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INTERNATIONAL ATOMIC ENERGY AGENCY

IAEA-CPS-92/16
12 November 1992
Original: ENGLISH

COUNTRY PROGRAMME SUMMARY

THE AGENCY'S TECHNICAL CO-OPERATION

PROGRAMME WITH

MADAGASCAR

1982 - 1992

COUNTRY PROGRAMME SUMMARIES

DEPARTMENT OF TECHNICAL CO-OPERATION

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MADAGASCAR

1982 - 1992

COUNTRY PROGRAMME SUMMARIES

EVALUATION SECTION
DEPARTMENT OF TECHNICAL CO-OPERATION

**THE AGENCY'S TECHNICAL CO-OPERATION
PROGRAMME WITH
MADAGASCAR
1982 - 1992
COUNTRY PROGRAMME SUMMARIES**

This report contains a review of the Agency's technical co-operation activities in Madagascar carried out during 1982 - 1992. 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.

MADAGASCAR

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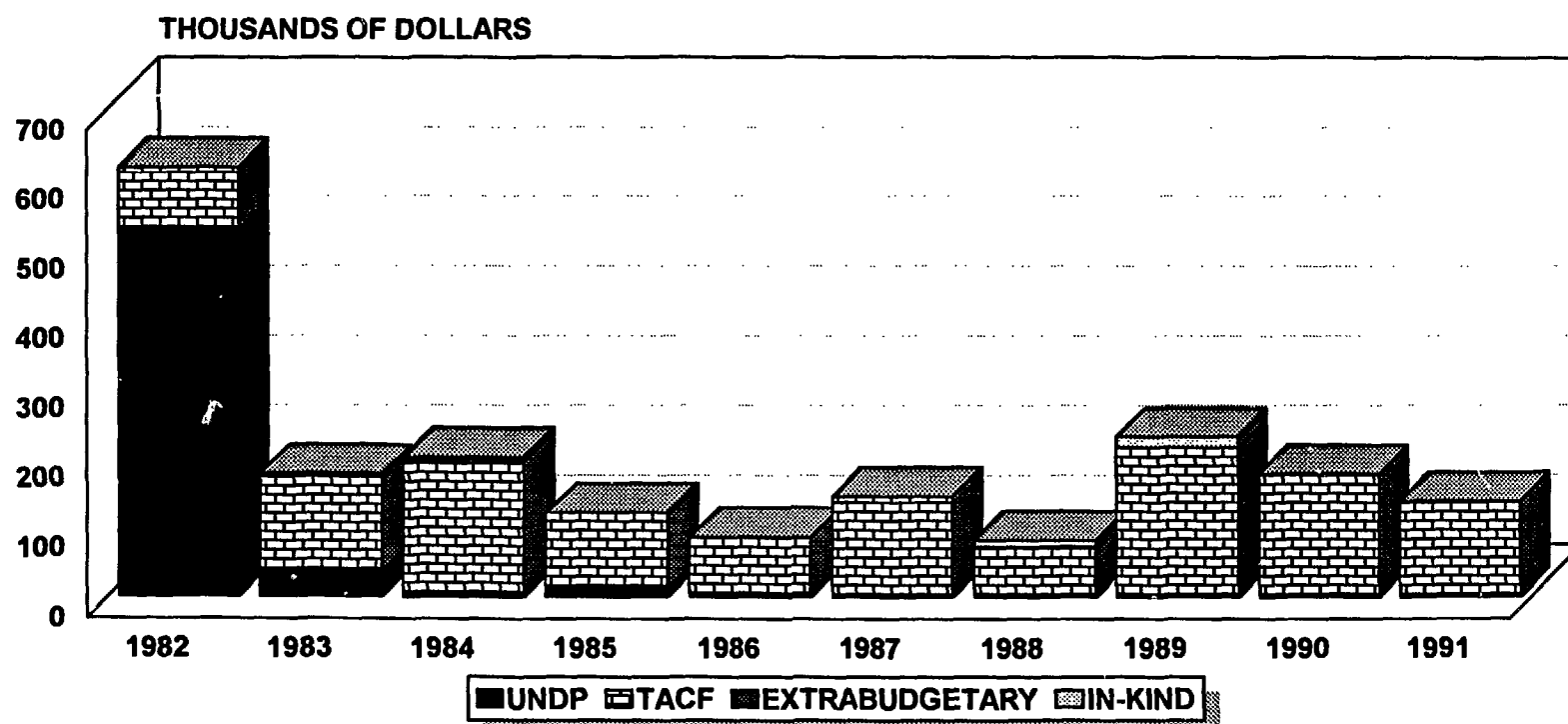
INTRODUCTION

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 \$3.5 million of Agency support received, Madagascar ranks 42nd among all recipients of technical assistance in the period 1958 through 1991.

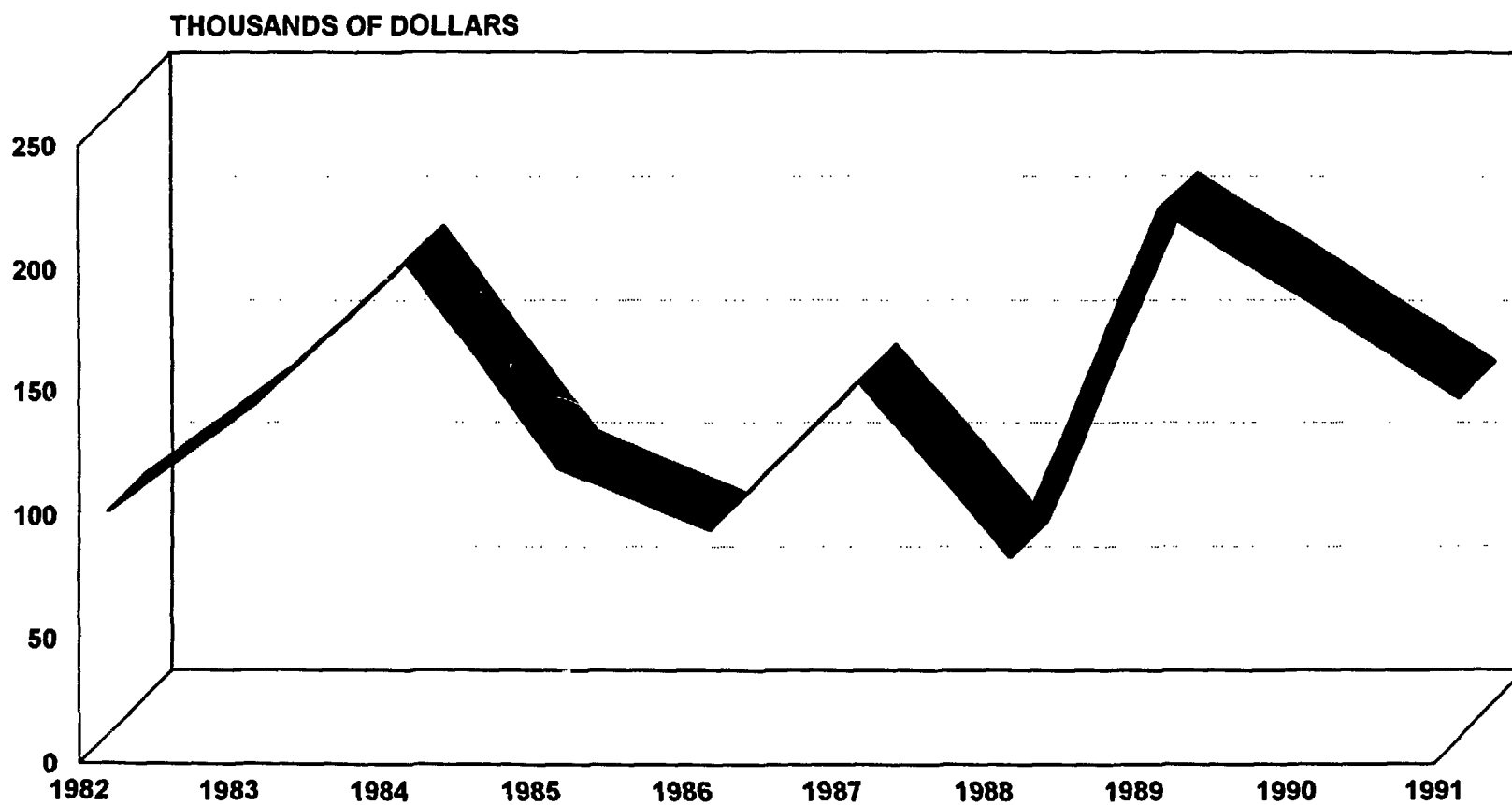
More than half of the assistance during the past ten years has been provided in the form of equipment (55%), followed by expert services (32%) and training (13%). With a share of 69%, the Technical Assistance and Co-operation Fund has provided more than two-thirds of the total resources available, while 29% were made available through UNDP and 2% through assistance in kind. Extrabudgetary contributions accounted for less than one per cent.

With regard to project disbursements during the past ten years, by sector, by far the largest area has been nuclear raw materials (66%), followed by nuclear physics and chemistry (18%). Only small shares have gone to nuclear safety (7%), agriculture (5%) and nuclear engineering and technology (4%).

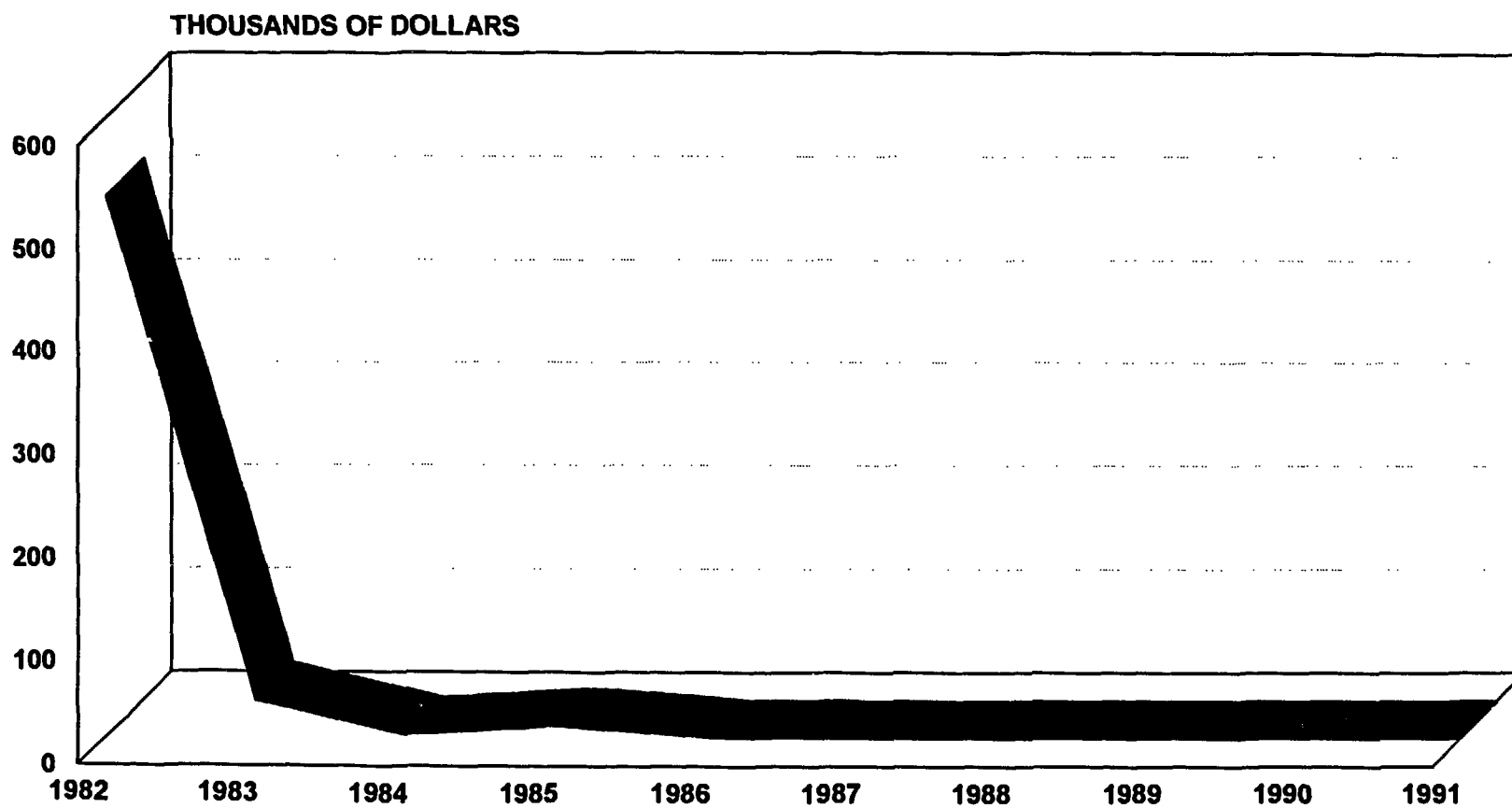
ASSISTANCE PROVIDED BY THE AGENCY TO MADAGASCAR BY SOURCE (1982 - 1991)



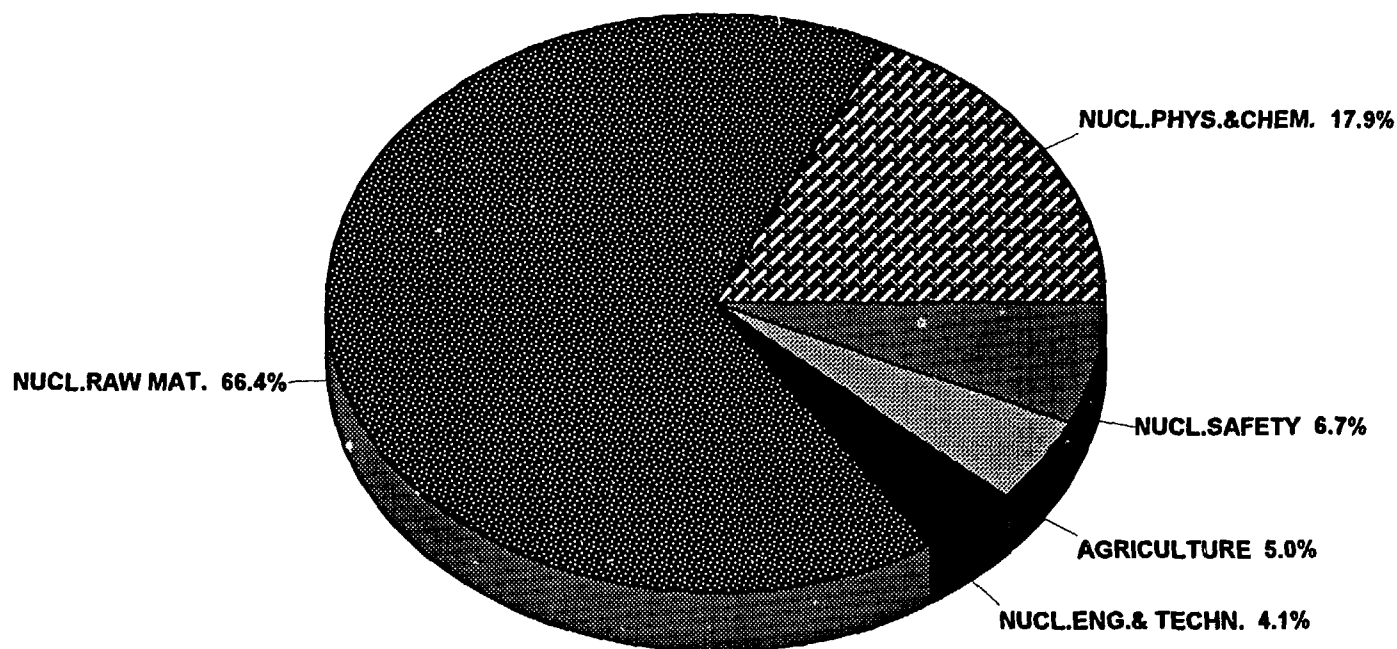
TACF ASSISTANCE PROVIDED TO MADAGASCAR (1982 - 1991)



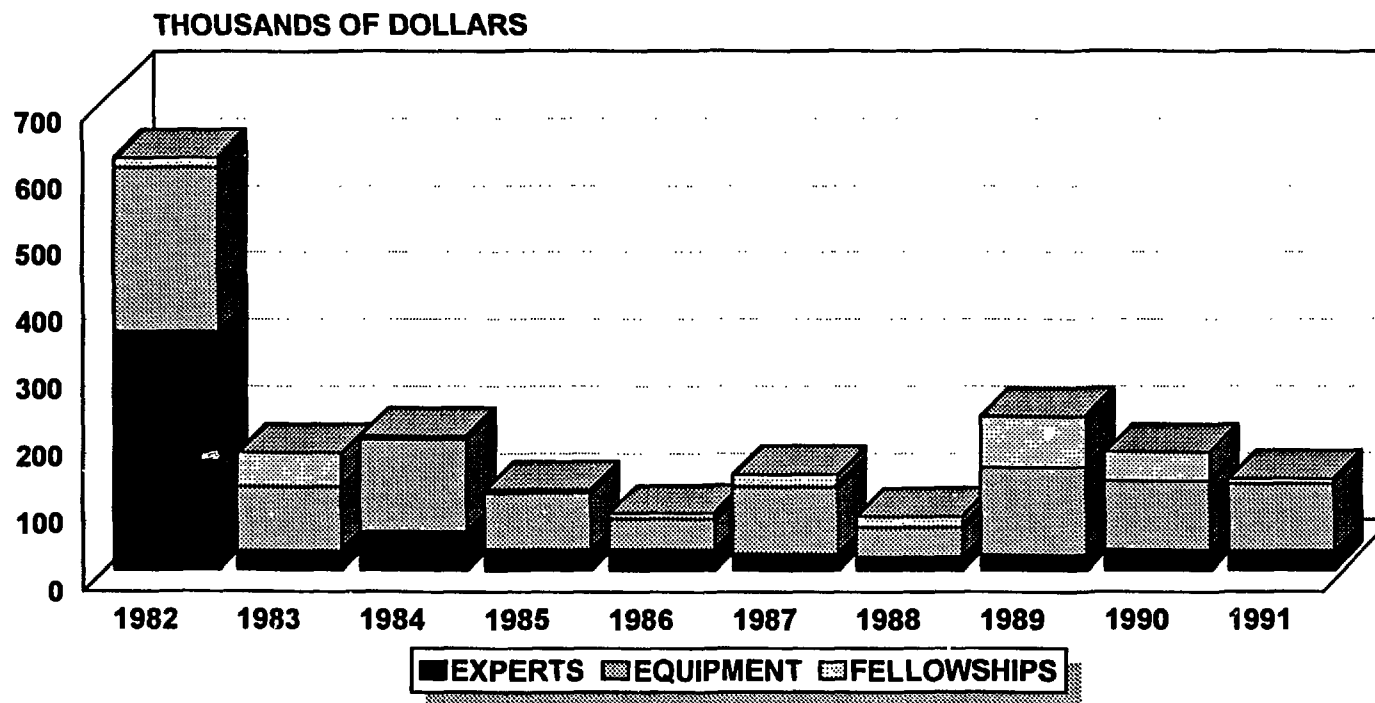
UNDP ASSISTANCE PROVIDED TO MADAGASCAR (1982 - 1991)



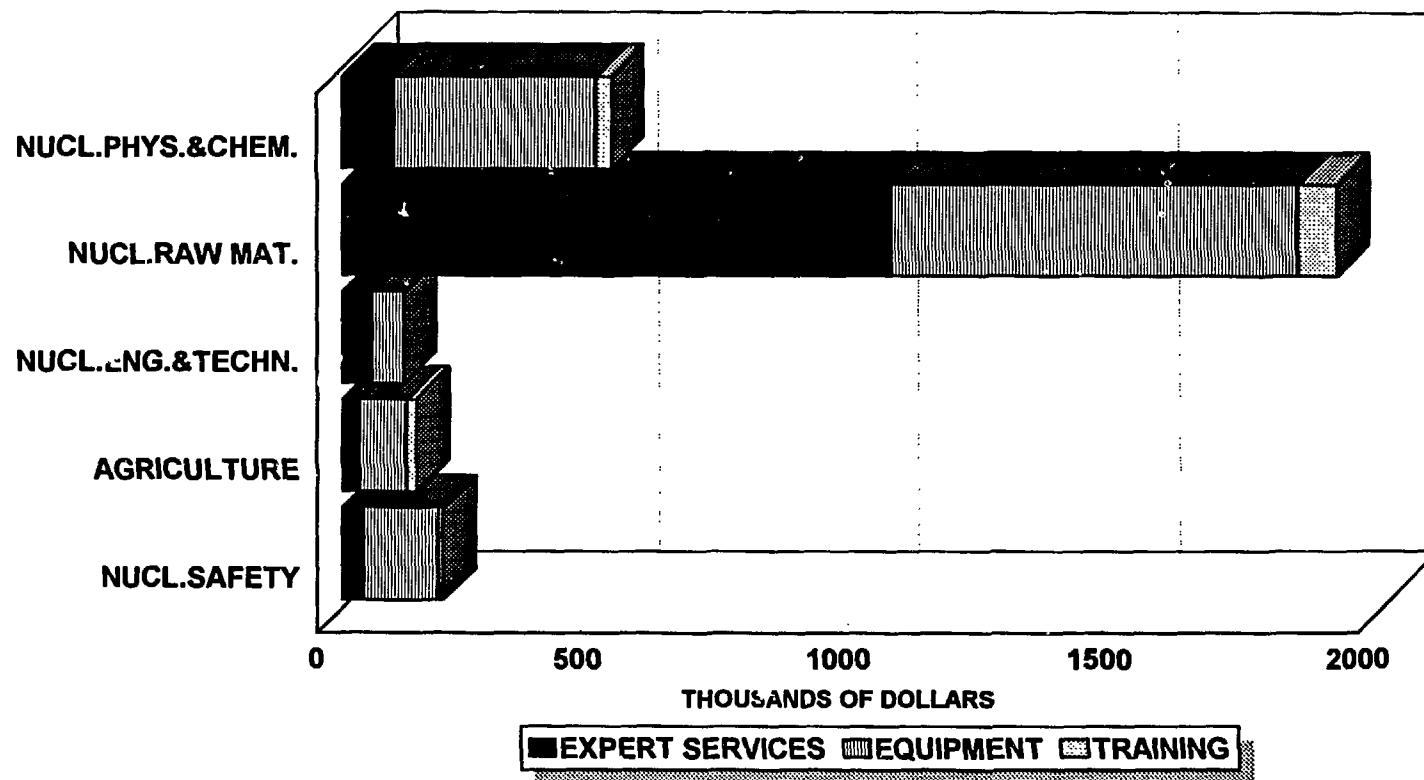
TC PROJECT DISBURSEMENTS IN MADAGASCAR BY SECTOR (1982 - 1991)



ASSISTANCE PROVIDED BY THE AGENCY TO MADAGASCAR BY TYPE (1982 -1991)



EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO MADAGASCAR BY SECTOR (1982 - 1992)



THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH MADAGASCAR

ALL SOURCES

MADAGASCAR'S RANKING AS A TC RECIPIENT
1958 - 1991
(in \$1000)

| YEAR | RANKING | AMOUNT |
|---------|------------------|--------|
| 1958-81 | 29 th | 1590.0 |
| 1982 | 6 th | 615.5 |
| 1983 | 46 th | 174.8 |
| 1984 | 42 nd | 199.1 |
| 1985 | 58 th | 119.6 |
| 1986 | 61 st | 84.7 |
| 1987 | 58 th | 142.7 |
| 1988 | 64 th | 80.2 |
| 1989 | 49 th | 227.8 |
| 1990 | 55 th | 175.1 |
| 1991 | 64 th | 135.9 |
| 1958-91 | 42 nd | 3545.4 |

"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1991 (in \$1000)

ALL SOURCES

| Year | I | II | III | IV | V | MADAGASCAR |
|---------|-------------|-------------|-------------|-------------|-------------|---------------------------|
| 1958-81 | BRA 7907.9 | IND 6670.7 | ARG 5200.4 | PAK 5091.2 | CHI 5005.7 | 29 th - 1590.0 |
| 1982 | EGY 807.5 | PER 746.4 | CUB 715.7 | COL 667.7 | THA 654.3 | 6 th - 615.5 |
| 1983 | EGY 2077.9 | PER 1116.8 | VIE 948.1 | PHI 778.6 | IRA 722.1 | 46 th - 174.8 |
| 1984 | EGY 3625.9 | PER 1750.4 | THA 1094.6 | CUB 1028.7 | PHI 881.2 | 42 nd - 199.1 |
| 1985 | EGY 2494.8 | PER 1120.7 | THA 1117.4 | BGD 1068.2 | PHI 963.7 | 58 th - 119.6 |
| 1986 | EGY 2317.0 | BRA 1452.9 | THA 1169.4 | POL 1050.3 | BGD 896.4 | 61 st - 84.7 |
| 1987 | HUN 3452.6 | EGY 1775.4 | THA 1742.4 | INS 1312.5 | YUG 1223.2 | 58 th - 142.7 |
| 1988 | EGY 1486.9 | BUL 1361.6 | CPR 1278.5 | THA 1158.7 | BRA 1096.7 | 64 th - 80.2 |
| 1989 | CPR 1542.3 | EGY 1505.1 | THA 1205.3 | BRA 1096.5 | INS 999.1 | 49 th - 227.8 |
| 1990 | POL 2308.1 | CPR 2005.0 | VIE 1589.2 | INS 1412.6 | BRA 1229.1 | 55 th - 175.1 |
| 1991 | INS 1305.2 | CPR 975.0 | EGY 959.8 | BRA 951.2 | BUL 934.7 | 64 th - 135.9 |
| 1958-91 | EGY 22222.3 | BRA 17021.1 | THA 14596.1 | PER 12631.1 | INS 12383.8 | 42 nd - 3545.4 |

"TOP FIVE" RECIPIENTS OF AGENCY ASSISTANCE
1958 - 1991 (in \$1000)

TECHNICAL ASSISTANCE AND CO-OPERATION FUND

| Year | I | II | III | IV | V | MADAGASCAR |
|---------|------------|------------|------------|------------|------------|---------------------------|
| 1958-81 | HUN 2533.0 | PAK 2010.9 | EGY 1898.7 | THA 1712.8 | BRA 1704.8 | 46 th - 452.9 |
| 1982 | EGY 507.1 | HUN 438.2 | CUB 430.7 | ECU 398.4 | ZAM 354.9 | 48 th - 90.1 |
| 1983 | EGY 1049.4 | VIE 897.4 | POL 667.8 | PAK 498.5 | PHI 430.0 | 45 th - 134.3 |
| 1984 | EGY 1197.2 | CUB 655.6 | ECU 565.6 | BGD 506.3 | BUL 472.4 | 33 rd - 191.2 |
| 1985 | BGD 991.8 | VIE 745.0 | THA 708.7 | BRA 571.8 | POR 538.7 | 55 th - 107.8 |
| 1986 | BRA 1381.8 | THA 871.9 | POL 833.5 | BGD 823.9 | SYR 751.8 | 59 th - 82.9 |
| 1987 | HUN 3305.2 | DRK 986.8 | BUL 888.5 | INS 885.8 | EGY 878.9 | 55 th - 142.7 |
| 1988 | BUL 1195.6 | PER 856.5 | EGY 768.6 | INS 751.7 | MAL 656.0 | 59 th - 71.8 |
| 1989 | EGY 990.9 | CPR 868.2 | POR 769.6 | CHI 756.9 | MAL 619.4 | 43 rd - 212.6 |
| 1990 | POL 1562.3 | VIE 1518.8 | DRK 1156.2 | IRA 958.0 | YUG 933.4 | 49 th - 175.1 |
| 1991 | BUL 893.1 | PAK 868.8 | INS 855.1 | VIE 817.6 | CPR 814.5 | 59 th - 135.9 |
| 1958-91 | EGY 9591.3 | HUN 8256.5 | POL 7793.5 | BRA 7433.5 | PAK 7346.0 | 54 th - 1797.3 |

ASSISTANCE PROVIDED BY THE AGENCY TO MADAGASCAR

Financial Summary 1982 - 1991
(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 |
| 1982 | 354.4 | 246.9 | 14.2 | - | - | 615.5 | 524.6 | 90.1 | - | 0.8 | - | 615.5 |
| 1983 | 28.7 | 94.7 | 51.4 | - | - | 174.8 | 35.9 | 134.3 | - | - | 4.6 | 174.8 |
| 1984 | 57.8 | 136.3 | 5.0 | - | - | 199.1 | 3.2 | 191.2 | - | - | 4.7 | 199.1 |
| 1985 | 31.3 | 82.9 | 5.4 | - | - | 119.6 | 11.8 | 107.8 | - | - | - | 119.6 |
| 1986 | 31.5 | 44.6 | 8.6 | - | - | 84.7 | 1.1 | 82.9 | - | - | 0.7 | 84.7 |
| 1987 | 25.1 | 99.0 | 18.6 | - | - | 142.7 | - | 129.4 | 13.3 | - | - | 142.7 |
| 1988 | 20.5 | 42.9 | 16.8 | - | - | 80.2 | - | 68.0 | 3.8 | - | 8.4 | 80.2 |
| 1989 | 23.0 | 129.5 | 75.3 | - | - | 227.8 | - | 210.6 | 2.0 | - | 15.2 | 227.8 |
| 1990 | 30.5 | 101.9 | 42.7 | - | - | 175.1 | - | 168.0 | 7.1 | - | - | 175.1 |
| 1991 | 28.8 | 99.2 | 7.9 | - | - | 135.9 | - | 135.5 | 0.4 | - | - | 135.9 |
| 1982-91 | 631.6 | 1 077.9 | 245.9 | - | - | 1 955.4 | 576.6 | 1 317.8 | 26.6 | 0.8 | 33.6 | 1 955.4 |

TECHNICAL CO-OPERATION PROJECTS IN MADAGASCAR
BY SECTOR

PROJECTS COMPLETED AND OPERATIONAL 1982 - 1992

TOTAL PROJECT ALLOTMENTS AND DISBURSEMENTS
(as of 31 October 1992)

| SECTOR | NO. OF PROJECTS | ALLOTMENTS \$ | % OF TOTAL | DISBURSEMENTS \$ | % OF TOTAL |
|---|--------------------|------------------|---------------|---------------------|---------------|
| General atomic energy development | - | - | - | - | - |
| Nuclear physics and chemistry | 2 | 539 711 | 17.4 | 517 756 | 17.9 |
| Nuclear raw materials | 4 | 1 926 909 | 62.2 | 1 916 967 | 66.3 |
| Nuclear engineering and technology | 2 | 161 918 | 5.2 | 117 644 | 4.1 |
| Nuclear techniques in agriculture | 2 | 150 747 | 4.9 | 143 265 | 5.0 |
| Nuclear medicine | - | - | - | - | - |
| Nuclear techniques in biology | - | - | - | - | - |
| Nuclear techniques in industry and hydrology | - | - | - | - | - |
| Nuclear safety | 1 | 317 796 | 10.3 | 193 135 | 6.7 |
| TOTAL | 11 | 3 097 081 | 100.0 | 2 888 767 | 100.0 |

TECHNICAL CO-OPERATION PROJECTS IN MADAGASCAR
 COMPLETED AND OPERATIONAL, BY SECTOR, 1982 - 1992
 (As of 31 October 1992)

| Sector | No. of projects | Total project allotments \$ | Total project disbursements \$ |
|--|-----------------|-----------------------------|--------------------------------|
| <u>Completed projects</u> | | | |
| General atomic energy development | - | - | - |
| Nuclear physics and chemistry | 1 | 363 930 | 362 584 |
| Nuclear raw materials | 3 | 1 868 859 | 1 882 800 |
| Nuclear engineering and technology | 1 | 13 800 | 14 895 |
| Nuclear techniques in agriculture | 1 | 6 200 | 5 825 |
| Nuclear medicine | - | - | - |
| Nuclear techniques in biology | - | - | - |
| Nuclear techniques in industry & hydrology | - | - | - |
| Nuclear safety | - | - | - |
| TOTAL | 6 | 2 252 789 | 2 266 104 |
| <u>Operational projects</u> | | | |
| General atomic energy development | - | - | - |
| Nuclear physics and chemistry | 1 | 175 781 | 155 172 |
| Nuclear raw materials | 1 | 58 050 | 34 167 |
| Nuclear engineering and technology | 1 | 148 118 | 102 749 |
| Nuclear techniques in agriculture | 1 | 144 547 | 137 440 |
| Nuclear medicine | - | - | - |
| Nuclear techniques in biology | - | - | - |
| Nuclear techniques in industry & hydrology | - | - | - |
| Nuclear safety | 1 | 317 796 | 193 135 |
| TOTAL | 5 | 844 292 | 622 663 |

EXPERT SERVICES, EQUIPMENT AND PROJECT-FUNDED TRAINING PROVIDED TO MADAGASCAR, BY SECTOR
 PROJECTS COMPLETED AND OPERATIONAL 1982 - 1992
 (As of 31 October 1992)

| FIELD | TOTAL PROJECT ALLOTMENTS | | | | TOTAL PROJECT DISBURSEMENTS | | | |
|--|--------------------------|-----------|-----------|----------|-----------------------------|-----------|-----------|----------|
| | EXPERT SERVICES | | EQUIPMENT | TRAINING | EXPERT SERVICES | | EQUIPMENT | TRAINING |
| | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ |
| General atomic energy development | - | - | - | - | - | - | - | - |
| Nuclear physics and chemistry | 17/23 | 113 080 | 398 208 | 28 423 | 14/25 | 101 062 | 300 271 | 28 423 |
| Nuclear raw materials | 173/20 | 1 069 100 | 786 878 | 70 931 | 172/07 | 1 058 412 | 783 409 | 75 146 |
| Nuclear engineering and technology | 7/01 | 53 995 | 88 123 | 19 800 | 5/22 | 58 041 | 59 603 | - |
| Nuclear techniques in agriculture | 3/19 | 26 385 | 103 624 | 20 738 | 3/03 | 33 455 | 90 994 | 18 816 |
| Nuclear medicine | - | - | - | - | - | - | - | - |
| Nuclear techniques in biology | - | - | - | - | - | - | - | - |
| Nuclear techniques in industry & hydrology | - | - | - | - | - | - | - | - |
| Nuclear safety | 6/15 | 56 430 | 243 200 | 18 166 | 3/03 | 41 029 | 143 840 | 8 266 |
| TOTAL | 208/18 | 1 318 990 | 1 620 033 | 158 058 | 199/00 | 1 291 999 | 1 466 117 | 130 651 |

AGENCY FELLOWS FROM MADAGASCAR

1982 - 1992¹
(As of 31 October 1992)

| Sector | No. of fellowships | No. of months/days | Host countries |
|--|--------------------|--------------------|-----------------------------------|
| General atomic energy development | 2 | 0/17 | ITA, USSR |
| Nuclear physics | 6 | 27/09 | YUG, HUN, AUS, FRA, BEL, KEN, USA |
| Nuclear chemistry | 3 | 19/03 | BEL, SIN, IAEA |
| Nuclear raw materials | 11 | 53/07 | CAN, FRA |
| Nuclear engineering and technology | 1 | 0/19 | AUS, YUG, JAM |
| Nuclear techniques in agriculture | 4 | 10/22 | NET, FRA, PHI, IAEA |
| Nuclear medicine | - | - | - |
| Nuclear techniques in biology | - | - | - |
| Nuclear techniques in industry and hydrology | - | - | - |
| Nuclear safety | 2 | 3/00 | FRA |
| TOTAL | 29 | 114/17 | |

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

MADAGASCAR
FELLOWSHIPS LONGER THAN 12 M/M
1982 - 1992
(As of 31 October 1992)

| Name | Field of study | Host country | Date | Duration | Project |
|------------|-----------------------------|--------------|-----------------|----------|-----------|
| LAHATRA R. | X-ray fluorescence analysis | BEL | Oct.89 - Oct.90 | 12/01 | MAG/1/005 |

MADAGASCAN NATIONALS WHO WERE AWARDED MORE THAN ONE
FELLOWSHIP OR SCIENTIFIC VISIT
1982 - 1992
(As of 31 October 1992)

| Name | Field of study | Host country | Date | Duration | Project |
|-----------------|--|--------------|-----------------|----------|-----------|
| LAHATRA R. | 1. Analytical nuclear physics 2. Nuclear analytical physics 3. X-ray fluorescence analysis | KEN | May 83 - Aug.83 | 3/01 | MAG/1/004 |
| | | USA | Jan.88 - May 88 | 3/20 | MAG/1/004 |
| | | BEL | Oct.89 - Oct.90 | 12/01 | MAG/1/005 |
| RABEHARISOA R. | 1. Soil science 2. Soil science, irrigation & plant nutrition | PHI | May 89 - Sep.89 | 4/12 | RAF/0/003 |
| | | IAEA FRA | Jun.92 - Aug.92 | 2/00 | MAG/5/005 |
| RAKOTGARISON | 1. Analysis of nuclear raw materials 2. Nuclear centres and laboratories | FRA | Oct.88 - Jan.89 | 2/23 | MAG/3/004 |
| | | ITA | Jul.90 | 0/12 | RAF/0/003 |
| | | YUG | | | |
| RANDRIANARIVONY | 1. Analytical nuclear physics 2. Analytical chemistry | BEL | Oct.83 - Mar.84 | 5/26 | MAG/1/004 |
| | | SIN | Jan.90 - Apr.90 | 3/01 | RAF/0/003 |
| RAZAFIMBELO | 1. Uranium exploration instrumentation 2. Nuclear raw materials | CAN | Oct.82 - Nov.82 | 1/01 | MAG/3/005 |
| | | FRA | Feb.89 - Apr.89 | 1/28 | MAG/3/006 |

AGENCY TRAINING COURSES WITH MADAGASCAN PARTICIPATION

1982 - 1992
(As of 31 October 1992)

| Field | Number of participants | Number of courses |
|--|------------------------|-------------------|
| General atomic energy development | 5 | 5 |
| Nuclear physics | 8 | 4 |
| Nuclear chemistry | 3 | 3 |
| Nuclear raw materials | - | - |
| Nuclear engineering and technology | 7 | 7 |
| Nuclear techniques in agriculture | 4 | 4 |
| Nuclear medicine | - | - |
| Nuclear techniques in biology | - | - |
| Nuclear techniques in industry & hydrology | - | - |
| Nuclear safety | 10 | 9 |
| TOTAL | 37 | 32 |

MULTIPLE PARTICIPATION IN AGENCY TRAINING COURSES
BY MADAGASCAN NATIONALS
 1982 - 1992
 (As of 31 October 1992)

| Name | Course No. | Course title | Year | Location |
|-------------------|-----------------|---|------|----------|
| ANDRIAMBOLOLOWA | RAF/0/005 (001) | Regional seminar on nuclear science for peace and development | 1990 | UGA |
| | RAF/0/006 (001) | RTC on design, management and evaluation techniques of IAEA technical co-operation projects | 1991 | GHA |
| | RAF/9/005 (008) | Regional meeting on co-operation in radiation protection in Africa | 1992 | URT |
| RAMAMONJISOA | INT/2/007 (001) | ITC on determination of radionuclides in food and environmental samples | 1990 | GER |
| | RER/9/008 (001) | Advanced RTC on determination of radionuclides in food and environmental samples | 1991 | GER |
| RAMANARIVOSOA | INT/9/103 (001) | ITC on safety and regulation of radiation sources | 1990 | USA |
| | RAF/9/006 (001) | RTC on management of spent sealed radiation sources | 1991 | KEN |
| RAZAFIMBAHOAKA FY | INT/0/043 (001) | ITC on interfacing in nuclear experiments | 1987 | POR |
| | INT/4/061 (001) | ITC on nuclear electronics | 1982 | GER |
| RAZANABOLOLONA | INT/4/093 (001) | ITC on advanced nuclear electronics | 1987 | JAM |
| | RAF/9/005 (005) | RWS on trouble shooting and maintenance of Harshaw TLD equipment | 1991 | AUS |

PROJECTS COMPLETED IN MADAGASCAR SINCE 1982
(As of 31 October 1992)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | | COMPLETED |
|---------|-------------|---|------------|-----------|-----------|----------|---------------|-----------|-----------|----------|-----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING | |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ | |
| 1980 | MAG/1/004 | Nuclear physics | 12/18 | 68 280 | 295 650 | - | 12/18 | 75 869 | 286 715 | - | 1988 |
| 1979 | MAG/3/004 | Nuclear raw materials | 28/20 | 146 500 | 213 100 | 10 516 | 28/20 | 147 191 | 213 756 | 10 516 | 1988 |
| 1979 | MAG/3/005 | Uranium exploration and development in Madagascar | 141/00 | 890 650 | 509 778 | 43 465 | 141/00 | 890 650 | 509 778 | 43 465 | 1983 |
| 1986 | MAG/3/006 | Establishment of radioactive mineral resource inventory | 2/00 | 13 800 | 34 000 | 7 050 | 2/00 | 13 107 | 33 172 | 21 165 | 1990 |
| 1985 | MAG/4/002 | Research reactor feasibility | 2/00 | 13 800 | - | - | 1/18 | 14 895 | - | - | 1986 |
| 1983 | MAG/5/004 | Study of nutrient element cycle in cattle production | 1/00 | 6 200 | - | - | 0/14 | 5 825 | - | - | 1984 |
| | TOTAL | 6 projects | 187/08 | 1 139 230 | 1 052 528 | 61 031 | 186/10 | 1 147 537 | 1 043 421 | 75 146 | |

OPERATIONAL PROJECTS IN MADAGASCAR
(As of 31 October 1992)

| STARTED | PROJECT NO. | TITLE | ALLOTMENTS | | | | DISBURSEMENTS | | | |
|---------|-------------|---|------------|---------|-----------|----------|---------------|---------|-----------|----------|
| | | | EXPERTS | | EQUIPMENT | TRAINING | EXPERTS | | EQUIPMENT | TRAINING |
| | | | M/M | \$ | \$ | \$ | M/M | \$ | \$ | \$ |
| 1989 | MAG/1/005 | Applied nuclear physics | 5/05 | 44 800 | 102 558 | 28 423 | 2/07 | 25 193 | 101 556 | 28 423 |
| 1991 | MAG/3/007 | A radioactive mineral resource inventory | 2/00 | 18 150 | 30 000 | 9 900 | 0/17 | 7 464 | 26 703 | - |
| 1988 | MAG/4/003 | Maintenance of nuclear instrumentation | 5/01 | 40 195 | 88 123 | 19 800 | 4/04 | 43 146 | 59 603 | - |
| 1987 | MAG/5/005 | Nitrogenous fertilization of rice paddies | 2/19 | 20 185 | 103 614 | 20 738 | 2/19 | 27 630 | 90 994 | 18 816 |
| 1988 | MAG/9/002 | Radiation protection services | 6/15 | 56 430 | 243 200 | 18 166 | 3/03 | 41 029 | 143 840 | 8 266 |
| | TOTAL | 5 projects | 21/10 | 179 760 | 567 505 | 97 027 | 12/20 | 144 462 | 472 696 | 55 505 |

COUNTERPART INSTITUTIONS IN MADAGASCAR (I)
(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|---|--|-----------------------|
| <u>NUCLEAR PHYSICS AND CHEMISTRY</u> | | |
| MAG/1/004 | University of Madagascar, Laboratory of Nuclear Physics and Applied Physics, Antananarivo | ANDRIAMBOLOLONA |
| MAG/1/005 | University of Madagascar, Laboratory of Nuclear Physics and Applied Physics, Antananarivo | LAHATRA R. |
| <u>NUCLEAR RAW MATERIALS</u> | | |
| MAG/3/004 | National Military Office for Strategic Industries, Antananarivo | MAROLAHY |
| MAG/3/005 | National Military Office for Strategic Industries, Antananarivo | RAHAJARIZAKA |
| MAG/3/006 | National Military Office for Strategic Industries, Antananarivo | DASO |
| MAG/3/007 | National Military Office for Strategic Industries, Antananarivo | DASO |
| <u>NUCLEAR ENGINEERING AND TECHNOLOGY</u> | | |
| MAG/4/002 | National Military Office for Strategic Industries, Direction of Atomic Energy, Antananarivo | ANDRIANAIVOMANANA |
| MAG/4/003 | University of Madagascar, Laboratory of Nuclear Physics and Applied Physics, Antananarivo | ANDRIAMBOLOLONA |

COUNTERPART INSTITUTIONS IN MADAGASCAR (I)

(By Project)

| <u>Project No.</u> | <u>Institute</u> | <u>Counterpart(s)</u> |
|-----------------------|--|-----------------------|
| <u>AGRICULTURE</u> | | |
| MAG/5/004 | Department of Animal Science and Veterinary Research, Animal Nutrition Division, Antananarivo | RAZAFINDRAKOTO |
| MAG/5/005 | Radioisotope Laboratory, Antananarivo | RABEHARISOA R. |
| <u>NUCLEAR SAFETY</u> | | |
| MAG/9/002 | University of Madagascar, Laboratory of Nuclear Physics and Applied Physics, Antananarivo | ANDRIAMBOLOLONA |

COUNTERPART INSTITUTIONS IN MADAGASCAR (II)
(By Institute)

ANTANANARIVO

University of Madagascar
Laboratory of Nuclear Physics and Applied Physics
Antananarivo

MAG/1/004 Nuclear Physics
MAG/1/005 Applied Nuclear Physics
MAG/4/003 Maintenance of Nuclear Instrumentation
MAG/9/002 Radiation Protection Services

National Military Office for Strategic Industries
Antananarivo

MAG/3/004 Nuclear Raw Materials
MAG/3/005 Uranium Exploration and Development in Madagascar
MAG/3/006 Establishment of Radioactive Mineral Resource Inventory
MAG/3/007 A Radioactive Mineral Resource Inventory

National Military Office for Strategic Industries
Direction of Atomic Energy
Antananarivo

MAG/4/002 Research Reactor Feasibility

Department of Animal Science and Veterinary Research
Animal Nutrition Division
Antananarivo

MAG/5/004 Study of Nutrient Element Cycle in Cattle Production

Radioisotope Laboratory
Antananarivo

MAG/5/005 Nitrogenous Fertilization of Rice Paddies

THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME WITH MADAGASCAR

LONG-TERM ASSIGNMENTS

(1982 - 1992)

Project MAG/3/005 Uranium Exploration and Development in Madagascar

- Task 01 - Project Director
D.L. SEARLE (UK) Aug 79 - Dec 82 40.3 months
 - To be responsible for co-ordinating the work of five other international experts and to organize the project to explore the uranium potential of occurrences at Anisirabi and other areas of Madagascar.

- Task 04 - Economic Geologist
S.C. STYZEI (BRA) Jan 80 - Dec 82 35.6 months
 - To participate in the evaluation of uranium ore occurrences. To plan drilling programmes for uranium, principally in sedimentary formations, and to evaluate the results obtained in terms of viable ore tonnages.

- Task 05 - Drilling Expert
M. KEMPF (FRA) Dec 80 - Dec 82 24.9 months

- Task 08 - Geologist
A.N. DEMPSTER (UK) Jan 82 - Jan 83 12.0 months

RESEARCH CONTRACTS/AGREEMENTS IN MADAGASCAR SINCE 1982 ¹
(As of 31 October 1992)

| Field of activity | No. of contracts/ agreements | Amount allocated \$ |
|-------------------|---------------------------------|---------------------------|
| Nuclear medicine | 1 | 6 000 |
| TOTAL | 1 | 6 000 |

¹/ New awards since 1982

**SCIENTISTS FROM MADAGASCAR SERVING AS AGENCY
TECHNICAL CO-OPERATION EXPERTS OR
TRAINING COURSE LECTURERS
1982 - 1992
(As of 31 October 1992)**

| Name | No. of assignments | Project(s) |
|-------------------|--------------------|------------|
| ANDRIANAIVOMANANA | 1 | MAG/4/002 |
| DIEUDONNE | 2 | RAF/5/021 |
| TOTAL | 3 | |

**AGENCY FELLOWSHIPS AND SCIENTIFIC VISITS
HOSTED BY MADAGASCAR
1982 - 1992
(As of 31 October 1992)**

NONE

**REGIONAL AND INTERREGIONAL TRAINING EVENTS
HOSTED BY MADAGASCAR
1982 - 1992
(As of 31 October 1992)**

| Course No. | Course Title | Participants | Year |
|-----------------|---|--------------|------|
| INT/3/008 (001) | ITC on uranium exploration | 19 | 1982 |
| INT/4/108 (001) | ITC on interfacing in nuclear experiments | 18 | 1991 |
| | TOTAL | 37 | |