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THE TECHNICAL ASSISTANCE PROVIDED BY THE AGENCY IN 1965

CONTENTS

LIST OF ABBREVIATIONS

Agency	International Atomic Energy Agency
CERN	European Organization for Nuclear Research
ECOSOC	Economic and Social Council of the United Nations
EPTA	United Nations Expanded Programme of Technical Assistance
FAO	Food and Agriculture Organization of the United Nations
IAEA	International Atomic Energy Agency
ILO	International Labour Organisation
NORA	Joint Agency-Norwegian Programme of Research with the Zero Power Reactor "NORA"
NPY	Co-operative Programme for Research in Reactor Physics between the Governments of Norway, Poland and Yugoslavia
Theoretical Physics Centre	International Centre for Theoretical Physics at Trieste
UNDP	United Nations Development Programme
UNDP/EPTA	Technical Assistance Sector of the United Nations Development Programme
UNDP/SF	Special Fund Sector of the United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

Congo, D.R.	Democratic Republic of the Congo
CSSR	Czechoslovak Socialist Republic
Germany, F.R.	Federal Republic of Germany
Korea, R.	Republic of Korea
UAR	United Arab Republic
UK	United Kingdom of Great Britain and Northern Ireland
USA	United States of America
USSR	Union of Soviet Socialist Republics

NOTE

All sums of money are expressed in United States dollars.

Part I. INTRODUCTION

1. Following its usual practice, the Board of Governors has requested the communication to the General Conference of the material it used in reviewing the technical assistance provided by the Agency in 1965 [1]. The material is accordingly reproduced in the present document, in which all elements of the assistance provided - whether from funds voluntarily contributed to it, resources made available to it in kind, or funds allocated to it under EPTA - are reviewed.

2. The assistance falls into three main categories: experts, equipment and fellowships. The Agency's activities as an Executing Agency of four Special Fund projects, referred to in Chapter II, section (a)(iv), are also mentioned in this document as a part of its technical co-operation activities.

3. During 1965, 62 countries received technical assistance of one type or another under the Agency's technical assistance programme, in connection with either country, regional or inter-regional projects. The requests for assistance mainly related to the use of radioisotopes in agriculture, medicine, hydrology and industry, the construction and operation of research reactors, reactor physics, irradiation techniques, radiation monitoring, and training in fundamental disciplines and basic techniques.

4. This assistance was provided through the services of 155 experts or visiting professors [2], the award of 469 fellowships for individual studies or training courses [2], and the supply of equipment in an amount of approximately $501 000 [2].

5. The resources used to carry out the Agency's technical assistance programme amounted to approximately $2 762 000, whereas the total amount actually spent for that purpose was about $2 492 000 (see Table 7) [3]. This includes payments against 1965 and prior years' obligations and assistance "in kind" and represents a decrease of approximately 20% compared with the $3 120 000 spent in 1964 (Table 4).

6. It seems useful to point out at this juncture those of the Agency's activities in which several Member States have displayed increasing interest during 1965 and to mention the changes made during the year in the administrative structure supporting the Agency's technical assistance activities.

A. Technical co-operation activities in which Governments have shown special interest

7. Among the new activities in 1965, one project - organized on a regional basis in the Asian and Far Eastern region - has already given some encouragement to scientific workers in the participating countries. This is known as the IPA (India-Philippine-Agency) Neutron Crystal Spectrometer project and consists of a joint regional training and research programme based on the use of neutron crystal spectrometer methods for solid state investigation. Its purpose is to train independent research workers who, on return to their home laboratories, are then able to plan and carry out neutron diffraction and related research work on their own. The attainment of this goal may also be expected to lead to a more effective utilization of research reactors in the various Member States of the region. The Agency's technical assistance programme provides five fellowships each year for this project. A well-rounded training programme has been drawn up for the fellows, consisting of seminars and lectures on theory, together with experimental work in the design,

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[1] The review was undertaken pursuant to paragraph 20 of the Guiding Principles and General Operating Rules to Govern the Provision of Technical Assistance by the Agency annexed to the Conference's Resolution GC(IV)/RES/65.

[2] Includes assistance "in kind".

[3] All the statistical tables are to be found in Annex I to this document.

construction, installation and use of neutron crystal spectrometers and auxiliary equipment. The fellows are also actively engaged in the research programme itself and are given individual responsibility for operating the equipment, making measurements, analysing the data and preparing the technical reports. During 1965 the first phase of a flexible programme of original research in solid state physics was initiated, aimed at carrying out studies of crystal structure and magnetic substances and based on the use of the double-axis spectrometer now available.

8. Another activity in which Governments are becoming increasingly interested is radioactive waste management. In the early stages of the development of research reactors in Member States, it was not considered necessary to initiate extensive programmes to deal with the radioactive wastes which were arising. After several years of operation these wastes are now beginning to arise in greater amounts and the problem of their management is of immediate importance. Increased interest has been shown in technical assistance for this activity. Expert assistance has been provided to a number of countries in the normal way, but to supplement this the Agency, in collaboration with the Government of Japan, also organized a training course at the Japan Atomic Energy Research Institute. This course had certain new features in comparison with earlier courses. Firstly the course was residential; the eighteen trainees and six lecturers all resided and met in one building, thus permitting much closer contact between participants. Secondly, more emphasis was placed on round-table discussions and planned demonstrations of plant in operation. The trainees were all relatively experienced in the fundamentals of waste management and instead of practical experiments, a series of demonstrations of the wide variety of processes involved in the collection, treatment and disposal of radioactive wastes were arranged at the Institute and at university and medical centres in Tokyo and Chiba City.

9. With regard to hydrology, special studies are being made in arid and semi-arid regions. The hydrological characteristics of Lake Chala and its associated ground-water system are being investigated by means of isotopic methods. The preliminary results of isotope studies carried out south-east of Mt. Kilimanjaro are promising; they provide a basis for determining the turnover time and mixing characteristics of Lake Chala, as well as its relationship to the hydrological features of the area.

10. The field of industrial applications of radioisotopes is one in which immediate technical and economic benefits can be obtained. In one country an Agency expert was able to provide scientific and administrative guidance on a wide range of problems. For example, on a large pressure vessel constructed to store liquid ammonia, over 1.5 kilometres of welding were gamma-radiographed before the vessel was proved safe for service. Sand movement in a large natural harbour was followed by means of radioactively-labelled glass particles, which made it possible to dredge the harbour more efficiently and thus helped to increase its potential. Radioisotope density gauges were used to measure the water content in the steam from geothermal wells which will shortly be exploited for power generating purposes. Samples of pharmaceutical products such as sutures, disposable syringes and rubber gloves were sterilized, using gamma radiation and, as a result of these preliminary studies, a large-scale gamma-irradiation facility will be constructed. Assistance was also given to some 21 other factories and institutions in such fields as aluminium and paper thickness measurement by means of beta-gauges, soil moisture measurements in road construction, using neutron gauges, and level control in cement hoppers, using gamma radiation. A four-week theoretical and practical training course in industrial applications of radioisotopes was given and the expert supervised the research and the writing of four professional theses. Overseas training in different aspects of nuclear energy was arranged for 31 persons and equipment to a value of $56 000 was provided.

11. The need to increase world food production continues to call for the application of every modern technique, including the use of isotopes and radiation, and many Governments of developing countries have continued to show great interest in technical assistance for this purpose. One of the most important projects of this kind has been organized on a regional basis for Asian and Far Eastern countries to increase the production of rice by encouraging the more efficient use of fertilizers through the use of radioisotopes and by the application

of radiation to plant breeding for the production of improved varieties. The Agency has fostered this work by making available the services of a regional adviser and by organizing meetings of co-operating scientists from the region. A similar project was initiated in 1965 for the promotion of maize cultivation in Latin America.

12. Many individual countries have been given assistance in the use of isotopes and radiation for the study of soil fertility, soil-plant relations, plant physiology and soil moisture to help them to solve problems peculiar to their local conditions.

13. In view of the great importance of reducing losses in agricultural output caused by various pests, assistance has been given to some Member States in the control of insect pests by the use of nuclear techniques. A specific case of this kind is the assistance given to one country to control the rice weevil. Another instance of the prevention of losses was the assistance given to some countries for the preservation of food through ionizing radiations.

B. Other developments

14. Reference was made in the report on the technical assistance provided by the Agency in 1961 to efforts made by the Secretariat to simplify the legal framework within which technical assistance is made available. [4] Essentially, the procedure calls for the signature by recipient Governments of an agreement supplementary to the Revised Standard Basic Agreement covering the provision of technical assistance which was negotiated with Governments on behalf of members of the United Nations organizations participating in EPTA by the former United Nations Technical Assistance Board (TAB). This supplementary agreement covers the questions of safeguards against diversion, health and safety requirements, and the settlement of disputes. It has now been signed by 13 Governments, and it is hoped that an increasing number will accede to it during 1966.

15. In 1965, the Agency promulgated a set of "Provisional Staff Regulations and Rules Governing the Conditions of Service of Technical Co-operation Experts". Up to then, the Agency had been operating under the rules established by the United Nations itself for this purpose, and although - reflecting the "common system" - the differences between the United Nations rules and those established by the Agency were relatively minor, they did occasionally give rise to misunderstandings in interpretation. As a consequence of the publication of these new rules, such complications are now very rare, and with the issue of such amendments as experience shows to be necessary, they should soon be eliminated entirely.

16. The Agency continued in 1965 the experiment of appointing a Regional Officer in the Asia and Far East Region, based at Bangkok, Thailand. Although he is also concerned with matters other than technical assistance, the experiment has shown the value of having an Agency representative available in such a large geographical region with differing problems and requirements who can assist Governments in formulating requests for technical assistance and advise them on the various ways in which these requirements can be most effectively met.

17. In November 1965, the General Assembly of the United Nations approved ECOSOC's recommendation to consolidate the United Nations Special Fund and EPTA into the United Nations Development Programme (UNDP) in order "to provide a more solid basis for the future growth and evolution of the assistance programmes of the United Nations system of organizations ....." [5]. The resolution, however, provided that "the special characteristics and operations of the two programmes, as well as two separate funds" should be maintained. With effect from 1 January 1966, the functions of the former Technical Assistance Committee of ECOSOC (TAC) and the former Governing Council of the Special

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[4] GC(IX)/INF/80, Introduction, para. 18.

[5] General Assembly Resolution 2029(XX).

Fund were taken over by a new "Governing Council" of 37 members. The former "Technical Assistance Board" established under EPTA and the Consultative Board of the Special Fund have ceased to exist, and a new body, known as the Inter-Agency Consultative Board and composed of the "Secretary-General and the executive heads of the specialized agencies and of the International Atomic Energy Agency or their representatives; ..." has been established "in order that the participating organizations may be provided with the opportunity to take part fully in the process of decision- and policy-making in a consultative capacity" and with that in view to be "consulted on all significant aspects of the United Nations Development Programme...". A basic aim of this consolidation is to strengthen the role of Resident Representatives under UNDP in countries receiving assistance and to assist national co-ordinating authorities for technical assistance to make the maximum possible use of the resources available to them, while preserving the technical responsibility of the various executing agencies in their various technical fields of competence.

Part II. ANALYSIS OF THE ASSISTANCE PROVIDED

CHAPTER I. INTEGRATED PROGRAMMING

The evolution of integrated programming

18. The rapidly increasing volume of requests for assistance on the one hand and the inadequate resources for meeting them on the other are putting to a severe test the Agency's improved programming procedures and the co-ordination of its regular programme with those of both sectors of UNDP, i.e. the Technical Assistance Sector (UNDP/EPTA) and the Special Fund Sector (UNDP/SF). Since technical assistance may be, and is in fact, requested under both the regular programme and UNDP/EPTA, the Agency is endeavouring to co-ordinate the projects requested by a particular Government for inclusion in these programmes.

19. The experience gained in the past few years through the implementation of projects under the Agency's regular programme prompted the Secretariat to initiate what is now called integrated programming.

20. It may be appropriate to draw attention to difficulties encountered in carrying out projects which influenced the pattern of the present phase of integrated programming. The main difficulties arose in connection with:

(a) The three main types of technical assistance;

(b) The project's relationship to the national atomic energy programme; or

(c) Other international or regional programmes of technical assistance.

21. The provision of the three main types of technical assistance, i.e. the services of experts, equipment for demonstration purposes and fellowships, which have been integrated into one project, must be effectively co-ordinated. Occasionally the Secretariat's attention has been drawn to the late arrival in the recipient Member State of equipment required by an expert to demonstrate new or improved techniques and processes. There are cases, however, in which deliveries of equipment are delayed for reasons over which the Agency has no control, e.g. customs clearance. A conflict of responsibilities or lack of co-operation between government agencies also leads to particularly delicate complications. Furthermore, the co-ordination of the timing of the award and duration of fellowships with the provision of experts and equipment sometimes gives rise to problems, which are made more complicated by variations in the times when academic years begin and end in different host countries and the uncertainty with regard to the dates on which experts become available. This happens, in particular, when the recipient country expresses its preference for a particular expert who has to discharge other obligations before accepting a contract with the Agency. Thus the provision of the three main types of technical assistance must be co-ordinated by the Agency, and that can be done only when the types of assistance requested are integrated by a Member State into one project.

22. Since technical assistance is intended to promote the scientific, social and economic development of the recipient country, the integrated project must be related to the country's atomic energy programme. Such major activities in a national atomic energy programme as the use of a research reactor, the construction of laboratories for research in agriculture, industry, medicine, etc., and the introduction of nuclear science courses in educational institutions have a bearing on the nature and magnitude of the technical assistance which the Agency might justifiably provide. Thus, in evaluating a request, the need should be assessed in the context of the national programme. It would not be rational, for instance, to entertain a request for an expert in reactor utilization when it is known that the requesting country has not even broken ground to construct its reactor. If, on the other hand, the same country has a team that needs training in the agricultural applications of isotopes, preferenece might be given to a request for an appropriate expert together with some demonstration equipment rather than to the other request. In making a detailed analysis or evaluation

of a request, projects for which technical assistance is being provided by other international organizations and by regional organizations, e.g. the Colombo Plan and the Organization of American States, and bilateral agreements on technical assistance should also be taken into account. Moreover, in integrated programming due consideration should be given to the Agency's research contract programme in so far as it affects the requesting country.

23. Requests for technical assistance under the regular programme are sent by the Member State direct to the Agency. Requests under UNDP/EPTA and/or UNDP/SF are sent direct to UNDP through its Resident Representative in the requesting country, and copies are sent to the international organization concerned. Thus it is possible to avoid duplication.

Steps taken to bring about integrated programming

24. In order to bring about integrated programming the Divisions responsible for the planning, financing and execution of the various technical assistance activities were combined into a single Department of Technical Assistance in February 1964. In January 1965, the Department of Technical Assistance was divided into two main Divisions, the Programme Division and the Implementation Division. All requests for technical assistance are sent to the Division for evaluation and programming. A synchronized programming timetable is drawn up for the Agency's regular programme and UNDP/EPTA. The Board recognized that, if technical assistance is to produce the maximum benefit for a recipient country, all types of assistance should be co-ordinated as far as possible. [6] To this end Governments have been requested to submit to the Agency their integrated requests in outline form not later than 31 January of the year immediately preceding the programme year during which the projects are expected to be implemented. The project requests are evaluated in the light of detailed information submitted by the requesting country not later than 30 June of the former year and on the basis of data relating to technical assistance previously provided or currently being provided under the Agency's regular programme and research contract programme, UNDP/EPTA and UNDP/SF and any other details concerning programmes of technical assistance received from other international and regional organizations. The technical soundness of the projects and their relation to the country's overall atomic energy programme are also taken into account. Those that are technically sound and whose implementation will further the development of the peaceful uses of atomic energy in the requesting countries are determined as worthy of support.

25. The provision of all types of technical assistance needed in any one project and considered as an integrated whole during the phase of programme preparation must be strictly co-ordinated. In the interests of economy, the same expert must, as far as possible, be assigned to projects of a similar nature within a region for which the short-term assignment of experts is required. A careful study of the availability of local personnel for a particular project is necessary with a view to determining the appropriate form and duration of technical assistance and providing experts and fellowships in the proper sequence so as to produce a lasting benefit. The nominations for fellowships are carefully studied to determine how each one is related to the technical assistance already provided, projects being requested, or technically sound projects which the country has itself initiated. The nominee's academic background, training, experience, future employment, and language abilities, particularly if academic training is requested, are considered in determining the institution in a host country in which he should be placed. The timing of actual placement and the duration of training of the fellow, who is expected to be the counterpart of an expert, are important considerations which determine whether the period of training should precede or follow the period of the expert's duty service. In any case it is desirable that the expert and his counterpart spend a period of time together working on the project; this enables them to establish personal contact and provides the fellow with additional experience which, in turn, promotes continuity of effort.

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[6] See documents INFCIRC/50, para. 163 and GC(VIII)/275, para. 8.

26. At all stages of programming and implementation, consultations with recipient countries continue through normal channels. Consultations with delegations attending conferences and meetings at the Agency's Headquarters have proved to be of great value in clarifying problems and overcoming difficulties which arose during both the programming and implementation of projects. While correspondence with competent authorities of the recipient countries has proved helpful in certain cases, the advantages of personal consultations cannot be over-emphasized. Before a technical assistance expert or a staff member of the Agency is sent to a country, he is adequately briefed and requested to initiate consultations as required.

27. The complex problems of co-ordinating and integrating the Agency's programmes are dealt with by follow-up missions, which are sent to recipient countries when needed. In addition to carrying out consultations with a view to co-ordinating the implementation of projects in the operational programme, a follow-up mission also discusses with the authorities concerned the details of projects requested under the regular programme and the UNDP/EPTA or UNDP/SF, gathers information on regional projects of interest to Member States, and advises on the formulation of national atomic energy programmes.

28. As the Secretariat acquires additional experience and more detailed information, integrated programming will be further refined. Developing countries are beginning to realize the importance of having a national programme on the peaceful uses of atomic energy designed to promote the country's economic and social development. When the Secretariat is provided with complete information on such programmes and on the technical assistance received by a country from other international or regional organizations or under bilateral arrangements, it will be able to co-ordinate its programmes with those of other bodies and evaluate adequately the assistance provided by the Agency.

CHAPTER II. QUANTITATIVE ANALYSIS OF THE TECHNICAL ASSISTANCE PROVIDED

A. Resources available

(a) General

29. The resources available to the Agency for its technical assistance programme in 1965 amounted to $2 762 000 (see Fig. 1 below and Table 1) and were provided:

(i) Under EPTA;

(ii) By voluntary contributions of Member States to the General Fund; and

(iii) Gifts in kind (such as the provision of cost-free or partly cost-free experts, Type II fellowships, and donations of equipment).

30. Compared with the resources available for 1964 ($2 873 000) those for 1965 show a decrease of 4%, thus interrupting the steady upward trend in the total resources available which persisted during the seven-year period 1958-1964.

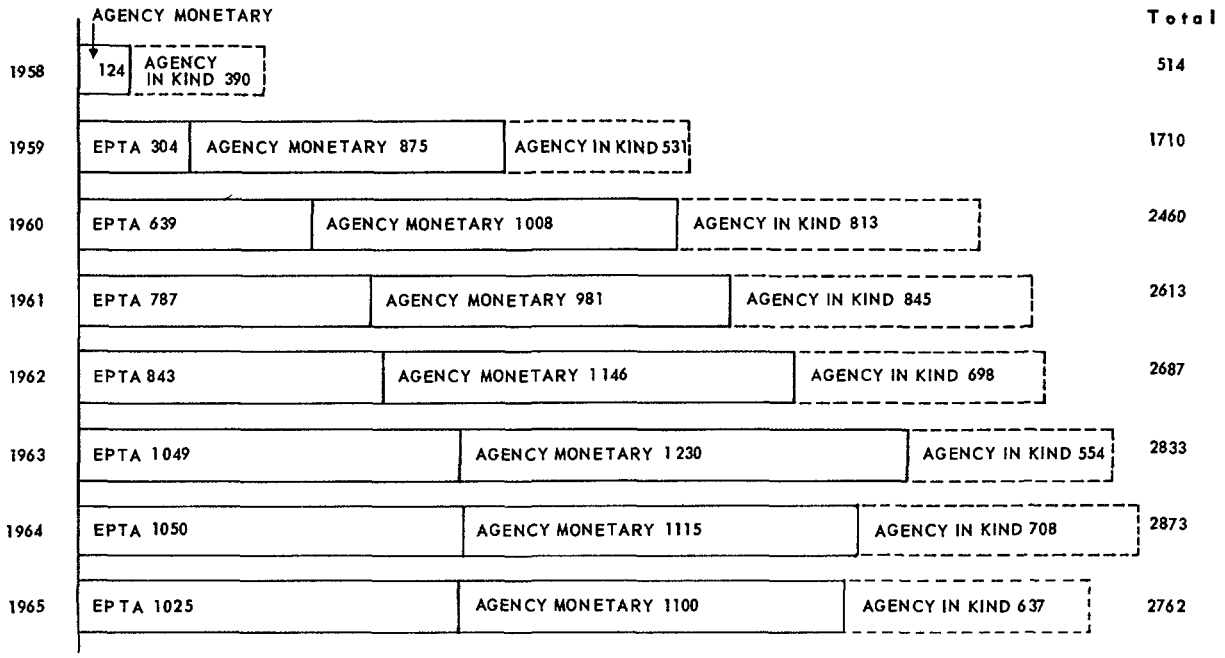
(b) EPTA

31. Under the EPTA biennial programme for 1965-66, $2 141 000 was made available to the Agency, of which $1 025 000 was allocated for 1965 and $1 116 000 for 1966. Of the $1 025 000 allocated for 1965, $548 000 was actually obligated in that year, the balance of $477 000 having been carried over into 1966, the second year of the biennial programme period. Usually a part of the first year of a biennial period is taken up with preparatory work on the projects to be initiated during that period, the major part of the programme being implemented during the second year.

FIGURE 1

RESOURCES AVAILABLE FOR TECHNICAL ASSISTANCE ACTIVITIES OF THE AGENCY (1958 - 1964)

(In thousands of dollars)



32. While the total allocation of $2 141 000 shows a slight increase (2%) over that for the preceding biennial period ($2 099 000), this increase is more than offset by the steadily increasing costs of project implementation, so that in fact with an increase of only 2% the programme as a whole cannot be maintained at, and falls below, the level of the preceding programme period. According to the best estimates available, for 1967-68 an increase of about 10% in total resources would be needed to maintain the full programme, though not without difficulty, at the level of 1963-64.

(c) Agency's regular programme

33. The voluntary contributions of Member States yielded only $1 100 000 for technical assistance in 1965, compared with $1 115 000 for 1964. This represents a decrease of 1.4%, which is, in fact, a more severe decline than the percentage figure indicates. Table 2 shows that this amount of $1 100 000 represents only 55% of the target figure for voluntary contributions to the General Fund for 1965, only 63% of the amount budgeted for technical assistance for 1965, and not quite 88% of the amount pledged for that year. The table also shows that the only stable element in the financial planning of the Agency's technical assistance is the target figure for voluntary contributions, which has been maintained since 1962 at $2 million. Since 1963, however, there has been a marked and steady decline both in the amounts actually pledged (these declined from $1 435 000 in 1963 to $1 257 000 in 1965) and the amounts actually made available for technical assistance (these declined from $1 230 000 in 1963 to $1 100 000 in 1965). If the significance of this decline and its serious consequences are to be fully appreciated they must be considered in the light of the increasing costs of project implementation.

(d) Gifts in kind

34. The estimated value of gifts in kind (cost-free experts, Type II fellowships, and gifts of equipment) has been established in accordance with the rules set forth in the Introductory Note in Annex I. Taking these estimates as a basis, the value of the resources in kind contributed to the Agency in 1965 amounts to $637 000, or 10% less than in 1964 ($708 000). This is due exclusively to the fact that the number of Type II fellowships decreased from 144 (1853 man-months, estimated value $621 000) in 1964 to 125 (1424 man-months, estimated value $534 400) in 1965. Against this decrease, a slight increase is shown in the case of experts and equipment ($15 700 for experts and $71 000 for equipment in 1964 as compared with $24 800 for experts and $77 700 for equipment in 1965).

(e) Other resources available

35. The Agency also received funds totalling $626 875 in 1965 under four United Nations Special Fund projects: $58 825 for Yugoslavia, $302 900 for the Philippines, $252 150 for Central America, and $13 000 for Turkey.

36. As in 1964, the Agency carried out another project under a funds-in-trust arrangement in 1965, which cost $25 000.

(f) Use of resources

37. Monetary resources are only a means - though indispensable - for channelling knowledge and skills to countries in need of them. Such knowledge and skills are actually imported, on the one hand, by the experts and visiting professors sent by the Agency to the requesting countries (or provided for training courses or similar activities in which students from developing countries participate), and on the other hand, by the institutes at which Agency fellows are trained. A comparison of Table 3, which shows the nationality of experts and the country of study of fellows in 1965, with Table 7 reveals that 17 of the countries receiving technical assistance in the form of fellowships and experts also provided similar assistance to other developing countries; this shows that technical assistance stimulates an interchange of skills and knowledge between countries at different stages of nuclear development.

B. Distribution of assistance provided

(a) Fields of assistance

38. In the course of 1965 a new classification of fields of assistance was worked out by the Department of Technical Assistance and approved by the Interdepartmental Committee on Technical Assistance (ICTA). This new classification makes it possible to analyse in greater detail the assistance actually rendered. In Fig. 2 and Table 5, however, the old classification is still used in order to facilitate comparison with the corresponding tables in the report for 1964. An analysis, in which the terminology of the new classification is used, is given below; next year's report will include the relevant tables in the new form.

39. The largest share of assistance falls within the category "Application of Isotopes and Radiation" (63 experts or 41%, $236 500 worth of equipment or 47%, 216 fellowships or 46%). Under the new classification this category will be split up into four subsidiary fields, namely:

Application of isotopes and radiation in agriculture;

Application of isotopes and radiation in medicine;

Radiation biology and application of isotopes and radiation in biology;

Other fields of application of isotopes and radiation (including industry, hydrology, geology, etc.).

40. As the following tabulation shows, in these four subsidiary fields the largest share of resources is allocated to the application of radioisotopes in agriculture, followed by the application of radioisotopes in medicine.

	Experts	% of total	Equipment	% of total	Fellow-ships	% of total
Radioisotopes in agriculture	32	51	$105 500	45	132	61
Radioisotopes in medicine	12	19	$ 48 400	20	50	23
Radioisotopes in biology	5	8	$ 23 900	10	16	7
Other applications of radioisotopes	14	22	$ 58 700	25	18	9
Total	63	100%	$236 500	100%	216	100%

41. Four inter-regional training courses were held under the regular programme (in the Federal Republic of Germany, the United Nations, and at the Agency's Laboratory in Seibersdorf). One regional training course (in Colombia) and one inter-regional training course (in the United Arab Republic) on the agricultural application of radioisotopes were held, both under EPTA. In addition, experts in that subject were sent to six countries in Asia and the Far East, to two countries in Africa, two in Europe, two in Latin America, and one in the Middle East.

42. One inter-regional training course on the medical application of radioisotopes was held under the regular programme in the United Kingdom. Experts in the subject were sent to five countries in Asia and the Far East, two in Africa, one in Europe, and one in Latin America.

FIGURE 2

DISTRIBUTION OF TECHNICAL ASSISTANCE BY FIELD OF ACTIVITY (1964 and 1965)

A. General Atomic Energy Development
B. Nuclear Science
C. Prospecting, Mining, and Processing of Nuclear Raw Materials
D. Nuclear Technology
E. Applications of Isotopes and Radiation
F. Health, Safety, and Waste Disposal.

The figures withing the sectors indicate the numbers of experts or fellowships or the dollar value (in thousands) of equipment with the corresponding percentage share of the total assistance provided shown in brackets.

FELLOWSHIPS

1964

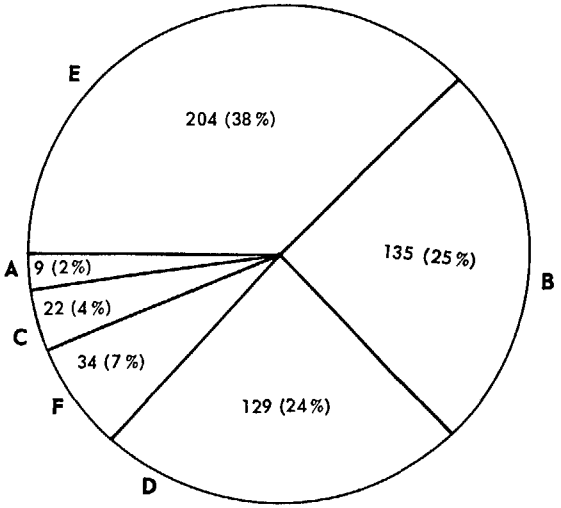


Diagram 1

EXPERTS

1964

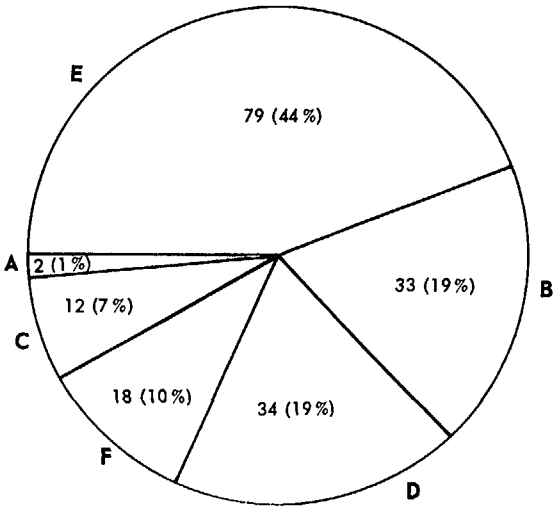


Diagram 2

1965

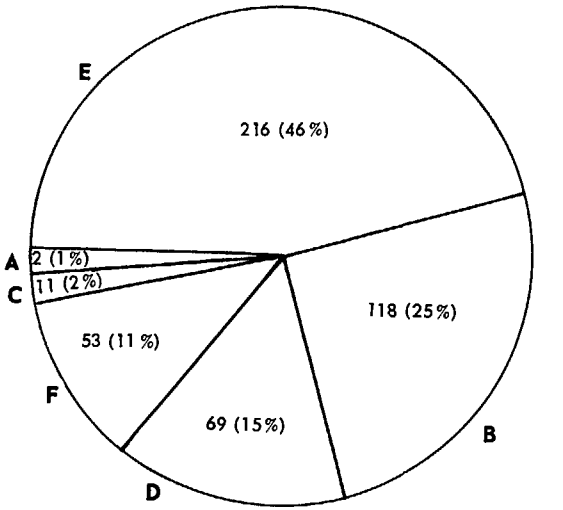


Diagram 3

1965

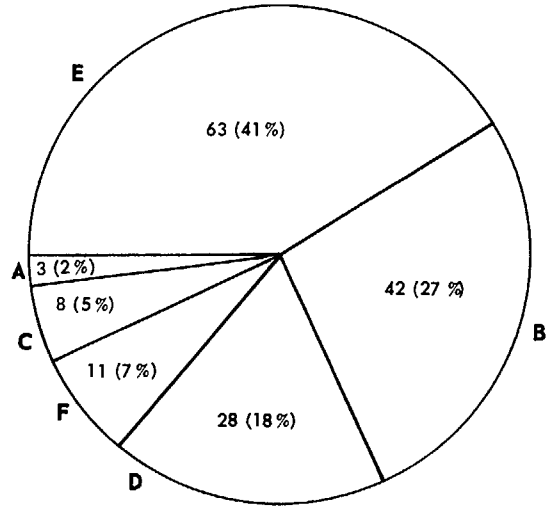


Diagram 4

EQUIPMENT

1965

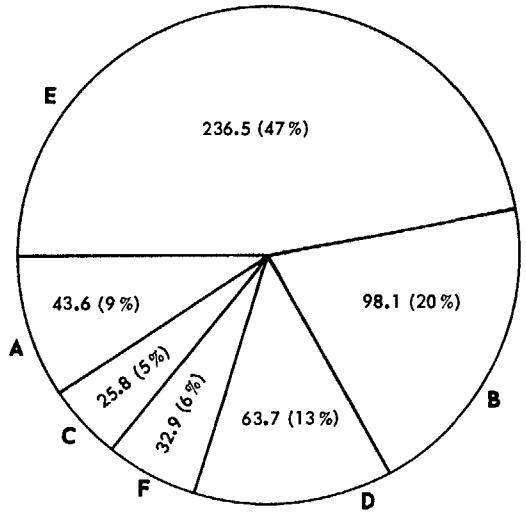


Diagram 5

43. One inter-regional training course on the general application of radioisotopes was held under EPTA in the United Arab Republic. Six experts advised on the use of radioisotopes in hydrology in three countries in Latin America, two in Europe, one in Africa and one in Asia and the Far East, and one expert advised on the use of radioisotopes in industry.

44. The second highest share of assistance falls within the category "Nuclear Science" (42 experts or 27%, $98 100 worth of equipment or 20%, 118 fellowships or 25%). The new classification distinguishes between nuclear physics and nuclear chemistry as follows:

	Experts	%	Equipment	%	Fellowships	%
Nuclear physics	31	74	$78 400	80	93	79
Nuclear chemistry	11	26	$19 700	20	25	21
Total	42	100%	$98 100	100%	118	100%

45. Experts in nuclear physics were sent to eight countries in Asia and the Far East, four countries in Latin America, three in Africa, three in Europe and two in the Middle East. Experts in nuclear chemistry were sent to three countries in Asia and the Far East, two countries in Latin America, two in Europe and one in the Middle East.

46. "Nuclear Technology" (new designation "Nuclear Engineering and Technology") is allocated the third highest share of assistance with 28 experts (18%), $63 700 worth of equipment (13%) and 69 fellowships (15%). An inter-regional training course was held in Argentina under the regular programme. Of the 28 experts engaged in this field, 17 were sent to four Latin American countries, 6 to four countries in Asia and the Far East, one each to two countries in Africa and two in Europe and one to one country in the Middle East.

47. Next comes "Health, Safety and Waste Disposal" (new designation "Safety in Nuclear Energy") with 11 experts (7%), $32 900 worth of equipment (6%), 53 fellowships (11%). Two inter-regional training courses were held, one in Denmark under the regular programme and one in Japan under EPTA.

48. The categories receiving the lowest share of assistance are "Prospecting, Mining and Processing of Nuclear Raw Materials" with 8 experts (5%), $25 800 worth of equipment (5%), and 11 fellowships (2%), and "General Atomic Energy Development" with 3 experts (2%), $43 600 worth of equipment (9%) and 2 fellowships (0.5%).

(b) Geographical distribution of assistance

(i) Distribution by region

49. Fig. 3 shows the distribution of assistance by region. The share of Asia and the Far East in the total assistance provided under EPTA and the Agency's regular programme increased from 33% in 1964 to 36% in 1965. Two experts served as regional advisers on hospital physics and rice cultivation for the whole region; a rice seminar was held in Thailand.

50. The Americas received 23% of the total assistance as compared with 19% in 1964. Here an expert served as regional adviser on maize cultivation for the Latin American region. One regional training course on the application of radioisotopes in soil-plant relations was held in Colombia under EPTA. Under the regular programme one regional training course on nuclear metallurgy was held in Argentina.

FIGURE 3

DISTRIBUTION OF TECHNICAL ASSISTANCE BY REGION
(1964, 1965, and 1958 - 1965)

1964

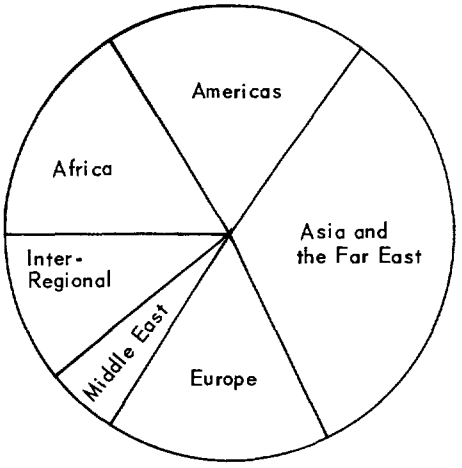


Diagram 1

1965

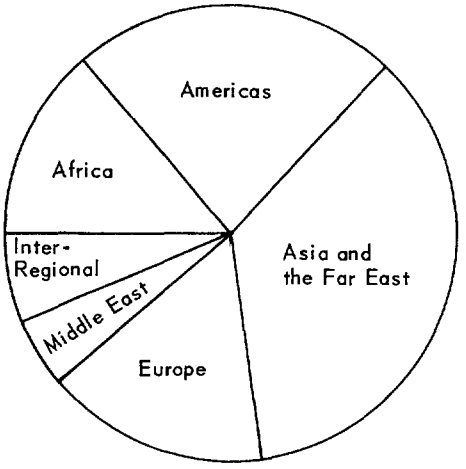


Diagram 2

1958 - 1965

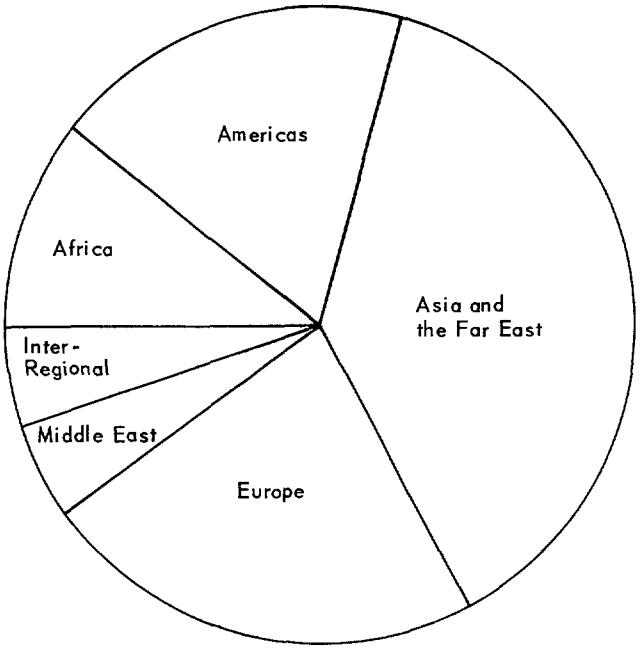


Diagram 3

51. Europe received 16% of the total assistance - the same share as in 1964, Africa 14% as compared with 16% in the previous year and the Middle East also received the same share as in the previous year, namely 5%.

52. The share of the inter-regional projects in the total assistance provided decreased from 11% in 1964 to 6% in 1965. This heading covers three inter-regional training courses under EPTA (one held in Japan and two in the United Arab Republic) and six inter-regional training courses under the regular programme (two in the United States, and one each in Denmark, the Federal Republic of Germany, the United Kingdom and the Agency's Laboratory in Seibersdorf) as well as the assistance provided to the Centre for Theoretical Physics in Trieste.

(ii) Distribution by country

53. In 1965, 62 countries received technical assistance in one form or another. Of these, 34 countries received assistance amounting to more than $20 000 each from the Agency's regular programme and from EPTA funds. Of these 62 countries, 45 were recipient countries only, while 17 both received and provided assistance. In addition there were 11 countries which only provided technical assistance, so that altogether 73 countries participated in the Agency's technical assistance programme in 1965.

54. While this total figure is the same as in 1964, it differs in that 24 countries (39%) both received and provided technical assistance in 1964, while in 1965 there were only 17 countries (27%) in that category (see also Table 3). Figs. 5 and 6 show the extent to which this exchange took place in 1965.

(c) Types of assistance

55. The percentage share of the three basic types of technical assistance in the total resources allocated in 1964 and 1965 was as follows:

	1964	1965
Experts (including visiting professors)	32%	34%
Equipment	23%	20%
Fellowships (including research grants, scientific visits, and covering both individual training at institutes and group training in courses)	45%	46%

(i) Experts and visiting professors

56. During 1965 assignments totalling 570 man-months were carried out by 155 experts from 25 countries at a cost of $838 000. In addition obligations totalling $329 000 remained unliquidated at the end of 1965.

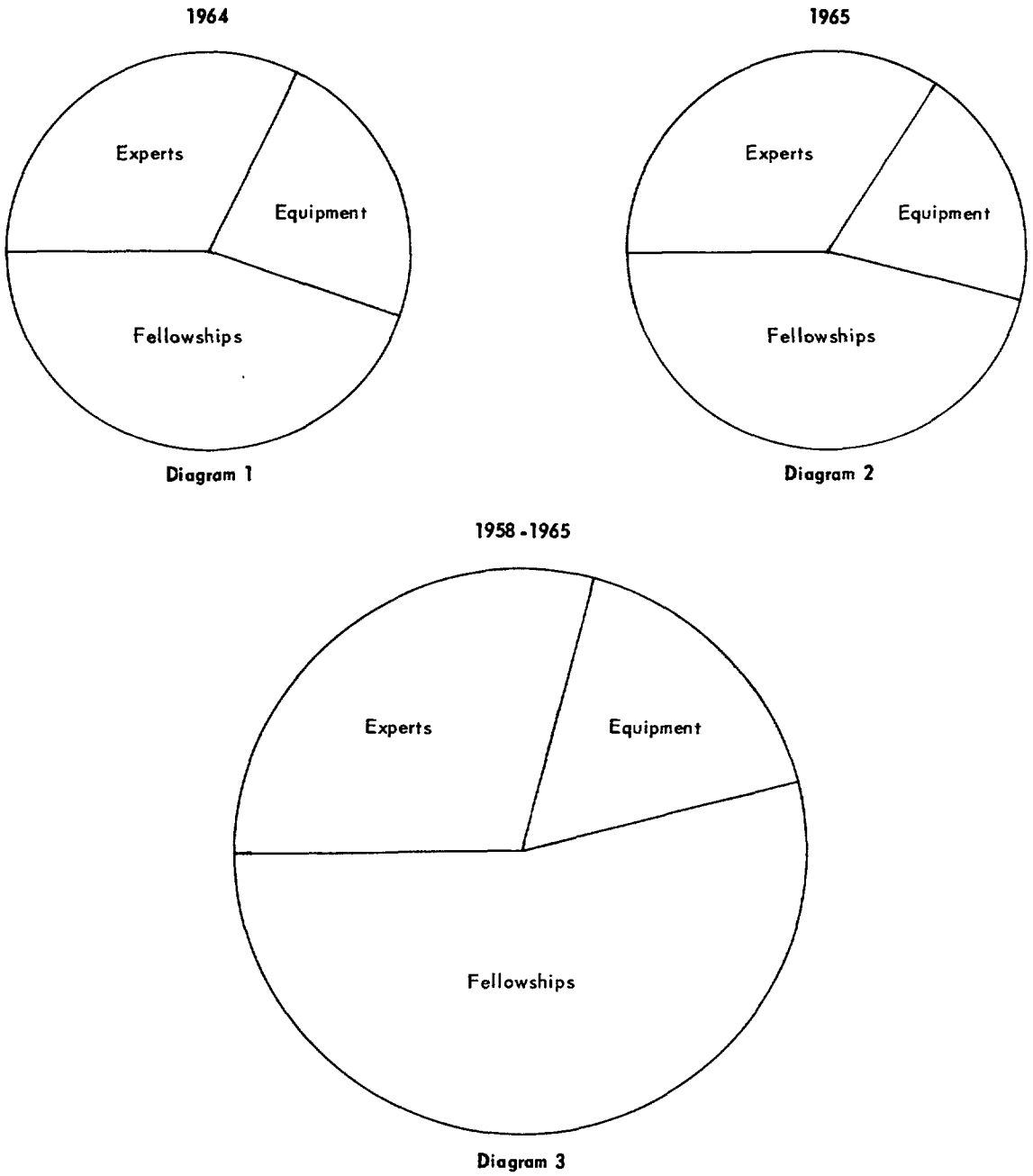
57. 120 experts were sent to 39 countries, while 35 served in connection with regional and inter-regional projects. In 1965, 8 cost-free and 2 partly cost-free experts were provided, as compared with 4 cost-free and 7 partly cost-free experts in 1964.

(ii) Equipment

58. The cost of equipment provided in 1965 in connection with technical assistance projects in 39 countries and some regional and inter-regional projects amounted to $500 600. This amount, including as it does the value of the equipment made available to the Agency free of charge ($77 700 as compared with $71 000 in 1964), remains some 30% below the $710 000 spent on equipment in 1964.

FIGURE 4

DISTRIBUTION OF TECHNICAL ASSISTANCE BY TYPE OF ASSISTANCE
(1964, 1965 and 1958 - 1965)



Note: Fellowships include participants at training courses and special projects as well as long-term awards.

59. The cost of the equipment component of technical assistance provided from the Agency's own resources for country programmes ($229 200) represents 19% (not including "free" equipment) of the resources for 1965 as compared with 24% in 1964. Under EPTA, equipment for country programmes ($150 600) amounted to 23% in 1965 as compared with 33% in 1964.

(iii) Fellowships

60. As indicated in Tables 3 and 6, during 1965 469 fellows from 70 countries were awarded fellowships representing a total of 3209 man-months of study. Of these, 227 fellowships were awarded under country programmes, 184 in connection with regional and inter-regional projects, 44 with international projects and 14 with research grants and scientific visits. The amount spent for fellowships, including the estimated value of Type II fellowships, decreased from $1 419 000 in 1964 (for 533 awards) to $1 153 000 in 1965.

61. While the total number of participants in regional and inter-regional training courses and research grantees was 198 in 1965 as compared with 192 in 1964, the awards made under the country programmes decreased as compared with 1964:

	1964	1965
EPTA	48	15
Type I	149	131
Type II	144	125

62. 41 Type I fellowships, 2 under EPTA and one Type II fellowship were awarded for special purposes in connection with the NPY (NORA) project, the Upsala International Seminar, CERN, the Neutron Crystal Spectrometer project in the Philippines, the Agency's Laboratory in Seibersdorf, and the International Centre for Theoretical Physics in Trieste.

(iv) Regional and other activities

i. Regional advisers

63. Three experts served as regional advisers under EPTA in 1965, one on hospital physics in the Middle East, one on rice cultivation in Asia and the Far East, and one on maize cultivation in Latin America.

ii. Training courses

64. During 1965, 12 regional or inter-regional training courses were organized by the Agency. Five of these were financed under EPTA (two were held at the Middle Eastern Regional Radioisotope Centre for the Arab Countries in Cairo, one in Colombia, one in Japan, and one in Thailand) and seven were organized under the Agency's regular programme (two in the United States, one each in Argentina, Denmark, the Federal Republic of Germany, the United Kingdom, and the Agency's Laboratory in Seibersdorf). Six of these courses were devoted to the application of radioisotopes in agriculture, two to health, safety and waste disposal, one to the application of radioisotopes in medicine, one to nuclear metallurgy, and one to the general application of radioisotopes. Thirty experts contributed to the training of the participants, 184 of whom had received Agency fellowships for these courses.

FIGURE 5

DISTRIBUTION OF TECHNICAL ASSISTANCE EXPERTS BY REGION: 1965

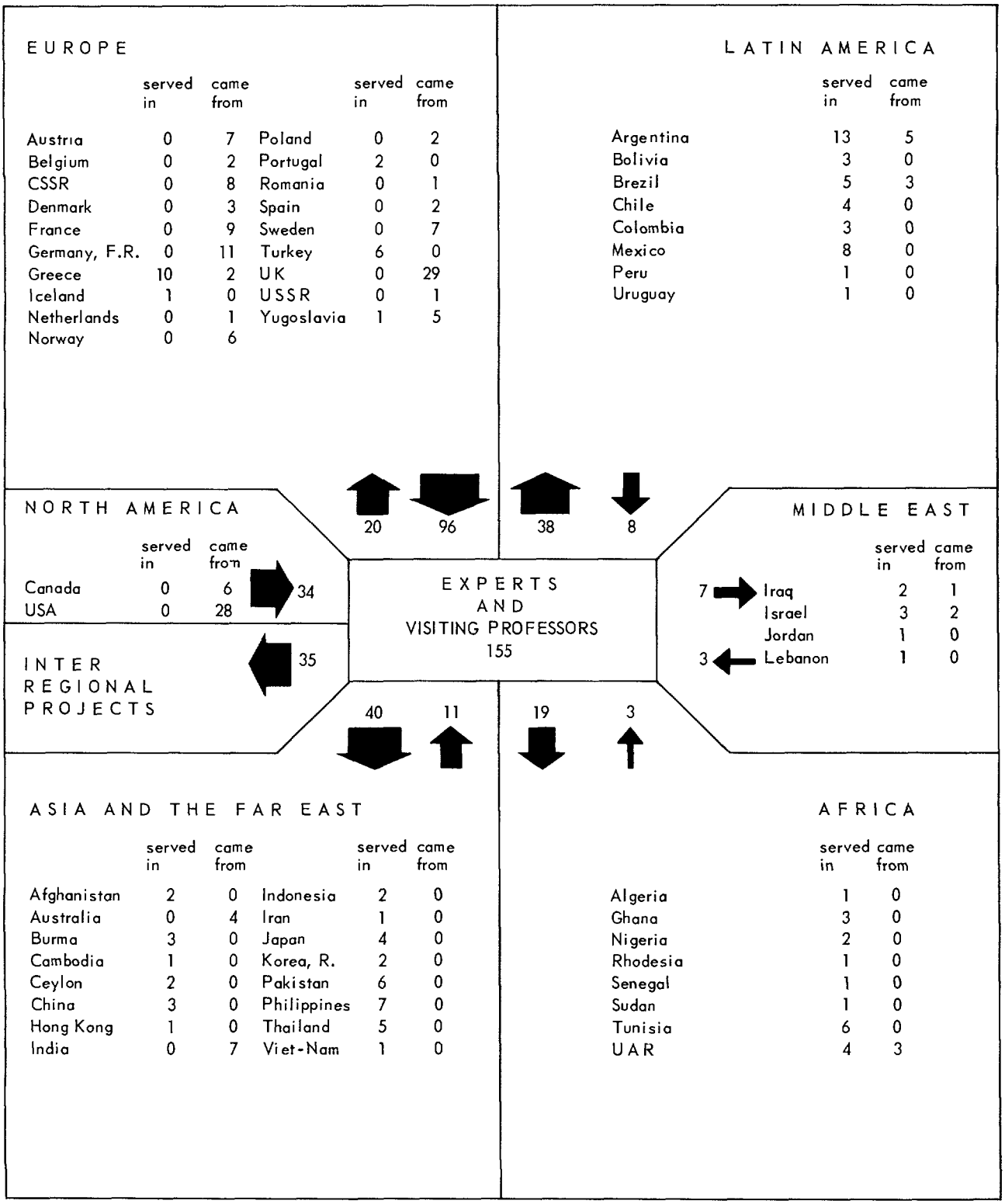
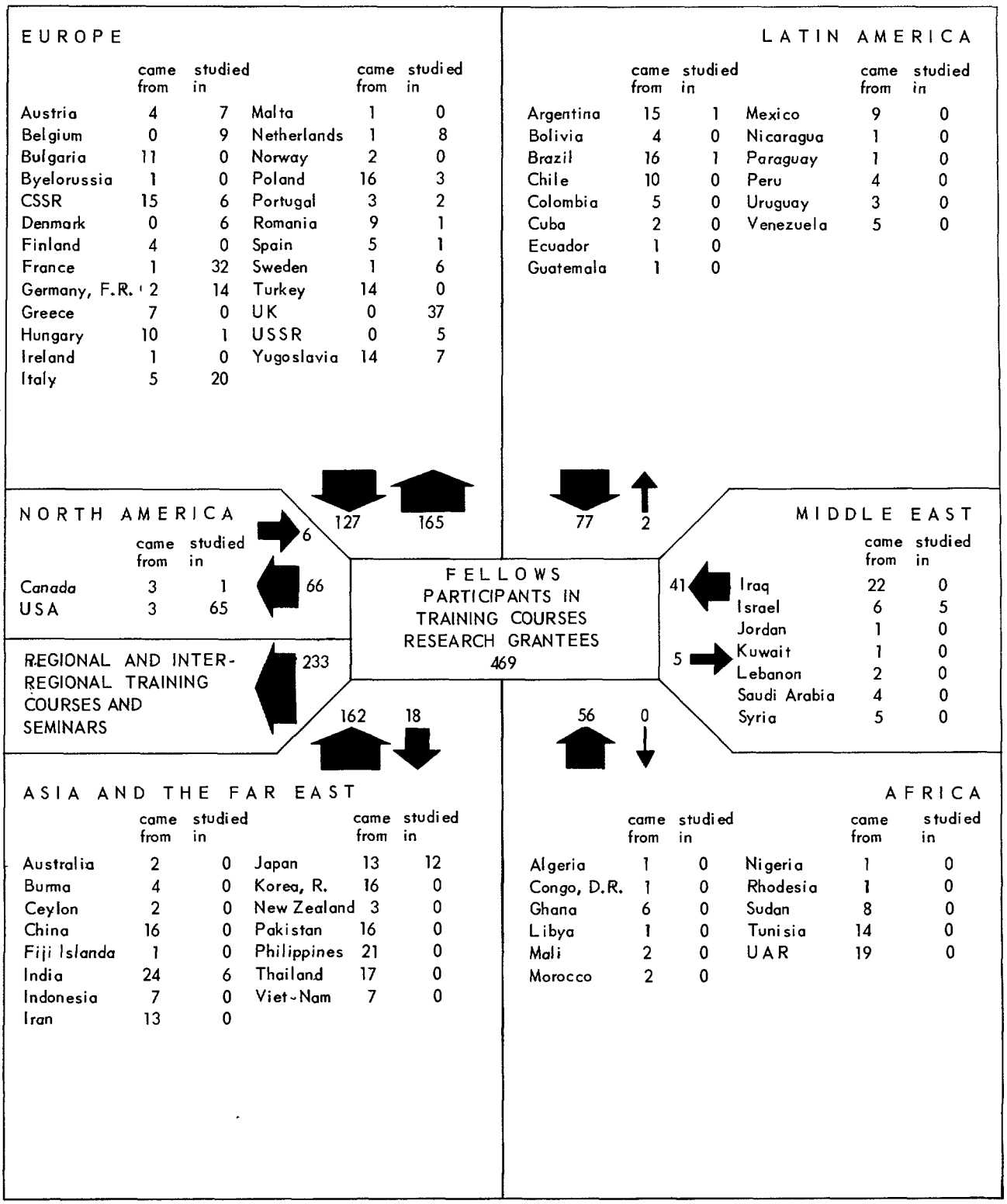


FIGURE 6

DISTRIBUTION OF TECHNICAL ASSISTANCE FELLOWSHIPS BY REGION: 1965



iii. Middle Eastern Regional Radioisotope Centre for the Arab Countries

65. This Regional Centre completed its third year of activity in 1965. In that year the Centre organized two training courses, one on the Application of Radioisotopes in Agriculture, and one on General Application of Radioisotopes. A total of 23 students (7 from Iraq, 1 from Jordan, 1 from Kuwait, 1 from Libya, 4 from Saudi Arabia, 7 from Sudan, and 2 from Syria) attended these courses under the EPTA inter-regional programme. A total of $36 900 from EPTA funds has been contributed to the Centre for the following activities: $7400 for experts, $20 100 for equipment, and $9400 for fellowships.

iv. Follow-up missions

66. No "follow-up" missions were sent out by the Agency in 1965, but preparations were made during that year to dispatch such missions in 1966.

C. Special Fund activities

67. It will be recalled that in 1963 the Agency agreed on a Plan of Operation with the former Special Fund and the Government of Yugoslavia for the execution of a project for the extension of research and training facilities at the Institute for the Application of Nuclear Energy in Agriculture, Veterinary Medicine and Forestry at Zemun (Yugoslavia). [7] In 1964, the central laboratory was completed and occupied by the various sections, and research programmes were initiated in soil fertility studies, plant breeding, animal production, nutrition and health and protection. In 1965, all the equipment agreed upon was purchased and is being installed. The construction of the phytotron building, the gamma irradiation facility, and the animal housing barn are nearing completion. The training of scientists and technicians at the Institute has proceeded according to plan. The Agency assisted by sending nine experts (including the Project Manager) to the Institute and awarding fellowships to nine technicians to study abroad. Equipment and miscellaneous items (including project vehicles) in the amount of $86 500 were ordered in the course of the year.

68. It was originally planned that the support of this project by the Special Fund should come to an end in April 1966, but it was decided to continue it till the end of 1966 with a view to providing consultants, experts, fellowships and some equipment needed during the transitional period to establish the Institute on firm foundations.

69. In March 1966 the Agency concluded the second and final phase of the two-year Special Fund project in the Philippines entitled "Pre-Investment Study on Power, Including Nuclear Power, in Luzon". The first phase of the project was completed in February 1965. This consisted of an assessment of the power demand in the grid for the coming 10 years and an evaluation of the indigenous energy resources (hydro, geothermal, coal, oil and gas) which could be used to meet this demand. The results of the investigations carried out during the first phase established that the indigenous energy resources were inadequate and could meet only one-seventh of the additional demand of 2000 MW foreseen for the period and that the country would consequently have to rely upon imported oil or nuclear fuel.

70. This led to the consideration of nuclear plants as well as oil-fired plants in the second phase. A detailed cost and economic analysis of these plants was undertaken, and comprehensive system planning studies were made. These showed that the optimum programme for the grid would include three nuclear plants during the period 1971-73 and that these plants would be more economical than ones using imported oil even if the cost of oil was to decrease from the current level of 41 cents to 35 cents per million BTU. Although the initial capital requirements will be 25% higher for nuclear plants, this difference will be fully offset within six years by the savings in the fuelling costs of nuclear plants as compared with conventional oil-fired plants. After 1978 the nuclear plants, with an aggregate

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[7] GC(VIII)/INF/72, para. 48.

capacity of 1000 MW, would result in annual savings of $14 million as compared with corresponding oil-fired units, and these savings could be used for financing future expansions of the grid. A detailed final report on this project will be submitted to the Government of the Philippines by UNDP/SF in summer 1966, and the appropriate authorities will then consider whether or not to go ahead with nuclear plants, beginning in 1971.

71. Since this is the first Special Fund project dealing with the application of nuclear power in a developing country it has evoked a great deal of interest, and the methods used in analysing the role of nuclear power in the Philippines could be used in other countries also.

72. In July 1965 the Agency agreed on a Plan of Operation with the Special Fund and the Governments of seven Central American countries for a regional project to demonstrate the technical feasibility of the eradication of the Mediterranean fruit fly by the sterile male technique. With the appointment of the Project Manager and Co-Manager, work has proceeded towards the achievement of the main objectives. They are, first, to initiate the eradication of the Mediterranean fruit fly in a relatively small, partially isolated area of citrus, and secondly, to extend the work to larger areas within the Central American countries.

73. Determinations of the relative abundance of the flies have been made by using field traps in citrus. Seasonal changes were also determined. A study which was made of the abundance and movement of flies, the location and density of the host plants of the fly and the topographical features was found useful with a view to identifying the most suitable, partially isolated area. The rearing of large numbers of flies proceeded simultaneously with the field studies. As a result, small-scale releases of sterilized flies were made, larger numbers were required for massive releases and greater space was provided and more facilities were built to meet the need for mass rearing. Simultaneously studies were made of precise irradiation doses to sterilize the male flies, while permitting the treated flies to mate and compete with the wild fly populations. Effective rearing techniques and radiation treatments were established for large-scale operations which should take place in 1966.

74. In June 1965, the Governing Council of the Special Fund approved a pilot project in Turkey for the radiation disinfestation of stored grain by irradiation. The project, which will be of three years' duration, will develop basic techniques for irradiating grain with maximum efficiency and minimum cost which can, with appropriate modifications, be used in certain other countries where grain infestation is a major cause of food losses.

75. A contract has been placed for the construction of the irradiation unit and associated grain handling facilities and control equipment. These are expected to be handed over for the commencement of trial operations early in 1967, following which a carefully planned programme of tests and comparative studies will be undertaken.

CHAPTER III. EVALUATION OF THE TECHNICAL ASSISTANCE PROGRAMME UP TO 1965

INTRODUCTION

Evaluation - a continuing process

76. Programme and project evaluation is a part of programme formulation; it is carried out when requests for projects are made, the field and final reports of experts are reviewed and during consultations on programmes and priorities between Governments and the Agency. A review of the technical evaluation of the soundness of a project takes into account the effectiveness of any aid which has already been provided for a national atomic energy programme and the part it plays in the Government's economic, scientific and social development plans. Thus, as in the United Nations and the specialized agencies, the evaluation of

the Agency's technical assistance programme is in the nature of a continuing critical review of progress made through the Agency's participation in the economic development of the recipient country.

ECOSOC's views on evaluation

77. While aware of the need for this type of continuous programme and project evaluation, ECOSOC, in a series of resolutions in 1964 and 1965, called for further action with regard to evaluation and requested the Secretary-General, in co-operation with the Managing Director of the Special Fund and the Executive Chairman of TAB, and in consultation with the executive heads of the specialized agencies and the Agency, to proceed as promptly as possible with arrangements for undertaking pilot evaluation projects in a limited number of countries. Small teams, in co-operation with the Governments of the selected countries, were asked to evaluate the overall impact and effectiveness of the combined programmes of United Nations organizations in terms of performance and results achieved and, whenever feasible, in the light of the goals to be achieved through the economic and social development plants of these countries. The teams were further asked to give full attention to, and report on, possible deficiencies and shortcomings, as well as the successes achieved by the technical co-operation programmes and activities of the United Nations and its related agencies as a whole, so that recipient countries and participating organizations could improve the effectiveness of their programmes. The teams were requested to examine the extent to which co-ordination and co-operation among the organizations concerned at the country level was contributing to the overall impact of the technical co-operation programmes of United Nations organizations and to make suggestions for improvements in co-ordination and co-operation if they found this desirable. The specialized agencies and the Agency were invited to co-operate as closely as possible with the evaluation teams, and the latter were provided with full background information on the Agency's programmes in the countries concerned. In one case the Agency's regional officer participated fully in the discussions of the team; in another the national atomic energy commission supplied information on the part it played in economic development and the manner in which the Agency had assisted it.

78. The teams did not investigate or evaluate the individual technical assistance programmes of the participating organizations, but projects were quoted for illustrative purposes. Favourable comment was made on the manner in which the Agency, in co-operation with the Government, programmed its assistance projects.

79. The Agency was very closely associated with the Secretary-General's evaluation teams, and the findings of the team which visited Thailand have been drawn upon, to the extent appropriate, in the evaluation of projects in the paragraphs below.

EPTA evaluation

80. Simultaneously with ECOSOC's request to the Secretary-General to undertake "impact evaluation" pilot studies, the Executive Chairman of TAB, in agreement with TAC, is preparing a special study of the functioning of EPTA in a few selected countries. The purpose of the study will not be to determine the impact of EPTA, but rather to review the programme and hold frank discussions with the Government, the Resident Representative, the participating organizations, experts and all other parties whose views may appropriately be sought on all the processes of programming, implementation and follow-up. It is hoped that it will be possible to report to the Governing Council of UNDP that, on the basis of close consultation and observation in a number of unidentified countries, certain conclusions can be reached as to the functioning of EPTA as a whole. The teams that are to carry out this task, which consist of Headquarters staff from the Secretariat of TAB, have delayed their departure in order to familiarize themselves with the reports from the teams dispatched by the Secretary-General; it is expected that they will be in the field in 1966. These teams will also operate in the closest co-operation with the specialized agencies (whose Headquarters they will visit before and after carrying out assignments), with all regional offices, Agency representatives and, where appropriate, with experts in the field.

In approving these proposals, a number of Governments represented on TAC pointed out that, in the last analysis, the most fruitful evaluation would be one carried out by the recipient Governments themselves since they knew best their own needs and whether those needs were being suitably met.

EVALUATION OF AGENCY PROJECTS

81. The Agency's technical assistance programme for the provision of experts and equipment is mainly concerned with research reactor utilization and the practical applications of radioisotopes. The assistance is intended to fill a gap which the recipient country could not fill from its own resources; it is an advisory service designed to transfer skills and technological know-how. The projects in the programme must therefore be considered as part of a larger whole, the reactor utilization programme and the assistance relating to medicine, agriculture, industry and education being provided to support part of a national programme of scientific research and development designed to raise standards of living. The impact or effectiveness of Agency aid, as in the case of all multilateral aid, cannot be assessed in isolation or at any given moment; indeed, as the Executive Chairman of TAB has stated, it is possible that it cannot be assessed in any measurable time since "assistance is of a catalytic kind which activates latent resources and energies sometimes long after the departure of the expert".

82. The Agency, in addition to the continuing review mentioned above, has undertaken a study designed to elucidate the effectiveness of the advice provided by experts and the utilization of the associated equipment as well as the impact of the fellowships programme. Since the Agency programme is relatively small in comparison with those of the other participating organizations and the Agency has not a large corps of regional officers or experts on long-term assignments, selected United Nations Resident Representatives were asked to report, after consultations with senior Government officials, on all aspects of the formulation and implementation of the Agency programme in the countries to which they were assigned. They were specifically requested to give examples of successful projects, as well as of projects which had not made any impact or which had failed to achieve the desired result. In doing so it was recognized that the opinions of the Resident Representatives, although they were subjective judgements, were in effect opinions which should play a significant part in the process of evaluation as they are the considered opinions of persons who observe technical assistance activities every day and who share with the organization responsibility for helping to ensure that the work of the expert and the fellowship operations are carried out efficiently. This procedure was also used by the Agency in preparing the annual report on technical assistance for 1962 [8] and by the Executive Chairman of TAB in preparing his evaluation for TAB's annual report to TAC for 1964.

Experts

(a) General

83. On the whole, the performance of Agency experts has been considered satisfactory both by the Governments and the Resident Representatives; it is worth noting that, with very few exceptions, no reference was made to a lack of scientific knowledge on the part of the expert.

(b) During assignment

84. The major comment usually concerned the adaptability of the expert at the start of his assignment. Several Governments suggested that the job description did not give the expert an accurate picture of the local situation. This was not the fault of either the Government or the Agency, but in most cases was due to the passage of time. There were, however, cases

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[8] GC(VII)/INF/61.

in which the expert found, on arrival, that the Government or its contractors had failed to keep to the construction time-tables and no use could be made of his services unless he was adaptable and able to give advice of a more long-term nature concerning programming, etc. This happened in two countries, though the scope for adaptability was somewhat limited in both. On the other hand, an expert who was dispatched to one country to explain the industrial uses of radioisotopes found that, through his ability to adapt himself to the local situation, he was able to transfer his knowledge so well that the use of isotopes is now growing and the national petroleum company, which was already using radioisotopes for inspection purposes, has increased their use with improved techniques. The expert was on a long-term assignment and he eventually became a general adviser to the Atomic Energy Commission on many matters and tended to act as a "technical bridgehead" between the Commission and the Agency. In another country a nuclear physicist was assigned to lecture in nuclear physics in the local university but discovered that in fact he would have to confine his lectures for the most part to a comparatively elementary level for want of qualified students. He then conducted a course in nuclear physics for a small group of assistant lecturers so successfully that his services have been requested for an additional academic year.

85. Many experts work in an environment where technical facilities for instrument repair and maintenance are almost non-existent. In many cases experts are prevented from doing effective work when their demonstration equipment ceases to function properly. In one country, however, an expert in the medical application of radioisotopes, using his ingenuity and local materials, was able, in conjunction with some local technicians, to repair a large amount of electronic equipment which had been damaged in transit. In another country an expert in mining and processing of nuclear materials whose demonstration equipment did not arrive in time for him to use it proved his adaptability by providing such sound advice on a whole range of nuclear technology projects that his project could not be considered a failure. He did, in fact, transfer several skills, though not necessarily those originally intended. In yet another country, during a short visit of some three months, an expert who was required to assist in developing a programme of food and nutrition research, utilizing radioisotopes and other forms of atomic energy, and in a study of protein metabolism in marginal protein deficiency, was able, due to his adaptability and resourcefulness, to impart new techniques and make possible the continuation of research which, in the words of the Government, would otherwise have been impossible. Although it was noted that the expert's experience was highly specialized and that one with broader experience might have achieved fuller results, the Government concluded that the expert had succeeded in enabling it to embark on the application of atomic energy to nutrition.

(c) Following assignment

86. The effectiveness of an expert's work depends, of course, on what happens after his departure from the country of his assignment. In some cases an expert returning for a short visit has found that the programme he had established had not been carried on in his absence. This, however, is in part obviated by the sister-laboratory arrangement which enables the expert to keep in touch with the institute or organization in which he had been working. The value of these contacts, made initially by experts with their national counterparts and followed up on a direct person-to-person basis on the expert's return to his own institute, hospital, university, etc., is often overlooked. In one case an expert was able on his return to send equipment to a hospital in which he had introduced some medical applications of radioisotopes, and he continues to maintain contact.

87. The value of in-service training in the follow-up procedure was shown where an expert, who first visited a country in 1961 and remained for 18 months, was instrumental in training eight specialists in nuclear chemistry. These were the first nationals to have undertaken such training. The expert returned in the middle of 1965 for a further 18 months to continue the project. The eight former pupils now work with the expert and the second visit has provided him with an opportunity to train others. Any such training plays a vital part in familiarizing local personnel with a specialized subject which had not hitherto been thought of. In another country, an expert in nuclear instrumentation completed a five weeks' training course for electronics technicians and an electronics research and development unit was

established under his guidance. A year after his departure the local Experimental Services Department is now producing much-needed nuclear instrumentation which would otherwise have to be imported.

88. In some projects relating to the applications of atomic energy it is not possible to find an appropriate counterpart for an Agency expert, who must then rely on the services of a technician. In these cases, the technician is normally provided further training under the Agency's fellowship programme which will enable him to continue the project.

(d) Duration of assignment

89. It has sometimes been suggested that an expert's assignment was too long or too short. The duration of an assignment is always agreed upon between the Government and the Agency in advance. Governments and Resident Representatives consider it impossible to establish any firm rules regarding the duration of assignments, which must be determined primarily on the basis of the subject matter of the assignment, bearing in mind the progress made in the actual projects which the expert is helping to carry out. It has been found that, out of about 860 experts assigned since the programme started, only about 80 have had their assignments extended at the request of the Government. Extension may be necessary through no fault of the Government or the expert but may be attributable, for example, to a failure to pass legislation, delays in the delivery of equipment by sea, local labour conditions where construction is involved, and a host of other reasons which could not be foreseen at the time the expert took up duty.

Equipment

90. The Agency has provided equipment in response to the requests of Governments and in accordance with the rules governing both the Agency's regular programme and EPTA. Equipment provided is expressed in financial terms in Tables 7 and 8, but in fact the figures given represent the amounts decided only after Governments had agreed to reduce the amounts originally requested, usually by some 50-75%. The progress and final reports of experts show that some recipient Governments do not always pay sufficient attention to the fact that regular servicing, spare parts, etc. are needed for the efficient operation of equipment. These are not always available in recipient countries, and sometimes there is not enough foreign currency to pay for spare parts. The long-term obligations that arise after the Agency has made the initial provision of equipment are also sometimes overlooked.

91. The Agency makes continuous efforts to ensure that equipment is delivered at the time of the expert's arrival but, as already mentioned, there have been a few occasions when, for reasons beyond the Agency's control, it did not arrive during the period of assignment. Sometimes production schedules are not kept and customs clearance is often complicated and time-consuming. Efforts have been made to improve the latter situation but so far without much success.

Fellowships

92. The Agency continuously examines the evaluation of its fellowship programme in order to determine the extent to which it contributes to the development of the atomic energy programmes of recipient countries. To this end the Agency sends, as a matter of routine, a questionnaire to its fellows who have completed their training and who have been working in their home country for six months or longer.

93. As of 30 June 1965 a total of 1488 fellows from 64 countries had completed their training abroad and questionnaires received by 1 February 1966 from 1169 of these fellows (78% of the completed fellowships) have been studied. This study disclosed that 95% of the fellows had returned to their home countries while 5% had remained abroad. Of those who remained abroad, approximately two thirds did so to carry out further study financed by sources other than the Agency, while one third remained for employment purposes. In the

questionnaires 94% of the fellows stated that their present activities were related to their training, 2.5% stated that they were partially related or, for lack of equipment, etc., not yet related to their training and 3.5% stated that they were completely unrelated to their training.

94. A representative group of current supervisors of former fellows has been requested to provide a brief evaluation of the fellows' training programme. All the evaluations received to date have been favourable, but the number received is not yet considered statistically significant. The collection of evaluations will be carried on into the coming year.

95. Those who took part in Agency-sponsored training courses or scientific visits, or who received research grants, are requested to provide final reports of the results of their training. It has been found, in general, that the information contained in reports of participants in training courses is not consistent and cannot be readily used in an evaluation of the training programme. Therefore, beginning with the 1966 programme year, a standard questionnaire will be sent to each participant after his return to his home country. This will permit a more meaningful evaluation of the training received as in the case of normal Agency fellowships.

96. As a result of an evaluation of the potential role of training in nuclear science in the light of national education plans, reports of visiting professors, etc., the Agency, with a view to updating and improving its training programme, convened early in 1965 a panel of international experts to discuss the training of scientists in the developing countries. The panel made a number of recommendations which are receiving consideration for the proposed future programmes of the Agency. These recommendations include: the placing of emphasis on assisting training courses and fellowships associated with Agency-assisted projects in Member States; the establishment of closer contacts with UNESCO to discuss the need for the training of technicians, laboratory assistants and middle-grade technical staff, as well as the desirability of organizing nuclear science summer schools for secondary school teachers; the continued provision of assistance in arranging contracts between laboratories in developing countries with those in more advanced countries. These recommendations are under consideration and will be utilized in improving the present technical assistance programmes as well as in establishing future programmes.

Regional projects

97. The regional approach to technical assistance has an obvious attraction for agencies providing assistance, but recipient Governments vary in their response. Up to now the Agency has been mainly concerned with training courses, rather than with other types of regional projects.

98. One Resident Representative has reported in respect of the Agency's programme that in the country to which he is assigned great emphasis is placed on regional projects and it is felt that in future there might be considerable advantages in increasing the number of regional activities. He pointed out that research work undertaken on this basis has been extremely successful. Training courses in radiochemistry, which were held in a nuclear studies institute, proved to be of great value in providing special opportunities for cross-fertilization of ideas amongst young scientists in the region.

99. Bearing in mind the somewhat sophisticated nature and high cost of equipment utilized in atomic energy programmes, it is obvious that in certain cases recipient Governments must pool their resources in the long run. For example, in one region, in collaboration with seven Governments, the Agency has established a regional training and research programme using a neutron crystal spectrometer. The objective is to establish a research centre concerned with neutron diffraction in which scientists and technicians from the region can participate in research and training. As a collaboratorive venture one Government initiated the project by providing the spectrometer which, with its accessory electronics, was built in its territory; it also provided the services of a senior scientist and a technical

physicist. The host Government provided appropriate facilities at its research reactor site, together with the project director. The Agency contributed financial assistance to cover the transport of equipment, travel expenses and allowances of experts and has provided five fellowships annually since the start of the project at the end of December 1964. In the view of the host Government, there was particularly close co-operation between the experts and participants in the project; everyone understood the other's problems since each one came from a developing country where the laboratories are not as well equipped as those in some of the more advanced countries. Ingenuity was used in the assembly of the spectrometer and a research task was soon completed. The paper describing this work has since been accepted for publication in an internationally recognized scientific journal.

100. In the training part of the programme, emphasis was placed on obtaining experience in the local manufacture and design of auxiliary equipment and, in order to facilitate the expansion of the experimental programme, the design and construction of a triple-axis spectrometer was undertaken. The various components of this apparatus were manufactured at the site of the centre. By participating in the design and construction of this equipment, the fellows acquired a considerable amount of information and valuable experience which will be useful when they return to their respective countries.

101. The primary importance of such a project lies in the part it can play in remedying the lack of trained scientists needed for the effective utilization of research reactors and in the development of fundamental research in the region.

Regional advisers

102. Another form of technical assistance for a region is the provision of a regional adviser. In one case, appreciation of the services of an adviser was expressed by many of the 18 countries in which he worked. He was able to give advice at policy-making level and in some instances advised on the type of equipment which should be purchased by the Government, a service which was greatly appreciated. In other instances, he was able to assist in the preparation of courses and held lectures in specific subjects at the national and regional level. His assignment did not, however, preclude the need for assigning other experts in the same field to individual countries within the region.

Regional centres

103. The Agency has comparatively little experience of regional seminars and study tours, but has closely collaborated and participated in the work of one regional centre. This centre was established to train specialists in the applications of radioisotopes by conducting general and specialized courses in research, using radioisotope techniques, in subjects of interest to the region.

104. The Agency provides lecturers and stipends, pays travel costs for participants and supplies some demonstration equipment for two training courses in different subjects which are held annually and are usually attended by some 15 participants from various countries in the region. In addition, scientific staff from the Agency's Headquarters is able, through periodic visits, to advise on the research programme which is being carried out by the centre on problems affecting its Member countries. A preliminary evaluation of the effectiveness of the centre promoting the widespread use of radioisotope techniques and in developing scientific research shows that its aims and objectives are being achieved and that the way in which the Agency participates in its work is appropriate.

Mobile laboratories [9]

105. Sixteen countries in Europe, Asia and Latin America were visited by the Agency's two mobile radioisotope laboratories. These countries expressed their appreciation of the benefits derived by using these laboratories, which offered them the first opportunity of organizing training courses in provincial towns. Of some 1500 students and technicians who attended training courses organized in 48 towns with the help of these two laboratories, many were introduced to various basic techniques and experiments relating, for example, to the application of radioisotopes in medicine, agriculture and industry. In a number of countries, the laboratories have also been used to demonstrate new radioisotope techniques both to scientists and the general public.

[9] See also document INFCIRC/81.

Part III. GENERAL TRENDS AND CONCLUSIONS

A. Declining resources

106. The slow, but on the whole steady, increase in the Agency's total resources for technical assistance since 1958 was interrupted in 1965 when the resources ($2762 million) fell below the level of 1963 ($2833 million) and 1964 ($2873 million), as shown in Table 1.

107. If these absolute figures alone were taken into consideration, one might be tempted to assume that the situation might improve in 1966 because the resources allocated for the second year of the EPTA biennial period, i.e. for 1966, amounting to $1 116 000, will be $91 000 above the 1965 level.

108. Assuming that the actual voluntary contributions of Member States to the General Fund for 1966 will reach the level of the pledges as at 31 December 1965 - $1 076 000 plus estimated additional pledges of $182 000, totalling $1 258 000 [10] - and that $1 125 000 of that amount (or $25 000 more than in 1965) is likely to be available for technical assistance in 1966, and assuming further that the contributions in kind will be maintained in 1966 at the same level as in 1965 ($637 000), the total resources thus estimated as available for technical assistance in 1966 would amount to $2 878 000, which is about the 1964 level. Taken in isolation, this would mean an increase of $116 000 over 1965.

109. Comparison on a biennial basis, however, leads, as the following figures show, to a very different conclusion:

Resources available for the provision of technical assistance by the Agency in the biennial periods 1963-64 and 1965-66 (estimated)

1963	$2 833 000	1965	$2 762 000	
1964	$2 873 000	1966	$2 878 000	(estimated)
Biennial period 1963-64	$5 706 000	Biennial period 1965-66	$5 640 000	(estimated)

110. Compared with the resources made available for 1963-64, the resources estimated as available for 1965-66 show a decrease of $66 000 despite the assumption that the actual allocation of resources for technical assistance from the Agency's funds in 1966 would be $25 000 higher than in 1965.

111. The decline in resources would, in fact, be more severe and its consequences more serious than the figures indicate. These figures do not fully reflect the actual situation; they would be of value only if it were assumed, for the purpose of financial planning of the Agency's technical assistance activities, that the purchasing power of moneys contributed to the General Fund remained stable. This is, however, not the case. If the Agency's monetary resources failed to increase beyond a certain level, there would inevitably be a decline in the scope and material value of the technical assistance provided, and this decline is evolving pari passu with the general inflationary trends.

112. The Governing Council of UNDP considered this problem at its first session, held from 10 to 21 January 1966 in New York, in view of the fact that it would be called upon, in November 1966, to approve recommendations for the technical assistance programmes for the biennial period 1967-68. For that period a field programme costing $110 million will be

[10] See document GOV/1112.

put before the Council; this would require $55 million for each year, which represents an increase of $5 million, or 10%, over the annual programme approved for the period 1965-66. This increase, however, would not represent a commensurate increase in man-months in respect of experts or training, since the costs connected with these two elements of technical assistance are themselves increasing. In this connection, mention should be made of the revised salary scales approved by the General Assembly of the United Nations at the end of 1965, resulting in a 9% increase in the cost of the expert component.

113. In addition to the above-mentioned increase in project costs, the increasing cost of equipment required for technical assistance projects must be taken into account. Thus a 10% increase in resources may in terms of real purchasing power and programme implementation merely maintain the total resources available for technical assistance at the level of the two preceding biennial periods.

B. Concentration of resources

114. The increasing needs of the developing countries for the provision of technical assistance by the Agency and the prospects of meeting the resulting requests must be considered in the light of developments which are likely to lead to a gradual change in the methods of financing technical assistance from extra budgetary resources formerly provided under EPTA and the Special Fund and now provided, since 1 January 1966, under UNDP.

115. It is expected that the activities of UNDP, though leaving intact the responsibility of each organization for planning and implementing programmes of technical co-operation falling within their technical competence, will bring about a gradual transition from the provision of assistance to each country, which merely represents the sum of individual programmes of each organization, to an integrated development programme for each country drawn up on the basis of that country's overall development plan. As the Director General, commenting on the first draft of the Secretary-General of the United Nations on the merger of EPTA and the Special Fund, pointed out in 1963, such a change should facilitate the task of national co-ordinating authorities "to prepare consolidated requests for assistance that are drawn up as an integral part of the country's comprehensive national development plan and to determine the priority to be given to each of its components. A concentration of requests on a limited number of projects in fewer fields may well result. This result is to be hoped for, since such a concentration of human and material resources on fewer projects would be of greater value for a developing economy; in addition, the impact of such projects on economic and social development might become more easily measurable."

116. In order that such a concentration on a limited number of large projects should not prejudice projects of a more limited scope - like most of the EPTA projects - which may be required by national development plans, it is essential that the financial resources available for technical co-operation should steadily increase so as not only to meet the rising costs but to enlarge the scope and value of the programme as a whole. That would contribute to narrowing the gap between what is being done and what could be done.

117. An analysis of the resources used for the Agency's technical assistance programme in 1965 leads to the following conclusions:

(a) The gradual and continued growth of the Agency's different technical assistance activities up to and during 1964 has been, on the whole, arrested and is, in fact, declining;

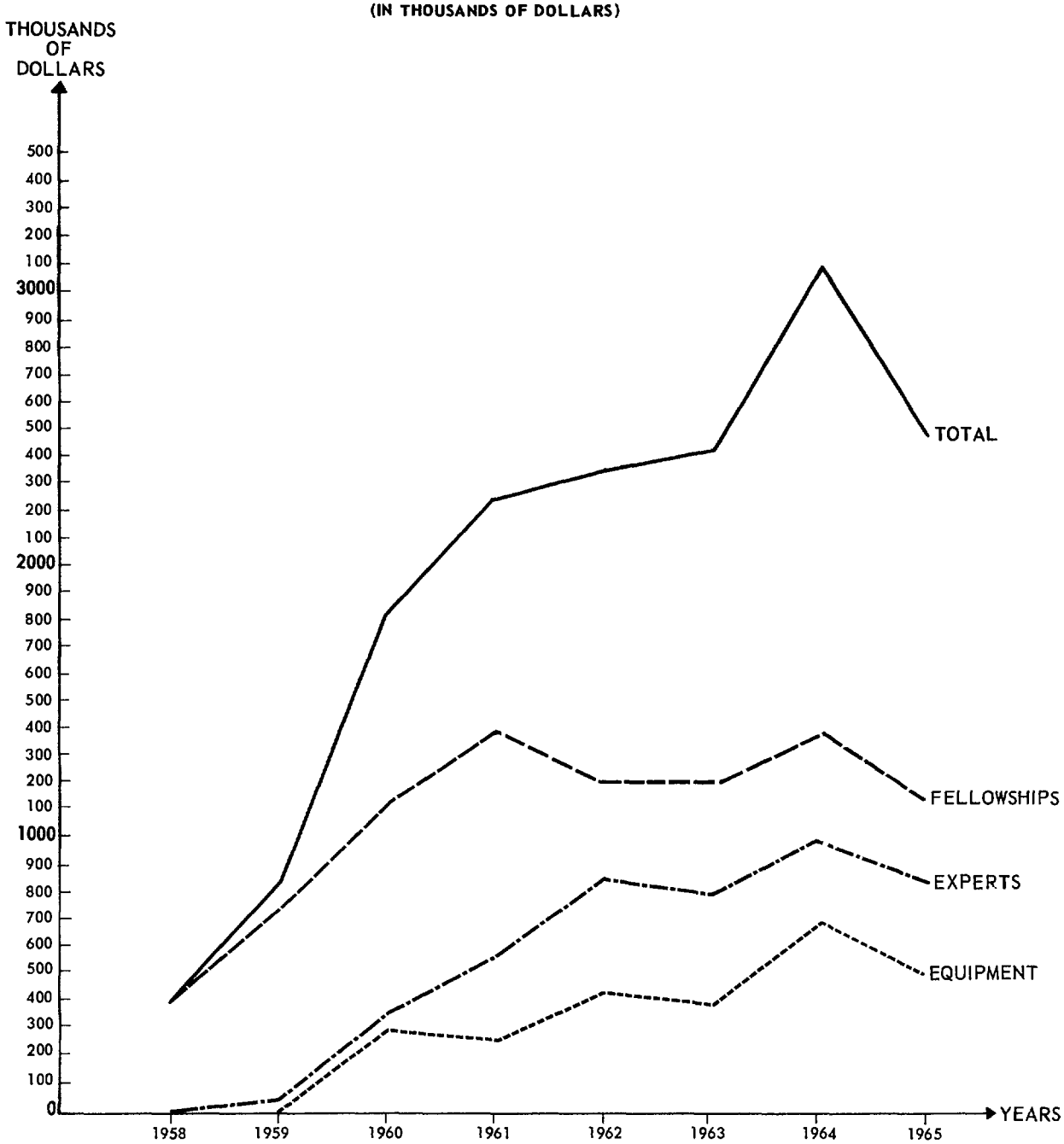
(b) Considered in the light of the constantly increasing cost of project implementation, this trend, if not reversed, will seriously impair the effectiveness of the Agency's technical assistance activities; and

(c) The provision of technical assistance at the regional and inter-regional levels continued as in the previous programme period.

FIGURE 7

TRENDS IN THE TECHNICAL ASSISTANCE ACTIVITIES OF THE AGENCY

(IN THOUSANDS OF DOLLARS)



ANNEX I

STATISTICAL TABLES

Introductory Notes

1. General

In the statistical tables in this Annex the assistance provided by the Agency (experts, equipment and fellowships) includes actual cash payments against 1965 and prior years' obligations, regardless of the time when funds were made available or obligated, plus the total value of assistance in kind. Thus the total amount of funds actually spent on technical assistance is reflected more correctly. The unpaid balance of funds obligated in 1965 is not included. Figures relating to prior years have been adjusted accordingly.

2. Resources

All monetary values appearing under the headings "Agency resources in kind", or "free experts" or "Type II fellowships" are estimated in accordance with the following rules:

(a) Experts. The value of the services of each cost-free expert is estimated on the basis of the average salary of an equivalent expert engaged by the Agency and the applicable daily subsistence allowance as established by UNDP, plus the cost of a round-trip air ticket;

(b) Equipment. The value of equipment is estimated according to information received from the donor Government; and

(c) Fellowships. The value of Type II fellowships is estimated on the basis of the monthly stipend, either as proposed by the host country or as established currently by UNDP, multiplied by the duration of the award in months. The estimated travel costs have been added if they were paid by the host country.

These values and the totals in which they are included must therefore be considered as approximations.

3. Special Fund activities and funds-in-trust arrangements

Although these are mentioned in the report as part of the Agency's technical assistance co-operation activities, none of the statistical tables include Special Fund activities or projects carried out under funds-in-trust arrangements.

4. International Centre for Theoretical Physics

Seventeen fellowships were awarded to the Theoretical Physics Centre at a total cost of $49 600; however, only $35 000 was transferred from Operating Fund I to Operating Fund II to cover part of these costs. It is therefore not possible to specify the source from which individual fellowships at the Centre were financed.

5. Types of assistance

(a) "Experts" include visiting professors and also the "expert services" element of various training courses; with regard to Table 6 it should be noted that under "International projects" experts' services on regional and inter-regional training courses are not sub-divided by region but included, with associated fellowships, under the heading "short-term training courses";

(b) "Equipment" includes the equipment element of various training courses, and also storage charges in the case of the mobile radioisotope laboratories;

(c) "Fellowships" include research fellowships. However, in the tables showing the distribution of fellowships by place of study (Table 3) and nationality (Table 6) the numbers indicated for countries do not include fellows participating in short-term training courses outside their countries or those holding short-term research grants, since their inclusion would substantially distort the statistics relating primarily to the holders of one-year fellowships; the numbers thus excluded appear separately at the end of the respective tables. It should, however, be pointed out that for financial purposes extensions of fellowships are treated as new awards; hence the number of fellowships awarded differs from the actual number of fellows studying at the various institutes. None of the tables include any reference to local participants in training courses.

6. International projects

The heading "International projects" refers to regional, inter-regional and other international projects such as NORA, NPY, etc. In Table 7 expenditures for regional and short-term courses are included under regional activities.

7. Figures

Due to the rounding off of monetary amounts to the nearest hundred or thousand dollars, the totals indicated in various tables may differ slightly.

A. TECHNICAL ASSISTANCE RESOURCES

Table 1

Resources available: 1958-1965

(in thousands of dollars)

Year	EPTA	Agency		Sub-totals		Total[a/]
		Monetary	In kind[a/]	Monetary	Agency[a/]	
	(1)	(2)	(3)	(1) + (2)	(2) + (3)	(1) + (2) + (3)
1958	-	124	390	124	514	514
1959	304	875	531	1179	1406	1710
1960	639	1008	813	1647	1821	2460
1961	787	981	845	1768	1826	2613
1962	843	1146	698	1989	1844	2687
1963	1049	1230	554	2279	1784	2833
1964	1050	1115	708	2165	1823	2873
1965	1025	1100	637	2125	1737	2762
1958-65	5697	7579	5176	13 276	12 755	18 452

a/ Estimated - see Introductory Notes to this Annex.

Table 2

Agency funds for technical assistance: 1958-1965

(in thousands of dollars)

Item	1958-1961	1962	1963	1964	1965	1958-1965
Target for voluntary contributions to the General Fund	5050	2000	2000	2000	2000	13 050
Budgeted for technical assistance[a/]	4078	1625	1799	1680	1749	10 931
Amount pledged	3566	1380	1435	1394	1257	9 032
Actually made available for technical assistance from the General Fund and Operating Fund II[a/]	2988	1146	1230	1115	1100	7 579

a/ The use of funds from voluntary contributions is not restricted to technical assistance activities but also covers other operations of the Agency like the Monaco and Seibersdorf Laboratories, contributions to the Trieste Centre and certain research contracts.

Table 3

Number of experts classified by nationality and fellowships classified by place of study: 1965

Source	Number of experts classified by nationality				Number of fellowships classified by place of study			
	EPTA	Agency		Total	EPTA	Agency		Total
		Paid	Free			Type I	Type II	
Country programmes								
Argentina	3	2	-	5	-	1	-	1
Australia	3	1	-	4	-	-	-	-
Austria	1	6	-	7	-	4	2	6
Belgium	1	1	-	2	1	3	5	9
Brazil	2	1	-	3	-	-	1	1
Canada	2	4	-	6	-	1	-	1
CSSR	6	2	-	8	-	1	5	6
Denmark	1	2	-	3	-	1	4	5
France	1	5	3	9	5	24	-	29
Germany, F.R.	2	9	-	11	-	6	3	9
Greece	-	2	-	2	-	-	-	-
Hungary	-	-	-	-	-	1	-	1
India	5	2	-	7	-	-	6	6
Iraq	-	1	-	1	-	-	-	-
Israel	1	1	-	2	-	3	2	5
Italy	-	-	-	-	-	-	19	19
Japan	-	-	-	-	1	1	10	12
Netherlands	-	1	-	1	-	1	5	6
Norway	1	5	-	6	-	-	-	-
Poland	2	-	-	2	-	-	3	3
Romania	-	1	-	1	-	-	1	1
Spain	-	2	-	2	-	1	-	1
Sweden	3	4	-	7	-	3	2	5
UAR	2	1	-	3	-	-	-	-
UK	9	19	1	29	-	33	-	33
USA	6	18	4	28	3	9	49	61
USSR	1	-	-	1	-	-	3	3
Yugoslavia	4	1	-	5	3	-	4	7
International projects								
Centre for Theoretical Physics, Trieste					-	17	-	17
CERN, Switzerland					-	1	-	1
IAEA, Austria					2	10	-	12
Neutron Crystal Spectrometer, Philippines					-	4	-	4
NPY (NORA) Project: Norway, Poland, Yugoslavia					-	5	1	6
Upsala International Seminar, Sweden					-	4	-	4
Short-term training courses[a]					49	135	-	184
Research grantees and scientific visits[b]					1	13	-	14
TOTAL	56	91	8	155	65	282	125	472[c]

a/ Five regional and inter-regional courses were financed under EPTA and were held in Colombia, Japan, Thailand, and the UAR; seven regional and international courses were financed from the Agency's monetary resources and were held in Argentina, Denmark, Federal Republic of Germany, United Kingdom, United States and at the Agency's Laboratory in Seibersdorf.

b/ The 14 holders of research grants and participants in scientific visits studied in 31 countries.

c/ The difference between the number of fellows (469) and the number of awards is due to the fact that one fellow studied in four different countries.

B. DISTRIBUTION OF TECHNICAL ASSISTANCE

Table 4

Types of technical assistance: 1958-1965[a]

(in thousands of dollars)

YEAR Type of resource	Experts		Visiting professors		Equipment		Fellowships		Research fellowships		Training courses		Mobile radioisotope laboratories		Total		Unliquidated obligations	Total expenditures and unliquidated obligations
	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	$
1958-1961																		
EPTA	459.3	45.2	8.6	0.8	116.5	11.4	393.1	38.7	-	-	37.2	3.7	2.2	0.2	1 016.9	100.0	-	1 016.9
Agency monetary	312.9	18.3	152.5	8.9	117.8	6.9	967.4	56.6	32.9	1.9	67.0	3.9	60.1	3.5	1 710.6	100.0	2.2	1 712.8
Agency in kind[b]	29.1	1.1	-	-	272.0	10.6	2 278.5	88.3	-	-	-	-	-	-	2 579.6	100.0	-	2 579.6
TOTAL	801.3	15.1	161.1	3.0	506.3	9.5	3 639.0	68.6	32.9	0.6	104.2	2.0	62.3	1.2	5 307.1	100.0	2.2	5 309.3
1962																		
EPTA	348.3	50.2	66.9	9.6	90.7	13.1	134.8	19.4	-	-	53.2	7.7	-	-	693.9	100.0	-	693.9
Agency monetary	306.0	32.0	99.7	10.4	130.1	13.6	336.5	35.2	21.1	2.2	43.0	4.5	20.2	2.1	956.6	100.0	11.6	968.2
Agency in kind[b]	19.7	2.8	-	-	197.5	28.3	480.6	68.9	-	-	-	-	-	-	697.8	100.0	-	697.8
TOTAL	674.0	28.7	166.6	7.1	418.3	17.8	951.9	40.5	21.1	0.9	96.2	4.1	20.2	0.9	2 348.3	100.0	11.6	2 359.9
1963																		
EPTA	212.9	29.7	7.5	1.0	146.6	20.4	227.7	31.8	-	-	122.3	17.1	-	-	717.0	100.0	-	717.0
Agency monetary	359.4	31.2	121.3	10.5	200.8	17.5	355.2	30.9	19.5	1.7	78.5	6.8	16.4	1.4	1 151.1	100.0	36.8	1 187.9
Agency in kind[b]	32.4	5.8	-	-	1.0	0.2	521.0	94.0	-	-	-	-	-	-	554.4	100.0	-	554.4
TOTAL	604.7	25.0	128.8	5.3	348.4	14.4	1 103.9	45.5	19.5	0.8	200.8	8.3	16.4	0.7	2 422.5	100.0	36.8	2 459.3
1964																		
EPTA	306.9	27.5	52.3	4.7	265.1	23.7	170.5	15.2	-	-	323.1	28.9	-	-	1 117.9	100.0	131.1	1 249.0
Agency monetary	424.7	32.8	79.6	6.1	283.2	21.9	393.3	30.4	11.8	0.9	97.9	7.6	3.7	0.3	1 294.2	100.0	137.9	1 432.1
Agency in kind[b]	13.6	1.9	-	-	71.0	10.0	621.1	87.8	-	-	2.1	0.3	-	-	707.8	100.0	-	707.8
TOTAL	745.2	23.9	131.9	4.2	619.3	19.8	1 184.9	38.0	11.8	0.4	423.1	13.6	3.7	0.1	3 119.9	100.0	269.0	3 388.9
1965																		
EPTA	216.1	33.3	55.9	8.6	150.6	23.2	91.4	14.1	-	-	135.1	20.8	-	-	649.1	100.0	167.2	816.3
Agency monetary	345.6	28.7	117.3	9.7	207.9	17.2	398.6	33.0	31.1	2.6	84.1	7.0	21.3	1.8	1 205.9	100.0	456.5	1 662.4
Agency in kind[b]	24.8	3.9	-	-	77.7	12.2	534.4	83.9	-	-	-	-	-	-	636.9	100.0	-	636.9
TOTAL	586.5	23.5	173.2	7.0	436.2	17.5	1 024.4	41.1	31.1	1.2	219.2	8.8	21.3	0.9	2 491.9	100.0	623.7	3 115.6
1958-1965																		
EPTA	1 543.5	36.8	191.2	4.6	769.5	18.3	1 017.5	24.2	-	-	670.9	16.0	2.2	0.1	4 194.8	100.0	298.3	4 493.1
Agency monetary	1 748.6	27.7	570.4	9.0	939.8	14.9	2 451.0	38.8	116.4	1.8	370.5	5.9	121.7	1.9	6 318.4	100.0	645.0	6 963.4
Agency in kind[b]	119.6	2.3	-	-	619.2	12.0	4 435.6	85.7	-	-	2.1	0.0	-	-	5 176.5	100.0	-	5 176.5
GRAND TOTAL	3 411.7	21.7	761.6	4.9	2 328.5	14.8	7 904.1	50.4	116.4	0.7	1 043.5	6.7	123.9	0.8	15 689.7	100.0	943.3	16 633.0

a/ Data as at 31 December 1965.

b/ Estimated - see Introductory Notes, para. 2, to this Annex.

c/ The 1965 figures for "Experts" include miscellaneous and bank charges amounting to 4.0 thousands of dollars under "EPTA" and 3.6 thousands of dollars under "Agency monetary".

Table 5

Fields of activity of technical assistance: 1965

Field	Number of experts	Cost of equipment (in thousands of dollars)	Number of fellowships[c]
General atomic energy development	3	43.6	2
Nuclear science[a]	42	98.1	118
Prospecting, mining and processing of nuclear raw materials	8	25.8	11
Nuclear technology[b]	28	63.7	69
Application of isotopes and radiation	63	236.5	216
Health, safety and waste disposal	11	32.9	53
TOTAL	155	500.6	469

a/ "Nuclear science" includes both physics and chemistry.

b/ "Nuclear technology" includes fuel fabrication and processing, reactor technology and nuclear electronics.

c/ These figures include 184 participants in 12 regional and inter-regional training courses and 14 participants in scientific visits and research grantees.

Table 6

Recipients of experts and fellowship awards

Number of experts classified by place of assignment and fellowships classified by nationality of the recipient: 1965

Recipient	Number of experts classified by place of assignment								Number of fellowships classified by nationality of recipient							
	EPTA		Agency				Total		EPTA		Agency				Total	
			Paid		Free						Type I		Type II			
	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months
Country programmes																
Afghanistan	1	12	1	2	-	-	2	14	-	-	-	-	-	-	-	-
Algeria	-	-	1	1	-	-	1	1	-	-	1	3	-	-	1	3
Argentina	2	14	11	41	-	-	13	55	-	-	5	39	2	20	7	59
Austria	-	-	-	-	-	-	-	-	-	-	1	8	-	-	1	8
Bolivia	-	-	3	18	-	-	3	18	-	-	1	6	1	12	2	18
Brazil	1	2	4	19	-	-	5	21	4	40	5	44	-	-	9	84
Bulgaria	-	-	-	-	-	-	-	-	-	-	2	20	4	40	6	60
Burma	3	26	-	-	-	-	3	26	-	-	-	-	3	12	3	12
Byelorussia	-	-	-	-	-	-	-	-	-	-	1	8	-	-	1	8
Cambodia	-	-	1	11	-	-	1	11	-	-	-	-	-	-	-	-
Ceylon	1	4	1	12	-	-	2	16	-	-	-	-	-	-	-	-
Chile	1	2	3	12	-	-	4	14	-	-	3	25	4	48	7	73
China	1	1	2	3	-	-	3	4	1	6	2	15	9	92	12	113
Colombia	2	10	1	1	-	-	3	11	-	-	1	12	2	24	3	36
Congo, D.R.	-	-	-	-	-	-	-	-	-	-	1	10	-	-	1	10
Cuba	-	-	-	-	-	-	-	-	-	-	1	12	1	12	2	24
CSSR	-	-	-	-	-	-	-	-	-	-	6	60	3	27	9	67
Ghana	1	3	2	15	-	-	3	18	-	-	4	34	2	24	6	58
Greece	3	4	7	20	-	-	10	24	-	-	1	12	4	30	5	42
Hong Kong	-	-	1	2	-	-	1	2	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-	-	5	40	3	26	8	66
Iceland	-	-	1	3	-	-	1	3	-	-	-	-	-	-	-	-
India	-	-	-	-	-	-	-	-	4	24	2	16	9	102	15	142
Indonesia	2	7	-	-	-	-	2	7	-	-	2	5	5	142	7	147
Iran	-	-	1	7	-	-	1	7	-	-	5	51	2	24	7	75
Iraq	1	7	1	1	-	-	2	8	-	-	4	36	7	78	11	114
Israel	1	12	2	7	-	-	3	19	-	-	-	-	3	30	3	30
Italy	-	-	-	-	-	-	-	-	-	-	3	30	1	12	4	42
Japan	-	-	-	-	4	3	4	3	-	-	4	35	1	12	5	47
Jordan	1	2	-	-	-	-	1	2	-	-	-	-	-	-	-	-
Korea, R.	-	-	2	6	-	-	2	6	-	-	3	31	7	69	10	100
Lebanon	-	-	1	3	-	-	1	3	-	-	2	22	-	-	2	22
Mexico	4	24	4	13	-	-	8	37	-	-	2	22	2	24	4	46
Morocco	-	-	-	-	-	-	-	-	-	-	2	8	-	-	2	8
Nicaragua	-	-	-	-	-	-	-	-	-	-	1	12	-	-	1	12
Nigeria	1	2	1	1	-	-	2	3	-	-	-	-	1	60	1	60
Norway	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	3
Pakistan	2	14	3	19	1	1	6	34	-	-	2	14	6	70	8	84
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-	1	12	1	12
Peru	-	-	1	7	-	-	1	7	-	-	2	22	-	-	2	22
Philippines	3	9	3	6	1	1	7	16	-	-	6	59	5	49	11	108
Poland	-	-	-	-	-	-	-	-	-	-	6	63	5	48	11	111
Portugal	-	-	2	2	-	-	2	2	-	-	2	24	-	-	2	24
Rhodesia	1	1	-	-	-	-	1	1	-	-	1	10	-	-	1	10
Romania	-	-	-	-	-	-	-	-	-	-	5	46	2	20	7	66
Senegal	-	-	1	8	-	-	1	8	-	-	-	-	-	-	-	-
Spain	-	-	-	-	-	-	-	-	-	-	2	24	-	-	2	24
Sudan	-	-	1	5	-	-	1	5	-	-	1	10	-	-	1	10
Thailand	1	6	4	25	-	-	5	31	2	9	6	55	5	47	13	111
Tunisia	2	9	2	5	2	2	6	16	4	44	9	88	-	-	13	132
Turkey	1	9	5	25	-	-	6	34	-	-	1	6	6	64	7	70
UAR	2	15	2	4	-	-	4	19	-	-	6	55	7	80	13	135
Uruguay	-	-	1	12	-	-	1	12	-	-	1	10	1	8	2	18
Venezuela	-	-	-	-	-	-	-	-	-	-	1	12	3	36	4	48
Viet-Nam	-	-	1	1	-	-	1	1	-	-	4	23	2	22	6	45
Yugoslavia	1	1	-	-	-	-	1	1	-	-	6	65	5	45	11	110
Sub-total	39	196	77	317	8	7	124	520	15	123	131	1202	125	1424	271	2749

Recipient	Number of experts classified by place of assignment								Number of fellowships classified by nationality of recipient							
	EPTA		Agency				Total		EPTA		Agency				Total	
			Paid		Free						Type I		Type II			
	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months	Number	Man months
International projects																
Americas	1	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Asia and Far East	4	26	-	-	-	-	4	26	-	-	-	-	-	-	-	-
Short-term training courses	15	11	15	12	-	-	30	23	49	69	135	337	-	-	184	406
Research grants and scientific visits	-	-	-	-	-	-	-	-	1	2	13	52	-	-	14	54
Sub-total	20	38	15	12	-	-	35	50	50	71	148	389	-	-	198	460
GRAND TOTAL	59	234	92	329	8	7	159[a]	570	65	194	279	1591	125	1424	469	3209

a/ The difference between the number of assignments and the actual number of experts (155) is due to the fact that four experts were each assigned to two different countries.

Table 7

Financial summary: 1965

(in thousands of dollars)

Recipient	Expenditures								Unliquidated obligations at 31 December 1965	Total[a] expenditures and unliquidated obligations
	On				By					
	Experts[a]	Equipment[a]	Fellowships[a]	Total[a]	EPTA	Agency		Total[a]		
						Monetary	In kind[a]			
Country programmes										
Afghanistan	17.3	1.1	-	18.4	14.4	4.0	-	18.4	4.9	23.3
Algeria	-	-	-	-	-	-	-	-	1.0	1.0
Argentina	66.4	42.0	32.6	141.0	16.9	115.3	8.8	141.0	65.0	206.0
Austria	-	-	1.3	1.3	-	1.3	-	1.3	0.1	1.4
Bolivia	26.6	5.1	11.5	43.2	-	36.2	7.0	43.2	4.8	48.0
Brazil	40.9	25.1	21.1	87.1	26.3	53.3	7.5	87.1	60.2	147.3
Bulgaria	-	-	29.1	29.1	-	18.7	10.4	29.1	9.6	38.7
Burma	38.3	19.5	1.5	59.3	57.8	-	1.5	59.3	15.4	74.7
Cambodia	10.1	4.6	-	14.7	-	14.7	-	14.7	4.0	18.7
Ceylon	21.4	14.9	1.9	38.2	8.9	29.3	-	38.2	28.8	67.0
Chile	19.3	20.2	31.4	70.9	12.6	20.3	38.0	70.9	18.9	69.8
China	11.6	29.8	45.0	86.4	14.3	17.3	54.8	86.4	18.2	104.6
Colombia	13.3	9.6	17.8	40.7	14.6	6.1	20.0	40.7	1.6	42.3
Congo, D.R.	0.1	14.3	1.4	15.8	-	15.8	-	15.8	1.7	17.5
Cuba	-	-	3.1	3.1	-	0.5	2.6	3.1	0.9	4.0
CSSR	-	-	18.7	18.7	-	12.7	6.0	18.7	23.4	42.1
Ecuador	-	4.5	7.0	11.5	6.8	4.7	-	11.5	0.6	12.1
Ghana	28.5	25.8	20.5	74.8	14.3	51.5	9.0	74.8	6.1	80.9
Greece	37.0	11.6	13.3	61.9	9.1	45.7	7.1	61.9	23.8	85.7
Haiti[b]	-	(5.7)	-	(5.7)	-	(5.7)	-	(5.7)	-	(5.7)
Hong Kong	3.8	7.0	-	10.8	-	10.8	-	10.8	2.4	13.2
Hungary	-	-	24.4	24.4	-	18.0	6.4	24.4	16.7	41.1
Iceland	3.4	0.3	-	3.7	-	3.7	-	3.7	-	3.7
India	-	26.7	68.6	95.3	0.2	39.9	55.2	95.3	32.1	127.4
Indonesia	13.9	2.0	54.0	69.9	18.7	9.6	41.6	69.9	21.8	91.7
Iran	11.3	-	26.3	37.6	1.9	21.7	14.0	37.6	15.2	52.8
Iraq	13.0	0.4	42.7	56.1	13.3	12.1	30.7	56.1	11.9	68.0
Israel	30.1	4.3	20.3	54.7	16.1	21.1	17.5	54.7	19.3	74.0
Italy	-	-	5.0	5.0	-	2.1	2.9	5.0	4.9	9.9
Ivory Coast	0.6	4.3	2.9	7.8	4.9	2.9	-	7.8	0.2	8.0
Japan	9.6	-	20.0	29.6	-	17.3	12.3	29.6	10.1	39.7
Jordan	1.7	-	-	1.7	1.7	-	-	1.7	2.5	4.2
Korea, R.	9.2	1.0	40.9	51.1	6.6	23.0	21.5	51.1	20.7	71.8
Lebanon	4.4	1.4	2.3	8.1	-	8.1	-	8.1	13.6	21.7
Mexico	49.7	2.7	20.9	73.3	34.3	25.0	14.0	73.3	21.0	94.3
Morocco	0.4	-	9.5	9.9	0.4	9.5	-	9.9	1.8	11.7
New Zealand	-	-	9.3	9.3	-	9.3	-	9.3	0.1	9.4
Nicaragua	-	-	4.1	4.1	-	4.1	-	4.1	3.6	7.7
Nigeria	4.2	-	18.0	22.2	3.8	0.4	18.0	22.2	0.7	22.9
Norway	-	-	1.3	1.3	-	-	1.3	1.3	-	1.3
Pakistan	42.5	25.8	40.1	108.4	17.3	50.4	40.7	108.4	13.2	121.6
Paraguay	-	-	3.6	3.6	-	2.2	1.4	3.6	0.1	3.7
Peru	9.7	13.2	2.1	25.0	0.5	24.5	-	25.0	13.8	38.8
Philippines	27.9	9.8	50.0	87.7	16.4	30.6	40.7	87.7	28.8	116.5
Poland	0.6	8.0	49.3	57.9	9.0	37.5	11.4	57.9	26.1	84.0
Portugal	3.8	-	8.6	12.4	-	12.4	-	12.4	4.5	16.9
Rhodesia	1.2	7.5	2.2	10.9	1.5	2.2	7.2	10.9	0.8	11.7
Romania	-	-	11.8	11.8	-	7.0	4.8	11.8	18.6	30.4
Saudi Arabia	-	-	2.2	2.2	-	2.2	-	2.2	0.6	2.8
Senegal	8.9	9.8	5.5	24.2	15.3	8.9	-	24.2	9.1	33.3

Recipient	Expenditures								Unliquidated obligations at 31 December 1965	Total[a] expenditures and unliquidated obligations
	On				By					
	Experts[a]	Equipment[a]	Fellowships[a]	Total[a]	EPTA	Agency		Total[a]		
						Monetary	In kind[a]			
South Africa	-	-	2.4	2.4	-	2.4	-	2.4	1.8	4.2
Spain	-	-	10.0	10.0	-	10.0	-	10.0	1.4	11.4
Sudan	6.4	5.8	2.2	14.4	2.1	12.3	-	14.4	14.1	28.5
Syria	-	-	-	-	-	-	-	-	2.9	2.9
Thailand	53.2	10.2	40.9	104.3	21.9	58.1	24.3	104.3	76.9	181.2
Tunisia	21.5	7.5	25.5	54.5	21.6	28.7	4.2	54.5	26.3	80.8
Turkey	44.4	21.0	48.9	114.3	23.7	67.7	22.9	114.3	40.5	154.8
Uganda	-	0.3	-	0.3	0.3	-	-	0.3	3.4	3.7
UAR	25.7	50.2	35.9	111.8	56.4	28.3	27.1	111.8	40.2	152.0
Uruguay	17.5	4.2	2.6	24.3	-	21.0	3.3	24.3	7.8	32.1
Venezuela	-	-	21.8	21.8	-	0.8	21.0	21.8	5.1	26.9
Viet-Nam	1.8	3.3	16.0	21.1	3.2	8.1	9.8	21.1	3.9	25.0
Yugoslavia	0.9	5.8	46.2	52.9	22.9	20.0	10.0	52.9	57.5	110.4
TOTAL	752.1	454.9	1055.5	2262.5	510.0	1115.6	636.9	2262.5	885.0	3147.5
International projects										
Africa	-	0.2	-	0.2	0.2	-	-	0.2	-	0.2
Americas	9.6	4.1	5.9	19.6	19.6	-	-	19.6	5.7	25.3
Asia and the Far East	39.5	5.4	2.3	47.2	47.2	-	-	47.2	15.2	62.4
Inter-regional projects	29.1	33.4	54.7	117.2	68.1	49.1	-	117.2	37.2	154.4
Centre for Theoretical Physics, Trieste	-	-	35.0	35.0	-	35.0	-	35.0	-	35.0
TOTAL	78.2	43.1	97.9	219.2	135.1	84.1	-	219.2	58.1	277.3
Miscellaneous										
Bank charges	7.6	-	-	7.6	4.0	3.6	-	7.6	-	7.6
Mobile laboratories storage	-	2.6	-	2.6	-	2.6	-	2.6	0.2	2.8
GRAND TOTAL	837.9	500.6	1153.4	2491.9	649.1	1205.9	636.9	2491.9	943.3	3435.2

a/ Assistance "in kind" can only be estimated; see Introductory Notes, para. 2, to this Annex.

b/ Project cancelled, equipment transferred to Peru.

Table 8

Financial summary: 1958-1965

(in thousands of dollars)

Recipient	Number of years in programme	Expenditures								Unliquidated obligations at 31 December 1965	Total[a] expenditures and unliquidated obligations
		On				By					
		Experts[a]	Equipment[a]	Fellowships[a]	Total[a]	EPTA	Agency		Total[a]		
							Monetary	In kind[a]			
Country programmes											
Afghanistan	7	68.0	79.9	52.9	200.8	63.3	81.9	55.6	200.8	4.9	205.7
Albania	1	-	-	24.7	24.7	-	-	24.7	24.7	-	24.7
Algeria	1	-	-	-	-	-	-	-	-	1.0	1.0
Argentina	8	285.2	184.4	291.8	761.4	235.3	309.3	216.8	761.4	65.0	826.4
Austria	7	55.8	13.8	90.3	159.9	-	109.8	50.1	159.9	0.1	160.0
Bolivia	3	38.3	16.4	20.5	75.2	-	68.2	7.0	75.2	4.8	80.0
Brazil	8	321.3	173.9	162.4	657.6	204.4	355.4	97.8	657.6	60.2	717.8
Bulgaria	6	-	-	154.5	154.5	-	92.1	62.4	154.5	9.6	164.1
Burma	8	126.8	60.6	63.6	251.0	174.6	29.1	47.3	251.0	15.4	266.4
Cambodia	4	22.5	10.3	3.0	35.8	-	32.8	3.0	35.8	4.0	39.8
Ceylon	7	130.8	48.6	18.4	197.8	81.9	93.9	22.0	197.8	28.8	226.6
Chile	6	74.0	54.5	73.1	201.6	78.0	69.8	53.8	201.6	18.9	220.5
China	8	97.5	64.9	281.0	443.4	115.6	105.2	222.6	443.4	18.2	461.6
Colombia	5	69.0	32.6	75.2	176.8	53.9	67.1	55.8	176.8	1.6	178.4
Congo, D.R.	3	14.9	28.4	1.4	44.7	-	36.0	8.7	44.7	1.7	46.4
Cuba	2	-	-	6.5	6.5	-	3.9	2.6	6.5	0.9	7.4
CSSR	8	-	-	166.4	166.4	-	102.8	63.6	166.4	23.4	189.8
Denmark	3	12.9	-	29.6	42.5	-	31.2	11.3	42.5	-	42.5
Ecuador	7	-	24.5	67.4	91.9	13.8	21.8	56.3	91.9	0.6	92.5
El Salvador	3	11.6	-	16.1	27.7	14.1	0.6	13.0	27.7	-	27.7
Ethiopia	1	-	-	18.0	18.0	-	-	18.0	18.0	-	18.0
Finland	4	0.3	-	30.9	31.2	1.3	7.2	22.7	31.2	-	31.2
France	2	-	-	12.4	12.4	-	2.4	10.0	12.4	-	12.4
Germany, F.R.	2	-	1.6	1.4	3.0	-	3.0	-	3.0	-	3.0
Ghana	4	112.5	33.9	62.2	208.6	33.3	135.8	39.5	208.6	6.1	214.7
Greece	7	254.4	56.4	179.0	489.8	176.2	172.1	141.5	489.8	23.8	513.6
Guatemala	3	6.5	19.3	16.6	42.4	17.6	17.5	7.3	42.4	-	42.4
Haiti	1	-	-	18.1	18.1	-	-	18.1	18.1	-	18.1
Hong Kong	1	3.8	7.0	-	10.8	-	10.8	-	10.8	2.4	13.2
Hungary	8	-	-	199.9	199.9	-	144.0	55.9	199.9	16.7	216.6
Iceland	6	19.7	55.4	12.0	87.1	-	43.1	44.0	87.1	-	87.1
India	7	2.8	30.1	364.3	397.2	88.2	91.7	217.3	397.2	32.1	429.3
Indonesia	8	161.3	35.7	659.6	856.6	132.1	164.3	560.2	856.6	21.8	878.4
Iran	7	206.7	4.0	256.0	466.7	149.1	163.0	154.6	466.7	15.2	481.9
Iraq	6	105.9	20.8	249.6	376.3	50.4	126.0	199.9	376.3	11.9	388.2
Israel	7	108.0	105.5	86.4	299.9	92.7	104.2	103.0	299.9	19.3	319.2
Italy	7	9.0	-	157.0	166.0	-	89.7	76.3	166.0	4.9	170.9
Ivory Coast	3	2.7	4.3	2.9	9.9	7.0	2.9	-	9.9	0.2	10.1
Japan	8	47.8	-	311.6	359.4	45.3	121.9	192.2	359.4	10.1	369.5
Jordan	1	1.7	-	-	1.7	1.7	-	-	1.7	2.5	4.2
Kenya	2	3.7	20.9	-	24.6	2.2	22.4	-	24.6	-	24.6
Korea, R.	8	152.3	52.6	405.9	610.8	108.3	257.1	245.4	610.8	20.7	631.5
Lebanon	3	20.2	9.5	10.7	40.4	-	33.4	7.0	40.4	13.6	54.0
Malaysia	1	3.2	4.8	-	8.0	-	4.8	3.2	8.0	-	8.0
Mali	1	2.1	-	-	2.1	2.1	-	-	2.1	-	2.1
Mexico	7	161.0	83.2	123.6	367.8	122.4	159.0	86.4	367.8	21.0	388.8
Monaco	3	-	-	4.2	4.2	-	4.2	-	4.2	-	4.2
Morocco	6	37.7	38.6	70.9	147.2	23.9	65.0	58.3	147.2	1.8	149.0
Netherlands	4	-	-	16.8	16.8	-	10.8	6.0	16.8	-	16.8
New Zealand	5	-	-	35.9	35.9	-	25.7	10.2	35.9	0.1	36.0

Recipient	Number of years in programme	Expenditures								Unliquidated obligations at 31 December 1965	Total[a] expenditures and unliquidated obligations
		On				By					
		Experts[a]	Equipment[a]	Fellowships[a]	Total[a]	EPTA	Agency		Total[a]		
							Monetary	In kind[a]			
Nicaragua	3	-	-	11.5	11.5	-	11.5	-	11.5	3.6	15.1
Nigeria	2	8.2	15.0	45.0	68.2	3.8	4.4	60.0	68.2	0.7	68.9
Norway	3	-	-	9.5	9.5	-	5.3	4.2	9.5	-	9.5
Pakistan	8	229.1	152.9	241.5	623.5	176.5	271.4	175.6	623.5	13.2	636.7
Paraguay	5	10.3	4.6	22.2	37.1	-	31.3	5.8	37.1	0.1	37.2
Peru	7	21.2	18.2	35.1	74.5	30.6	25.5	18.4	74.5	13.8	88.3
Philippines	7	146.8	146.7	315.2	608.7	238.3	162.0	208.4	608.7	28.8	637.5
Poland	8	0.6	54.6	368.4	423.6	65.8	223.0	134.8	423.6	26.1	449.7
Portugal	5	32.1	46.0	30.6	108.7	-	51.4	57.3	108.7	4.5	113.2
Rhodesia	3	2.2	25.0	7.6	34.8	25.4	2.2	7.2	34.8	0.8	35.6
Romania	6	1.2	-	93.5	94.7	-	36.0	58.7	94.7	18.6	113.3
Saudi Arabia	1	-	-	24.9	24.9	-	3.4	21.5	24.9	0.6	25.5
Senegal	5	13.5	39.7	8.9	62.1	53.2	8.9	-	62.1	9.1	71.2
South Africa	6	-	-	100.5	100.5	-	40.4	60.1	100.5	1.8	102.3
Spain	7	-	-	49.9	49.9	-	26.1	23.8	49.9	1.4	51.3
Sudan	6	15.2	22.1	14.4	51.7	8.8	42.9	-	51.7	14.1	65.8
Sweden	1	-	-	8.8	8.8	-	8.8	-	8.8	-	8.8
Switzerland	4	-	-	12.1	12.1	-	5.6	6.5	12.1	-	12.1
Syria	1	-	-	-	-	-	-	-	-	2.9	2.9
Thailand	8	337.3	55.1	349.0	741.4	238.4	325.3	177.7	741.4	76.9	818.3
Tunisia	7	85.9	47.3	81.8	215.0	65.0	107.9	42.1	215.0	26.3	241.3
Turkey	8	253.5	130.6	277.8	661.9	127.4	329.6	204.9	661.9	40.5	702.4
Uganda	4	10.2	14.7	5.3	30.2	30.2	-	-	30.2	3.4	33.6
UAR	8	121.9	174.5	379.5	675.9	119.2	260.6	296.1	675.9	40.2	716.1
USA	1	-	-	2.6	2.6	-	2.6	-	2.6	-	2.6
Uruguay	4	17.5	6.4	10.2	34.1	8.0	21.0	5.1	34.1	7.8	41.9
Venezuela	7	21.7	30.7	108.2	160.6	14.0	64.2	82.4	160.6	5.1	165.7
Viet-Nam	6	15.4	27.5	42.6	85.5	12.7	41.9	30.9	85.5	3.9	89.4
Yugoslavia	8	51.2	58.1	459.2	568.5	209.7	217.3	141.5	568.5	57.5	626.0
TOTAL		4146.9	2446.1	8020.5	14 613.5	3515.7	5923.4	5174.4	14 613.5	885.0	15 498.5
International Projects											
Africa		17.2	19.7	3.0	39.9	39.9	-	-	39.9	-	39.9
Americas		19.8	22.9	24.5	67.2	66.6	-	0.6	67.2	5.7	72.9
Asia and the Far East		67.4	34.4	16.4	118.2	116.7	-	1.5	118.2	15.2	133.4
Europe		21.0	18.6	17.3	56.9	56.9	-	-	56.9	-	56.9
Middle East		5.8	1.2	5.3	12.3	12.3	-	-	12.3	-	12.3
Inter-regional projects		178.3	100.8	399.9	679.0	378.5	300.5	-	679.0	37.2	716.2
Theoretical Physics Centre		-	-	70.0	70.0	-	70.0	-	70.0	-	70.0
TOTAL		309.5	197.6	536.4	1043.5	670.9	370.5	2.1	1043.5	58.1	110 1.6
Miscellaneous											
Bank charges		26.4	-	-	26.4	8.2	18.2	-	26.4	-	26.4
Mobile laboratories storage		-	6.3	-	6.3	-	6.3	-	6.3	0.2	6.5
GRAND TOTAL		4482.8	2650.0	8556.9	15 689.7	4194.8	6318.4	5176.5	15 689.7	943.3	16 633.0

a/ Assistance "In kind" can only be estimated; see Introductory Note, para. 2, to this Annex.

ANNEX II

REGIONAL AND INTER-REGIONAL PROJECTS: 1965

EPTA

1. FAO/IAEA regional training course on the application of radioisotopes in soil-plant relations;
   Bogotá, Colombia, 11 October-3 December.

2. Training course on the application of radioisotopes in agriculture;
   Cairo, UAR, 17 April-12 June.

3. Training course on general application of radioisotopes;
   Cairo, UAR, 4 September-28 October.

4. IAEA/WHO inter-regional advanced training seminar in radioactive waste management;
   Tokai-mura, Japan, 4 October-15 October.

5. Fourth meeting of contractors in the co-ordinated rice fertilization programme;
   Bangkok, Thailand, 13 December-17 December.

6. Regional adviser on the application of radioisotopes in rice cultivation for Asia and the Far East;
   Manila, Philippines.

7. Regional adviser on the application of radioisotopes in maize cultivation for Latin America;
   Lima, Peru.

8. Regional adviser on hospital physics for Asia and the Far East;
   Bangkok, Thailand.

9. Demonstration project in the application of neutron diffraction (IPA Project);
   Manila, Philippines.

REGULAR PROGRAMME

1. Second Pan-American course on nuclear metallurgy;
   Buenos Aires, Argentina, 10 March-17 December.

2. FAO/IAEA advanced training course on radioisotopes and radiation in forestry research;
   Hannover, Federal Republic of Germany, 11 May-2 July.

3. FAO/IAEA international training course on the use of radiation and isotopes in entomology;
   Gainesville, USA, 4 October-26 November.

4. FAO/IAEA/WHO international training course on surveys for radionuclides in foods;
   Seibersdorf; Austria, 8 November-17 December.

5. FAO/IAEA advanced training course on radioisotopes in animal science and veterinary medicine;
New York, USA, 19 July-11 September.

6. ILO/IAEA international training course on radiation protection in industry;
Vaedbek, Denmark, 25 July-19 August.

7. Advanced international training course on the physics of radiotherapy;
London, UK, 4 October 1965-4 March 1966.