



INTERNATIONAL ATOMIC ENERGY AGENCY



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IAEA-CPS-94/04
27 May 1994
Original: ENGLISH

COUNTRY PROGRAMME SUMMARY

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

DEPARTMENT OF TECHNICAL CO-OPERATION

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1984 - 1994
COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION

DEPARTMENT OF TECHNICAL CO-OPERATION

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

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

PHILIPPINES

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INTRODUCTION

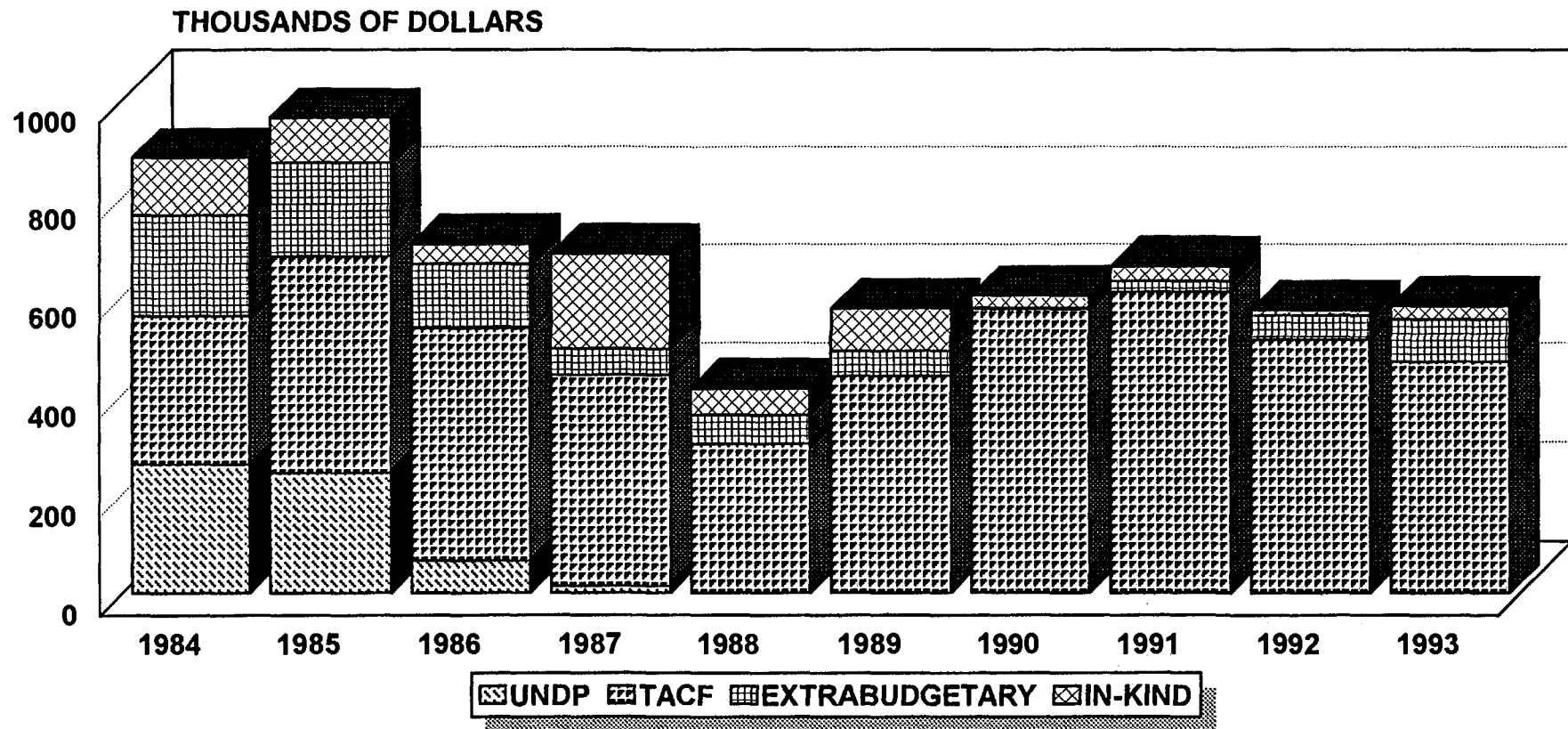
The country programme summary reported on here is one in the series of such studies being undertaken of the Agency's TC programme with Member States. With over \$12.4 million of Agency support received, the Philippines rank 7th among all recipients of technical assistance during the period 1958 through 1993.

About one half of the assistance received over the past ten years has been provided in the form of equipment (46%), the remaining half was shared by training (29%) and expert services (25%). Over two-thirds of the resources were made available through the TACF (68%), supplemented by resources provided through extrabudgetary contributions (13%), in-kind assistance (10%) and UNDP (9%).

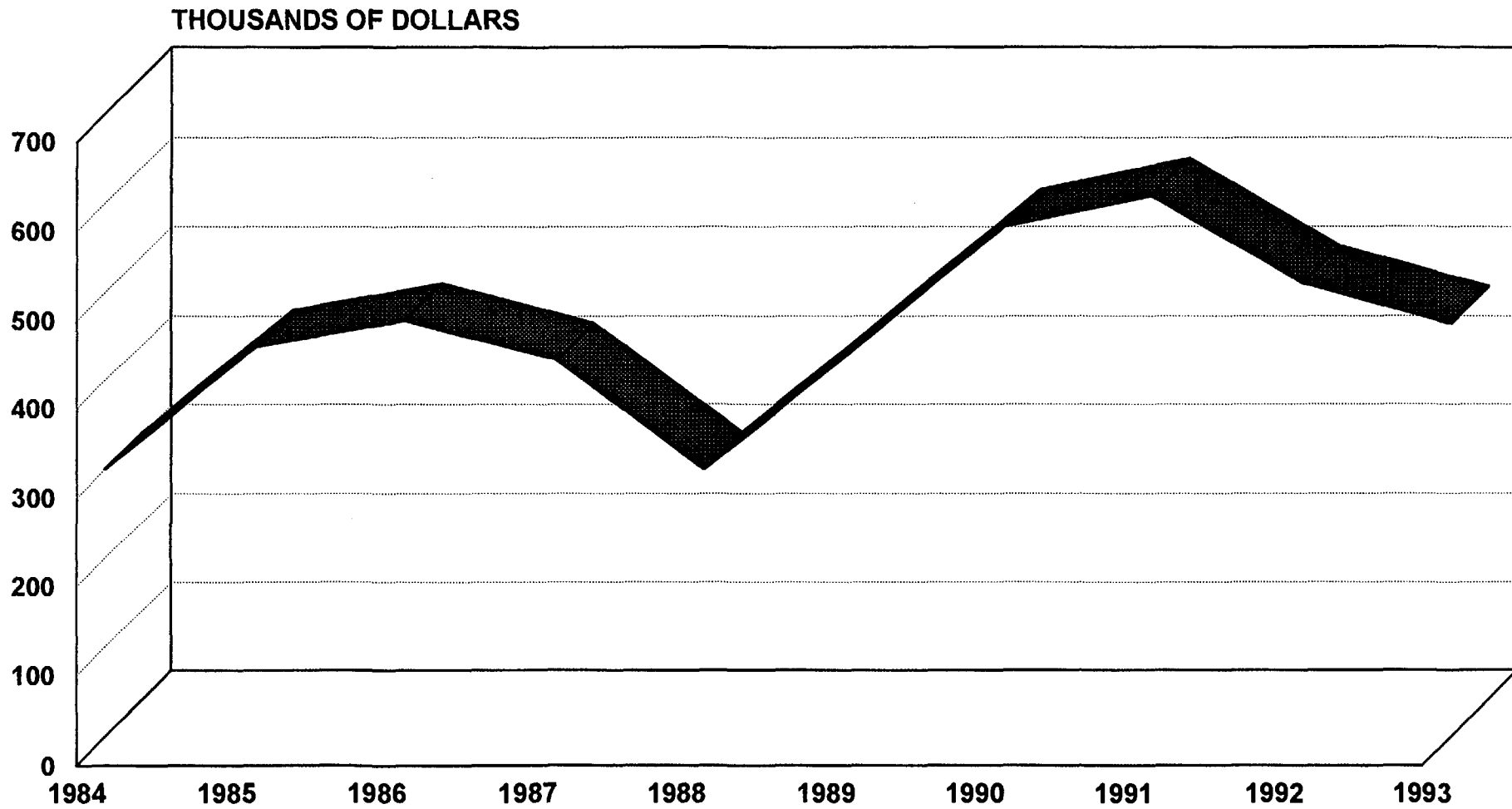
Disbursements under those projects that were operational during the period 1984 through mid-May 1994 show a fairly equal distribution among a wide range of the Agency's areas of competence. The three major sectors were safety in nuclear energy (18%), industry and hydrology (17%) and general atomic energy development (17%), followed by agriculture (12%), nuclear engineering and technology (12%), nuclear physics and chemistry (11%) and nuclear medicine (10%).

Since 1984, scientists from the Philippines have completed 80 assignments as Agency expert and training course lecturers or as participants in research co-ordination meetings. During the same period, the Philippines have hosted 2 fellowships, as well as seven regional training courses for a total of 71 participants.

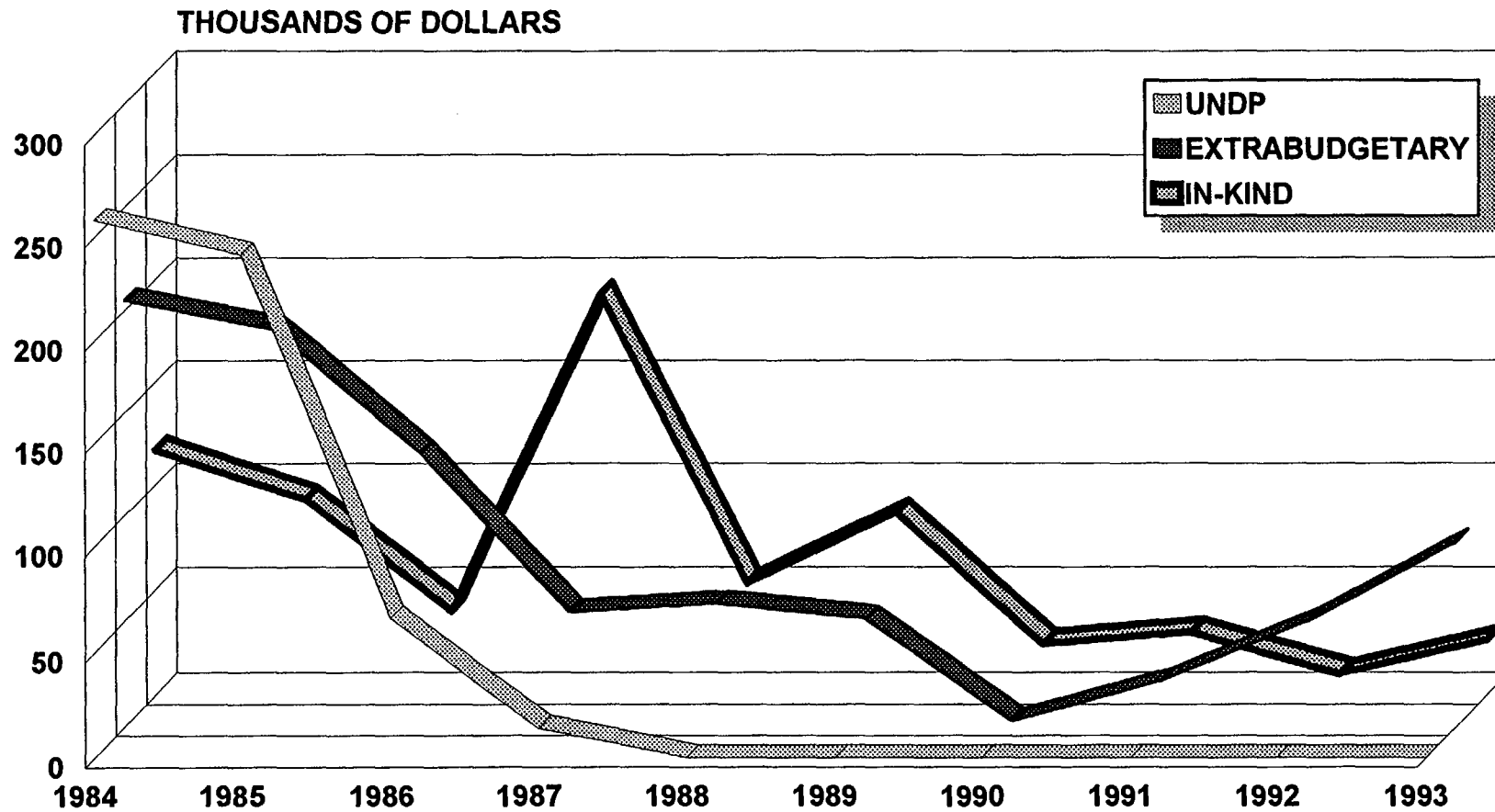
ASSISTANCE PROVIDED BY THE AGENCY TO THE PHILIPPINES BY SOURCE (1984 - 1993)



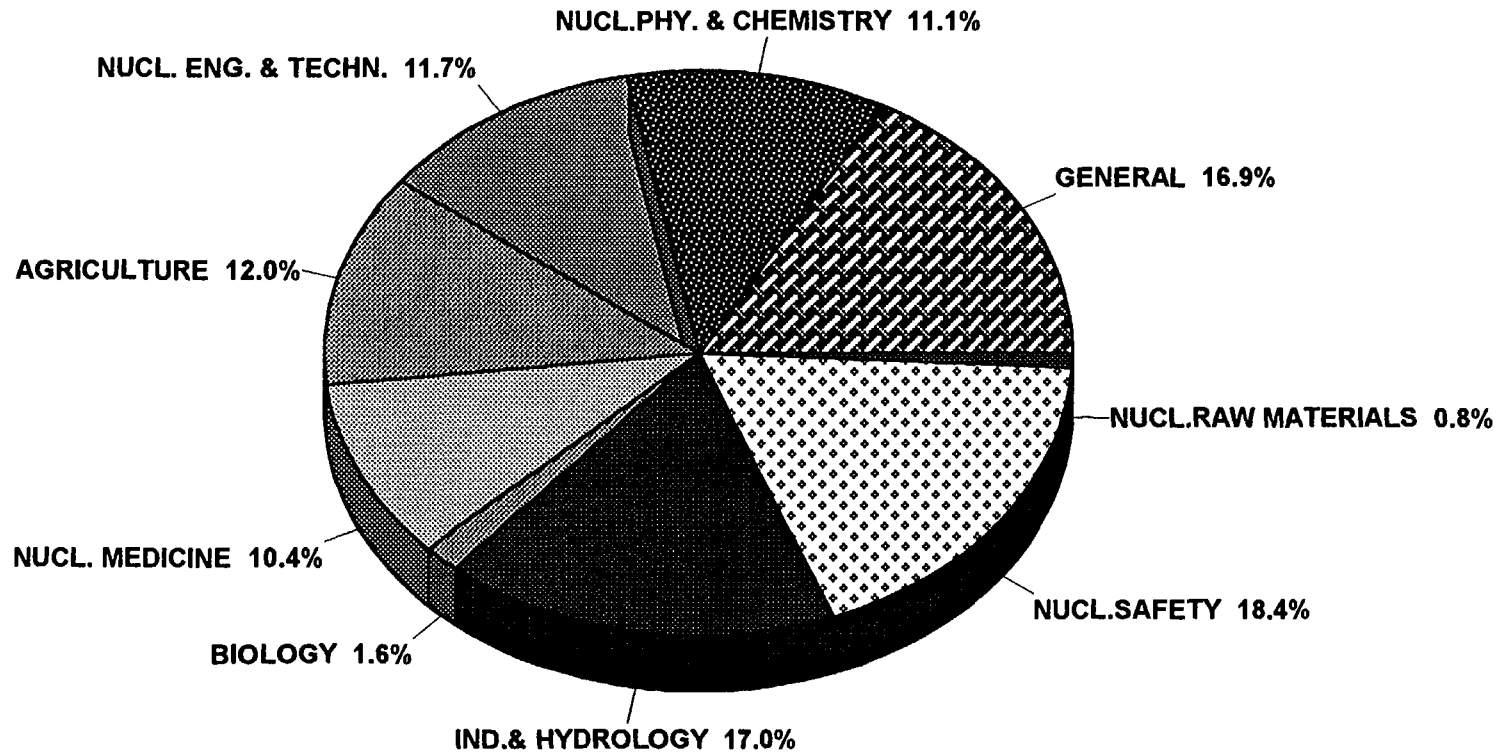
TACF ASSISTANCE PROVIDED TO THE PHILIPPINES (1984 - 1993)



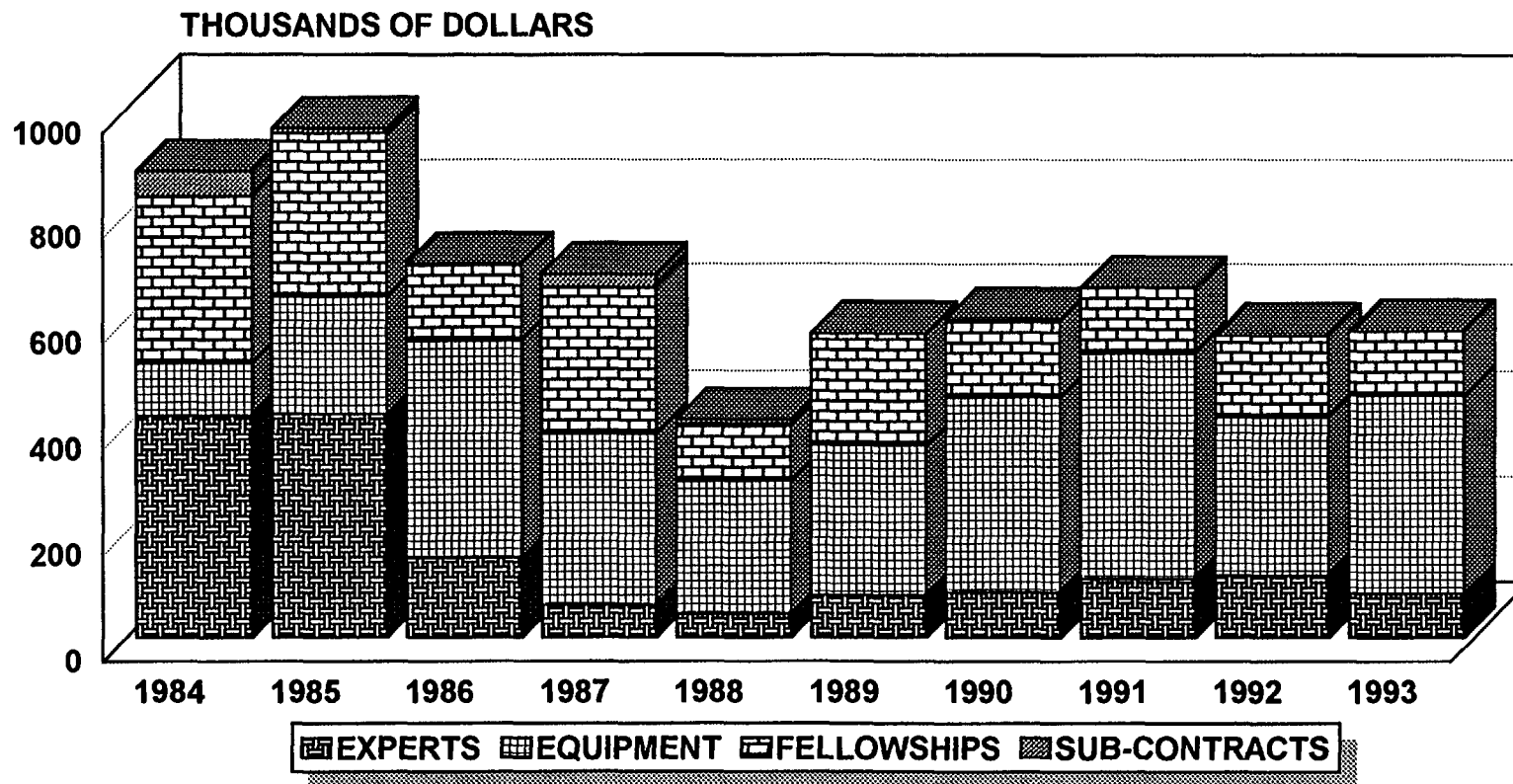
UNDP, EXTRABUDGETARY AND IN-KIND ASSISTANCE PROVIDED TO THE PHILIPPINES (1984 - 1993)



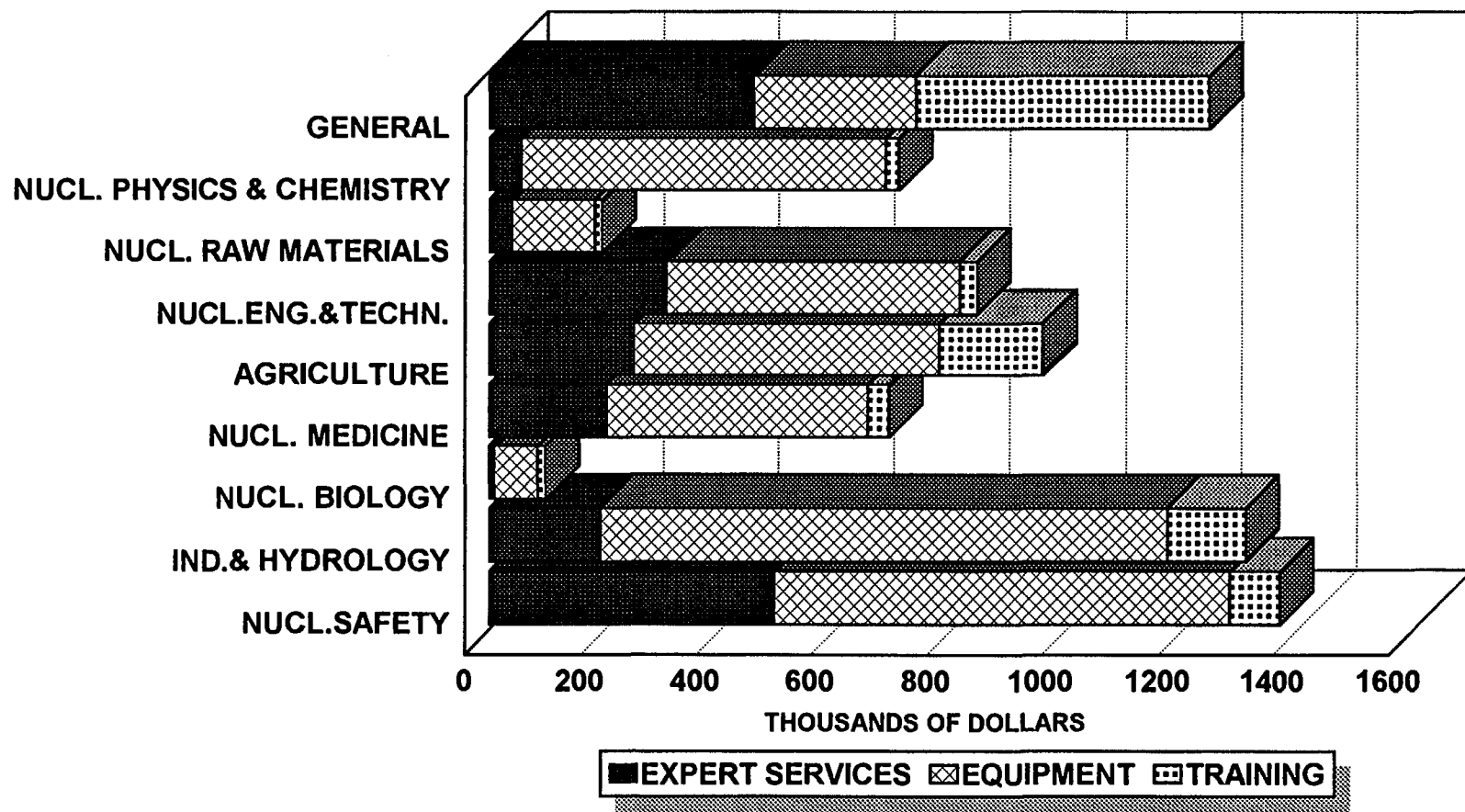
TC PROJECT DISBURSEMENTS IN THE PHILIPPINES BY SECTOR (1984 - 1994)



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



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



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

ALL SOURCES

THE PHILIPPINES' RANKING AS A TC RECIPIENT
1958 - 1993
(in \$1000)

| YEAR | RANKING | AMOUNT |
|---------|------------------|---------|
| 1958-83 | 7 th | 5797.8 |
| 1984 | 5 th | 881.2 |
| 1985 | 5 th | 963.7 |
| 1986 | 14 th | 704.6 |
| 1987 | 19 th | 684.9 |
| 1988 | 26 th | 411.0 |
| 1989 | 21 st | 573.5 |
| 1990 | 21 st | 599.4 |
| 1991 | 18 th | 658.9 |
| 1992 | 25 th | 569.9 |
| 1993 | 22 nd | 578.0 |
| 1958-93 | 7 th | 12422.9 |

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

ALL SOURCES

| Year | I | II | III | IV | V | PHILIPPINES |
|---------|-------------|-------------|-------------|-------------|-------------|---------------------------|
| 1958-83 | BRA 8887.6 | IND 7197.4 | EGY 7024.5 | PAK 6008.9 | ARG 5912.2 | 7 th - 5797.8 |
| 1984 | EGY 3625.9 | PER 1750.4 | THA 1094.6 | CUB 1028.7 | PHI 881.2 | 5 th - 881.2 |
| 1985 | EGY 2494.8 | PER 1120.7 | THA 1117.4 | BGD 1068.2 | PHI 963.7 | 5 th - 963.7 |
| 1986 | EGY 2317.0 | BRA 1452.9 | THA 1169.4 | POL 1050.3 | BGD 896.4 | 14 th - 704.6 |
| 1987 | HUN 3452.6 | EGY 1775.4 | THA 1742.4 | INS 1312.5 | YUG 1223.2 | 19 th - 684.9 |
| 1988 | EGY 1486.9 | BUL 1361.6 | CPR 1278.5 | THA 1158.7 | BRA 1096.7 | 26 th - 411.0 |
| 1989 | CPR 1542.3 | EGY 1505.1 | THA 1205.3 | BRA 1096.5 | INS 999.1 | 21 st - 573.5 |
| 1990 | POL 2308.1 | CPR 2005.0 | VIE 1589.2 | INS 1412.6 | BRA 1229.1 | 21 st - 599.4 |
| 1991 | INS 1305.2 | CPR 975.0 | EGY 959.8 | BRA 951.2 | BUL 934.7 | 18 th - 658.9 |
| 1992 | EGY 1586.3 | INS 1342.1 | CPR 1328.8 | MEX 1127.8 | POL 1036.4 | 25 th - 569.9 |
| 1993 | INS 1285.9 | CPR 1091.7 | PAK 1012.2 | EGY 905.3 | IRA 810.1 | 22 nd - 578.0 |
| 1958-93 | EGY 24713.9 | BRA 18541.4 | THA 16125.1 | INS 15011.8 | PER 13772.0 | 7 th - 12422.9 |

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

TECHNICAL ASSISTANCE AND CO-OPERATION FUND

| Year | I | II | III | IV | V | PHILIPPINES |
|---------|-------------|------------|------------|------------|------------|---------------------------|
| 1958-83 | EGY 3455.2 | HUN 3221.6 | PAK 2839.0 | THA 2354.1 | BRA 2158.9 | 7 th - 2132.8 |
| 1984 | EGY 1197.2 | CUB 655.6 | ECU 565.6 | BGD 506.3 | BUL 472.4 | 16 th - 300.3 |
| 1985 | BGD 991.8 | VIE 745.0 | THA 708.7 | BRA 571.8 | POR 538.7 | 9 th - 438.4 |
| 1986 | BRA 1381.8 | THA 871.9 | POL 833.5 | BGD 823.9 | SYR 751.8 | 20 th - 468.4 |
| 1987 | HUN 3305.2 | DRK 986.8 | BUL 888.5 | INS 885.8 | EGY 878.9 | 25 th - 423.9 |
| 1988 | BUL 1195.6 | PER 856.5 | EGY 768.6 | INS 751.7 | MAL 656.0 | 23 rd - 300.3 |
| 1989 | EGY 990.9 | CPR 868.2 | POR 769.6 | CHI 756.9 | MAL 619.4 | 19 th - 436.3 |
| 1990 | POL 1562.3 | VIE 1518.8 | DRK 1156.2 | IRA 958.0 | YUG 933.4 | 17 th - 572.9 |
| 1991 | BUL 893.1 | PAK 868.8 | INS 855.1 | VIE 817.6 | CPR 814.5 | 12 th - 607.7 |
| 1992 | EGY 1255.7 | CPR 1009.0 | VIE 872.8 | INS 826.6 | IRA 795.5 | 25 th - 510.4 |
| 1993 | INS 1040.5 | CPR 896.5 | PAK 847.6 | IRA 807.4 | THA 721.5 | 19 th - 466.9 |
| 1958-93 | EGY 11549.2 | PAK 8963.2 | VIE 8908.2 | POL 8820.1 | INS 8814.1 | 13 th - 6656.3 |

ASSISTANCE PROVIDED BY THE AGENCY TO THE PHILIPPINES

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 | 418.3 | 99.4 | 315.6 | - | 47.9 | 881.2 | 258.8 | 300.3 | - | 205.1 | 117.0 | 881.2 |
| 1985 | 422.2 | 219.9 | 311.8 | - | 9.8 | 963.7 | 241.8 | 437.3 | 1.1 | 190.6 | 92.9 | 963.7 |
| 1986 | 150.6 | 409.4 | 144.6 | - | - | 704.6 | 66.2 | 468.4 | - | 130.3 | 39.7 | 704.6 |
| 1987 | 60.2 | 324.6 | 274.6 | - | 25.5 | 684.9 | 14.2 | 423.9 | - | 54.0 | 192.8 | 684.9 |
| 1988 | 43.4 | 252.5 | 107.5 | - | 7.6 | 411.0 | - | 300.3 | - | 58.0 | 52.7 | 411.0 |
| 1989 | 78.9 | 283.7 | 210.9 | - | - | 573.5 | - | 434.6 | 1.7 | 51.0 | 86.2 | 573.5 |
| 1990 | 85.2 | 368.6 | 145.6 | - | - | 599.4 | - | 572.9 | - | 2.5 | 24.0 | 599.4 |
| 1991 | 110.0 | 426.7 | 122.2 | - | - | 658.9 | - | 607.7 | - | 21.5 | 29.7 | 658.9 |
| 1992 | 116.6 | 299.8 | 153.5 | - | - | 569.9 | - | 510.4 | - | 49.9 | 9.6 | 569.9 |
| 1993 | 82.2 | 375.0 | 120.8 | - | - | 578.0 | - | 464.9 | - | 87.2 | 25.9 | 578.0 |
| 1984-93 | 1 567.6 | 3 059.6 | 1 907.1 | - | 90.8 | 6 625.1 | 581.0 | 4 520.7 | 2.8 | 850.1 | 670.5 | 6 625.1 |

TECHNICAL CO-OPERATION PROJECTS IN THE PHILIPPINES
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1984 - 1994

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

| SECTOR | NO. OF PROJECTS | ALLOTMENTS \$ | % OF TOTAL | DISBURSEMENTS \$ | % OF TOTAL |
|--|-----------------|---------------|------------|------------------|------------|
| General atomic energy development | 5 | 1 245 225 | 16.8 | 1 078 067 | 16.9 |
| Nuclear physics and chemistry | 6 | 707 973 | 9.5 | 710 965 | 11.1 |
| Nuclear raw materials | 3 | 194 540 | 2.6 | 50 827 | 0.8 |
| Nuclear engineering and technology | 6 | 845 007 | 11.4 | 743 787 | 11.7 |
| Nuclear techniques in agriculture | 7 | 959 064 | 12.9 | 767 199 | 12.0 |
| Nuclear medicine | 5 | 691 866 | 9.3 | 664 625 | 10.4 |
| Nuclear techniques in biology | 2 | 97 679 | 1.3 | 105 126 | 1.7 |
| Nuclear techniques in industry and hydrology | 9 | 1 309 469 | 17.7 | 1 085 607 | 17.0 |
| Nuclear safety | 11 | 1 369 552 | 18.5 | 1 172 205 | 18.4 |
| TOTAL | 54 | 7 420 375 | 100.0 | 6 378 408 | 100.0 |

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

| Sector | No. of projects | Total project allotments \$ | Total project disbursements \$ |
|--|-----------------|-----------------------------|--------------------------------|
| <u>Completed projects</u> | | | |
| General atomic energy development | 4 | 1 018 645 | 1 020 776 |
| Nuclear physics and chemistry | 6 | 707 973 | 710 965 |
| Nuclear raw materials | 2 | 42 340 | 43 272 |
| Nuclear engineering and technology | 4 | 567 537 | 562 244 |
| Nuclear techniques in agriculture | 3 | 470 154 | 503 858 |
| Nuclear medicine | 4 | 589 166 | 607 701 |
| Nuclear techniques in biology | 2 | 97 679 | 105 126 |
| Nuclear techniques in industry & hydrology | 3 | 389 624 | 393 214 |
| Nuclear safety | 9 | 966 172 | 972 869 |
| TOTAL | 37 | 4 849 290 | 4 920 025 |
| <u>Operational projects</u> | | | |
| General atomic energy development | 1 | 226 580 | 57 291 |
| Nuclear physics and chemistry | - | - | - |
| Nuclear raw materials | 1 | 152 200 | 7 555 |
| Nuclear engineering and technology | 2 | 277 470 | 181 543 |
| Nuclear techniques in agriculture | 4 | 488 910 | 263 341 |
| Nuclear medicine | 1 | 102 700 | 56 924 |
| Nuclear techniques in biology | - | - | - |
| Nuclear techniques in industry & hydrology | 6 | 919 845 | 692 393 |
| Nuclear safety | 2 | 403 380 | 199 336 |
| TOTAL | 17 | 2 571 085 | 1 458 383 |

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

| FIELD | TOTAL PROJECT ALLOTMENTS | | | | TOTAL PROJECT DISBURSEMENTS | | | |
|--|--------------------------|-----------|-----------|-----------|-----------------------------|-----------|-----------|----------|
| | EXPERT SERVICES | | EQUIPMENT | TRAINING | EXPERT SERVICES | | EQUIPMENT | TRAINING |
| | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ |
| General atomic energy development | 57/11 | 458 060 | 280 734 | 506 431 | 56/24 | 460 231 | 280 694 | 337 142 |
| Nuclear physics and chemistry | 8/10 | 56 171 | 630 166 | 21 636 | 7/12 | 58 977 | 630 352 | 21 636 |
| Nuclear raw materials | 4/00 | 39 800 | 142 140 | 12 600 | 1/05 | 8 132 | 35 140 | 7 555 |
| Nuclear engineering and technology | 34/29 | 305 647 | 509 053 | 30 307 | 32/10 | 300 510 | 412 970 | 30 307 |
| Nuclear techniques in agriculture | 28/04 | 249 474 | 529 884 | 179 706 | 22/03 | 215 643 | 418 402 | 133 154 |
| Nuclear medicine | 30/01 | 203 350 | 451 616 | 36 900 | 29/06 | 212 783 | 436 301 | 15 541 |
| Nuclear techniques in biology | 1/04 | 9 040 | 75 384 | 13 255 | 1/04 | 16 396 | 74 969 | 13 761 |
| Nuclear techniques in industry & hydrology | 20/26 | 192 040 | 980 589 | 136 840 | 14/12 | 149 059 | 840 015 | 96 533 |
| Nuclear safety | 76/12 | 494 281 | 787 221 | 88 050 | 62/22 | 433 566 | 710 482 | 28 157 |
| TOTAL | 261/07 | 2 007 863 | 4 386 787 | 1 025 725 | 227/08 | 1 855 297 | 3 839 325 | 683 786 |

AGENCY FELLOWS FROM THE PHILIPPINES

1984 - 1994¹
(As of mid-May 1994)

| Sector | No. of fellowships | No. of months/days | Host countries |
|--|--------------------|--------------------|--|
| General atomic energy development | 15 | 70/23 | USA, FRA, BRA, THA, RUS, IAEA |
| Nuclear physics | 4 | 29/06 | SIN, USA, HUN |
| Nuclear chemistry | 8 | 57/12 | NET, AUL, USA, GER, IAEA |
| Nuclear raw materials | 1 | 12/01 | CAN |
| Nuclear engineering and technology | 17 | 83/28 | IND, SRL, USA, SWE, HUN, CZE, AUS, MAL, THA, IAEA |
| Nuclear techniques in agriculture | 39 | 146/21 | USA, AUL, CAN, GER, HUN, THA, JPN, MEX, INS, IND, NET, UK, CEC, IAEA |
| Nuclear medicine | 13 | 60/29 | IND, USA, SIN, NET, THA, UK |
| Nuclear techniques in biology | 10 | 40/01 | USA, THA, SWI, AUS, BEL, POR, UK, IAEA |
| Nuclear techniques in industry and hydrology | 17 | 50/11 | JPN, CAN, AUL, HUN, IND, MAL, INS, GER, ITA, POL, UK, IAEA |
| Nuclear safety | 31 | 153/17 | USA, AUS, SPA, ARG, BRA, MEX, FRA, GER, DEN, IRE, NOR, SWI, JPN, SLO, UK, IAEA |
| TOTAL | 155 | 704/29 | |

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

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

| Name | Field of study | | Host country | Date | Duration | Project |
|---------------|---------------------------------|----|--------------|-----------------|----------|-----------|
| CASTRO | Licensing NPP operators | 0D | USA | Aug.83 - Nov.84 | 15/00 | PHI/0/005 |
| LEONIN, T. | Probabilistic risk analysis | 0A | IAEA/USA | Aug.84 - Sep.85 | 12/16 | PHI/9/012 |
| SALIGAN | Nuclear physics | 1D | SIN | Jul.85 - Jul.86 | 12/02 | - |
| DELA CRUZ, M. | Neutron activation analysis | 2C | NET | Nov.89 - Oct.90 | 12/00 | RAS/0/014 |
| PEREZ, A. | Radioimmunoassay kits | 2F | USA | Aug.84 - Aug.85 | 12/00 | PHI/2/006 |
| REYES, R.Y. | Uranium exploration | 3B | CAN | Jul.86 - Jul.87 | 12/01 | - |
| DEALCA | Nuclear instruments | 4G | IND | Feb.85 - Feb.86 | 12/00 | PHI/4/013 |
| PABLO, S.D. | Research reactors | 4B | USA | Sep.86 - Sep.87 | 12/00 | - |
| RACHO | Quality assurance | 4M | USA | Jun.84 - Jun.85 | 12/00 | PHI/0/005 |
| SULAPAS | NPP control and instrumentation | 4G | USA | Apr.84 - Apr.85 | 12/00 | PHI/0/006 |
| FOJAS | Radiopharmacology | 6D | USA | Sep.83 - Oct.84 | 12/03 | - |
| OYOG | Medical physics | 6F | USA | Sep.83 - Sep.84 | 12/00 | - |
| PAGTAKHAN | Nuclear medicine | 6B | UK | Oct.84 - Oct.85 | 12/01 | - |

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

| Name | Field of study | | Host country | Date | Duration | Project |
|------------|------------------------------------|----|--------------|-----------------|----------|-----------|
| BANZON | Molecular radiation biology | 7C | USA | Jun.86 - Sep.87 | 15/00 | - |
| BELTRAN | Radioecology | 7I | USA | Sep.83 - Sep.84 | 12/01 | PHI/9/007 |
| BULOS | Environmental radiation protection | 9G | IAEA | Apr.86 - Mar.87 | 12/00 | - |
| CRUZ, C.C. | Environmental protection | 9G | USA | Dec.86 - Mar.88 | 15/01 | PHI/9/007 |
| GARCIA | Radioactive waste management | 9E | USA | Apr.88 - Apr.89 | 12/00 | PHI/9/016 |
| MORIONES | Environmental radiation protection | 9G | USA | Jan.87 - Jan.88 | 12/01 | PHI/9/007 |
| MURCIA | Environmental monitoring | 9C | USA | Nov.84 - Nov.85 | 12/00 | PHI/9/007 |
| NAPENAS | Radiation protection | 9C | USA | Oct.86 - Oct.87 | 12/01 | - |
| NEMIS | NPP waste management | 9E | BEL | Oct.83 - Oct.84 | 12/01 | PHI/0/005 |

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

| Name | Field of study | | Host country | Date | Duration | Project |
|--------------|--|----------|---------------------------------|------------------------------------|---------------|------------------------|
| CABALFIN | 1. Nuclear medicine 2. Radiation processing | 6B 8H | UK IAEA HUN IND MAL | Apr.85 - Jul.85 Nov.90 | 3/00 0/26 | PHI/4/015 RAS/0/014 |
| CALUAG | 1. Quality assurance 2. Research reactor | 4M 4B | USA USA | Feb.84 - Dec.84 Jun.90 - Oct.90 | 10/00 4/00 | PHI/0/005 RAS/0/014 |
| CASERIA | 1. Radiation protection 2. Dosimetry | 9C 1K | UK HUN | Aug.84 - Nov.84 Oct.89 - Jan.90 | 3/01 3/01 | PHI/1/012 PHI/1/016 |
| DE LA ROSA | 1. Radiation processing 2. Radiation processing | 8H 8H | INS/JPN POL/UK | Mar.91 Jan.93 | 0/26 0/19 | PHI/8/013 PHI/8/013 |
| ESGUERRA, L. | 1. Analytical chemistry 2. Analytical chemistry | 2C 2C | GER USA | Oct.88 - Apr.89 Jul.93 - Apr.94 | 6/01 9/02 | PHI/1/014 PHI/8/017 |
| GERARDO | 1. Groundwater hydrology 2. Groundwater hydrology | 8M 8M | IAEA IAEA GER ITA | Mar.87 - Jul.87 Sep.91 - Feb.92 | 4/01 5/02 | PHI/8/011 PHI/8/016 |
| LEONIN, R. | 1. Risk assessment 2. Nuclear information | 0A 0F | IAEA IAEA | Feb.85 - May 85 Sep.90 - Nov.90 | 2/28 2/00 | PHI/9/012 RAS/0/014 |

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

| Name | Field of study | Host country | Date | Duration | Project |
|-------------|---|-----------------------------------|------------------------------------|------------------|----------------------------|
| LEONIN, T. | 1. Probabilistic risk analysis 2. Safety of reactors and nuclear materials | IAEA/USA IAEA | Aug.84 - Sep.85 Started: Apr.94 | 12/16 6/00 | PHI/9/012 PHI/0/009 |
| MEDINA, F. | 1. Radiation cytogenetics 2. Genetic effects of radiation | UK BEL POR IAEA | May 85 - Jul.85 Sep.92 | 2/01 0/16 | - RAS/0/018 |
| PABLO, S.D. | 1. Research reactors 2. Tracer techniques for industrial processes | USA AUL/IND | Sep.86 - Sep.87 Jan.92 - Feb.92 | 12/00 0/26 | - PHI/8/015 |
| PORTUGAL | 1. Reactor operator licensing 2. Reactor safety | USA USA | Aug.83 - Feb.84 Jun.90 - Sep.90 | 6/01 3/00 | PHI/4/017 RAS/0/014 |
| RARA | 1. Nuclear safety 2. Isotope production | BRA MAL/THA | Aug.85 Nov.91 - Dec.91 | 0/19 1/20 | PHI/9/013 RAS/0/018 |
| ROCELES | 1. Nuclear materials safeguards 2. Overall programming | SWE HUN CZE IAEA IAEA | Oct.85 Jan.94 - Mar.94 | 0/22 2/01 | PHI/0/006 PHI/0/009 |
| SALIGAN | 1. Nuclear physics 2. Analytical nuclear physics | SIN USA | Jul.85 - Jul.86 Jan.88 - May 88 | 12/02 3/18 | - PHI/1/013 |
| TEJADA | 1. Pesticide residues 2. Agricultural biochemistry | GER USA | Feb.89 - May 89 Mar.92 | 2/28 0/15 | RAS/0/014 RAS/0/018 |

AGENCY TRAINING COURSES WITH PHILIPPINE PARTICIPATION

1984 - 1994
(As of mid-May 1994)

| Field | Number of participants | Number of courses |
|--|------------------------|-------------------|
| General atomic energy development | 30 | 18 |
| Nuclear physics | 11 | 10 |
| Nuclear chemistry | 4 | 4 |
| Nuclear raw materials | 4 | 4 |
| Nuclear engineering and technology | 29 | 23 |
| Nuclear techniques in agriculture | 34 | 26 |
| Nuclear medicine | 41 | 28 |
| Nuclear techniques in biology | 15 | 11 |
| Nuclear techniques in industry & hydrology | 78 | 64 |
| Nuclear safety | 45 | 36 |
| TOTAL | 291 | 224 |

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

| Name | Course No. | Course title | Year | Location |
|----------------|-----------------|--|------|----------|
| ALAMARES | RAS/9/006 (006) | RTC on the basic technique of radiation protection | 1991 | JPN |
| | RAS/9/012 (001) | RTC on dosimetric assessment of internal contamination | 1992 | AUL |
| BALLELOS-DURAN | RAS/1/006 (001) | RWS on neutron activation analysis | 1985 | IND |
| | RAS/9/006 (001) | RTC on development of infrastructures for ensuring radiation protection | 1988 | AUL |
| | RAS/9/012 (001) | RTC on dosimetric assessment of internal contamination | 1992 | AUL |
| BANAGA | INT/4/075 (001) | ITC on instrumentation and control of NPPs | 1985 | GFR |
| | RAS/4/011 (005) | RTC on safety documentation for research reactors | 1992 | BGD |
| BERNIDO | INT/3/013 (001) | ITC on uranium prospection and processing | 1984 | FRA |
| | RAS/9/006 (005) | RWS on development of training techniques and methods of instruction in radiation protection | 1992 | AUL |
| BUENAVENTURA | RAS/7/003 (004) | RTC on radiation sterilization of tissue grafts with emphasis on clinical and sterility quality assurance criteria | 1992 | CPR |
| | RAS/7/003 (006) | RWS on total quality systems for tissue banking of radiation-sterilized surgical grafts | 1993 | INS |
| CABALFIN, E.G. | RAS/0/015 (001) | RWS on radiation processing - The economic benefits | 1993 | CPR |
| | RAS/6/010 (001) | Regional train-the-trainers course on data processing in radioimmunoassay | 1987 | INS |
| CALUAG | RAS/4/011 (004) | RTC on measurement of basic parameters of research reactors | 1992 | INS |
| | RAS/8/008 (054) | Sixth RTC on non-destructive testing (level II) | 1986 | JPN |
| CANAYA | RAS/8/061 (023) | RTC on non-destructive testing of ultrasonics (level II) | 1988 | PAK |
| | RAS/8/062 (034) | RWS on image processing in materials science and in non-destructive testing | 1992 | IND |

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

| Name | Course No. | Course title | Year | Location |
|------------------|-----------------|--|------|----------|
| CASERIA | INT/1/048 (001) | ITC on experimental nuclear spectroscopy | 1992 | USA |
| | RAS/4/014 (001) | RTC on standardization of dose measurements through secondary standards dosimetry laboratories (SSDLs) | 1993 | AUL |
| CELLAN | RAS/8/061 (059) | RWS on fabrication of NDT test pieces | 1989 | INS |
| | RAS/8/062 (022) | RWS on fabrication of NDT test pieces | 1990 | JPN |
| COLLADO | INT/9/050 (001) | ITC on radiological protection and nuclear safety | 1984 | ARG |
| | RAS/9/006 (003) | RTC on development of infrastructures for ensuring radiation protection | 1990 | AUL |
| CRUZ, N. | INT/4/080 (001) | ITC on quality assurance in NPP operation | 1985 | GFR |
| | RAS/8/062 (002) | Regional (RCA) workshop on the operation and maintenance of research reactors | 1987 | IND |
| DACANAY | 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 RIA of thyroid hormones | 1989 | THA |
| DE GUZMAN, Z.G. | RAS/7/003 (006) | RWS on total quality systems for tissue banking of radiation-sterilized surgical grafts | 1993 | INS |
| | RAS/7/004 (001) | RTC on application of radiation and radioisotope techniques in biological sciences significant for human health problems | 1990 | JPN |
| DE JESUS, E. | RAS/6/011 (003) | RTC on optimization of production techniques and distribution schemes for reagents for radioimmunoassay | 1989 | THA |
| | RAS/6/018 (001) | RTC on the preparation of basic reagents for the RIA hepatitis B markers and EQAS | 1993 | CPR |
| DE LA CRUZ, A.C. | RAS/8/008 (045) | RTC on industrial tracer applications | 1986 | IND |
| | RAS/8/062 (017) | RWS on non-destructive examination on non-metallic materials | 1989 | JPN |

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

| Name | Course No. | Course title | Year | Location |
|-------------|-----------------|---|------|--------------------------|
| DEL ROSARIO | RAS/5/021 (003) | RWS on rhizobium technology | 1991 | THA |
| | RAS/5/021 (004) | Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia | 1991 | THA |
| | RAS/5/021 (005) | Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia | 1992 | CPR |
| DOMONDON | RAS/9/006 (011) | RWS on applications of the ICRP's 1990 recommendations for radiation protection | 1993 | MAL |
| | RAS/9/009 (001) | RTC on national infrastructure for radioactive waste management | 1991 | INS |
| FAJARDO | INT/0/054 (001) | ITC on integrated energy and electricity planning for nuclear power development with emphasis on ENPEP | 1992 | USA |
| | INT/4/083 (001) | ITC on electricity demand forecasting in nuclear power planning | 1986 | USA |
| FLORES | RAS/6/015 (001) | RTC on radiation dosimetry | 1989 | CPR |
| | RLA/9/018 (001) | RTC on radiation protection and nuclear safety | 1993 | ARG |
| FONTANILLA | INT/4/068 (001) | ITC on nuclear electronics | 1984 | AUS |
| | RAS/4/012 (003) | RTC on maintenance and repair of MCA cards | 1992 | MAL |
| GAGARIN | INT/1/014 (001) | ITC and workshop on calibration procedures in dosimetry (SSDL) | 1987 | TUR |
| | INT/9/059 (001) | ITC on radiological protection and nuclear safety | 1985 | ARG |
| HIZON | RAS/8/008 (029) | RTC on non-destructive testing | 1984 | SIN |
| | RAS/8/061 (022) | RTC on non-destructive testing of surface methods (level II) | 1988 | CPR |
| LEOPANDO | RAS/8/008 (049) | Regional first executive management seminar on industrial tracer applications | 1986 | BGD INS MAL ROK |
| | RAS/8/069 (001) | RTC on the application of modern isotope and radiation techniques to industry | 1993 | AUL |

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

| Name | Course No. | Course title | Year | Location |
|-----------------|-----------------|---|------|--------------------|
| NODORA | RAS/2/002 (001) | RTC on reactor and cyclotron production of radioisotopes | 1987 | CPR |
| | RAS/6/012 (001) | RTC on radioimmunoassay and its clinical applications (RCA) | 1986 | IND |
| PERALTA | INT/1/029 (001) | ITC on dosimetry | 1984 | BRA |
| | RAS/9/006 (001) | RTC on development of infrastructures for ensuring radiation protection | 1988 | AUL |
| PORTUGAL | INT/9/093 (001) | ITC on safety and regulation of sealed sources of radioactive material | 1989 | USA |
| | RAS/8/062 (029) | RTC on safety operating industrial radiation processing facilities | 1991 | JPN |
| RELUNIA | RAS/0/015 (019) | RTC on industrial applications of NDT and evaluation | 1993 | ROK |
| | RAS/8/061 (006) | RWS on non-destructive testing of non-metallic materials | 1987 | JPN |
| RODRIGUEZ, L.V. | INT/1/033 (001) | Interregional study tour on primary and secondary dosimetry laboratories for technical staff of SSDLs | 1985 | GFR HUN USSR |
| | RAS/9/006 (009) | RWS on computer-assisted planning and dosimetry for carcinoma of the cervix | 1992 | SWE IND |
| ROSALES | RAS/5/021 (003) | RWS on rhizobium technology | 1991 | THA |
| | RAS/5/021 (005) | Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia | 1992 | CPR |
| | RAS/5/021 (007) | Regional RCM on the use of isotopes in studies to improve yield and nitrogen fixation of grain legumes in the tropics and sub-tropics of Asia | 1993 | AUL |
| SALOM | INT/9/120 (001) | ITC on decontamination of research reactors and small nuclear facilities | 1991 | FRA |
| | RAS/9/006 (002) | RTC on radiation protection | 1989 | JPN |
| SAN DIEGO | RAS/6/012 (001) | RTC on radioimmunoassay and its clinical applications (RCA) | 1986 | IND |
| | RAS/6/016 (002) | RTC on the use of computers in technetium-99M imaging | 1990 | AUL |

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

| Name | Course No. | Course title | Year | Location |
|----------------|-----------------|---|------|----------------------------------|
| SAN LUIS | RAS/6/007 (001) | Regional train-the-trainers course in medical radioimmunoassay | 1985 | CPR |
| | RAS/6/010 (001) | Regional train-the-trainers course on data processing in radioimmunoassay | 1987 | INS |
| SANTOS, F.I.L. | INT/8/028 (001) | ITC on nuclear and related analytical techniques in air pollution monitoring and research | 1993 | USA |
| | RAS/1/009 (001) | Advanced RTC on gamma-ray spectroscopy | 1988 | THA |
| SANTOS, R. | INT/0/047 (001) | ITC on electric system expansion planning (WASP) | 1989 | USA |
| | RAS/0/013 (005) | Fourth RWS on energy, electricity and nuclear power planning | 1990 | ROK |
| SINGSON | INT/8/024 (001) | Interregional study tour on radiation techniques in industry | 1984 | CZE FRA GDR HUN USSR |
| | RAS/5/017 (001) | Study tour on food irradiation development | 1986 | CPR |
| VALDEZCO | RAS/8/062 (001) | Regional (RCA) workshop on photon, electron and neutron dosimetry in radiotherapy | 1987 | ROK |
| | RAS/9/006 (001) | RTC on development of infrastructures for ensuring radiation protection | 1988 | AUL |
| | RAS/9/006 (004) | RWS on intercomparison for personal dosimeters | 1990 | JPN |

PROJECTS COMPLETED IN THE PHILIPPINES SINCE 1984
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|--|------------|---------|-----------|----------|---------------|---------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1981 | PHI/0/005 | Philippine nuclear power manpower development programme | 49/12 | 395 680 | 256 814 | 279 851 | 49/12 | 395 680 | 256 814 | 279 851 | 1986 |
| 1984 | PHI/0/006 | Nuclear materials accounting | 4/29 | 32 980 | - | - | 4/29 | 30 226 | - | - | 1988 |
| 1987 | PHI/0/007 | Nuclear information services | 1/15 | 11 400 | 23 920 | - | 1/14 | 17 664 | 23 880 | - | 1992 |
| 1992 | PHI/0/008 | Workshop on the management and evaluation of TC projects | 1/15 | 18 000 | - | - | 0/29 | 16 661 | - | - | 1992 |
| 1983 | PHI/1/012 | Secondary standards dosimetry laboratory | 3/07 | 22 120 | 82 680 | - | 3/07 | 23 873 | 82 385 | - | 1991 |
| 1985 | PHI/1/013 | Nuclear physics research planning | 1/02 | 7 575 | 76 115 | - | 1/02 | 8 120 | 75 705 | - | 1990 |
| 1986 | PHI/1/014 | Neutron activation analysis | - | - | 95 464 | - | - | - | 95 559 | - | 1992 |
| 1988 | PHI/1/015 | Nuclear analytical laboratory | 0/05 | 1 200 | 130 117 | 17 033 | 0/05 | 407 | 130 120 | 17 033 | 1994 |

PROJECTS COMPLETED IN THE PHILIPPINES SINCE 1984
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|--|------------|---------|-----------|----------|---------------|---------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1989 | PHI/1/016 | Improvement of secondary standards dosimetry laboratories | 1/00 | 8 400 | 218 585 | 4 603 | 1/02 | 9 552 | 219 379 | 4 603 | 1993 |
| 1984 | PHI/2/007 | Radioimmunoassay | 2/26 | 16 876 | 27 205 | - | 1/26 | 17 025 | 27 204 | - | 1991 |
| 1983 | PHI/3/006 | Nuclear materials processing | 1/00 | 6 200 | - | - | 1/05 | 8 132 | - | - | 1984 |
| 1987 | PHI/3/007 | Uranium exploration data bank | - | - | 36 140 | - | - | - | 35 140 | - | 1991 |
| 1982 | PHI/4/015 | Radioisotope production | 3/05 | 17 233 | 15 000 | - | 3/05 | 15 528 | 14 883 | - | 1984 |
| 1982 | PHI/4/016 | Quality assurance/ quality control training centre ^{1/} | 20/13 | 201 639 | 114 667 | - | 19/13 | 201 999 | 114 667 | - | 1988 |
| 1982 | PHI/4/017 | Nuclear engineering education | 8/00 | 55 730 | 90 226 | - | 6/20 | 55 730 | 91 108 | - | 1988 |
| 1989 | PHI/4/020 | Research reactor operation | 1/11 | 12 085 | 30 650 | 30 307 | 1/11 | 7 673 | 30 349 | 30 307 | 1994 |

^{1/} Amounts for experts include \$82 252 for two sub-contracts.

PROJECTS COMPLETED IN THE PHILIPPINES SINCE 1984
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|--|------------|---------|-----------|----------|---------------|---------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1981 | PHI/5/017 | Pesticide residues | 8/27 | 65 859 | 155 479 | 13 854 | 8/25 | 75 313 | 155 479 | 13 854 | 1991 |
| 1988 | PHI/5/019 | Nuclear techniques in animal science | 4/04 | 34 680 | 60 700 | 26 912 | 4/05 | 45 109 | 59 747 | 26 846 | 1992 |
| 1991 | PHI/5/020 | Mutation breeding | 2/00 | 18 150 | 39 380 | 55 140 | 2/10 | 35 735 | 39 133 | 52 642 | 1994 |
| 1980 | PHI/6/010 | Medical physics training | 25/22 | 165 220 | 82 574 | - | 25/22 | 177 627 | 82 921 | - | 1989 |
| 1982 | PHI/6/013 | Nuclear medicine (Rizal Hospital) | - | - | 59 500 | - | - | - | 57 620 | - | 1986 |
| 1983 | PHI/6/014 | Nuclear medicine (cardiac function study) | 0/15 | 3 600 | 254 542 | - | 0/20 | 8 106 | 254 377 | - | 1991 |
| 1989 | PHI/6/015 | Medical physics (phase II) | 2/24 | 23 730 | - | - | 2/24 | 27 050 | - | - | 1992 |
| 1987 | PHI/7/004 | Radiation sterilization of human tissue | 0/04 | 940 | 35 824 | 5 075 | 0/04 | 1 412 | 35 446 | 5 628 | 1991 |
| 1989 | PHI/7/005 | Upgrading of the radiation cytogenetics laboratory | 1/00 | 8 100 | 39 560 | 8 180 | 1/00 | 14 984 | 39 523 | 8 133 | 1993 |

PROJECTS COMPLETED IN THE PHILIPPINES SINCE 1984
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|--|------------|---------|-----------|----------|---------------|---------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1979 | PHI/8/009 | Sterilization of medical products | 0/24 | 3 040 | 232 029 | - | 0/24 | 2 569 | 232 048 | - | 1992 |
| 1980 | PHI/8/010 | Radiation sterilization facility ^{2/} | 1/00 | 4 200 | 123 485 | 5 300 | 1/00 | 7 941 | 122 939 | 5 057 | 1992 |
| 1986 | PHI/8/011 | Groundwater hydrology | 0/15 | 3 450 | 18 120 | - | 0/15 | 4 320 | 18 340 | - | 1990 |
| 1979 | PHI/9/007 | Environmental radioactivity | 19/00 | 91 400 | 165 000 | - | 17/24 | 78 449 | 166 219 | - | 1985 |
| 1981 | PHI/9/010 | Nuclear licensing and regulation | 12/15 | 60 900 | - | - | 12/17 | 98 646 | - | - | 1984 |
| 1983 | PHI/9/011 | Spent fuel management | 2/10 | 14 600 | - | - | 2/10 | 11 850 | - | - | 1989 |
| 1983 | PHI/9/012 | Nuclear risk assessment | 7/00 | 47 000 | 6 000 | 10 800 | 2/07 | 18 997 | - | - | 1986 |
| 1983 | PHI/9/013 | Nuclear licensing and regulation | 18/28 | 129 371 | 30 426 | - | 18/28 | 131 654 | 31 400 | - | 1990 |
| 1984 | PHI/9/014 | Nuclear emergency planning | 1/16 | 10 280 | 148 165 | - | 1/16 | 12 154 | 152 380 | - | 1988 |

^{2/} Amounts for equipment include \$7562 for a sub-contract.

PROJECTS COMPLETED IN THE PHILIPPINES SINCE 1984
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|--|------------|-----------|-----------|----------|---------------|-----------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1984 | PHI/9/015 | Radiation protection | 2/00 | 14 500 | 56 898 | - | 1/29 | 14 500 | 56 898 | - | 1985 |
| 1985 | PHI/9/016 | Radioactive waste management | 1/18 | 11 280 | 68 600 | - | 1/18 | 16 172 | 68 574 | - | 1992 |
| 1986 | PHI/9/017 | Determination of radon and thoron levels | 2/03 | 15 510 | 85 442 | - | 2/03 | 29 372 | 85 604 | - | 1991 |
| | TOTAL | 37 Projects | 214/05 | 1 532 928 | 2 859 307 | 457 055 | 205/01 | 1 620 230 | 2 855 841 | 443 954 | |

OPERATIONAL PROJECTS IN THE PHILIPPINES
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | |
|---------|-------------|--|------------|--------|-----------|----------|---------------|--------|-----------|----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ |
| 1993 | PHI/0/009 | Manpower development | - | - | - | 226 580 | - | - | - | 57 291 |
| 1993 | PHI/3/008 | Gamma-ray spectrometric survey | 3/00 | 33 600 | 106 000 | 12 600 | - | - | - | 7 555 |
| 1989 | PHI/4/019 | Production of iodine-131 | 2/00 | 18 960 | 153 510 | - | 1/21 | 19 580 | 152 000 | - |
| 1993 | PHI/4/021 | Repair of the Philippine research reactor | - | - | 105 000 | - | - | - | 9 963 | - |
| 1991 | PHI/5/021 | Impact of pesticides on the ecosystem | 2/06 | 11 820 | 76 600 | - | 2/06 | 11 820 | 77 157 | - |
| 1993 | PHI/5/022 | Feasibility study of integrated control of fruit flies ^{1/} | 4/22 | 49 890 | 47 725 | 30 900 | 2/08 | 19 218 | 33 417 | 23 677 |
| 1993 | PHI/5/023 | Radioimmunoassay for improving animal production | 3/00 | 32 550 | 65 000 | 16 000 | 1/17 | 19 332 | 31 150 | 16 135 |
| 1993 | PHI/5/024 | Biological nitrogen fixation | 3/05 | 36 525 | 85 000 | 36 900 | 0/22 | 9 116 | 22 319 | - |
| 1993 | PHI/6/016 | Upgrading of capability for radioimmunoassay | 1/00 | 10 800 | 55 000 | 36 900 | - | - | 41 383 | 15 541 |

^{1/} Allotments for equipment include \$14 000 for a sub-contract.

OPERATIONAL PROJECTS IN THE PHILIPPINES
(As of mid-May 1994)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | |
|---------|-------------|---|------------|---------|-----------|----------|---------------|---------|-----------|----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ |
| 1991 | PHI/8/013 | Upgrading of gamma irradiation facility | 3/18 | 36 030 | 308 910 | 23 450 | 1/18 | 14 124 | 249 619 | 14 179 |
| 1991 | PHI/8/014 | Training centre for non-destructive testing | 3/00 | 28 500 | 77 240 | 27 000 | 2/28 | 33 209 | 78 930 | 26 293 |
| 1991 | PHI/8/015 | Application of tracer technology | 3/01 | 27 760 | 69 605 | 8 200 | 2/29 | 34 527 | 69 086 | 7 836 |
| 1991 | PHI/8/016 | Isotope techniques in geothermal hydrology | 4/23 | 46 085 | 46 200 | 56 990 | 3/03 | 34 550 | 36 991 | 43 168 |
| 1991 | PHI/8/017 | Application of X-ray analysis | 2/05 | 20 775 | 80 000 | - | 1/15 | 17 819 | 31 982 | - |
| 1993 | PHI/8/018 | Groundwater systems studies by isotope techniques | 2/00 | 22 200 | 25 000 | 15 900 | - | - | 80 | - |
| 1991 | PHI/9/018 | Low-level radioactive waste management | 2/12 | 23 840 | 206 690 | 58 350 | 1/20 | 21 772 | 149 407 | 28 157 |
| 1993 | PHI/9/019 | Operational safety of PNPP-1 and regulatory aspects | 7/00 | 75 600 | 20 000 | 18 900 | - | - | - | - |
| | TOTAL | 17 Projects | 47/02 | 474 935 | 1 527 480 | 568 670 | 22/07 | 235 067 | 983 484 | 239 832 |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)

(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|--|---|------------------------------------|
| <u>GENERAL ATOMIC ENERGY DEVELOPMENT</u> | | |
| PHI/O/005 | 1. Philippine Nuclear Research Institute, Diliman, Quezon City 2. National Power Corporation, Diliman, Quezon City | BARTOLOME BERNARDO - |
| PHI/O/006 | Philippine Nuclear Research Institute, Department of Nuclear Regulation and Safeguards, Diliman, Quezon City | REFRE ROCELES |
| PHI/O/007 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | DELFIN |
| PHI/O/008 | Philippine Nuclear Research Institute, Diliman, Quezon City | ALETA |
| PHI/O/009 | Philippine Nuclear Research Institute, Diliman, Quezon City | ALETA |
| <u>NUCLEAR PHYSICS AND CHEMISTRY</u> | | |
| PHI/1/012 | Philippine Nuclear Research Institute, Radiation Protection Division, Diliman, Quezon City | VALDEZCO |
| PHI/1/013 | Philippine Nuclear Research Institute, Physics Research Division, Diliman, Quezon City | CALIX |
| PHI/1/014 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | LEOPANDO |
| PHI/1/015 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | SANTOS SOMBRITO |
| PHI/1/016 | 1. Philippine Nuclear Research Institute, Nuclear Regulations, Licensing and Safeguards Division, Diliman, Quezon City 2. Department of Health, Radiation Health Services, Manila | VALDEZCO PERALTA PERALTA |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)
(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|---|---|-----------------------|
| <u>NUCLEAR PHYSICS AND CHEMISTRY (cont'd)</u> | | |
| PHI/2/007 | 1. Philippine Nuclear Research Institute, Division of Biomedical Research, Diliman, Quezon City | ALEJANDRINO |
| | 2. Philippine Nuclear Research Institute, Irradiation Service, Diliman, Quezon City | EUGENIO |
| <u>NUCLEAR RAW MATERIALS</u> | | |
| PHI/3/006 | Philippine Nuclear Research Institute, Diliman, Quezon City | SANTOS |
| PHI/3/007 | Philippine Nuclear Research Institute, Diliman, Quezon City | REYES |
| PHI/3/008 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | SANTOS |
| <u>NUCLEAR ENGINEERING AND TECHNOLOGY</u> | | |
| PHI/4/015 | Philippine Nuclear Research Institute, Diliman, Quezon City | EUGENIO |
| PHI/4/016 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | VELENCIA |
| PHI/4/017 | Philippine Nuclear Research Institute, Diliman, Quezon City | VALENCIA |
| PHI/4/019 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | CABALFIN |
| PHI/4/020 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | LEOPANDO |
| PHI/4/021 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | LEOPANDO |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)

(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|--------------------|---|---|
| <u>AGRICULTURE</u> | | |
| PHI/5/017 | University of the Philippines, Natural Sciences Research Institute, Manila | ENRIQUEZ GONZALES |
| PHI/5/019 | 1. Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City 2. Bureau of Animal Industry, Manila 3. University of the Philippines, College of Veterinary Medicine, Diliman, Quezon City | ALEJANDRINO ALCANTARA EDUARDO |
| PHI/5/020 | 1. Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City 2. Philippine Rice Research Institute, Munoz, Nueva Ecija | SANTOS DELA CRUZ |
| PHI/5/021 | University of the Philippines, National Crop Protection Centre, Pesticide Chemistry and Toxicology Laboratory, Los Banos | TEJADA |
| PHI/5/022 | 1. Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City 2. National Mango Research and Development Centre, San Miguel, Jordan, Guimaras | MANOTO GOLEZ |
| PHI/5/023 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | ALEJANDRINO |
| PHI/5/024 | University of the Philippines, College of Agriculture, Institute of Plant Breeding, Los Banos | PATERNO |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)
(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|---|---|-----------------------|
| <u>NUCLEAR MEDICINE</u> | | |
| PHI/6/010 | University of Santo Tomas, Manila | ANATALIO VALENCIA |
| PHI/6/013 | Rizal Provincial Hospital, Radioisotope Laboratory, Manila | OBMERGA |
| PHI/6/014 | University of the Philippines, College of Medicine, Philippine General Hospital, Manila | CRUZ |
| PHI/6/015 | University of Santo Tomas, The Graduate School, Sampaloc, Manila | VILLABA |
| PHI/6/016 | Philippine Nuclear Research Institute, Diliman, Quezon City | EUGENIO |
| <u>NUCLEAR TECHNIQUES IN BIOLOGY</u> | | |
| PHI/7/004 | University of the Philippines, College of Medicine, Philippine General Hospital, Department of Orthopaedics, Manila | AGCAOILI |
| PHI/7/005 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | MEDINA |
| <u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY</u> | | |
| PHI/8/009 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | SINGSON |
| PHI/8/010 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | CABALFIN |
| PHI/8/011 | Environmental Management Bureau, Diliman, Quezon City | PERALTA |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)
(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|--|--|-----------------------|
| <u>NUCLEAR TECHNIQUES IN INDUSTRY AND HYDROLOGY (cont'd)</u> | | |
| PHI/8/013 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | DE LA ROSA |
| PHI/8/014 | Philippine Nuclear Research Institute, Nuclear Services and Training Division, Diliman, Quezon City | BERNIDO |
| PHI/8/015 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | LEOPANDO |
| PHI/8/016 | Philippine National Oil Company, Department of Energy, Quezon City | RECIO |
| PHI/8/017 | Philippine Nuclear Research Institute, Atomic Research Division, Diliman, Quezon City | CALIX |
| PHI/8/018 | University of the Philippines, College of Engineering, National Hydraulic Research Centre, Diliman, Quezon City | ALEJANDRINO |
| <u>NUCLEAR SAFETY</u> | | |
| PHI/9/007 | Philippine Nuclear Research Institute, Health Physics Research Division, Diliman, Quezon City | JUAN |
| PHI/9/010 | Philippine Nuclear Research Institute, Department of Nuclear Regulation and Safeguards, Diliman, Quezon City | ALETA |
| PHI/9/011 | Philippine Nuclear Research Institute, Diliman, Quezon City | YOSHISAKI |
| PHI/9/012 | Philippine Nuclear Research Institute, Management Services Department, Diliman, Quezon City | SAVELLANO |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (I)
(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|--------------------------------|---|-----------------------|
| <u>NUCLEAR SAFETY</u> (cont'd) | | |
| PHI/9/013 | Philippine Nuclear Research Institute, Department of Nuclear Regulation and Safeguards, Diliman, Quezon City | BERNARDO |
| PHI/9/014 | 1. Philippine Nuclear Research Institute, Radiation Protection Division, Diliman, Quezon City 2. Philippine Nuclear Research Institute, Special Projects Research Pool, Diliman, Quezon City | DE LA PAZ - |
| PHI/9/015 | Philippine Nuclear Research Institute, Radiation Protection Division, Diliman, Quezon City | CABALFIN |
| PHI/9/016 | Philippine Nuclear Research Institute, Nuclear Regulations, Licensing and Safeguards Division, Diliman, Quezon City | VALDEZCO |
| PHI/9/017 | Philippine Nuclear Research Institute, Diliman, Quezon City | BALLELOS-DURAN |
| PHI/9/018 | Philippine Nuclear Research Institute, Nuclear Regulations, Licensing and Safeguards Division, Diliman, Quezon City | VALDEZCO |
| PHI/9/019 | Philippine Nuclear Research Institute, Diliman, Quezon City | ALETA |

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

MANILA

**Department of Health
Radiation Health Services
Manila**

PHI/1/016 Improvement of Secondary Standards Dosimetry Laboratories

**Bureau of Animal Industry
Manila**

PHI/5/019 Nuclear Techniques in Animal Science

**University of the Philippines
Natural Sciences Research Institute
Manila**

PHI/5/017 Pesticide Residues

**University of the Philippines
College of Medicine
Philippine General Hospital
Manila**

PHI/6/014 Nuclear Medicine (Cardiac Function Study)

**University of the Philippines
College of Medicine
Philippine General Hospital
Department of Orthopaedics
Manila**

PHI/7/004 Radiation Sterilization of Human Tissues

**University of Santo Tomas
Manila**

PHI/6/010 Medical Physics Training

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

MANILA

**University of Santo Tomas
The Graduate School
Sampaloc, Manila**

PHI/6/015 Medical Physics (Phase II)

**Rizal Provincial Hospital
Radioisotope Laboratory
Manila**

PHI/6/013 Nuclear Medicine (Rizal Hospital)

QUEZON CITY

**Philippine Nuclear Research Institute
Diliman, Quezon City**

PHI/0/005 Philippine Nuclear Power Manpower Development Programme
PHI/0/008 Workshop on the Management and Evaluation of TC Projects
PHI/0/009 Manpower Development
PHI/3/006 Nuclear Materials Processing
PHI/3/007 Uranium Exploration Data Bank
PHI/4/015 Radioisotope Production
PHI/4/017 Nuclear Engineering Education
PHI/6/016 Upgrading of Capability for Radioimmunoassay
PHI/9/011 Spent Fuel Management
PHI/9/017 Determination of Radon and Thoron Levels
PHI/9/019 Operational Safety of PNPP-1 and Regulatory Aspects

**Philippine Nuclear Research Institute
Department of Nuclear Regulation and Safeguards
Diliman, Quezon City**

PHI/0/006 Nuclear Materials Accounting
PHI/9/010 Nuclear Licensing and Regulation
PHI/9/013 Nuclear Licensing and Regulation

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

QUEZON CITY

**Philippine Nuclear Research Institute
Nuclear Services and Training Division
Diliman, Quezon City**

| | |
|-----------|---|
| PHI/0/007 | Nuclear Information Services |
| PHI/1/014 | Neutron Activation Analysis |
| PHI/4/016 | Quality Assurance/Quality Control Training Centre |
| PHI/4/019 | Production of Iodine-131 |
| PHI/4/020 | Research Reactor Operation |
| PHI/4/021 | Repair of the Philippine Research Reactor |
| PHI/8/010 | Radiation Sterilization Facility |
| PHI/8/014 | Training Centre for Non-Destructive Testing |

**Philippine Nuclear Research Institute
Radiation Protection Division
Diliman, Quezon City**

| | |
|-----------|--|
| PHI/1/012 | Secondary Standards Dosimetry Laboratory |
| PHI/9/014 | Nuclear Emergency Planning |
| PHI/9/015 | Radiation Protection |

**Philippine Nuclear Research Institute
Atomic Research Division
Diliman, Quezon City**

| | |
|-----------|--|
| PHI/1/015 | Nuclear Analytical Laboratory |
| PHI/3/008 | Gamma-ray Spectrometric Survey |
| PHI/5/019 | Nuclear Techniques in Animal Science |
| PHI/5/020 | Mutation Breeding |
| PHI/5/022 | Feasibility Study of Integrated Control of Fruit Flies |
| PHI/5/023 | Radioimmunoassay for Improving Animal Production |
| PHI/7/005 | Upgrading of the Radiation Cytogenetics Laboratory |
| PHI/8/009 | Sterilization of Medical Products |
| PHI/8/013 | Upgrading of Gamma Irradiation Facility |
| PHI/8/015 | Application of Tracer Technology |
| PHI/8/017 | Application of X-Ray Analysis |

**Philippine Nuclear Research Institute
Physics Research Division
Diliman, Quezon City**

| | |
|-----------|-----------------------------------|
| PHI/1/013 | Nuclear Physics Research Planning |
|-----------|-----------------------------------|

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

QUEZON CITY

**Philippine Nuclear Research Institute
Nuclear Regulations, Licensing and Safeguards Division
Diliman, Quezon City**

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|-----------|---|
| PHI/1/016 | Improvement of Secondary Standards Dosimetry Laboratories |
| PHI/9/016 | Radioactive Waste Management |
| PHI/9/018 | Low-Level Radioactive Waste Management |

**Philippine Nuclear Research Institute
Division of Biomedical Research
Diliman, Quezon City**

| | |
|-----------|------------------|
| PHI/2/007 | Radioimmunoassay |
|-----------|------------------|

**Philippine Nuclear Research Institute
Irradiation Service
Diliman, Quezon City**

| | |
|-----------|------------------|
| PHI/2/007 | Radioimmunoassay |
|-----------|------------------|

**Philippine Nuclear Research Institute
Health Physics Research Division
Diliman, Quezon City**

| | |
|-----------|-----------------------------|
| PHI/9/007 | Environmental Radioactivity |
|-----------|-----------------------------|

**Philippine Nuclear Research Institute
Management Services Department
Diliman, Quezon City**

| | |
|-----------|-------------------------|
| PHI/9/012 | Nuclear Risk Assessment |
|-----------|-------------------------|

**Philippine Nuclear Research Institute
Special Projects Research Pool
Diliman, Quezon City**

| | |
|-----------|----------------------------|
| PHI/9/014 | Nuclear Emergency Planning |
|-----------|----------------------------|

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

QUEZON CITY

National Power Corporation
Diliman, Quezon City

PHI/0/005 Philippine Nuclear Power Manpower Development Programme

Environmental Management Bureau
Diliman, Quezon City

PHI/8/011 Groundwater Hydrology

Philippine National Oil Company
Department of Energy
Quezon City

PHI/8/016 Isotope Techniques in Geothermal Hydrology

University of the Philippines
College of Engineering
National Hydraulic Research Centre
Diliman, Quezon City

PHI/8/018 Groundwater Systems Studies by Isotope Techniques

University of the Philippines
College of Veterinary Medicine
Diliman, Quezon City

PHI/5/019 Nuclear Techniques in Animal Science

NUEVA ECIJA

Philippine Rice Research Institute
Munoz, Nueva Ecija

PHI/5/020 Mutation Breeding

COUNTERPART INSTITUTIONS IN THE PHILIPPINES (II)
(By Institute)

GUIMARAS

National Mango Research and Development Centre
San Miguel, Jordan, Guimaras

PHI/5/022 Feasibility Study of Integrated Control of Fruit Flies

LOS BANOS

University of the Philippines
National Crop Protection Centre
Pesticide Chemistry and Toxicology Laboratory
Los Banos

PHI/5/021 Impact of Pesticides on the Ecosystem

University of the Philippines
College of Agriculture
Institute of Plant Breeding
Los Banos

PHI/5/024 Biological Nitrogen Fixation

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

(1984 - 1994)

LONG-TERM ASSIGNMENTS

PHI/O/005 Philippine Nuclear Power Manpower Development Programme

- Task 1103 - Operator Licensing
W.E. ELDRIDGE (USA) Jan 85 - Jan 86 12 months
 - To provide expert assistance in the development and implementation of a regulatory programme for the licensing of reactor operators.
 - To assist the Philippine Atomic Energy Commission (PAEC) and the National Power Corporation in addressing the numerous operator qualifications, recommendations, and directives arising from the Three Mile accident.
 - To assist in the conduct of written and oral examinations to the initial candidates for operator positions.
 - To strengthen the regulatory agency's capabilities in engineering, operational, and regulatory aspects of the nuclear power plant project.
 - To provide additional training to utility personnel involved in the Philippine Nuclear Power Plant operations.

- Task 1105 - Pre- and In-service Inspection
W.G. ALBERT (USA) Jul 83 - May 85 19 months
 - To assist in the development of regulatory inspection programmes for the construction of PNPP-1.
 - To provide training in inspection techniques and methods, as well as conducting courses and seminars specifically directed to filling needs for inspection expertise.
 - To provide on-the-job training for PAEC inspectors, by accompanying them during actual audits and inspections.

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

LONG-TERM ASSIGNMENTS

PHI/0/005 Philippine Nuclear Power Manpower Development Programme

- Task 1104 - Pre-operational and Start-up Testing
L.E. VORDERBRUEGGEN (USA) Oct 84 - Sep 85 12 months
 - To provide training in inspection methods and techniques to the PAEC staff along with conducting courses specifically directed toward fulfilling the needs for inspection expertise.
 - To provide on-the-job training for the PAEC inspectors by accompanying them during actual inspections and audits.
 - To assist the PAEC in the development of their regulatory inspection programmes for start-up testing and full-power operation of the first nuclear power plant in the Philippines, PNPP-1.
 - To assist the Department of Nuclear Regulation and Safeguards (DNRS) staff in evaluating results of pre-operational tests and the operational readiness of plant components and systems.
 - To provide advice and information to the Commissioners as appropriate on regulatory matters pertaining to PNPP-1.

PHI/6/010 Medical Physics Training

- Task 02 - Teaching of Radiological Physics
L.E. LARSSON (SWE) Sep 84 - Apr 86 15.2 months
 - To teach radiological physics in a medical physics course at the Master's degree level, covering the physical aspects of radiation teletherapy and brachytherapy, treatment planning, dosimetry, radiation protection, and nuclear medicine. The programme to include lectures and supervision of practicals and thesis research.

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

LONG-TERM ASSIGNMENTS

PHI/4/016 Quality Assurance/Quality Control Training Centre

- Task 01 - Project Management
T.W. MILLER (USA) Jan 84 - Jul 85 16.8 months
 - To provide expert services in the management of a QA/QC training project, covering the following functions:
 1. Provide programme guidance towards the development of the Training Centre into a national institution devoted to assuring the quality of Philippine products and services.
 2. Indicate requirements for short-term experts to serve as lecturers and/or instructors. Assist in the development of training materials and provide supplementary course instructions. Assist in the selection of suitable equipment, instruction material, books and reference materials for the Training Centre.
 3. Assist the project director with the evaluation of counterpart instructor progress, and in arranging schedules between counterparts, short-term experts and students for maximum effectiveness.
 4. Evaluate in-country facilities and staff for potential use in the programme and provide co-ordination with other countries participating in similar programmes that may be using same resources.
 5. Provide consultation to Philippine organizations interested in the development of QA/QC capabilities.
 6. Provide assistance and consultation to the Philippine Society of Non-destructive Testing (PSNT) to develop certification standards and programmes.

RESEARCH CONTRACTS/AGREEMENTS IN THE PHILIPPINES SINCE 1984 ¹
(As of mid-May 1994)

| Field of activity | No. of contracts/ agreements | Amount allocated \$ |
|------------------------------------|------------------------------|---------------------|
| Nuclear physics | 5 | 48 500 |
| Nuclear engineering and technology | 2 | 12 000 |
| Nuclear techniques in agriculture | 36 | 402 900 |
| Nuclear medicine | 8 | 74 000 |
| Nuclear techniques in biology | 5 | 73 500 |
| Safety in nuclear energy | 4 | 46 800 |
| TOTAL | 60 | 657 700 |

^{1/} New awards since 1984

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

| Name | No. of assignments | Project(s) |
|----------------|--------------------|--|
| AGCAOILI | 2 | RAS/7/003 |
| ALEJANDRINO | 2 | MYA/5/007, PHI/5/019 |
| ALETA | 7 | RAS/8/008, RAS/8/011, RAS/8/061, RAS/8/062 |
| AMPARO | 1 | PHI/0/005 |
| BARTOLOME | 1 | PHI/0/005 |
| BERNARDO | 3 | MAL/9/007, PHI/0/005 |
| CABALFIN, E.A. | 3 | INT/0/045, RAS/4/011, RAS/9/006 |
| CABALFIN, E.G. | 2 | RAS/8/062, RAS/8/070 |
| CORPUZ | 1 | RAS/8/008 |
| DE LA PAZ | 1 | PHI/9/014 |
| DE VERA | 1 | RAS/4/008 |
| DOMONDON | 2 | RAS/8/061, RAS/8/071 |
| ESGUERRA | 1 | PHI/0/012 |
| EUGENIO, A.D. | 5 | RAS/6/011, RAS/6/018 |
| EUGENIO, M.R. | 2 | PHI/0/005, PHI/9/011 |
| JIMENA | 1 | PHI/0/005 |
| LEOPANDO | 2 | RAS/8/008, RAS/8/071 |
| MARTINEZ | 1 | RAS/8/061 |
| MATEO | 3 | RAS/8/061, RAS/8/071 |
| MENA | 1 | PHI/0/005 |
| MENDOZA | 1 | RAS/8/062 |
| MONZON | 1 | RAS/9/006 |
| NACARIO | 1 | PHI/0/005 |

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

| Name | No. of assignments | Project(s) |
|-----------|--------------------|--|
| NATERA | 1 | RAS/9/006 |
| NAVARRO | 7 | RAS/8/008, RAS/8/011, RAS/8/062 |
| PAREDES | 1 | RAS/9/006 |
| PUGA | 4 | PHI/0/005, RAS/0/013, RAS/4/008 |
| QUINTIA | 1 | RAS/0/013 |
| RARA | 1 | PHI/0/005 |
| REFRE | 1 | PHI/0/005 |
| REYES | 1 | PHI/4/020 |
| RODRIGUEZ | 1 | PHI/0/005 |
| SABADO | 1 | RAS/8/061 |
| SANTOS | 2 | RAS/8/071, RAS/9/006 |
| SORIANO | 1 | INT/4/054 |
| TORRES | 5 | INS/6/004, INT/6/036, RAS/6/011, RAS/8/062 |
| TORRIZO | 1 | CUB/5/010 |
| UYCHOCO | 1 | RAS/8/062 |
| VALDES | 1 | CPR/0/003 |
| VALDEZCO | 3 | RAS/9/006 |
| VALENCIA | 2 | PAN/5/003, RAS/6/011 |
| TOTAL | 80 | |

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

| Recipient country | No. of fellowships | No. of scientific visits | TOTAL ¹ |
|-------------------|--------------------|--------------------------|--------------------|
| CUBA | 1 | - | 1 |
| INDONESIA | 1 | - | 1 |
| TOTAL | 2 | - | 2 |

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

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

| Course No. | Course Title | Partici- pants | Year |
|-----------------|---|-------------------|-------------|
| RAS/3/005 (001) | RTC on Nuclear Techniques in Geology and Mineralogy | 16 | 1986 |
| RAS/8/008 (022) | Regional Training-Demonstration on Nucleonic Control Systems for Mineral Benefication | 11 | 1983 /84 |
| RAS/8/008 (035) | Regional Executive Management Seminar for Minerals | 8 | 1984 |
| RAS/8/008 (048) | Regional Second Industrial Training-Demonstration on On-Stream Analysis and Control of Mineral Concentrations Employing Nucleonic Systems | 11 | 1985 /86 |
| RAS/8/061 (050) | RTC on Non-Destructive Testing of Ultrasonics (Level III) | 8 | 1989 |
| RAS/8/061 (071) | Regional Executive Management Seminar on the Use of Nucleonic Control System for Mineral Processing | 7 | 1990 |
| RAS/8/061 (076) | RTC on Non-Destructive Testing of Radiography (Level III) | 10 | 1990 |
| | TOTAL | 71 | |