26	4 467 551	100.0	3 518 892	100.0



TECHNICAL CO-OPERATION PROJECTS IN BOLIVIA  
 COMPLETED AND OPERATIONAL, BY SECTOR, 1986 - 1996  
 (As of mid-April 1996)

Sector	No. of projects	Total project allotments \$	Total project disbursements \$
<u>Completed projects</u>			
General atomic energy development	1	111 327	111 327
Nuclear physics and chemistry	4	310 006	306 109
Nuclear raw materials	-	-	-
Nuclear engineering and technology	1	53 602	51 996
Nuclear techniques in agriculture	3	765 650	756 733
Nuclear medicine	7	1 063 841	1 045 511
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	1	7 050	14 152
Nuclear safety	1	131 155	125 583
TOTAL	18	2 442 631	2 411 411
<u>Operational projects</u>			
General atomic energy development	-	-	-
Nuclear physics and chemistry	-	-	-
Nuclear raw materials	-	-	-
Nuclear engineering and technology	-	-	-
Nuclear techniques in agriculture	3	291 070	91 365
Nuclear medicine	3	1 355 341	764 725
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry & hydrology	-	-	-
Nuclear safety	2	378 509	251 391
TOTAL	8	2 024 920	1 107 481

**EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO BOLIVIA, BY SECTOR  
PROJECTS COMPLETED AND OPERATIONAL 1986 - 1996  
(As of mid-April 1996)**

FIELD	TOTAL PROJECT ALLOTMENTS				TOTAL PROJECT DISBURSEMENTS			
	EXPERT SERVICES		EQUIPMENT	TRAINING	EXPERT SERVICES		EQUIPMENT	TRAINING
	M/M	\$	\$	\$	M/M	\$	\$	\$
General atomic energy development	2/20	19 452	91 875	-	2/20	19 452	91 875	-
Nuclear physics and chemistry	6/01	33 372	276 634	-	6/00	33 200	272 909	-
Nuclear raw materials	-	-	-	-	-	-	-	-
Nuclear engineering and technology	1/07	9 990	43 612	-	1/07	8 427	43 569	-
Nuclear techniques in agriculture	29/11	273 463	711 237	72 020	24/02	191 548	624 326	32 224
Nuclear medicine	26/05	245 057	2 018 487	155 638	22/19	171 748	1 546 342	92 146
Nuclear techniques in biology	-	-	-	-	-	-	-	-
Nuclear techniques in industry & hydrology	1/00	7 050	-	-	1/03	14 152	-	-
Nuclear safety	15/18	136 635	309 182	63 847	13/01	89 276	254 842	32 856
<b>TOTAL</b>	<b>82/02</b>	<b>725 019</b>	<b>3 451 027</b>	<b>291 505</b>	<b>70/22</b>	<b>527 803</b>	<b>2 833 863</b>	<b>157 226</b>

AGENCY FELLOWS FROM BOLIVIA

1986 - 1996 <sup>1/</sup>  
 (As of mid-April 1996)

Sector	No. of fellowships	No. of months/days	Host countries
General atomic energy development	3	1/13	BRA, CUB
Nuclear physics	4	10/06	COS, UKR, USA
Nuclear chemistry	3	9/22	ARG, CHI, PAR
Nuclear raw materials	-	-	-
Nuclear engineering and technology	2	17/10	HUN, UK
Nuclear techniques in agriculture	8	24/12	BRA, CHI, MEX, PER, POL, USA, UK, IAEA
Nuclear medicine	23	95/18	AUS, CHI, COL, ECU, HUN, MEX, SPA, SWI, URU, USA
Nuclear techniques in biology	-	-	-
Nuclear techniques in industry and hydrology	1	0/19	ITA
Nuclear safety	11	28/11	ARG, BRA, CHI, ECU, GUA, MEX, SPA, URU
<b>TOTAL</b>	<b>55</b>	<b>187/21</b>	

<sup>1/</sup> Awarded since 1986, but only includes fellows who have completed or at least started training.

**BOLIVIA**  
**LONG-TERM FELLOWSHIPS**  
**1986 - 1996**  
**(As of mid-April 1996)**

Name	Field of study	Host country	Date	Duration	Project
LUNA AGUIRRE	Nuclear instrumentation 4G	HUN	Apr.86 - Apr.87	12/00	BOL/2/008
MIRANDA FLORES	Soil fertility 5B	BRA	Feb.85 - Apr.86	13/22	-
ANCHORENA MATIENZO	Nuclear medicine 6B	URU	Mar.92 - Mar.93	12/04	BOL/6/016
SANZETENEA CASTRO	Medical physics 6F	ECU	Sep.87 - Sep.88	12/00	RLA/6/006
VERA RUIZ	Nuclear medicine 6B	URU	Aug.86 - Aug.87	12/00	-

**BOLIVIAN NATIONALS WHO WERE AWARDED MORE THAN ONE  
FELLOWSHIP OR SCIENTIFIC VISIT  
1986 - 1996  
(As of mid-April 1996)**

Name	Field of study		Host country	Date	Duration	Project
ALARCON CALDERON	1. Neutron physics 2. General atomic energy development	1E 0A	UKR CUB	Sep.87 - Oct.87 Oct.90	0/12 0/06	INT/1/043 RLA/0/011
MIRANDA CUADROS	1. Radiation protection 2. Radiation protection	9C 9C	BRA/ARG/CHI GUA/URU/ECU	Aug.89 Nov.95 - Dec.95	0/19 0/28	RLA/0/011 BOL/9/007
OLACHEA TORO	1. Nuclear medicine 2. Nuclear medicine	6B 6B	SWI USA	Mar.87 - Sep.87 Sep.94 - Oct.94	6/00 0/14	BOL/6/012 BOL/6/018
PAREDES VERASTEGUI	1. Nuclear medicine 2. Nuclear instrumentation, electronics and reactor control	6B 4G	USA HUN	Sep.92 Jul.95 - Dec.95	0/12 5/10	BOL/6/016 RLA/0/016
SOTO SANCHEZ	1. Analytical nuclear physics 2. General atomic energy development	1L 0A	USA CUB	Jan.88 - May 88 Oct.90	3/21 0/06	BOL/2/008 RLA/0/011
VERA RUIZ	1. Nuclear medicine 2. Nuclear medicine	6B 6B	URU SPA/HUN	Aug.86 - Aug.87 Jan.95 - Jun.95	12/00 5/04	- RLA/0/015

AGENCY TRAINING COURSES WITH BOLIVIAN PARTICIPATION

1986 - 1996  
(As of mid-April 1996)

Field	Number of participants	Number of courses
General atomic energy development	10	7
Nuclear physics	2	2
Nuclear chemistry	19	18
Nuclear raw materials	-	-
Nuclear engineering and technology	28	25
Nuclear techniques in agriculture	18	15
Nuclear medicine	33	25
Nuclear techniques in biology	1	1
Nuclear techniques in industry & hydrology	64	63
Nuclear safety	38	31
TOTAL	213	187

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
ABELA GISBERT	RLA/4/006 (004)	RTC on multichannel analysers and interfacing	1986	BRA
	RLA/4/008 (001)	RWS on the preparation of national training courses in nuclear medical equipment maintenance	1991	COL
ALARCON CALDERON	INT/1/040 (001)	ITC on the use of neutron generators in material and analytical research	1986	THA
	INT/1/045 (001)	ITC on the technology and application of neutron generators	1989	USSR
	RLA/2/003 (007)	Second RWS on nuclear analytical techniques	1990	ARG
	RLA/4/006 (008)	Regional seminar on recent advances in nuclear data acquisition and analysis systems	1987	GUA
	RLA/4/008 (008)	RWS on selection and optimization of analytical equipment	1993	PAR
ALVARADO	RLA/8/017 (002)	RWS on ISO criteria for a survey on quality control in the region	1991	ECU
	RLA/8/017 (071)	RWS on criteria for a survey on quality control in the region	1992	BRA
ALVAREZ POMMIER	INT/0/047 (001)	ITC on electric system expansion planning (WASP)	1989	USA
	INT/4/083 (001)	ITC on electricity demand forecasting in nuclear power planning	1986	USA
BARBEITO REYES	INT/4/101 (001)	Advanced ITC on nuclear electronics	1990	USA
	RLA/4/008 (004)	RTC on repair of multichannel analysers (ARCAL II)	1991	BRA
	RLA/4/008 (011)	RWS on assembly of multichannel analyser cards (ARCAL II)	1994	MEX
	RLA/4/008 (012)	Regional seminar on recent developments in nuclear instrumentation (ARCAL II)	1994	CUB
	RLA/4/008 (013)	Final regional meeting of project co-ordinators (ARCAL II)	1994	CUB
BARRIENTOS ZAMORA	INT/9/082 (001)	ITC on radiological protection and nuclear safety	1987	ARG
	RLA/2/005 (001)	RTC on determination of radionuclides in food and environmental samples	1989	BRA
	RLA/9/014 (001)	RTC on radiation protection in medical practices	1994	BRA
BARRIGA	RLA/8/017 (034)	RWS on quality improvement in metal-mechanical industry by eddy current	1992	CHI
	RLA/8/017 (116)	RWS on quality improvement in rotatory machines by vibration analysis	1994	ECU

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
BERDEJA AMATLLER	INT/9/116 (001)	ITC on radiation protection and nuclear safety	1991	ARG
	RLA/4/006 (016)	RTC on maintenance of radiation protection equipment	1989	COL
	RLA/4/011 (002)	RWS on maintenance of nuclear instruments used in radiation monitoring	1995	MEX
	RLA/9/009 (002)	RWS on calibration procedures in dosimetry	1986	ECU
	RLA/9/011 (006)	RTC on establishment of a programme on occupational monitoring	1992	BRA
	RLA/9/016 (003)	RWS on thermoluminescence dosimetry (ARCAL XVII)	1994	URU
CHUNGARA CASTRO	RLA/2/003 (014)	RTC on application of FIA in studies of environmental and geological samples	1992	BRA
	RLA/2/003 (019)	RWS on quality assurance in analysis of environmental samples	1995	VEN
	RLA/2/003 (022)	RWS on certification of analytical laboratories	1995	CHI
	RLA/2/003 (023)	Second RWS on quality assurance in analysis of environmental samples	1995	URU
CUEVAS MALDONADO	RLA/2/004 (001)	RTC on nuclear analytical techniques in the agro-industry and food analysis	1988	BRA
	RLA/8/019 (001)	RTC on industrial applications of tracer techniques	1993	MEX
DE LA ROCHA DIAZ	RLA/4/006 (020)	RWS on application of programmable logic controllers (PLCS) and personal computers	1990	ARG
	RLA/4/011 (001)	RWS on the use of personal computers in nuclear laboratories	1995	URU
DE ZAPATA VASQUEZ	RLA/6/016 (005)	RWS on data processing and external quality assessment in RIA	1992	PAR
	RLA/6/016 (010)	RTC on the optimization of reagent production techniques and the organization of regional reagent distribution schemes	1993	MEX
DUCHEN URIARTE	RLA/2/007 (009)	RTC on labelling and quality control of blood cells and biomolecules	1995	CHI
	RLA/6/021 (001)	RTC on radiopharmacy	1994	URU
GONZALEZ GANDARILLAS	RLA/6/011 (019)	RWS on external quality control	1989	PAR
	RLA/6/011 (020)	Second RTC on the preparation and use of regional (local) bulk reagents for RIA	1989	BRA
	RLA/6/012 (001)	RTC on promotion and use of bulk reagents for RIA of thyroid related hormones	1988	CHI
	RLA/6/017 (001)	RTC on advances in hospital radiopharmacy	1992	SPA
	RLA/6/028 (001)	WS on methodological aspects of HBV diagnosis by RIA and the organization of screening programmes	1995	MEX



**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
GUZMAN HOZUMI	RLA/2/003 (002)	RTC on the application of nuclear analytical techniques for mineral resources	1989	CHI
	RLA/2/003 (008)	RWS on atomic absorption spectrometry and ICP (induced coupled plasma spectrometry) for analysis of agro-industrial products and food	1990	BRA
	RLA/9/011 (007)	RTC on measurement of environmental samples	1992	ARG
HUANCA SARDINAS	RLA/2/007 (008)	RTC on technology, preparation and control of radiopharmaceutical kits	1995	BRA
	RLA/6/021 (001)	RTC on radiopharmacy	1994	URU
LIMACHI KANTUTA	RLA/8/005 (196)	RTC on eddy currents (level II)	1987	CHI
	RLA/8/005 (232)	IX Regional Working Group Meeting	1988	PER
	RLA/8/005 (233)	Regional II Congress on Non-destructive Testing	1988	PER
	RLA/8/006 (011)	RTC on computer-aided non-destructive testing	1986	MEX
	RLA/8/013 (023)	RTC on eddy currents in ferromagnetic materials	1989	CHI
	RLA/8/013 (026)	Regional Working Group Meeting	1989	COS
MANRIQUE VALENCIA	RLA/2/007 (002)	RWS on production and control of radiopharmaceutical kits	1992	COL
	RLA/2/007 (011)	Advanced RWS on radiopharmacokinetics	1996	MEX
MANRIQUEZ HERMOZA	RLA/9/011 (010)	RTC on clinical dosimetry and radiological protection	1993	MEX
	RLA/9/022 (001)	Regional post-graduate educational course on radiation protection and nuclear safety	1995	ARG

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
MIRANDA CUADROS	INT/9/070 (001)	ITC on radiological protection and nuclear safety	1986	ARG
	RLA/0/016 (001)	RTC on design and evaluation of ARCAL projects	1996	DOM
	RLA/9/009 (001)	RWS on radiation protection	1986	CHI
	RLA/9/009 (008)	RTC on quality control of diagnostic X-ray equipment	1988	BRA
	RLA/9/009 (047)	RTC on radiation protection in medical applications of ionizing radiation	1990	CUB
	RLA/9/010 (001)	RTC on safety and regulation of radiation sources	1991	MEX
	RLA/9/011 (011)	Regional informative seminar on application of new ICRP recommendations	1993	ECU
	RLA/9/011 (014)	Regional meeting on co-ordinated studies on regulatory criteria	1993	MEX
	RLA/9/016 (006)	RWS on implementation of the ICRP-60 and NBS recommendations	1995	PER
	RLA/9/020 (001)	RTC on management of low-level radioactive waste	1994	ARG
OLAECHEA TORO	INT/6/041 (001)	ITC on advanced single photon emission computerized tomography with emphasis on brain and heart studies	1992	ITA
	RLA/6/018 (001)	RTC on interventional methods in nuclear medicine	1993	COL
	RLA/6/022 (001)	RTC on paediatric nuclear medicine	1994	CHI
PANIAGUA VIDAL	RLA/6/025 (001)	RTC on medical scintigraphy	1995	CUB
	RLA/6/030 (001)	RTC on quality assurance in clinical radiotherapy malignant neoplasia	1996	PAN
PAREDES VERASTEGUI	RLA/4/006 (021)	RWS on maintenance of gamma cameras	1990	COL
	RLA/6/020 (001)	RWS on quality control of spect systems	1994	CHI
PUNO RAMIREZ	RLA/4/006 (018)	RTC on design and construction of printed boards	1989	CUB
	RLA/4/006 (022)	RTC on maintenance of power supplies in nuclear instruments	1990	GUA
RAMOS	INT/9/082 (001)	ITC on radiological protection and nuclear safety	1987	ARG
	RLA/8/016 (021)	RTC on tracer techniques in mining and food industry	1995	CUB

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
REVOLLO ZAMORA	RLA/0/009 (003)	2nd RTC for librarians and information specialists in nuclear science and technology	1988	COL
	RLA/0/009 (005)	3rd RTC for librarians and information specialists in nuclear science and technology	1990	GUA
ROCABADO	RLA/8/006 (013)	RTC on materials and processes	1987	MEX
	RLA/8/013 (024)	RTC on real-time radiography	1989	BRA
RODRIGUEZ	RLA/8/005 (216)	Regional informative course on on-line applications NDT	1988	BRA
	RLA/8/013 (061)	RTC on inspection of LPG cylinders	1990	PER
	RLA/8/013 (109)	RWS on criteria for conception and management of test pieces for qualification and certification of NDT personnel	1991	CHI
ROMERO BOLANOS	INT/9/108 (001)	ITC on radiation protection and nuclear safety	1990	ARG
	RLA/9/023 (001)	RTC on waste management: An integrated systems approach	1995	SPA
SANCHEZ-GUTIERREZ	RLA/9/009 (005)	RWS on radiation protection	1987	PER
	RLA/9/009 (010)	RWS IV on radiation protection	1988	COL
	RLA/9/009 (012)	Regional seminar on quality control in radiotherapy	1988	PER
	RLA/9/011 (001)	RTC on radiological emergencies	1991	PER
SANDOVAL DE SCANFERLA	RLA/6/016 (005)	RWS on data processing and external quality assessment in RIA	1992	PAR
	RLA/6/016 (013)	RWS on neonatal hypothyroid screening (ARCAL VIII)	1994	ECU
SOTO SANCHEZ	RLA/2/003 (002)	RTC on the application of nuclear analytical techniques for mineral resources	1989	CHI
	RLA/2/003 (004)	First RWS on nuclear analytical techniques	1989	COL
	RLA/2/003 (010)	RWS on nuclear analytical techniques and quality assurance	1990	ARG
	RLA/4/006 (001)	RWS on FORTRAN programming for nuclear applications	1986	PER

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
TAQUICHIRI	RLA/8/013 (005) RLA/8/013 (021)	Regional informative course on non-destructive testing in composite materials RTC on tomography	1988 1989	PER URU
TORRICO CALVINONTES	INT/4/093 (001) RLA/4/006 (011)	ITC on advanced nuclear electronics RTC for technicians on maintenance and electromechanical problems of nuclear and related instruments in medicine	1987 1988	JAM COS
TRIGO FREDERICKSEN	RLA/4/007 (002) RLA/4/007 (006) RLA/6/014 (001)	RWS on radioisotope production in reactors, including the technology of radionuclide generators RTC on radioisotope production and processing RTC on preparation and control of radiopharmaceuticals	1986 1989 1989	ARG MEX CHI
VARGAS CASTILLO	RLA/6/024 (001) RLA/9/011 (010)	RTC on modern techniques and dosimetry in brachytherapy of malignant neoplasia RTC on clinical dosimetry and radiological protection	1995 1993	MEX MEX
VELASQUEZ TAPIA	INT/0/043 (001) INT/9/070 (001)	ITC on interfacing in nuclear experiments ITC on radiological protection and nuclear safety	1987 1986	POR ARG
VILLCA QUISPE	INT/9/108 (001) RLA/6/023 (001) RLA/9/011 (004) RLA/9/015 (001)	ITC on radiation protection and nuclear safety RTC on radiotherapy treatment planning RTC on thermoluminescence applied to dosimetry RTC on safety and regulation of radiation sources	1990 1994 1991 1993	ARG VEN ECU MEX

**MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES  
BY BOLIVIA NATIONALS  
1986 - 1996  
(As of mid-April 1996)**

Name	Course No.	Course title	Year	Location
VILLEGAS IBANEZ	RLA/8/005 (127)	RTC on radiography (level II)	1986	CHI
	RLA/8/005 (136)	RTC on ultrasonics in welded joints	1986	BRA
	RLA/8/006 (015)	International WS on implementation and implications of ISO international standard	1988	GUA
	RLA/8/006 (017)	Regional Co-ordinators Meeting at the 13th World Conference on NDT	1992	BRA
	RLA/8/013 (002)	RWS on qualification and certification	1988	BRA
	RLA/8/013 (003)	RWS on preparation of test specimens	1988	BRA
	RLA/8/013 (009)	International 12th World Conference on NDT	1989	NET
	RLA/8/013 (010)	International WS on project achievements	1989	GER
	RLA/8/013 (011)	Regional seminar on NDT advanced techniques	1989	GER
	RLA/8/013 (012)	Regional seminar on NDT advanced techniques	1989	ITA
	RLA/8/013 (035)	RTC on NDT in quality assurance	1989	BRA
	RLA/8/013 (056)	RWS on quality assessment	1990	BRA
	RLA/8/017 (001)	RWS on industrial quality in production and maintenance	1991	BRA
	RLA/8/017 (013)	Regional working group meeting on quality engineering	1992	ARG
	RLA/8/017 (016)	RWS on NDT for industrial quality	1992	CHI
	RLA/8/017 (077)	National Co-ordinators Meeting of the regional project RLA/8/017	1993	DOM
RLA/8/017 (115)	RTC on quality and control of testing laboratories	1994	BRA	
ZAPATA PANIAGUA	RLA/8/005 (192)	Regional seminar on NDT of vibrations	1987	ARG
	RLA/8/005 (237)	National informative study tour on vibrations	1988	GER
	RLA/8/013 (025)	RTC on vibration monitoring in rotating machinery	1989	MEX
ZAPATA SILES	INT/5/108 (001)	ITC on the induction and use of mutations in plant breeding	1987	AUS/CZE
	RLA/5/021 (002)	RWS on improvement of rice and other cereals through mutation breeding	1988	COL
ZURITA NOVILLO	RLA/8/013 (031)	RTC on eddy currents in aircraft maintenance	1989	URU
	RLA/8/013 (079)	RTC on eddy currents (level III - tubes)	1990	PER
	RLA/8/013 (088)	RTC on computers in RT inspection	1990	MEX

**PROJECTS COMPLETED IN BOLIVIA SINCE 1986  
(As of mid-April 1996)**

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1983	BOL/0/005	Nuclear centre infrastructure	2/20	19 452	91 875	-	2/20	19 452	91 875	-	1992
1981	BOL/1/007	Secondary standards dosimetry laboratory	2/28	15 222	38 061	-	2/28	15 222	39 204	-	1988
1984	BOL/1/008	Accelerator feasibility study	0/16	3 520	6 900	-	0/16	3 679	5 684	-	1986
1981	BOL/2/008	X-ray fluorescence	0/14	3 290	189 373	-	0/14	3 995	189 880	-	1992
1982	BOL/2/009	Quality control of radiopharmaceuticals	2/03	11 340	42 300	-	2/02	10 304	38 141	-	1986
1988	BOL/4/005	Nuclear electronics	1/07	9 990	43 612	-	1/07	8 427	43 569	-	1992
1981	BOL/5/004	Radioisotopes in agriculture	16/00	119 953	413 674	22 870	16/03	111 152	415 552	23 144	1992
1988	BOL/5/005	Nuclear techniques in soil science studies	1/04	9 070	83 254	-	1/04	9 686	84 471	-	1992
1991	BOL/5/006	Immunoassay in animal disease and reproduction studies	4/28	45 560	62 469	8 800	4/28	41 179	62 469	9 080	1993

PROJECTS COMPLETED IN BOLIVIA SINCE 1986  
(As of mid-April 1996)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS				COMPLETED
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING	
			M/M	\$	\$	\$	M/M	\$	\$	\$	
1980	BOL/6/011	Radioimmunoassay	7/05	50 975	110 077	5 690	7/05	37 950	110 216	5 690	1992
1983	BOL/6/012	Computer gamma camera studies	2/22	19 605	19 810	-	2/22	19 605	19 810	-	1992
1984	BOL/6/013	Nuclear medicine centre upgrading	2/07	15 410	73 787	-	2/10	13 517	75 091	-	1992
1989	BOL/6/014	Nuclear medicine centre	-	-	236 800	-	-	-	235 594	-	1992
1989	BOL/6/015	Improvement of nuclear medicine	1/06	22 457	116 490	-	1/06	22 457	116 490	-	1993
1991	BOL/6/016	Upgrading of nuclear medicine services	5/09	47 940	245 862	48 938	5/17	45 151	245 004	47 017	1993
1992	BOL/6/017	Brachytherapy service	0/20	9 300	40 700	-	0/20	11 220	40 699	-	1994
1987	BOL/8/004	Isotope hydrology	1/00	7 050	-	-	1/03	14 152	-	-	1987
1980	BOL/9/005	Radiation protection	6/13	42 355	88 800	-	6/13	36 844	88 739	-	1992
	TOTAL	18 Projects	58/22	452 489	1 903 844	86 298	59/08	423 992	1 902 488	84 931	

**OPERATIONAL PROJECTS IN BOLIVIA**  
(As of mid-April 1996)

STARTED	PROJECT NO.	TITLE	ALLOTMENTS				DISBURSEMENTS			
			EXPERTS		EQUIPMENT	TRAINING	EXPERTS		EQUIPMENT	TRAINING
			M/M	\$	\$	\$	M/M	\$	\$	\$
1991	BOL/5/007	Mutation breeding	2/09	34 680	62 840	-	1/21	26 095	61 834	-
1995	BOL/5/008	Genetic improvement of Andean crops	2/00	25 800	40 000	27 750	-	-	-	-
1995	BOL/5/010	Improvement of reproduction in Andean cattle	3/00	38 400	49 000	12 600	0/06	3 436	-	-
1993	BOL/6/018	Upgrading of nuclear medicine services	4/09	48 330	454 722	56 610	2/28	21 728	367 776	27 798
1993	BOL/6/019	Radiotherapy	2/16	30 680	625 612	44 400	-	-	239 878	11 641
1993	BOL/6/020	National brachytherapy services	0/01	360	94 627	-	0/01	120	95 784	-
1989	BOL/9/006	Radiation protection (phase II)	4/26	41 660	132 282	22 547	4/26	34 366	130 227	22 517
1995	BOL/9/007	Strengthening radiological protection	4/09	52 620	88 100	41 300	1/22	18 066	35 876	10 339
	<b>TOTAL</b>	<b>8 Projects</b>	<b>23/10</b>	<b>272 530</b>	<b>1 547 183</b>	<b>205 207</b>	<b>11/14</b>	<b>103 811</b>	<b>931 375</b>	<b>72 295</b>

Footnote a/ projects not yet upgraded:

BOL/5/009      ANIMAL HEALTH IN EASTERN BOLIVIA



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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>GENERAL ATOMIC ENERGY DEVELOPMENT</u>		
BOL/0/005	Bolivian Institute for Nuclear Science and Technology, Viacha Nuclear Research Centre, Viacha	RONDON ARAMAYO
<u>NUCLEAR PHYSICS AND CHEMISTRY</u>		
BOL/1/007	Bolivian Institute for Nuclear Science and Technology, Department of Radiation Protection, La Paz	SANCHEZ-GUTIERREZ
BOL/1/008	Bolivian Institute for Nuclear Science and Technology, Viacha Nuclear Research Centre, Viacha	CHAVEZ RIOS
BOL/2/008	Bolivian Institute for Nuclear Science and Technology, Viacha Nuclear Research Centre, Viacha	ALVAREZ APAZA
BOL/2/009	Bolivian Institute for Nuclear Science and Technology, Nuclear Medicine Centre, Division of Radiopharmacology, La Paz	CASANOVA JURADO
<u>NUCLEAR ENGINEERING AND TECHNOLOGY</u>		
BOL/4/005	Bolivian Institute for Nuclear Science and Technology, La Paz	APARICIO COLLAZOS LUNA AGUIRRE

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>AGRICULTURE</u>		
BOL/5/004	Bolivian Institute for Nuclear Science and Technology, Division of Isotope Applications, La Paz	PASCUALI CABRERA ORSAG CESPEDDES
BOL/5/005	1. Bolivian Institute for Nuclear Science and Technology, La Paz 2. Ministry of Rural and Agriculture Affairs, La Paz	PASCUALI CABRERA ORSAG CESPEDDES -
BOL/5/006	1. Oruro Technical University, Directorate for Research and Extension, Oruro 2. Veterinary Research and Diagnostics Laboratory, Santa Cruz	SEMPERTEGUI GONZALES MENDEZ
BOL/5/007	1. Bolivian Institute for Nuclear Science and Technology, La Paz 2. Oruro Technical University, Directorate for Research and Extension, Oruro 3. Bolivian Institute of Agriculture and Stockbreeding Technology, La Paz	SILVA RAMOS ZAPATA SILES -
BOL/5/008	Bolivian Institute for Nuclear Science and Technology, Division of Vegetal Biotechnology, La Paz	PASCUALI CABRERA MONTECINOS VARGAS
BOL/5/010	Oruro Technical University, Faculty of Agronomy and Stockbreeding Sciences, Radioimmunoassay Laboratory, Oruro	SEMPERTEGUI GONZALES MOLLO SOLIZ

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR MEDICINE</u>		
BOL/6/011	Bolivian Institute for Nuclear Science and Technology, Nuclear Medicine Centre, La Paz	SALINAS LOPEZ TRISTAN PORCEL
BOL/6/012	Bolivian Institute for Nuclear Science and Technology, Nuclear Medicine Centre, La Paz	CORDOVA ROCA
BOL/6/013	Ministry of Social Security and Public Health, Nuclear Medicine Centre, La Paz	BARRAGAN MARTINEZ CORDOVA ROCA
BOL/6/014	National Institute of Nuclear Medicine, La Paz	OLAECHEA TORO
BOL/6/015	National Institute of Nuclear Medicine, La Paz	OLAECHEA TORO
BOL/6/016	1. National Institute of Nuclear Medicine, La Paz	BARRAGAN MARTINEZ
	2. San Juan de Dios Hospital, Tarija	PIZARRO
	3. Viedna Medical Hospital, Nuclear Medicine Centre, Cochabamba	SAAVEDRA
BOL/6/017	1. Ministry of Social Security and Public Health, La Paz	CALDERON SAINZ
	2. Hospital de Clinicas, La Paz	MEDINA
BOL/6/018	1. National Institute of Nuclear Medicine, La Paz	VILLAGRA GONZALEZ
	2. Santa Barbara Hospital, Nuclear Medicine Centre, Sucre	KAWANO
	3. Viedna Medical Hospital, Nuclear Medicine Centre, Cochabamba	SAAVEDRA

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

<u>Project No.</u>	<u>Institute</u>	<u>Counterpart(s)</u>
<u>NUCLEAR MEDICINE (cont'd)</u>		
BOL/6/019	1. Ministry of Social Security and Public Health, La Paz	CALDERON SAINZ
	2. Medical Workers Hospital No.2, Cochabamba	PENARANDA ROJAS
	3. East Bolivian Oncologic Institute, Santa Cruz	SERRATE CUELLAR
BOL/6/020	1. Ministry of Social Security and Public Health, La Paz	CALDERON SAINZ
	2. Medical Workers Hospital No.2, Cochabamba	PENARANDA ROJAS
	3. East Bolivian Oncologic Institute, Santa Cruz	SERRATE CUELLAR
<u>NUCLEAR APPLICATIONS IN INDUSTRY AND HYDROLOGY</u>		
BOL/8/004	1. Bolivian Institute for Nuclear Science and Technology, La Paz	MENDEZ-FERRY LIZARAZU VALDIVIA
	2. Bolivian Geological Service, La Paz	-
<u>SAFETY IN NUCLEAR ENERGY</u>		
BOL/9/005	Bolivian Institute for Nuclear Science and Technology, Department of Radiation Protection, La Paz	SANCHEZ-GUTIERREZ
BOL/9/006	1. Bolivian Institute for Nuclear Science and Technology, La Paz	MIRANDA CUADROS
	2. National Health Service, Occupational Medicine Department, La Paz	CORDOVA CARDOZO
BOL/9/007	Bolivian Institute for Nuclear Science and Technology, Radiological Protection Centre, La Paz	MIRANDA CUADROS GUZMAN HOZUMI

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

**LA PAZ**

**Bolivian Institute for Nuclear Science and Technology**  
**La Paz**

BOL/4/005	Nuclear Electronics
BOL/5/005	Nuclear Techniques in Soil Science Studies
BOL/5/007	Mutation Breeding
BOL/8/004	Isotope Hydrology
BOL/9/006	Radiation Protection (Phase II)

**Bolivian Institute for Nuclear Science and Technology**  
**Department of Radiation Protection**  
**La Paz**

BOL/1/007	Secondary Standards Dosimetry Laboratory
BOL/9/005	Radiation Protection

**Bolivian Institute for Nuclear Science and Technology**  
**Radiological Protection Centre**  
**La Paz**

BOL/9/007	Strengthening Radiological Protection
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**Bolivian Institute for Nuclear Science and Technology**  
**Division of Isotope Applications**  
**La Paz**

BOL/5/004	Radioisotopes in Agriculture
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**Bolivian Institute for Nuclear Science and Technology**  
**Division of Vegetal Biotechnology**  
**La Paz**

BOL/5/008	Genetic Improvement of Andean Crops
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**Bolivian Institute for Nuclear Science and Technology**  
**Nuclear Medicine Centre**  
**La Paz**

BOL/6/011	Radioimmunoassay
BOL/6/012	Computer Gamma Camera Studies

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

**LA PAZ**

**Bolivian Institute for Nuclear Science and Technology**  
**Nuclear Medicine Centre**  
**Division of Radiopharmacology**  
**La Paz**

BOL/2/009      Quality Control of Radiopharmaceuticals

**Ministry of Rural and Agriculture Affairs**  
**La Paz**

BOL/5/005      Nuclear Techniques in Soil Science Studies

**Bolivian Institute of Agriculture and Stockbreeding Technology**  
**La Paz**

BOL/5/007      Mutation Breeding

**Ministry of Social Security and Public Health**  
**La Paz**

BOL/6/017      Brachytherapy Service  
BOL/6/019      Radiotherapy  
BOL/6/020      National Brachytherapy Services

**Ministry of Social Security and Public Health**  
**Nuclear Medicine Centre**  
**La Paz**

BOL/6/013      Nuclear Medicine Centre Upgrading

**National Institute of Nuclear Medicine**  
**La Paz**

BOL/6/014      Nuclear Medicine Centre  
BOL/6/015      Improvement of Nuclear Medicine  
BOL/6/016      Upgrading of Nuclear Medicine Services  
BOL/6/018      Upgrading of Nuclear Medicine Services

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

**LA PAZ**

**Hospital de Clinicas**  
**La Paz**

BOL/6/017      Brachytherapy Service

**Bolivian Geological Service**  
**La Paz**

BOL/8/004      Isotope Hydrology

**National Health Service**  
**Occupational Medicine Department**  
**La Paz**

BOL/9/006      Radiation Protection (Phase II)

**VIACHA**

**Bolivian Institute for Nuclear Science and Technology**  
**Viacha Nuclear Research Centre**  
**Viacha**

BOL/0/005      Nuclear Centre Infrastructure  
BOL/1/008      Accelerator Feasibility Study  
BOL/2/008      X-Ray Fluorescence

**TARIJA**

**San Juan de Dios Hospital**  
**Tarija**

BOL/6/016      Upgrading of Nuclear Medicine Services

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

**ORURO**

**Oruro Technical University**  
**Directorate for Research and Extension**  
**Oruro**

BOL/5/006      Immunoassay in Animal Disease and Reproduction Studies  
BOL/5/007      Mutation Breeding

**Oruro Technical University**  
**Faculty of Agronomy and Stockbreeding Sciences**  
**Radioimmunoassay Laboratory**  
**Oruro**

BOL/5/010      Improvement of Reproduction in Andean Cattle

**SANTA CRUZ**

**Veterinary Research and Diagnostics Laboratory**  
**Santa Cruz**

BOL/5/006      Immunoassay in Animal Disease and Reproduction Studies

**East Bolivian Oncologic Institute**  
**Santa Cruz**

BOL/6/019      Radiotherapy  
BOL/6/020      National Brachytherapy Services

**SUCRE**

**Santa Barbara Hospital**  
**Nuclear Medicine Centre**  
**Sucre**

BOL/6/018      Upgrading of Nuclear Medicine Services



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

**COCHABAMBA**

**Viedna Medical Hospital  
Nuclear Medicine Centre  
Cochabamba**

BOL/6/016	Upgrading of Nuclear Medicine Services
BOL/6/018	Upgrading of Nuclear Medicine Services

**Medical Workers Hospital No. 2  
Cochabamba**

BOL/6/019	Radiotherapy
BOL/6/020	National Brachytherapy Services

**THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH  
BOLIVIA  
SINCE 1986**

**LONG-TERM EXPERT ASSIGNMENTS**

NONE

**RESEARCH CONTRACTS/AGREEMENTS IN BOLIVIA SINCE 1986 <sup>1/</sup>**  
**(As of mid-April 1996)**

Field of activity	No. of contracts/ agreements	Amount allocated \$
Nuclear physics	2	6 000
Nuclear chemistry	1	15 000
Nuclear engineering and technology	3	26 700
Nuclear techniques in agriculture	5	26 800
Nuclear medicine	4	39 500
Nuclear techniques in industry & hydrology	1	7 000
Safety in nuclear energy	1	3 600
TOTAL	17	124 600

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<sup>1/</sup> New awards since 1986.

**SCIENTISTS FROM BOLIVIA SERVING AS AGENCY  
TECHNICAL CO-OPERATION EXPERTS AND  
TRAINING COURSE LECTURERS  
OR  
PARTICIPATING IN CO-ORDINATION MEETINGS  
1986 - 1996  
(As of mid-April 1996)**

Name	No. of assignments	Project(s)
ABELA GISBERT	8	BOL/6/011, BOL/6/016
BARBEITO REYES	1	RLA/4/008
BARRAGAN MARINEZ	6	BOL/6/016, INT/0/053, RLA/6/006, RLA/6/016, RLA/6/017, RLA/6/020
BERDEJA AMATLLER	1	BOL/9/006
CHOQUE VICENTE	1	RLA/5/019
CHUNGARA CASTRO	1	RLA/2/003
JUAREZ	1	RLA/8/006
LEON	1	RLA/8/013
LIMACHI KANTUTA	2	RLA/8/013
LIZARAZU VALDIVIA	1	RLA/8/014
MENDEZ-FERRY	4	RLA/0/006
MIRANDA CUADROS	3	BOL/9/006, RLA/9/009, RLA/9/016
OLAECHEA TORO	1	RLA/6/020
ORSAG CESPEDDES	1	BOL/5/004
PAREDES VERASTEGUI	7	BOL/6/018, RLA/0/016, RLA/6/027
PASCUALI CABRERA	2	BOL/5/004, BOL/5/005
SAAVEDRA	1	VEN/3/005
SALINAS LOPEZ	8	BOL/6/011, BOL/6/016, RLA/6/011, RLA/6/016
VELASCO HURTADO	1	BOL/5/004
VELASQUEZ TAPIA	1	RLA/4/006
VILLEGAS	1	RLA/8/020
VILLEGAS IBANEZ	6	RLA/8/005, RLA/8/006, RLA/8/013, RLA/8/017
TOTAL	59	

**AGENCY FELLOWSHIPS AND SCIENTIFIC VISITS  
HOSTED BY BOLIVIA  
1986 - 1996  
(As of mid-April 1996)**

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

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

**REGIONAL AND INTERREGIONAL GROUP TRAINING EVENTS**

**HOSTED BY BOLIVIA**

**1986 - 1996  
(As of mid-April 1996)**

Course No.	Course Title	Partici- pants	Year
RLA/2/003 (011)	RWS on Analytical Applications of Neutron Generators and Isotopic Neutron Sources	7	1991
RLA/6/016 (001)	RTC on Optimization of Radioimmunoassay Methodology for Neonatal Hypothyroid Screening	11	1991
RLA/8/005 (200)	Regional VIII Meeting of the Working Group	16	1987
	TOTAL	34	