



International Atomic Energy Agency

REPORT OF THE  
INTERNATIONAL ATOMIC  
ENERGY AGENCY  
TO THE  
GENERAL ASSEMBLY  
OF THE  
UNITED NATIONS

Covering the period  
from 1 July 1958 to 30 June 1959

Vienna, October 1959



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## LIST OF ABBREVIATIONS

ACABQ	Advisory Committee on Administrative and Budgetary Questions of the United Nations General Assembly
ACC	Administrative Committee on Co-ordination
Agency	International Atomic Energy Agency
ECAFE	Economic Commission for Asia and the Far East
ECE	Economic Commission for Europe (of ECOSOC)
ECLA	Economic Commission for Latin America (of ECOSOC)
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
ICAO	International Civil Aviation Organization
ICRP	International Committee on Radiological Protection
ILO	International Labour Organisation or Office
IMCO	Intergovernmental Maritime Consultative Organization
ISO	International Organization for Standardization
OAS	Organization of American States
OEEC	Organization for European Economic Co-operation
TAB	United Nations Technical Assistance Board
TAC	Technical Assistance Committee (of ECOSOC)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
WHO	World Health Organization
WMO	World Meteorological Organization

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### NOTE

All sums of money are expressed in United States dollars.

## PREFACE

A. The following is the third report of the International Atomic Energy Agency to the General Assembly of the United Nations. The report is submitted in accordance with Article III.B.4 of the Statute and Article III of the Relationship Agreement between the two organizations and describes the important developments in the work of the Agency from 1 July 1958 to 30 June 1959. It is thus the first to cover a full year of the activities of the Agency. The important developments in the Agency's work since the report was prepared are covered briefly in this preface.

B. The period covered is characterized by the fact that Member States began to make substantial requests to the Agency for assistance, which the Agency was able to meet. Furthermore, the Agency began to carry out its regulatory tasks, organized its first meetings, conferences and symposia, started its own research and greatly expanded the collection and publication of technical information.

C. Construction has started on the Agency's functional laboratory.<sup>a/</sup> Work on absolute measuring methods for the standardizations of radioisotopes and radiochemical analysis of food samples (milk) from various countries has continued in the Agency's provisional laboratory at Headquarters. Several additional scientific publications have been issued by the Agency. A seminar on Atomic Energy and its Educational Problems, was held from 6 to 11 July 1959 in Saclay, France, and was attended by 79 participants from 31 Member States.<sup>b/</sup> The Agency's first major scientific meeting, a conference on the Application of Large Radiation Sources in Industry, was held from 8 to 12 September 1959 in Warsaw, Poland, and was attended by 180 scientists from 26 Member States.<sup>c/</sup> Both meetings yielded a useful exchange of information and the papers presented are being prepared for publication. Several other meetings, including a meeting of experts on the physics of heavy water lattices and a panel on collection and analysis of trace amounts of radioactive substances in the biosphere, have taken place at the Agency's headquarters in Vienna.<sup>d/</sup>

D. On 15 September 1959 it was announced that the Governments of the Union of Soviet Socialist Republics and the United States of America had agreed to utilize the Agency as their repository for all useful information on the peaceful applications of atomic energy developed by the two countries and to encourage and aid the Agency in making this information available to interested nations.

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<sup>a/</sup> See paras. 200-201 below.

<sup>b/</sup> See para. 121 below.

<sup>c/</sup> See para. 170 below.

<sup>d/</sup> See annex VII.

E. Between 1 July and 15 September 1959 a further 48 applications for fellowships were received under the Agency's 1959 programme, making a total of 570 applications in 1959. Requests from several Member States for scientists to serve on the teaching staffs of scientific institutes have been met.

F. In September 1959 the Board of Governors provisionally approved a set of general principles for the application of Agency safeguards.<sup>e/</sup> Detailed regulations are now being drafted by the Secretariat on the basis of these principles.

G. Consultations are in progress with an increasing number of Member States regarding technical assistance projects covering a wide range of activities. As of 15 September the Agency was in the process of implementing 46 technical assistance projects, and a further 16 requests from 14 Member States were being studied at that date. In addition to the preliminary assistance missions that visited South East Asia, the Far East and North Africa,<sup>f/</sup> an Agency mission was sent to several Member States in Latin America in the summer of 1959, and in October 1959 a preliminary assistance mission will visit Afghanistan, Iran, Iraq, Turkey and Yugoslavia.

H. The Panel on Civil Liability and State Responsibility has been able to draw up recommendations concerning further steps to be taken towards the solution of these problems.<sup>g/</sup> It is planned that an international convention on this subject will be drawn up and presented to Member States for their approval.

I. Following a request by the Government of Switzerland, the Agency has arranged the convening of a group of experts to consider reactor hazard evaluation. The experts have been requested to study the safety aspects of two reactors to be constructed in Switzerland.

J. The Agency has been invited by the Economic and Social Council of the United Nations to participate in the programme appraisals for 1959-64<sup>h/</sup> and the Board has given its approval in principle. The Council also expressed its desire that "the Agency be entrusted with the drafting of recommendations on the transport of radioactive substances, provided that they are consistent with the framework and general principles of recommendations of the Committee of Experts on the Transport of Dangerous Goods of the United Nations and that they are established in consultation with the United Nations and the specialized agencies concerned."<sup>i/</sup> Two panels of experts convened by the Agency are presently engaged in this work.

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<sup>e/</sup> See para. 212 below.

<sup>f/</sup> See para. 177 below.

<sup>g/</sup> See para. 208 below.

<sup>h/</sup> See ECOSOC resolution 665 C (XXIV) of 1 August 1957.

<sup>i/</sup> See ECOSOC resolution 724 C (XXVIII) of 17 July 1959.

K. Since the end of the period covered in the report, payments of contributions to the administrative budget for 1959 and/or advances to the Working Capital Fund have been received from the following Member States:

Afghanistan*	Iran**
Albania**	Norway**
Australia**	Pakistan*
Brazil**	Poland**
Bulgaria**	Romania**
Burma**	Sweden**
Byelorussian Soviet Socialist Republic	- Ukrainian Soviet Socialist Republic
China*	United States of America**
Federal Republic of Germany**	Yugoslavia

\* Has paid advance to Working Capital Fund.

\*\* Has paid full contribution.

Thus, by 30 September 1959, the total amounts received from Member States were:

Advances to the Working Capital Fund	\$ 1 994 000
Contributions to the 1959 Administrative Budget	\$ 4 089 384

L. Since the end of the period covered in the report, five Member States (Burma, China (additional pledge), Greece, Netherlands and Sweden) have made pledges of voluntary contributions to the General Fund of the Agency for 1959, bringing the amount pledged up to \$ 1 089 522. Thus, together with the matching pledge of the United States (\$ 89 522) the total amount pledged by 30 September 1959 was \$ 1 179 044.

M. At the same time, payments of voluntary contributions were made by the following Member States:

Australia, Brazil, Burma, China, France, Federal Republic of Germany, Italy, Mexico, Norway, Poland, Sweden, Union of South Africa, and the United States of America.

The total voluntary contributions received by 30 September 1959 thus amounted to \$ 974 781. In addition, the Agency has received \$ 600 000 pledged by the United States for the Agency's functional laboratory.

N. The General Conference held its third regular session from 22 September to 2 October 1959. After approving the Agency's programme and budget for 1960, the General Conference adopted a substantive resolution recommending further steps to accelerate the Agency's programme of assistance pertaining to the production of nuclear power. The resolution refers to one that had been passed on the same subject at the second regular session<sup>j/</sup> and recommends,

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<sup>j/</sup> See paras. 196-199 below.



inter alia, that particular attention be given to the provision of expert advice to Member States concerning the economics and technology of nuclear power, to the supply of nuclear materials and equipment to Member States and to the possibilities of collective action in this field. It requests the Board to submit, at the fourth regular session of the General Conference, a report on the progress achieved and to consider the desirability of submitting annually a general report on the technical and economic aspects of nuclear power.

O. The General Conference also requested the Board, in establishing rules governing the provisions of technical assistance by the Agency, to take into account, inter alia, the need for harmonizing the administrative and financial management of technical assistance under EPTA and under the Agency's regular programme, the principles applied by other international organizations, the views of the requesting Governments, the request of TAC to participating organizations to give special attention to providing adequate amounts of equipment and supplies as integral parts of technical assistance projects,<sup>k/</sup> and the special character of the Agency's operations.

P. The General Conference, in emphasizing the importance of the Agency's work in connexion with radiation protection, adopted a resolution commending the Agency's manual on the Safe Handling of Radioisotopes to Member States, requested that manuals and codes of practice should be prepared in consultation with Member States and appropriate international organizations for various other aspects of health and safety and requested the Director General to continue efforts to promote research to this end.

Q. The General Conference approved the relationship agreement with ICAO<sup>l/</sup> which will enable the Agency to develop further the working relations already established with that organization in fields of common interest.

R. During the session it was announced that Austria is seeking the supply by the Agency of uranium enriched up to 90 per cent in the isotope U-235 for use in a research-reactor, and that Tunisia intends to request the Agency to furnish approximately 10 kilogrammes of enriched uranium. These would be the first projects for the supply of special fissionable material by the Agency.

S. The General Conference elected Bulgaria, Ceylon, Mexico, the Philippines and Spain to serve on the Board of Governors; these States will succeed Argentina, Korea, Pakistan, Romania and Turkey. The Board now consists of the following Members: Australia, Brazil, Bulgaria, Canada, Ceylon, Czechoslovakia, France, India, Indonesia, Japan, Mexico, the Netherlands, Norway, Peru, the Philippines, Portugal, Spain, the Union of South Africa, the Union of Soviet Socialist Republics, the United Arab Republic, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Venezuela.

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<sup>k/</sup> See United Nations document E/2779, para. 8.

<sup>l/</sup> See para. 58 below.

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## INTRODUCTION

### A. General

1. The initial programme recommended by the Preparatory Commission has continued to provide a realistic basis for most of the Agency's activities. Within that general framework, the more detailed plans approved by the General Conference for the 1959 programme are, at the time of the submission of this report, well advanced. This progress is similarly reflected in the recruitment of technical staff during the period under review, which has enabled the Agency to begin the implementation of its tasks and to establish the relevant administrative and operational procedures. Much attention has been given to the co-ordination of the Agency's activities with those of the United Nations and the specialized agencies. Working relationships have also been established, where appropriate, with other international organizations concerned with the peaceful uses of atomic energy.

2. Whereas on 30 June 1958, membership of the Agency stood at 66, it now has 70 Members, Iran, Iraq, the Philippines and the Sudan having in the meantime deposited instruments of ratification of the Statute.

3. In the broadest terms, the production of radioisotopes and their use in industry, agriculture, medicine and research, and the eventual production of economic nuclear power, under safe and secure conditions, continue to be the main objectives of most of the Agency's work. For the attainment of these aims the Agency is now employing a variety of means, including technical assistance, the diffusion of information, the formulation of regulations and recommendations, the supply of nuclear fuels, the promotion of research reactor development, the elaboration of safeguards, the organization of training courses, the award of fellowships and of research contracts.

4. The scope of the Agency's work in these fields is clearly related to the need of advance in nuclear technology and to the development of economic uses of isotopes and nuclear power. During the past year, the increasingly varied and valuable contribution which isotopes can make to human welfare has again been demonstrated, and special attention is being paid by the Board and the Secretariat to promoting their use in less developed Member States.

5. While the long-term prospects for economic nuclear power remain promising, and work in the nuclear power field is likely in due course to be the main activity of the Agency, the technology of power reactors, although steadily evolving, is still at a relatively early stage, and the cost of nuclear power production, according to present estimates, has not yet been reduced sufficiently to make it economically attractive except under certain technical and economic conditions. The Agency's work in this domain during the past year has therefore continued to consist largely of helping Member States to prepare for the eventual use of nuclear power by providing them with training facilities and other technical assistance relative to research and training reactors, by the dissemination of

information, by helping them find or develop ore resources, and, in particular, by the development of internationally recognized health and safety standards. A notable development, closely related to the reactor programme, has been the completion of the Agency's first supply operation, three tons of natural uranium in metallic form having been supplied to Japan. This is the first project falling entirely within the provisions of Article XI of the Statute which has been approved by the Board.

6. It will be recalled that at its first special session, the General Conference recommended that high priority should be given to those activities which would give the maximum possible benefit from the peaceful applications of atomic energy to the under-developed areas. This wish was again stressed by the General Conference at its second regular session, when a resolution was adopted on the subject of assistance to the less developed countries in the development of nuclear power, and, in particular, the development of small and medium power reactors. [1] The steps being taken to implement the resolution are dealt with in a separate report [2]

7. In setting the course of the Agency's activities during the past year, the Board has continued to be guided by the recommendations made in those two resolutions. In addition, however, to the activities of direct benefit to the less developed countries, the scope of the Agency's work in fields of interest to all Member States has continued to expand. Thus, throughout the world, progress in using atomic energy must take place within an adequate framework of basic regulations, particularly in the field of health and safety. As was stressed during the Second United Nations International Conference on the Peaceful Uses of Atomic Energy, the harmonization of those regulations can best be done at the international level. In many cases, moreover, Member States are asking the Agency to provide standard texts which can be adapted to local circumstances or are requesting assistance in formulating their own regulations. Preliminary indications suggest that similar considerations will apply in the case of the Agency's regulatory work with regard to safeguards. During the past year, further activities of interest to all Member States have included the development of the Agency's scientific information programme, the holding of its first technical meetings and the promotion of a uniform international approach to the problems of third party liability.

8. In order to secure scientific guidance at the highest level on the general direction of the Agency's programmes, the Board established on 19 September 1958 a permanent Scientific Advisory Committee. [3] The members of the Committee, appointed by the Director General with the concurrence of the Board, are for the most part the same persons who normally represent their Governments on the United Nations Scientific Advisory Committee on the Peaceful Uses of Atomic Energy.

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[1] GC(II)/RES/27.

[2] GC(III)/76.

[3] The present composition of the Committee is given in annex XI.

## B. Development of the Agency's activities

9. The promotion of exchange and training, as a vital part of the Agency's technical assistance activities, has continued energetically in the three domains of general techniques training, specialist training and research training. This programme has grown rapidly, not only because of the pressing needs of Member States for trained personnel, but also because less elaborate preparations are needed for assistance of this kind than for more complex technical assistance operations.

10. By the end of 1958, 287 nominations had been received from 30 Governments, and, by 30 June 1959, 218 [4] candidates had been selected for placement in 20 countries; 70 fellows were studying in 13 countries. The figures for the 1959 programme, by 30 June, were as follows:

Nominations received: 526 from 41 countries;

Selection completed: 349.

11. A new type of training activity is the organization jointly with FAO of a training course, to be held from 20 July to 10 September 1959 at Cornell University, with the co-operation of the Government of the United States of America. The course deals with radioisotope techniques designed for agricultural and professional research and is the first of a series. Preparations are also in progress for courses dealing with isotope techniques, to be held in India and Argentina. Similar courses in other fields are being planned under the 1960 programme.

12. Another type of work in this field is the arrangements whereby visiting professors, scientists, engineers and other specialists are exchanged for the purpose of giving courses, and experts and consultants are sent to Member States at their request to advise on problems related to the development of technical and scientific personnel.

13. Many Member States wish to have general guidance on their atomic energy programmes before formulating specific technical assistance requests. Accordingly, preliminary assistance missions consisting of balanced teams of experts were sent to Burma, Ceylon, Indonesia and Thailand in January and February 1959, and China, Japan, the Republic of Korea, the Philippines and Viet Nam in May and June 1959. A third mission will leave for Latin America in July 1959. Smaller preliminary missions or individual advisers have been sent to Greece, Morocco, Tunisia and the United Arab Republic, and arrangements are being made for visits to Turkey and Yugoslavia.

14. By 30 June 1959, 62 requests for technical assistance had been received by the Agency, in many cases as a sequel to the visits of the preliminary missions. The first Agency experts were sent to Pakistan, Thailand and the United Arab Republic in 1958. Since then experts have been sent to Greece, Tunisia and Morocco. By 31 May 1959, the Board had also approved the supply of several items of scientific equipment to Brazil, Burma and Greece.

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[4] This number includes some applications which have subsequently been withdrawn.

15. The first mobile isotope laboratory donated by the United States Government, after being tried out in Austria, began work in Greece in March 1959, where it was used for a radioisotope training course sponsored by the Greek Atomic Energy Commission. It then went to Yugoslavia, where it was used for a course in the industrial uses of isotopes. It is expected that a second mobile laboratory will be shipped direct from the United States to Member States in the less developed areas.

16. It has been noted above that the first Agency supply operation was completed during the past year. The request for three tons of natural uranium in metallic form was received by the Agency from the Government of Japan in September 1958. Sealed tenders for the supply of the material were subsequently submitted to the Agency by Belgium, Canada and the United States of America. In January 1959, the Board decided to take advantage of the generous offer of the Government of Canada to make the material available free of charge. The material was supplied to Japan at \$35.50 per kilogramme, this figure being the lowest price quoted in the sealed tenders (\$34.00 set by Belgium) with the addition of the Agency's handling charges (\$1.50 per kilogramme). The project and supply agreements were approved by the Board on 7 and 8 January 1959 respectively and signed on 24 March 1959. [5]

17. Since that date, notifications have been received from the Governments of Belgium and of the Union of South Africa to the effect that they are prepared to supply the Agency with source materials.

18. In regard to fissionable materials, the offers of the Union of Soviet Socialist Republics, the United Kingdom and the United States of America to make fissionable materials available to the Agency, [6] have now been embodied in general supply agreements concluded on 11 May 1959. [7] The supply agreements ensure that the Agency will have available to it a minimum of 5 140 kilogrammes of contained U 235 previously offered by the Member States concerned. [8]

19. In the sphere of scientific and technical information, the Agency is becoming a ready source of reference on atomic energy. Considerable progress has been made since last year in the preparation of documentation, the compilation of a library which has been expanding rapidly, the editing and publication of an increasing number of scientific and technical papers, and the organization of conferences, symposia and seminars.

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[5] For the texts, see INFCIRC/3.

[6] See GC(II)/39, paragraph 177.

[7] For the texts, see INFCIRC/5.

[8] For details of these offers see paragraph 185 below.

20. The first scientific meeting held by the Agency was a seminar on medical radioisotopes scanning, sponsored jointly with WHO. It was held in Vienna in February 1959, and was attended by some 40 scientists from 22 countries. Another symposium, also held in Vienna, dealt with the subject of radio-activation analysis and was sponsored jointly by the Agency and the Joint Commission on Applied Radioactivity of the International Council of Scientific Unions. The proceedings of these meetings will be published by the Agency. Other meetings to be held in 1959 are a seminar on the training of specialists in the peaceful uses of atomic energy sponsored by the Agency and UNESCO, which will be held in July in Saclay (France); the international training course on radioisotope techniques in agricultural research to be held in the United States of America referred to in paragraph 11 above; an international conference on the preservation of foods by ionizing radiations under the auspices of the Massachusetts Institute of Technology, the United States Government, the Agency and FAO; a conference on the application of large radiation sources in industry to be held in September in Warsaw; a symposium on the metrology of radionuclides to be held in October in Vienna; a conference on the disposal of radioactive wastes to be held in Monaco in November; a training course on radioisotopes to be conducted in New Delhi in November and December jointly by the Agency and UNESCO; and a symposium on the diagnosis and treatment of acute radiation injury, to be held under the joint auspices of the Agency and WHO in the latter half of 1959. [9] Preparations are being made for other meetings in 1960.

21. In connexion with the supply of materials to Japan, the Agency has for the first time been called upon to prepare an official programme of safeguards. General procedures for the application of safeguards applicable to various types of assistance and a set of regulations have been drawn up and are being considered by the Board. A manual is being prepared to guide States in setting up their own procedures for the accounting for and the safe-keeping of materials. The Agency is now able to provide technical assistance in this field. Research is being done under Agency contracts in institutions in Member States for the development of techniques in this field.

22. Work on isotopes and radiation sources forms the subject of a large proportion of the Agency's technical assistance and training activities, and in view of its diversity, no summary is possible here. Amongst the specific projects in this field, however, mention may be made of the conference concerning the application of large radiation sources in industry, which will be held by the Agency in Warsaw in September 1959 (see paragraph 170 below). Work is also proceeding on the compilation of an international directory of radioisotopes and an international directory of radiotherapy units is being published.

23. Some general considerations relating to the Agency's reactor programmes are mentioned in paragraph 5 above, and the steps taken to carry out resolution GC(II)/RES/27 are reported in chapter IV, section I of this report. Particular attention has been given to the evaluation of the technical

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[9] A list of the Agency's meetings in 1959 is given in annex VII.

suitability of available reactor systems, to a selection of the areas of the world where small and medium sized reactors show the greatest promise of being economically suitable. The first volume of an international directory of reactors, dealing with power reactors, has been published and work on the other volumes concerning research, experimental and test reactors is continuing.

24. Much of the Agency's work in relation to research takes the form of promoting research by the award of research contracts, discussion and identification of research problems at scientific meetings and technical assistance in developing the research programmes of Member States. In accordance with the programme approved by the General Conference at its second regular session, research contracts have been awarded particularly in relation to safeguards, health and safety, and waste disposal. By 30 June, 15 contracts had been awarded, or were in an advanced stage of preparation, of which four dealt with fundamental radiobiology (health and safety), three with biospheric contamination (waste disposal), three with the analysis of fuel elements (safeguards), two with the production of isotopes, two with the utilization of isotopes in clinical research and one with problems of dosimetry bearing on monitoring. [10]

25. At its meetings in April, the Board approved plans for the Agency's service laboratories, and authorized the Director General to proceed with their construction at Seibersdorf on land made available to the Agency, free of charge, by the Austrian Studiengesellschaft, near the latter's reactor laboratory centre. Subsequently, the United States made a grant of \$600 000 to the Agency for the specific purpose of financing the laboratories and their equipment. By 30 June an agreement had been concluded with the Studiengesellschaft, and negotiations were proceeding with the Austrian Government for inclusion of the laboratory site within the headquarters area. Detailed architectural plans have been approved, and it is expected that the laboratory will come into operation in the third quarter of 1960.

26. A panel of ten experts was constituted by the Director General to advise him on matters concerning civil liability and State responsibility for nuclear hazards. [11] The panel met in February and in May 1959, under the chairmanship of Ambassador Paul Ruogger of Switzerland and is scheduled to meet again in August. It considered that its first task should be the writing of a draft convention on civil liability for nuclear installations and for the transport of radioactive materials and nuclear fuels. In the course of the first meeting substantial agreement was reached on minimum international norms which could be proposed for universal acceptance. In the second series of meetings the panel terminated the first reading of the draft convention on civil liability. It is expected that the panel's report will also refer to matters in connexion with international responsibility of States.

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[10] Details on these research contracts are given in annex IX.

[11] Lists of the participants in Agency panels are given in annex VIII.



27. Radiation protection is becoming an increasingly important part of the Agency's activities. It consists of the drafting of regulations and recommendations, the supply of technical assistance and specific hazard evaluations. In connexion with the Agency's regulatory activities two meetings of a panel of experts were held, after which the English edition of the Agency's first health and safety guide, a manual of safe practice for the handling of radioisotopes, was issued in December 1958. Panels met in April and will meet again in July 1959 to start work respectively on recommendations concerning the transport of radioisotopes and the transport of substantial quantities of radioactive materials, such as irradiated fuel elements. A panel on problems of radioactive waste disposal into the sea met in December 1958 and March and June 1959. [11] At the conference to be held in Monaco in November, geologists, oceanographers and operators of installations producing radioactive wastes will discuss this subject, as well as that of waste disposal in the soil. It is expected that this work, in addition to identifying specific problems and pointing out means for their solution, may provide a basis for international conventions on waste disposal into the sea.

28. Work relating to radiation protection involves the co-operation with both UNSCEAR and specialized organizations. Close working relations have been established with those bodies as well as with the non-governmental organizations active in these fields.

29. Numerous requests for health and safety services have been received; for instance, to provide expert advice and evaluations of the safety aspects of reactor projects, to assist Member States in drafting health and safety regulations and to advise them on equipment to be purchased or on the formulation of regulations. In regard to hazards evaluation, two Agency experts visited the site of the reactor accident which took place at Vinca, Yugoslavia, and a report is being prepared in collaboration with Yugoslav scientists. Studies are being undertaken concerning the evaluation and improvement of reactor safety and it is planned to issue in 1960 a manual for the safe operation of critical assemblies and small research reactors. It is hoped that recommendations for the safety of power reactors can be issued in 1961.

### C. External relations

30. In the past year emphasis was laid on promoting direct contact with the authorities in Member States responsible for atomic energy activities. To this end, several visits were made by the Director General and the procedures for communication were elaborated. The visits of survey teams have also had the result of strengthening the contacts between the Agency and the Member States.

31. The relationship between the United Nations and the Agency has been further developed in various ways, in particular by the decision of the General Conference that a report be submitted annually to ECOSOC [12]

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[12] GC(II)/RES/24 and ECOSOC resolution 694 E (XXVI).

(the first report was transmitted to the United Nations in April 1959), by the establishment of close working relations with UNSCIBAR and by a further growth of inter-secretariat consultations and contacts at the working level. One of the most important events in the Agency's relations with the United Nations family as a whole has been its participation in LPTA, in accordance with the resolution adopted by the General Conference at its second regular session. [13] This enables the Agency to make full use of the machinery and experience of LPTA including the 37 field offices of TAB now in operation in 36 countries of the world, and helps in co-ordinating the technical assistance activities of the Agency with those of the United Nations and the specialized agencies (see also paragraphs 52 and 53 below).

32. The implementation of the relationship agreements with a number of specialized agencies which were approved by the General Conference at its second regular session has further helped to co-ordinate the Agency's programmes and activities with those of other members of the United Nations family. An important provision in each of these agreements requires inter-secretariat consultation at the earliest stages in planning projects of possible mutual interest. During the past year, inter-secretariat procedures for such consultations have been worked out, especially for the planning and holding of scientific meetings (several of which are now being jointly sponsored with other organizations), the award of fellowships and the briefing of experts being sent on Agency missions.

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[13] GC(II)/RES/34 and ECOSOC resolution 704 (XXVI).

CHAPTER I. THE BOARD, THE SCIENTIFIC ADVISORY COMMITTEE  
AND RELATIONS OF THE AGENCY WITH MEMBER STATES

A. The Board and its work

33. During the period under review the composition of the Board changed with the ending on 4 October 1958 of the second regular session of the General Conference. On that day the terms of office of those Members of the Agency that were represented on the first Board expired, and the second Board held its first meeting two days later, when it elected Mr. C. Bernardes (Brazil) Chairman and Dr. N. Ahmad (Pakistan) and Mr. W. Billig (Poland) Vice-Chairmen. The composition of both the first and second Board is given in annex I, part A.

34. There has been a steady growth in the Agency's operations, and the nature of the Board's work has changed correspondingly. During the Agency's first year the Board was largely concerned with matters of a predominantly administrative character, but in recent months it has been called upon to deal more and more with questions directly related to the operational activities which the Agency was established to carry out. In undertaking these tasks the Board has had to resolve a number of problems of technical complexity, and in many cases it has found it expedient to entrust the necessary preparatory work to a committee. Details of the various committees set up for such purposes are to be found in annex I, part B; a total of 37 committee meetings have been held, and the Board itself has held 72 meetings.<sup>[14]</sup>

B. The Scientific Advisory Committee

35. In accordance with the recommendation of the Preparatory Commission the Board on 19 September 1958 set up a Scientific Advisory Committee<sup>[3]</sup> which is, in the words of the Report of the Preparatory Commission, "a standing scientific advisory council composed of nuclear scientists of international eminence serving in their individual capacity and not as representatives of their Governments, and meeting periodically to provide advice on the Agency's technical programme."<sup>[15]</sup> Accordingly, the Committee provides advice to the Director General and through him to the Board of Governors on such specific scientific and technical questions arising out of the Agency's programme as may be referred to it on his own behalf or on behalf of the Board. The Committee has met twice, namely on 14 and 15 November 1958 in New York and on 4 and 5 June 1959 in Vienna.

<sup>[14]</sup> See annex I, part C.

<sup>[15]</sup> GC.1/1, paragraph 115.

36. At its first meeting it considered and made recommendations on the programme of the Agency's scientific conferences and meetings in 1959 and 1960, and on the Agency's provisional laboratory. Advice was also provided on the subjects of studies undertaken under contract by research institutions in Member States (see paragraph 24 above).

37. At its second meeting the Committee, inter alia, made recommendations on the Agency's programme of conferences for 1960 and 1961, the principles and regulations for the application of Agency safeguards, and the exchange of knowledge on controlled fusion. Advice was also provided concerning the Agency's scientific and technical publications in 1959 and 1960.

### C. Development of liaison with Member States

38. The Director General has continued the series of visits to Member States which he started last year, with a view to establishing direct contact with their Governments and in particular with the officials concerned with the development of the peaceful uses of atomic energy. In certain cases, the Chairman of the Board of Governors was able to accompany the Director General. Advantage has been taken of intervals between the meetings of the Board or its committees to visit Member States within relatively easy reach of Vienna. The Member States visited since June 1958 are: Yugoslavia (August 1958), Spain (November 1958), Poland (November 1958), United Arab Republic (January 1959), Hungary, Romania and Bulgaria (March 1959) and Israel, Turkey and Greece (April 1959). Further visits by the Director General and senior officials of the Secretariat are planned for the second half of the year.

39. Early in 1958 formal arrangements were made for communications with Member States. Since then, attention has been paid to developing channels of communication and contacts with atomic energy authorities and with scientific and technical institutions. These direct contacts are needed to ensure that the Agency remains in close touch with technical developments in Member States and are facilitated by the fact that most of the Agency's technical staff is drawn direct from the authorities and institutions concerned.

40. In addition to the 23 Member States which are Members of the Board of Governors, the following States have appointed Resident Representatives to the Agency: Bulgaria, Czechoslovakia, Greece, Iran, Israel, Italy, Portugal, Spain, Vatican City and Yugoslavia. It has been found that such representation is of considerable value in providing means for direct and rapid communication between the Agency and Member States. [16]

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[16] For a list of Resident Representatives see annex II.

D. Relations with the Host Government

41. The implementation of the Headquarters Agreement is proceeding smoothly and the Agency has continued to receive valuable help from the Austrian authorities, in particular by the provision of the present temporary Headquarters building (which has proved suitable as provisional accommodation for the major part of the present Secretariat) and of the areas set aside in the Hofburg for the meetings of the Board of Governors. The Austrian authorities have also continued to give assistance in the difficult housing problems of delegations and of members of the Secretariat in Vienna.

42. Negotiations have been completed with the Austrian Studiengesellschaft, in consultation with the Austrian authorities concerned, for the lease of an area in the Seibersdorf nuclear centre where the reactors and laboratories of the Studiengesellschaft are being constructed. The Seibersdorf area is situated some 33 kms from Vienna and the Agency's laboratories will share a number of facilities with those of the Studiengesellschaft.

CHAPTER II. RELATIONS WITH THE UNITED NATIONS, THE SPECIALIZED AGENCIES,  
AND OTHER INTERNATIONAL ORGANIZATIONS

A. General

43. Relations with the United Nations and other organizations within the United Nations framework have been further broadened and intensified during the past year. In part, this has been the result of the normal expansion of the Agency's activities which bring it into contact with other organizations at an increasing number of points. Moreover, four developments have promoted a closer working relationship and co-ordination of programmes with the United Nations and the specialized agencies. These were:

- (a) The participation of the Agency in EPTA;
- (b) The entry into force of relationship agreements with several specialized agencies;
- (c) The decision taken by the General Conference at its second regular session that the Agency should report annually to ECOSOC; and
- (d) The development of close working relationship with specific technical organs and departments in other organizations concerned; in particular, with UNSCEAR.

B. Relations with the United Nations

The General Assembly

44. The Agency was represented throughout the thirteenth session of the General Assembly of the United Nations, which was held in New York from 16 September to 13 December 1958. The second report of the Agency to the General Assembly covering the period 1 November 1957 to 30 June 1958, which had been approved by the General Conference on 1 October 1958, was presented orally by the Director General at a plenary meeting on 30 October 1958. The report was discussed in some detail in a debate in which 13 Members of the United Nations took part but no specific recommendations were made in the resolution taking note of the report. A discussion of particular interest took place on the future work of UNSCEAR during which the important role of the Agency in the radiation protection field was stressed by several delegations. The resolution adopted by the General Assembly called upon UNSCEAR to continue its good work but did not provide for any explicit change in its terms of reference. Another item of interest was the review on 17 October by ACABQ of the Agency's budget for 1959. The General Assembly, by resolution 1336 B (XIII), took note of ACABQ's report on this subject and invited the Agency's attention to the observations and suggestions contained in it and also to the views expressed in the Administrative and Budgetary Committee of the Assembly. These questions were considered by the Board at its meetings in January 1959.

## The Economic and Social Council

45. The Agency was represented throughout the twenty-sixth session of ECOSOC, which met in July 1958 in Geneva, the resumed twenty-sixth session, which met in October 1958 in New York, and the twenty-seventh session, which met in Mexico City in April 1959.

46. At the twenty-sixth session the Director General made an oral statement on 10 July and outlined the developments in the Agency's programme of interest to the Council up to that time. In the course of the session resolutions were adopted and statements were recorded dealing with the position of the Agency within the United Nations family, its co-operation with the Council, particularly in connexion with the co-ordination of activities related to the peaceful uses of atomic energy and its proposed participation in EPTA. Resolution 692 (XXVI) recommended the establishment of the Special Fund and Resolution 694 C (XXVI) dealt with plans of concerted action. Resolution 694 E (XXVI) related to co-ordination of activities in the field of the peaceful uses of atomic energy. It recalled the Council's responsibilities for the co-ordination of activities in the economic and social fields and expressed the hope that, in order to assist it in the discharge of those functions, the Agency, in accordance with the relationship agreement with the United Nations would find it appropriate to submit an annual report on matters within the Council's competence. The Agency was also invited to recommend to the Council projects which might usefully be undertaken by the Council, its regional economic commissions or other subsidiary bodies of the Council, in order to assist the Agency in carrying out its programmes. The hope was further expressed that the General Conference would agree to the Agency's participation in EPTA. Concerning the relationship agreements being negotiated between the Agency and certain of the specialized agencies, attention was called also to the need for the development of effective, day-to-day working relationships. The Board's recommendations concerning the Agency's part in implementing those resolutions have already been made to the General Conference, which took action thereon during its second regular session. [17]

47. The item of most interest to the Agency at the resumed twenty-sixth session was the revision of resolution 222(IX) referred to in paragraph 52 below, to enable the Agency to participate in EPTA.

48. At the twenty-seventh session the Council adopted resolution 710 B (XXVII) on sources of energy, after examining the report by the Secretary-General entitled: "Energy Development: Report on Work Done and Recommendations". [18]

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[17] GC(II)/51, GC(II)/RES/24 and GC(II)/RES/34.

[18] United Nations document E/3212.

By the terms of this resolution, the Secretary-General was requested to develop a methodology for the appraisal of energy resources on a usefully comparable basis, on the national, regional or other appropriate level and, further, to arrange, at the request of Governments, for the preparation of seminars at the regional or other appropriate level, to be held in order to promote better understanding of the economic problems connected with the development of energy resources in under-developed countries. This resolution was considered by the Board of Governors in June 1959. The Agency's direct interest in co-operating in the work to be undertaken pursuant to it was emphasized. It was also felt that in the course of its implementation, projects might emerge of the type envisaged by resolution 694 C (XXVI).

49. In accordance with the resolution adopted by the General Conference at its second regular session [19] the Board has submitted a report to ECOSOC covering matters of special interest to the Council in the Agency's operations, in particular, the external relations of the Agency, its activities in regard to the supply of materials and the development of nuclear power, the promotion of the use of radioisotopes and radiation sources as a contributing factor to economic and social development, and the Agency's technical assistance activities. [20] This report will be presented by the Director General to the Council at its twenty-eighth session, which will be held in Geneva in July 1959.

#### Regional Economic Commissions

50. The Agency was represented at the fourteenth session of ECE which met from 20 April to 8 May 1959; during which further discussions took place on the respective responsibilities of the Agency and of ECE concerning cost studies of nuclear and conventional power generation. A representative of the Agency was present at a meeting of the Committee on Electric Power of ECE. The Agency was also represented at the eighth session of ECLA, which was held in Panama City from 14 - 23 May 1959. Among items of interest to the Agency, the Commission's agenda included the report of the Agency mission to Latin America. [21] The work of the mission was noted with satisfaction and the recommendations contained in its report were supported. The Commission, in the course of this session, noting the establishment of the Inter-American Nuclear Energy Commission in order to promote the peaceful uses of atomic energy in Latin America, recommended that close co-operation should be established between it and the Agency. The text of the relevant resolution was brought to the attention of the Board of Governors at its meetings in June.

[19] GC(II)/RES/24.

[20] INFCIRC/4.

[21] GC(II)/INF/19.



51. Inter-secretariat relations have also been established with other regional economic commissions of the United Nations, in particular in connexion with the implementation of resolution GC(II)/RES/27. An Agency observer attended a meeting of the Committee on Industry and Natural Resources of ECAFE.

#### Technical Assistance Board

52. Following the approval by the General Conference at its second regular session of the Board of Governors' recommendation that the Agency participate in EPTA, ECOSOC, at its resumed twenty-sixth session on 23 October 1958, unanimously adopted a resolution amending its resolution 222(IX) to enable the Agency to become a member of TAB and to participate in EPTA./13/ The General Assembly of the United Nations, on 14 November 1958, noted this action by the Council/22/and thus all the necessary formal steps required for the Agency's participation in EPTA had been taken.

53. For the year 1959, TAC approved the lump sum allocation of \$200 000 to the Agency and in addition the Agency has access to the Contingency Fund from which it may obtain an amount of up to \$300 000. In 1960 the Agency's technical assistance projects will be further integrated with those of the United Nations and the specialized agencies by the participation of the Agency in the country programming procedures of TAB. For that year, the TAB planning figure for the Agency's preliminary share of EPTA funds is \$600 000. This share is preliminary in the sense that it had been made before many of the States, to which the Agency "sub-totals" had been provisionally allotted, had decided whether these provisional allotments were sufficient to finance their technical assistance projects relating to the peaceful uses of atomic energy in 1960. Accordingly, it was recognized by TAB that the total amount allotted to the Agency was likely to fall far short of the needs to meet urgent requests and might therefore have to be supplemented from the Contingency Fund.

#### The Special Fund

54. Although no requests among those so far submitted to the United Nations Special Fund relate directly to the peaceful uses of atomic energy, the Board has been following closely the development of the Special Fund's operation and has authorized the Director General to maintain close contact with the Fund and to assist Member States wishing to obtain its help for atomic energy projects. It has been indicated that among the types of projects which might be eligible for financing from the Special Fund are regional or national training centres, research and productivity centres,

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[22] General Assembly resolution 1255(XIII)I.

pilot nuclear generating stations or nuclear reactors, and geological surveys, and from the patterns of the projects which the Special Fund has already considered or approved, it is clear that projects of types such as these would satisfy the Special Fund's criteria in respect of matters such as urgency, relationships to economic investment, etc.

#### United Nations Scientific Committee on the Effects of Atomic Radiation

55. In the discussions at the General Assembly which preceded the Assembly's decision regarding the future of UNSCEAR, much stress was laid on the importance of co-ordinating the work of UNSCEAR and the Agency and on the assistance which the latter might be able to give to UNSCEAR by virtue of its technical resources in personnel and equipment. The Agency was also formally represented at the fifth and sixth sessions of UNSCEAR from 9 to 14 June 1958 and 23 March to 3 April 1959 respectively. In addition, there have been several consultations with the secretariat of UNSCEAR and arrangements have been made for a full and continuing exchange of information on UNSCEAR's and the Agency's programmes for work dealing with radiation protection and for the continued representation of the Agency at UNSCEAR and of the United Nations secretariat at appropriate technical meetings of the Agency. By these and other means it is intended that the Agency will give UNSCEAR full technical support; at the same time UNSCEAR's recommendations are being taken into account in, for instance, the planning of the research programmes of the Agency, while the possibility of providing services to UNSCEAR in the Agency's laboratory is being explored.

#### The Administrative Committee on Co-ordination

56. The Agency was represented by the Director General at the twenty-seventh and twenty-eighth meetings of ACC, on 20 and 21 October 1958 and 7 and 8 May 1959 respectively, and is now participating fully in the work of that Committee. The Secretariat was, for example, charged with the preparation of the drafts of two reports which ACC is submitting to ECOSOC, in accordance with the Council's request, on co-ordinated activities related to the peaceful uses of atomic energy, and the question of concerted action in regard to the effects of radiation resulting from the peaceful uses of atomic energy. The Agency has also participated in various meetings of the sub-committees of ACC.

#### Administrative co-operation

57. Arrangements for administrative co-operation with the United Nations and the other organizations within the United Nations framework have been developed. ACABQ reviewed the Agency's budget for 1959 after its approval by the General Conference, and has carried out a study of the organization of the Agency's secretariat. ACABQ's report will be submitted to the General Conference and to the Board later this year. Inter-secretariat

consultations between the United Nations and the Agency have been greatly facilitated by the appointment, in December 1957, of the Permanent Representative of the Secretary-General of the United Nations at Agency Headquarters in Vienna and, in March 1958, of the Permanent Representative of the Director General at United Nations headquarters. The Agency has continued to receive assistance from the United Nations and the specialized agencies in both the planning and execution of its programmes and in administrative matters; it has also benefited further from the secondment of experienced personnel. On 1 October 1958, the Agency was admitted to the United Nations Joint Staff Pension Fund.

### C. Relations with the specialized agencies

58. The following table shows the position with regard to the approval by the specialized agencies concerned of the relationship agreements which were approved by the General Conference at its second regular session.

<u>Name of organization</u>	<u>Status of agreement</u>
ILO	Came into force on 21 November 1958
FAO	Provisionally in force pending approval by FAO Conference in November 1959 (approved by FAO Council on 3 November 1958)
UNESCO	Came into force on 1 October 1958
WHO	Came into force on 28 May 1959
WMO	Provisionally in force pending final action by that organization.

The negotiations for the conclusion of a relationship agreement with ICAO have also been concluded, and a draft agreement, approved by the Council of ICAO, will be submitted to the General Conference for its approval at its third regular session. Consultations are proceeding with IMCO concerning the need for a relationship agreement with that organization.

59. Considerable progress has been made with the implementation of the relationship agreements, and working relations have been established with all specialized agencies whose programmes touch upon the peaceful uses of atomic energy. In particular, the Agency's secretariat is in close and continuing contact with the secretariats of ILO, FAO, UNESCO and WHO. Information on activities of mutual interest is being regularly exchanged and, as has been noted in the Introduction, effective arrangements have been made to implement the standard provision in the relationship agreements requiring early consultations about all projects of possible

interest to other organizations, in particular about scientific meetings, the award of fellowships and the briefing of field experts. As was foreseen in the initial programme of the Agency, such consultations are particularly necessary where health and safety and radiation protection are concerned, one or more aspects of which involve the interests of a number of international organizations within and without the United Nations framework.

#### D. Relations with regional organizations

60. Pending further consideration of the desirability of concluding formal relationship agreements with regional organizations, the Director General has, with the Board's general approval, arranged informal contacts and consultations on the secretariat level with regional organizations concerned with the peaceful uses of atomic energy. An intensification of these contacts has proved indispensable in the light of the fact that a number of organizations are, in the regions they cover, doing work directly related to that of the Agency. Regional organizations have, for instance, proved to be a convenient framework for joint investment in research and industrial development programmes, as well as for joint operations on a scale which would exceed the present financial possibility and scope of the programmes of the Agency. On the other hand, regional organizations are also active with respect to the promotion of standards and the development of health and safety and safeguard regulations. It is both in the interest of uniformity and of general applicability that such regulatory activities be brought into close relationship with those carried out by the Agency on a world-wide scale. Secretariat consultations and contacts between the Agency and the regional organizations have therefore proved valuable in promoting co-ordination with these bodies and have taken the form in particular of an exchange of documents concerning projected activities and programmes of work, invitations on a reciprocal basis to the bodies concerned to send observers or consultants to panels or working groups when questions of common interest are being discussed and where such contacts can serve to co-ordinate work undertaken on a regional basis with the world-wide activities of the Agency. The Organizations in question include:

- (i) The European Organization for Nuclear Research (CERN);
- (ii) The Joint Institute for Nuclear Research;
- (iii) The European Nuclear Energy Agency (ENEA) of OEEC;
- (iv) The European Atomic Energy Community (EURATOM);
- (v) The Commission for Technical Co-operation in Africa South of the Sahara (CCTA); and
- (vi) The Organization of American States (O.A.S.).

**E. Relations with non-governmental organizations**

61. By 30 June 11 non-governmental organizations had applied for consultative status with the Agency in accordance with the rules approved by the General Conference in its resolution GC(II)/RES/20. On the recommendation of the Committee on Non-Governmental Organizations the Board decided to grant consultative status to seven of the organizations in question.

62. The group of organizations thus accorded consultative status include a large number of those whose work is of special interest to the Agency. Nevertheless, certain non-governmental organizations working on aspects of the peaceful uses of atomic energy, or the services of which can be of value to the Agency have not yet found it possible to apply for consultative status.

63. It has therefore proved necessary to maintain informal contacts with these bodies so as to avoid duplication of activities or to enable the Agency to draw upon the scientific services which they can offer.

### CHAPTER III. THE ADMINISTRATION OF THE AGENCY

#### A. General administrative matters

64. The administrative structure of the Agency approved by the Board and the General Conference in 1958 on the basis of the recommendations of the Preparatory Commission is being completed by gradual recruitment and is undergoing the practical test of increased operations. It has proved feasible to solve administrative problems resulting from the Agency's growth and changes in its pattern of work - such as those resulting from its participation in EPTA - without changing this structure. To meet the needs of the Agency's operations, internal working procedures have been established and particular attention has been given to co-ordination within the Secretariat. The staff and financial rules and regulations are also being gradually refined and amended to meet the special requirements of the Agency.

65. The office facilities at the temporary headquarters of the Agency have proved on the whole satisfactory, except for the inconvenience which arises from the fact that the Conference and Board of Governors area and certain ancillary offices are situated some distance from the main office building on the Kärtnerring.

66. The recruitment of staff has continued on prudent lines. Posts provided in authorized manning tables have been filled only after the need for each official with the particular qualifications envisaged has been fully demonstrated. Efforts have been made to maintain the highest standards of efficiency, technical competence and integrity, while giving due regard to the requirements of equitable geographical distribution. By 30 June 1959, 36 nationalities were represented on that portion of the staff which is subject to recruitment on a geographical basis compared with 28 on the same date in 1958.

67. Increasing difficulties have been experienced in finding qualified candidates for appointment, in particular in the technical and scientific divisions. In a number of cases it has not been found possible to obtain the release by their current employers of highly qualified candidates. Continued efforts will be needed to persuade employers and particularly Governments of Member States to make available to the Agency specialized personnel which is otherwise unobtainable.

68. Continued attention has been given to the conditions of service of the staff. Action taken in this connexion has resulted in the admission, on 1 October 1958, of the Agency into the United Nations Joint Staff Pension Fund, which had been the subject of negotiation from early 1958; the signing of agreements with the Austrian Government on 29 December 1958 and 1 January 1959 (in implementation of the provisions of the Headquarters Agreement) covering various social security problems concerning staff members of Austrian nationality or stateless persons permanently resident in Austria; the establishment of a new set of staff rules, and the development of more detailed personnel policies.

69. In view of the requirements of the Statute and the Staff Regulations that the number of staff members with permanent appointments be kept to a minimum, the policy has been pursued of normally appointing staff members in the Professional Category and above, on fixed-term appointments of a duration of one or two years.

70. Permanent appointments have been granted more freely in the case of staff in the language services and particularly to staff in the General Service category, since in these groups the gradual achievement of continuity is of major importance.

71. As far as the appointment of officers at the Director level is concerned, however, efforts have been made to ensure rotation by varying the length of appointment, particularly in the technical and scientific cadres. In this way, there will always be a proportion of the technical staff who have recently been in direct contact with the latest scientific developments regarding the peaceful uses of atomic energy.

72. Upon the recommendation of the Director General, the Board of Governors approved a number of amendments in the Provisional Staff Regulations.

#### B. Financial administration

73. The Financial Regulations that were adopted in 1958 are based to a large extent on those of the United Nations; they have provided a satisfactory measure of control. Nevertheless, it has been found necessary during 1959, to introduce two amendments. The first had the effect of gradually reducing the number of external auditors from three to one with a consequent saving in cost, following the usual accounting practice of the specialized agencies. The second amendment simplified the accounting methods applied for the provision of fellowships and other forms of technical assistance.

74. In response to an invitation from the Director General, ACABQ met at the Agency's headquarters from 23 - 26 March. It conducted a general review of the Agency's administrative and budgetary practices and considered matters on which the Secretariat sought their views.

75. Special attention is also given to the problem of currency utilization, both with respect to currencies of limited convertibility received as voluntary contributions to the General Fund, and the problems encountered by certain Member States in procuring for their atomic energy programmes equipment which has to be paid in convertible currencies. While some administrative facilities could be obtained from the introduction of a coupon system, the financial resources of the Agency and its procurement programme are still too limited to enable it to accept substantial amounts of currencies of restricted convertibility. The problem has been brought to the attention of ACABQ and of the Controller of the United Nations, in the hope that through clearing arrangements with the United Nations and other members of the United Nations family, the Agency could be of increasing assistance in facilitating indispensable transactions by its Member States.

## Administrative Budget 1958

### (a) Income

76. The total assessed contributions from Member States towards the 1958 Budget amounted to \$4 114 760, of which \$25 760 was assessed on States which became Members of the Agency after 1 August 1958. In addition, \$6 115 was received as miscellaneous income during the year, so that the total income amounted to \$4 120 875.

### (b) Expenditure

77. Cash expenditure under the 1958 Budget amounted to \$3 586 389, while, on 31 December 1958, obligations to the extent of \$281 397 remained unliquidated. Thus the total expenditure was \$3 867 786, leaving a gross surplus of \$253 098.

### (c) Contributions

78. During its second regular session the General Conference adopted a final scale of assessments for 1958, based on the scale adopted by the United Nations for 1958. Of the total assessments of \$4 114 760, including those from States which became Members after 1 August 1958, \$3 771 396 had been received by 31 December 1958 and \$3 868 814 representing 94.02 per cent of the total contributions due, by 30 June 1958.

## Administrative Budget 1959

79. At its second regular session, the General Conference approved for 1959 an Administrative Budget totalling \$5 225 000 and a provisional scale of contributions, based on the scale adopted by the United Nations for 1958 which, during the third regular session, will be reviewed in the light of the total membership at that time. The General Conference also decided that the level of the Working Capital Fund should remain at \$2 000 000 during 1959.

80. By 30 June 1959, the following amounts had been received from Member States towards the Working Capital Fund and the 1959 Administrative Budget (see Annex III):

(i) Advances to the Working Capital Fund	\$1 957 690
(ii) Contributions to the 1959 Administrative Budget	\$2 041 229

## Operational expenses

### (a) Contributions to the General Fund in 1958

81. Voluntary contributions pledged to the General Fund for 1958 totalled \$129 140, of which amount \$125 570 had been received by 31 December 1958, and the balance of \$3 570 was received in 1959.



(b) The Agency Fellowship Fund in 1958

82. The total amount available in the General Fund in 1958 was allocated to the Agency's fellowship programme. By 31 December 1958 unliquidated obligations in respect of the 1958 fellowship programme amounted to \$119 401.

(c) Contributions to the General Fund in 1959

83. On 30 June 1959 the total amount pledged by Member States to the General Fund for 1959 was \$1 122 294. In addition, the United States pledged a further amount of \$600 000 for the specific purpose of building and equipping the Agency's functional laboratory in 1960 and 1961.

84. A table showing the amounts pledged and paid to the General Fund in the current year is shown in annex IV. In addition to the pledges made up to 30 June 1959, it is expected that pledges will be received from Member States that, during the second regular session of the General Conference, indicated their intention to make pledges but were unable to announce any exact amounts.

Rules for the acceptance of voluntary contributions

85. In accordance with a request by the General Conference [23], the Board has promulgated a set of rules for the acceptance of voluntary contributions to the General Fund. These rules have been submitted to the General Conference for approval at its third regular session.

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[23] See GC(II)/RES/23.

## CHAPTER IV. THE OPERATIONS OF THE AGENCY

### A. General

86. This chapter deals with the operations undertaken by the Agency under the programme for 1959; [24] activities which it is proposed to continue after the period covered by this report are indicated briefly.

87. In reporting on the Agency's activities the functional division applied in the Secretariat has been followed where possible. In a number of cases, however, this was not feasible. Thus, for instance, the term "technical assistance" is used in this report in the broad meaning which is the commonly accepted United Nations interpretation, and includes a variety of activities dealt with by a large number of divisions.

### B. Provision of expert advice and equipment

#### Background

88. Technical assistance is part of nearly all the technical activities of the Agency. The assistance is being rendered in accordance with patterns and procedures developed in the United Nations family during the last decade. The Agency's participation in EPTA has put the experiences gained in implementing the Expanded Programme fully at the Agency's disposal and in particular the Resident Representatives of TAB have rendered valuable services to the Agency.

89. The Agency's technical assistance activities, like those in other agencies of the United Nations family, consist primarily of:

- (a) Fellowships, exchange, and training; [25]
- (b) The provision of the services of expert advisers; and
- (c) The provision of technical equipment and supplies.

This section deals only with the provision of experts, and of equipment and supplies.

#### Resources available

90. The resources at the Agency's disposal for the provision of expert advisers and equipment are:

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[24] A survey of some of the Agency's activities is given in the Introduction to this report.

[25] The question of fellowships, exchange and training is dealt with fully in section C of this chapter.

- (a) Financial contributions to the General Fund;
- (b) Donations in kind of equipment and supplies; and
- (c) Funds made available to the Agency as a result of its participation in EPTA.

91. In 1958, the resources available were the contributions, amounting to a total of \$129 140, to the Agency's General Fund, which had been specifically allotted for the setting-up of a fellowship programme, and certain gifts in kind, particularly fellowships and the services of a number of experts for limited periods. As a result, the Agency's technical assistance activities in 1958 were confined almost entirely to establishing a fellowship programme, other forms of assistance being largely limited to the preliminary and exploratory surveys mentioned in paragraphs 94 - 97 below. Preparations were, however, made for the initiation of activities on a considerably larger scale in 1959.

92. The resources available to the Agency in 1959 as of 30 June were as follows:

- (a) Contributions to the Agency's General Fund, totalling \$758 234. The target figure for the Fund is \$1 500 000, of which \$400 000 is provisionally allotted for laboratories, and the remainder for technical assistance (see also annex IV);
- (b) The services of a number of experts for short periods. These are listed in annex V; and
- (c) An allocation of \$200 000 under EPTA. Since 1959 is the first year of the Agency's participation in EPTA, the requirement that the Agency's programme should be submitted to EPTA's usual programming procedure has been dispensed with for that year. In addition, it has been indicated that the Agency will be allowed to draw upon the TAB Contingency Fund to a maximum of \$300 000. The funds allocated to the Agency under EPTA are available for all the Agency's technical assistance activities, including fellowships and training.

#### Fields of assistance

93. The Agency is rendering assistance in connexion with the following activities: library and documentation services; ore prospecting, mining and processing; fabrication and processing of nuclear fuels; nuclear research laboratories and research centres; nuclear research, scientific studies and laboratory services; nuclear reactors; uses of radioisotopes; health, safety and waste disposal; safeguards and atomic energy legislation.

#### Kinds of assistance

- (a) Preliminary surveys

94. The provision of expert advice and of equipment and supplies often involves a considerable amount of preparatory work by the Agency and the requesting countries. Some of the Agency's Member States have not yet begun

programmes for the development of the peaceful uses of atomic energy; in several cases, the governmental machinery for planning such programmes does not yet exist. Many Member States therefore need advice on the planning of programmes, the specific types of external assistance they will require and the assistance which can be made available from the Agency and the procedure for obtaining it. Accordingly, one of the first activities of the Agency has been to organize and despatch preliminary assistance missions or to make preparatory surveys of various kinds.

95. At the request of the Governments concerned, short exploratory missions visited Pakistan, Thailand and the United Arab Republic in 1958 in connexion with specific requests for assistance of experts. The 1959 programme provides for a number of such short exploratory missions in connexion with specific requests for technical assistance. By 30 June 1959 such missions had visited Greece, Morocco and Tunisia.

96. Also at the beginning of 1959 a preliminary assistance mission of eight experts visited four countries in South-East Asia, namely, Burma, Ceylon, Indonesia and Thailand, at the request of the Governments concerned. The mission was organized in consultation with the United Nations and the interested specialized agencies. It studied the needs of the countries visited relative to nuclear physics, prospecting, mining and processing of nuclear raw materials; research and power reactors; the use of radioisotopes in agriculture and medicine and training. The mission's visit has greatly stimulated the submission of requests for technical assistance from the area in question.

97. In 1959 a similar mission visited other Member States in Asia, namely, China, Japan, the Republic of Korea, the Philippines and Viet-Nam. At the time of reporting, preparations were being made for a mission to Latin America, which, beginning the first week of July 1959, was to visit Argentina, Brazil and Venezuela.

(b) Expert advice and assistance on specific projects

98. As indicated above, funds were not available in 1958 for assistance by experts to Member States, and the fruitful use of such assistance required much preparation both by the requesting countries and by the Agency. As a result, the services of experts made available to the Agency by technically advanced Member States in 1958 were used exclusively for preparatory surveys.

99. By the end of May 1959 the picture had changed considerably and the Agency had at that date received requests or indications of requests for specific technical assistance projects from 22 countries, belonging both to the advanced and the less advanced groups. The requests cover a wide range of subjects and may be grouped under the following broad categories:

- (a) General advice and assistance for the setting-up of national atomic energy establishments and development and implementation of atomic energy programmes;
- (b) Technical assistance in exploring the possibilities of production and utilization of economic nuclear power in specific locations;

- (c) Technical assistance in the design, construction and use of re-  
search and power reactors;
- (d) Technical assistance in such specific fields as the use of radio-  
isotopes in agriculture and medicine; prospecting, mining and  
processing of radioactive minerals; production of heavy water, etc.;
- (e) Advice on safety of reactors; and
- (f) Requests for scientific and technical supplies and equipment.

100. These requests, or indications of requests, are at present being pre-  
pared for presentation to the Board in consultation with the countries con-  
cerned, the United Nations and the specialized agencies as appropriate. The  
requests approved by the Board by 30 June 1959, some of which extend into  
1960 and 1961, are shown in the following table.

<u>Country</u>	<u>Type of assistance</u>	<u>Estimated cost (in United States dollars)</u>
Brazil	Three experts (measuring techniques, elec- tronics engineering, physics); equipment for radiation control service	43 000
Burma	Three experts (raw materials, medical uses of radioisotopes, agricultural uses of radio- isotopes); laboratory equipment	51 500
Greece	Four experts (health physics, medical uses of radioisotopes, reactor programming, radio- biology); electronics equipment	74 800
Indonesia	Four experts (prospecting of radioactive materials, experimental physics, health physics and radio-chemistry); and equipment	(110 300) <sup>a/</sup>
Pakistan	Three experts (reactor engineering, agricultural uses of radioisotopes, health and safety)	49 500 <sup>b/</sup>
Thailand	Seven experts (medical and agricultural uses of radioisotopes, prospecting and analysis of nuclear raw materials, nuclear instrumentation and health physics); and equipment	106 350
United Arab Republic	Three experts (uses of isotopes in medicine, agriculture and industry); and equipment <sup>c/</sup>	84 000
	Total	409 150

- <sup>a/</sup> The implementation of this request is scheduled to begin only in 1960.
- <sup>b/</sup> To be covered by the allotment of \$41 100 for 1959 made by TAB from the  
"Contingency Fund" and the suggested Agency sub-total for 1960 of  
\$42 100.
- <sup>c/</sup> The equipment component of this project was approved by the Board of  
Governors on 1 July 1959.

The expert for Thailand and one of the three experts for Pakistan are already in the field. Two experts for Brazil, one for Greece and the remaining two for Pakistan have been selected and will be sent out soon. The recruitment of the other experts is taking place. It is important that Member States should remain willing to release experts so that the problem of finding suitable specialists does not retard the Agency's technical assistance work.

(c) Equipment and supplies

101. Requests for assistance of experts are often accompanied by requests for equipment and supplies. From 1 July 1958 to 30 June 1959 requests for scientific and technical supplies and equipment of an estimated value of \$500 000 were received. The Board is proposing to establish criteria for the supply of equipment. Arrangements for the procurement of supplies will be made, where appropriate, in co-operation with the United Nations and the specialized agencies concerned, as is already being done in the case of equipment requested by Brazil for a radiation control service. Requests from Member States for technical equipment and supplies, including materials, and in particular the request from the Government of Japan for assistance from the Agency in the purchase of three tons of natural uranium, and the manner in which this and similar requests are met, are dealt with more fully in section H of this chapter.

C. Exchange and training of scientists and experts

Background

102. The following are the main activities now being undertaken by the Agency to meet the shortage of scientific and technical personnel which, particularly in the less developed areas of the world, is one of the main obstacles to progress in the peaceful utilization of atomic energy.

- (a) The fellowship programme;
- (b) The exchange programme for professors and experts and arranging for the services of consultants;
- (c) The survey of available facilities in Member States;
- (d) The study of the need for the establishment of regional training centres; and
- (e) The initiation of special training courses.

Implementation of the programme

(a) The 1958 fellowship programme

103. In April 1958, a fellowship programme was initiated, and Member States were requested to submit nominations for fellowships in the various fields of the peaceful uses of atomic energy. A total of 287 nominations was received.

104. The statistical summary of the 1958 fellowship selections and placements is as follows:

<u>Item</u>	<u>Number of candidates</u>	<u>Number of nominating countries</u>	<u>Number of host countries</u>
Nominations received	287	30	-
Selected for placement	218 <sup>a/</sup>	28	20
Accepted by host countries	155	28	20
Still studying	70	20	13
Study completed	4	3	-

<sup>a/</sup> This number includes some applications which have subsequently been withdrawn.

(b) The 1959 fellowship programme

105. As in 1958, application forms and documentation concerning the fellowship programme and the training opportunities available in Member States were circulated to all Member States early in 1959. The last date for the receipt of applications was set as 31 March 1959, it being understood that applications submitted after that date would only be considered in exceptional circumstances.

106. The total number of applications received by 30 June 1959 amounted to 522 from 41 nominating Governments, including 18 new countries. In view of the longer time available for the selection of candidates and the improved screening procedures which had been developed, a more stringent evaluation of the qualifications, professional experience and other relevant factors of each candidate is being made in 1959 than during the initial year.

(c) The exchange programme

107. During the period under review, it has been possible to begin the Agency's programme concerning the exchange of scientists. The programme provides for the exchange of visiting professors to give special courses on subjects such as nuclear physics, radio-chemistry, reactor-engineering, etc. It also provides for the exchange of visiting scientists, engineers and other specialists to provide courses in, for instance, the special techniques to be applied in specific research problems. Experts and consultants are also being sent on the request of Member States to advise on problems relating to the training of technical and scientific personnel.

108. The first visit under the exchange programme was made to Greece in March 1959. In response to a request for a lecturer in radiochemistry to participate in a radioisotope course organized by the Greek Atomic Energy Commission, arrangements were made to send Professor Maddock of Cambridge University to Athens from the end of March until 1 May 1959; at the same time the mobile radioisotope laboratory was sent to Greece to provide the necessary equipment for the course. The mobile unit has been found most satisfactory for this purpose.

109. Preliminary advice on the training of technical and scientific personnel is also being given by the nuclear education specialists included in the preliminary assistance missions to South East Asia and the Far East.

110. Enquiries about, or requests for the exchange of professors and experts have been received from Argentina, Austria, Brazil, Ceylon, Turkey and the United Arab Republic.

(d) Survey of available facilities in Member States

111. In the last report to the General Conference, reference was made to the comprehensive questionnaire sent to Member States on 4 March 1958, requesting detailed information about their training and research programmes, training facilities and the experts they were prepared to make available to the Agency. The information obtained, as a result of the questionnaire, has since been supplemented by the reports of the preliminary assistance missions, by visits of individual experts and by other direct contacts with the authorities concerned. The Agency is now in the possession of the comprehensive information needed for the implementation of its programme in this field.

(e) Regional training centres

112. The report of the survey mission which visited Latin America in May 1958 to study questions involved in establishing one or more regional training centres in that region was distributed to Member States before the second regular session of the General Conference. The Board is awaiting the formulation of further proposals by the Member States concerned.

113. In April 1959, the Board considered a request from the Government of the United Arab Republic for assistance from the Agency in setting up a regional radioisotope training centre for the Arab countries, using the facilities and equipment available at the existing centre in Cairo. Two Agency experts had visited this centre in November 1958 in order to obtain full information and to report on the installations available and the stage of development of the centre. At the same time the Board considered a request from the Government of Turkey for assistance from the Agency in establishing a regional training centre for the Near and Middle East area, which might be set up by using the facilities available in the Middle East Technical University of Ankara.

114. The Board decided to request the Director General to make a further study of the problems involved in establishing one or more radioisotope training centres in Africa and the Middle East, including the countries and areas referred to by the Governments of Turkey and the United Arab Republic, and authorized him to despatch experts to carry out such further investigations as might be required. As a first step a questionnaire has been sent to all Member States in the area and enquiries have also been addressed to the non-Member States in the area which are Members of the United Nations or the specialized agencies about their interest in participating in the survey. When the replies to the questionnaire have been evaluated, it is proposed to despatch one or more missions of experts to visit the Member States concerned.



(f) Training courses

115. At its second regular session, the General Conference referred to the Board for further consideration and such action as might be necessary, a proposal concerning the utilization by the Agency of the services and experience of existing research centres and of other sources of information, and a second proposal concerning the training of specialists in the use of isotopes in agriculture and medicine. [26]

116. The first proposal was mainly directed towards ensuring that the Agency, in undertaking its functions, should make the maximum possible use of facilities available in Member States; the second that training courses in the use of isotopes in agriculture and medicine should be organized by the Agency at existing centres in co-operation with other organizations having an interest in this work. Accordingly, in carrying out the fellowship programme due consideration is being given to the selection of candidates for fellowships related to the uses of isotopes in agriculture and medicine. Arrangements are also made to provide further opportunities for the study of the uses of isotopes for these purposes and specialized training courses are being organized at existing centres.

117. The organization of specialized training centres requires elaborate preparation and co-operation with other organizations, with universities and with scientific institutions. The first such course is to be held from 20 July to 10 September 1959 under the joint sponsorship of the Agency and of FAO, in co-operation with the United States Government and Cornell University. This is the first internationally organized training course in radioisotope technique designed specifically for the needs of the research worker in agriculture, forestry, fisheries and nutrition.

118. Preparations for the organization of two more courses in collaboration with UNESCO and the Government of India are in progress. One of these will deal with the use of radioisotopes in plant and animal nutrition and physiology and will be held in New Delhi in November 1959. The second, of six weeks duration, will be on reactors and will be held in Bombay in 1960. A further training course, on radioisotope techniques, which is to be held in Buenos Aires later in this year and is intended primarily for participants from Latin American countries, is being arranged conjointly by the Government of Argentina and the Agency.

119. Consultations and discussions have taken place with TAB and the specialized agencies regarding the co-ordination of the training programmes and the policies of these organizations with respect to their fellowship programmes. As a result it has been possible to make satisfactory arrangements for the division of work in this field between the Agency and the specialized agencies mainly involved, in particular FAO, UNESCO and WHO. Members of the Agency's secretariat participated in the meetings of the technical working group on fellowships held in Geneva from 9 - 14 June 1958.

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[26] CC(II)/RES/29.

(g) Other activities.

120. As part of the Agency's participation in the discussions of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy held in Geneva from 1 - 13 September 1958, a paper was presented by the Deputy Director General of the Department of Training and Technical Information, on the subject of "Educational Facilities in the Field of Atomic Energy through the fellowship programme of the IAEA" (A/Conf. 15/P/2460).

121. A seminar on Atomic Energy and its Educational Problems has been organized in co-operation with UNESCO and the French Atomic Energy Commission from 6 - 11 July 1959 at Saclay. Problems of training in the atomic energy field at universities and scientific institutions will be discussed at this seminar.

Available resources

122. The resources available for the implementation of the exchange and training programme are:

- (i) Voluntary contributions (in money) to the Operational Fund. Fellowships paid from the General Fund have been classified as "type I"; and
- (ii) Fellowships made available to the Agency by certain Member States for training at their national institutions; these fellowships have been classified as "type II".

123. In 1958 the General Conference approved the expenditure of \$250 000 for the Agency's fellowships, provided that the funds were available, and 140 type II fellowships were offered by 13 Member States till 30 June 1958.

124. The expenditure for the fellowships awarded under the 1958 programme amounted to \$106 000 for type I, \$17 000 for type II, \$139 000 committed from the sum of \$200 000 made available to the Agency's fellowships from TAB funds, and 109 type II fellowships were utilized.

125. For the 1959 fellowship programme, additional type II fellowships were offered by seven Member States, so that by 30 June a total of between 242 and 246 places for type II fellowships were available. By that date 167 candidates had been selected for award of type II fellowships. The numbers of type II fellowships made available by each Member State and of the candidates selected are given in annex VI.

126. As in the case of the 1958 programme the nature and scope of the training offered and the degree of financial support of each group of fellowships vary widely, from relatively short courses to complete five-year university training.

127. In addition, the Board has approved the expenditure of the sum of \$602 000 from the General Fund for the training and exchange programme till 30 June 1959.

128. Taking into account the offers of type II fellowships, the money available from the General Fund and from allocations made through FPTA, the total number of fellowships which can be awarded in 1959 amounts to approximately 450.

129. The execution of the fellowship programme is in some cases retarded by the inevitably complex procedure involved in the placement of candidates, which includes correspondence between the Agency, the candidate, the nominating Government and authorities in the prospective host country. Endeavours are being made to reduce these delays as much as possible.

#### D. Exchange of information and conferences

##### Background

130. The assumption mentioned in the initial programme that the Agency would be in a unique position to assemble and disseminate information in its specific field and to promote exchange of information between Member States has proved to be valid. In the past year the Agency has started fully to exercise its functions in the four main sections mentioned in the first annual report, [27] i.e. documentation, library, editing and publication, and conferences and liaison.

##### Documentation

131. In this domain, the Agency aims at becoming a ready source of reference on the peaceful uses of atomic energy for Member States and for other international organizations. To this end, a Scientific Reference Catalogue, which by the end of June 1959 contained some 3 000 cards, is being drawn up through which it will be possible to prepare upon request detailed information on various special aspects of atomic energy. Eight bibliographies have so far been prepared and a programme for the preparation of reviews to cover 35 topics in 1959 and 1960 has been started in which specialists from Member States are asked to collaborate.

132. Consideration is being given to the publication of a technical journal containing summaries concerning new developments in nuclear science and technology and abstracts of papers not readily accessible elsewhere, and it is planned that a dummy issue will be reviewed by the Board in September 1959. Lists of selected references on atomic energy are distributed internally. In order to foster co-operation with national documentation centres and to advise on special aspects of distribution of information, a small advisory meeting of specialists is to be held in July 1959.

##### The library

133. The Agency's scientific and technical library has continued to expand. It now contains a large collection of documents, reports and microcards

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[27] GC(II)/39, paragraph 137.

received from Member States, the greater part of which have been processed, and cataloguing is proceeding. Information on new books is given to Member States through an accessions list appearing every fortnight. Close ties are maintained, or are being formed, with scientific libraries in Member States with a view to exchanging documentation. In May 1959, the library had over 6 700 books and just over 40 000 documents in its possession, currently received 370 periodicals and has direct access to some 800 more.

#### Editing and publication

134. In the past year the Agency has published nine scientific and technical papers, produced within the Agency or submitted to symposia or conferences held by or under the auspices of the Agency. The number of copies totals 51 000. A system of distributing Agency publications was established, including the designation of depository libraries in Member States.

135. The publications so far issued by the Agency are:

- (i) A manual in the Agency's safety series entitled "Safe Handling of Radioisotopes", issued in English, French, Russian and Spanish; 9 000 copies;
- (ii) A brochure on the technical assistance that the Agency can provide issued in English, French, Russian and Spanish; 9 000 copies;
- (iii) A brochure on nuclear science fellowships describing training opportunities and application procedures; issued in English, French, Russian and Spanish; 9 000 copies;
- (iv) The proceedings of the Colloque International sur les Electroniques Nucléaires published in two volumes in co-operation with the Société des Radioélectriciens; issued in French and English mixed; 5 000 copies;
- (v) The proceedings of the symposium on Medical Radioisotope Scanning held in February 1959; issued in French and English mixed;
- (vi) The "International Directory of Reactors, Volume I: Power reactors", containing all basic data of various power reactors in the world; issued in English; 4 000 copies;
- (vii) An "International Directory of Radioisotopes, Volume I", concerning unprocessed and processed radioisotope preparations and special radiation sources; issued in English; 6 000 copies;
- (viii) "Atomic Energy Conferences, Meetings and Training Courses", a serial list of events concerning atomic energy; the first list in this series was issued in 3 000 copies in April 1959, and the second in June 1959; and
- (ix) A list of scientific organizations concerned with nuclear energy entitled "Atomic Energy: Research - Information - Organizations" of which sections on Denmark, Finland, France, Italy, Norway, Romania and Thailand were issued in 3 000 copies each.

Other publications are being prepared.

## Conferences and liaison

136. A detailed programme of conferences and symposia in 1959 and subsequent years was submitted to the Scientific Advisory Committee at its meetings in 1958 and 1959. The conference programme for 1959 provides for the arrangement of five meetings and a further four conferences will be co-sponsored by the Agency. So far, a seminar on Medical Radioisotope Scanning was held in Vienna in February 1959 and a symposium on Radioactivation Analysis in June 1959.

137. In connexion with the subjects covered, incidental mention is made in other sections of this report of conferences, symposia and seminars and of scientific and technical panels convened by the Director General. A list of all meetings that were or are to be held in 1959 is given in annex VII.

138. Arrangements are being considered for the possible use by the Agency of the existing UNESCO coupon scheme. Mention must also be made of the Film Library which provides films on loan to Member States for limited periods of time.

## E. Health and safety and waste disposal

### Background

139. In the initial programme emphasis was given to the collection and evaluation of existing practices and regulations. Increased participation of the Agency in the development and review of programmes in many Member States has required an extension of these activities in the past year.

140. Reviews have been made of the technical operations carried out under contract, and recommendations were made on health and safety measures to be applied. Obviously many of the studies initiated during this year, as for instance, those on waste disposal and the establishment of standards of radiation safety, although producing useful results in the interim, will be satisfactorily completed only in the coming years.

### Implementation of the programme

#### (a) Evaluation of health and safety hazards

141. Studies have been carried out of Agency projects to determine their conformity with the Agency's statutory requirements on health and safety. The projects include the request of Pakistan for three experts in research reactors, gamma irradiation and isotopes problems and health physics to develop various applications of atomic energy and the request of Thailand for an expert to assist in the medical application of radioisotopes. [28] Several small research projects were reviewed on which advice relating to health and safety was sought.

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[28] See paragraphs 95 and 96 above.

142. A detailed study was made of the Japanese research reactor project, JRR-3. The Agency satisfied itself that the provisions necessary to ensure adequate health and safety in the operation in the reactor had been made. The actual implementation of the safety standards and measures connected with the project will be left to the Japanese authorities concerned.

143. A study has been made of the kinds of technical assistance which the Agency can provide to Member States in matters related to health and safety. As a result provision has been made in the fellowships and technical assistance programmes for supplying expert advice and assistance on technical and administrative problems arising in this domain, individual training, provision and distribution of technical information and assistance in obtaining suitable equipment and supplies.

144. Technical advice has been provided in connexion with problems of third party liability and a study was presented at a panel meeting which the Director General convened on this subject. This study dealt with the nature and extent of possible damage resulting from reactor incidents, emergency measures to be taken, problems involved in transportation of radioactive materials and immediate and delayed effects on human beings of radiation exposure. Members of the Secretariat also participated in the panel discussions and in the preparation and revision of working papers.

(b) Establishment of safety standards

145. The first of a series of safety manuals was published for the guidance of isotope users. [29] It was found desirable to obtain more information on certain technical and medical aspects of radiation safety which are not as well established as the general principles presented in the manual and technical and medical addenda to the manual are being prepared under contract. Reviews of technical literature have been made so that an extensive bibliography may be added to the manual, and drafts of the material for its technical addendum have been prepared.

146. In accordance with the principles set forth in the manual, the Agency has provided radiation protection services in its own operations in the Agency's small standards laboratory. The safety in the operation of this limited programme has been reviewed and standard operating procedures have been established.

(c) Further studies to establish safety standards

147. The Agency has continued to collect and evaluate information on the practices and regulations of Member States and the formulation of codes by other international and non-governmental organizations. When available information has been found insufficient to serve as a basis for international standards, studies have been started to obtain the necessary data.

148. The establishment of satisfactory and uniform international standards for the safe transport of radioactive materials is now highly desirable.

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[29] See paragraph 135 above.

Two panels have been established to consider the subject. The first panel, [11] of which Mr. P. André of Belgium is the Chairman, met from 2 - 9 April 1959, and considered uniform requirements for the safe transport in limited quantities of radioisotopes. The second panel, which will meet in July for the first time, is to discuss the transport of irradiated fuel and other large sources of radioactive material. The adequacy of such standards may have a bearing on liability insurance requirements for such shipments, especially where large sources are involved.

149. A conference on the diagnosis and therapy of radiation accidents is in preparation in collaboration with WHO and will be held late in 1959 or early in 1960. In preparation for this conference, an extensive review of the relevant technical literature has been completed and a comprehensive bibliography has been prepared on case accidents and on experiments with animals exposed to large doses of radiation.

150. Studies are progressing on present methods for monitoring reactor incidents as well as on existing practices in the licensing of reactor operations.

(d) Co-operation with other organizations

151. Consultations have taken place with specialized agencies and with other international organizations on the holding of conferences, the collection of information on health and safety problems and the drafting of regulations in this field. Representatives of the Agency participated in the Sixth World Health Organization Seminar for European Sanitary Engineers, in sessions of an expert committee on radiochemical methods of analysis (sponsored jointly by FAO and WEC), in a conference of the sub-committees on radiation safety of ISO, and in a meeting of the United Nations Committee of Experts on the Transport of Dangerous Goods held in Geneva in March 1959, and it was recommended that the Agency be entrusted with the drafting of recommendations for the transport of radioactive substances. This recommendation has been approved by the Transport and Communications Commission of the United Nations. At the International Congress on Radiation Research held at Burlington, Vermont, United States, in August 1958, a paper was presented by a member of the Agency's staff. Other meetings on matters of health and safety where the Agency was represented include a meeting in Geneva in September 1958 at which subjects relating to waste disposal were discussed and the June 1958 and March - April 1959 meetings of UNSCEAR.

152. Recommendations received from ICRP are included as an annex to the manual published in the safety series, and in the development of labels for packaged radioactive materials the recommendations of the United Nations were used as the basis of the design. Publications of organizations such as ILO and the European Nuclear Energy Agency of CEEC relating to health and safety matters have been reviewed by the Agency staff at the request of the organizations. This consideration of the publications of other organizations and constructive comment as well as the participation of Agency experts in the discussions of their expert groups enables the Agency to exert a harmonizing and co-ordinating influence and may serve to enhance its scientific status.

(e) Health and safety services to Member States and other organizations

153. Requests for technical assistance in connexion with health and safety are being received at an increasing rate. Most of them concern the despatch of experts for several months to help in establishing health and safety programmes. Guidance on the staff needed on health and safety operations and recommendations concerning equipment have been given. In a few cases where individual requests were made for specialized services, arrangements have been made for the use of facilities in Member States having advanced programmes in this domain. Draft regulations on the safe uses of radioisotopes submitted by the Government of the Union of South Africa were reviewed at the Government's request.

(f) Waste disposal work and studies

154. The numerous problems relating to the disposal of the constantly increasing quantities of radioactive waste materials of all types, which will soon include those from nuclear ships, assume more and more international significance. Recommendations for adequate control of disposal in the sea<sup>[30]</sup> have been studied by a panel established during the past year. The panel, which met in December 1958, in March 1959 and in June 1959, under the chairmanship of Mr. H. Brynielsson of Sweden, has considered information on existing practices and proposed limits for disposal in the sea. Areas about which insufficient information exists have been defined and studies initiated in conjunction with other organizations such as FAO and WHO. Another meeting of the panel will take place late this year.

155. Preparations have been made for studies under contract of problems of waste disposal. Thus, for instance, a contract has been made with the University of Tokyo, Japan, to study the contamination of rice. Other areas of concern are the sampling and analytical procedures for monitoring waste disposal in international waters, background levels of radioactivity in the seas, techniques of treating wastes for long-term containment and possible undesirable reconcentration of waste materials and subsequent introduction into the food chain of man through the normal biological cycle; most of these problems are now under discussion by international working groups set up for this purpose.

156. In November 1959 a conference on the disposal of radioactive wastes into the sea and into geological structures will be held in Monaco, providing the first international forum for discussions between oceanographers, fishery experts and geologists and atomic specialists. The conference, in which several interested specialized agencies will participate, ought to lead to recommendations concerning future research and a code of practices in connexion with radioactive waste disposal. It is hoped that between two and three hundred experts will participate, including representatives of non-governmental organizations.

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[30] A resolution adopted by the United Nations Conference on the Law of the Sea recommended that the Agency should initiate such a programme. See also GC(II)/39, paragraph 158.



## 7. Isotopes and research

### Background

157. During the Agency's first year of operation, it became apparent that one of the major tasks will be that of research and isotopes. The General Conference, at its second session, gave recognition to this by allotting substantial funds under the regular budget for research and studies to be carried out either within the Secretariat or to be contracted out to research institutions in Member States. [31] The programme for 1959 accordingly included external work on these matters, as well as the exercise of advisory functions to Member States in the form of missions, and the collection of information by means of visits to research institutions in Member States and by participation in scientific conferences.

158. Owing to the broad scope and complexity of both subjects, the activities of the Secretariat could not possibly cover all aspects of either of them and the available scientific manpower had to be concentrated on those tasks which had been particularly stressed in the Preparatory Commission's Report and in the programme for 1959. [32] Many important aspects of each subject had to be excluded initially because of the difficulty of recruiting scientists with the required qualification willing to leave their laboratories for short-term appointments.

159. The amount of scientific development work carried out by the Agency's staff will be, to a large extent, undertaken in the Agency's own laboratory facilities and work has already been carried out in a provisional laboratory. In addition the two mobile radioisotope units, presented to the Agency by the United States, are being used for training in the uses of radioisotopes. Details of the technical facilities planned or already operated by the Agency are given under section J of this chapter.

### Research contracts

160. In performance of the Agency's function of encouraging and supporting research, particularly in matters related to safeguards, radiation safety and protection, and health, a number of research contracts have been placed with various institutions in Member States. The problem of selecting institutions has been approached in the following two ways:

- (a) Upon determination by the scientific staff that a particular research project will make a substantial contribution to one of the Agency's programmes on the matters referred to above, Member States are asked to submit the names of institutions capable of, and

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[31] The General Conference also recognized the importance of the Agency having its own functional laboratory, and allocated certain sums for the purchase of scientific equipment and for the construction of a laboratory.

[32] GC.1/1, paragraphs 24 - 41 and GC(II)/36, paragraphs 140 - 155.

willing to carry out the work. After careful consideration of the facilities and staff available in the institutions proposed, the most appropriate institutions are selected; or

- (b) If the initiative in preparing a research project is taken by an institute in a Member State, the decision to award a contract is made after careful consideration of all circumstances and, in particular, of the compatibility of the project with the Agency's functions and programme.

161. A special interdepartmental committee, composed of members of all the divisions concerned, has been established to advise the Director General on the selection of suitable subjects for research contracts and on the institutions to be entrusted with the work. A total of 11 contracts has been placed with institutions in eight Member States. Annex IX contains details on these contracts as well as on some further contracts presently under negotiation.

162. In general a research contract provides for financial assistance by the Agency, for salaries of additional scientists and technicians to be engaged for this work, and for the purchase of disposable materials, animals and utilities. If the equipment already available at the institute is not sufficient to carry out the research work with the required expediency and accuracy, the Agency has, in certain cases, placed additional apparatus at the disposal of the institute for use during the tenure of the contract.

163. The Secretariat has also developed research projects which will be of a composite nature involving close co-operation between several institutions with the Agency serving as a central point of co-ordination, support and evaluation of results. Because of the complexity of the work and the necessity for careful preparation, the first projects of this type are still under study at the time of issuing this report.

164. One of these projects will involve the encouragement and support of radiobiological and medical studies with the rare isotope Ca-47. Some 40 institutions in eight Member States have stated their urgent need for this isotope, and it is hoped by co-ordinating work and pooling orders to achieve a substantial reduction in the price of this extremely expensive isotope, and also to persuade potential producers of the economic feasibility of producing the isotope in larger quantities, using new methods of production.

#### Visits to research institutions and attendance at conferences

165. In view of the Agency's function to collect scientific information, and in order to keep the Agency's scientific staff abreast of the latest developments in the atomic energy field and aware of the needs for assistance of national research programmes, a number of visits have been paid to various research institutions. In particular, a survey has been made on the trends of research on the treatment of food and drugs by ionizing radiations, a problem which is of considerable interest to less developed countries. A number of conferences have been attended, including the IAO symposium on the Preservation of Food, held at Harwell in 1958, the annual congresses of the American and Italian Societies of Nuclear Medicine, an international meeting of experts on the Metrology of Radioisotopes, the Second Inter-American Symposium on the Peaceful Application of Nuclear Energy, which dealt with

radiation and radioisotopes in the life sciences and was held in Buenos Aires in June 1959 under the auspices of OAS, the Agency-UNESCO sponsored Meeting on Low Level Effects of Radiation which was held in Venice and the Second United Nations International Conference on the Peaceful Uses of Atomic Energy in Geneva.

### Studies

166. The activities related to research have been supplemented by studies carried out by staff members. One such study has dealt with the use of large radiation sources such as radiocobalt and radiocaesium units, betatrons, linear accelerators, etc. in radiotherapy. Based on information obtained from some hundred radiotherapists and physicists, a survey was made in co-operation with WHO not only of the radiobiological and medical aspects of the sources in question, but also of the problems of economics, maintenance, personnel and radiation protection which they present with a view to assisting less developed countries in the assessment of their needs for such machines and providing them with an appreciation of the main factors involved. Another study, somewhat smaller in scope, involved collation of data on geochemistry and a third collation of data on the present status of tritium counting techniques.

### Isotope catalogue

167. An International Directory of Radioisotopes and Labelled Compounds has been prepared using the information provided by most countries producing radioisotopes. The first volume is now in print and the second in an advanced stage of preparation. The directory will give detailed information on all the radioisotopes and labelled compounds at present commercially available, together with their radiation characteristics, the forms in which they are obtainable, their prices and their producers, thus permitting potential consumers an appraisal of the radioisotope market. It is intended to revise this document periodically and to issue supplements in order to keep it up-to-date. Also an instructional catalogue has been compiled giving all relevant details of obtainable teletherapy units using radioisotopes.

### Conferences

168. In the period under consideration two small symposia dealing with research and isotopes were organized in Vienna. The subject of the first, which was co-sponsored by WHO, was medical radioisotope scanning. During three days 14 introductory papers on techniques and results were given by leading scientists from eight different countries. This was followed by discussions in which some 40 scientists from 22 countries participated. The proceedings of the meeting are being published jointly by the Agency and WHO, and the preparation of the volume is nearing completion.

169. Another symposium dealt with the subject of radioactivation analysis. It was held in Vienna for three days and was co-sponsored by the Joint Commission on Applied Radioactivity of the International Council of Scientific Unions. Six introductory papers were presented covering the main applications of this new technique. These were followed by extensive discussions attended by 63 scientists from 21 countries. The proceedings of the meeting will also be published by the Agency.

170. Preparations have been started on a number of other symposia and conferences in the light of the guidance given by the Scientific Advisory Committee. In particular, at the moment of publication of this report, the plans are well advanced for the forthcoming conference on the use of large radiation sources in industry which is to be held in Warsaw.

#### Technical advice

171. A number of members of the scientific staff have been engaged in advising Member States on specific subjects concerning research and isotopes and assisting them in assessing their needs for technical assistance. Isotope specialists in agriculture and in medicine served on both preliminary assistance missions to South East Asia and the Far East. Others participated in small missions to Greece, Morocco, Thailand, Tunisia and the United Arab Republic, and again others accompanied the Director General as technical advisers on his visits to Member States. A considerable effort has been expended on evaluating requests for technical assistance with regard to the scientific aspects and technical feasibility of the various projects. Another type of advisory work was represented by a visit to Greece of the Agency's specialist in radiotherapy with large radiation sources, to assist the Alexandra Hospital in Athens in the installation and first stages of operation of a new cobalt-60 radiotherapy unit.

### G. Reactor programme

#### Background

172. During the past year the Agency's activities relating to reactors consisted of:

- (a) The collection and distribution of information on reactor technology and plans for the construction of reactors;
- (b) The provision of technical advice and assistance to Member States for the planning and development of reactor programmes;
- (c) The technical evaluation of requests for reactor projects submitted by Member States; and
- (d) Studies of the means to promote special programmes of reactor construction.

These activities have the following two main aspects:

- (i) The acquisition of knowledge and the improvement of the technology of reactors, in particular from an economic view-point; and
- (ii) The evaluation and improvement of reactor safety factors.

#### Implementation of the programme

173. Progress has been made in the publication of the International Directory of Reactors dealing with the design, cost and operating characteristics of

power, research, experimental and test reactors, respectively. The first volume, covering power reactors, was issued in June 1959. The co-operation shown by the Member States in the compilation of the necessary data has been of great help in the preparation of the directory.

174. Preparations are being made for several meetings dealing with reactors. The first of these meetings to be convened in late 1959 will be concerned with Reactor Physics Constants and will attempt to correlate data supplied by Member States. Such a correlation can be of great help in achieving better reactor design. Following the recommendation of the Scientific Advisory Committee, the organization of a meeting on experimental and test reactors in 1960 is under study.

175. The Agency has assisted the United Nations in editing the papers concerning reactors of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy in Geneva. In early 1959, a representative of the Agency participated in the meeting of the Committee on Electric Power of ECE and contributed to the discussion on nuclear power.

176. The adoption of resolution GC(II)/RES/27 by the General Conference gave fresh impetus to the study of small and medium sized power reactors. This resolution calls, among other things, for a continuing study of the technology and economics of small and medium sized nuclear power reactors suitable for the specific circumstances of less developed countries and for assistance to be given them in preparing for the utilization of nuclear power, if preliminary analysis of existing types of reactors from these points of view has been started.

177. In order to provide assistance to Member States pursuant to the resolution, reactor experts were included in the preliminary assistance missions sent to South East Asia, the Far East and North Africa. Particular attention is being given to the problem of the selection of potentially suitable reactor sites. The symposium on Small and Medium Sized Power Reactors, to be organized by the Agency, upon the recommendation of the Scientific Advisory Committee, in the second half of 1960, will mark the end of the first phase of work on this resolution.

178. In order to ascertain new advances in the field of fuel cycles and fuel element technology, which has an important bearing on nuclear reactor economics, members of the Agency's Secretariat have attended technical conferences on these topics in the United Kingdom and the United States.

179. The evaluation and improvement of safe construction and safe operation of reactors is an important part of the Agency's work related to reactors. In this connexion an Agency mission has studied the reactor accident that took place at Vinča, in Yugoslavia, and an analysis of the incident is being prepared in collaboration with Yugoslav scientists and will be incorporated in a formal publication, at present in preparation. This will contain comprehensive technical studies of all unclassified reactor accidents. The paper will be issued in conjunction with a manual concerning the safe operation of critical assemblies and small research reactors on which work has also started. Both documents will be relevant to the problem of reactor safety in general. Work on siting and containment of reactors has begun. The Secretariat is preparing a report on this topic, which will be submitted to a meeting of experts.

180. Questions of reactor safety were also considered in connexion with the Japanese JRR-3 project, for which source material was supplied. [33]

## H. Technical supplies

### Background

181. In performance of its statutory responsibilities with regard to supplies, the Agency is now able to undertake three tasks, namely:

- (a) The supply of materials;
- (b) The supply of equipment and instruments; and
- (c) The supply of information and advice on the above listed subjects.

182. The scope of these activities depends primarily upon the demand from Member States. Since it was difficult initially to make any reliable estimate of the number of requests that would be received from Member States, a minimum of staff was recruited, with the object of first collecting and classifying all information needed.

183. Since the second regular session of the General Conference, the Agency has met the first request from a Member State for source material, namely, the Japanese request for uranium metal, and it has also made arrangements to meet the first requests for equipment in connexion with technical assistance projects. [34] Other requests for equipment are under consideration by the Board.

184. The development of the Agency's work in these domains has made it necessary for detailed administrative and financial procedures to be evolved by both the Board and the Secretariat.

### Implementation of the programme

#### (a) Fissionable and source materials

185. The offers of fissionable materials made by several Member States at the first session of the General Conference were held open beyond 31 December 1958. On 11 May 1959, formal agreements for the supply of these materials were concluded with the Union of Soviet Socialist Republics and the United States of America, and an exchange of letters recorded a similar agreement with the United Kingdom. Under these agreements the Soviet Union stated its readiness to supply to the Agency 50 kg of uranium-235 in any concentration up to 20 per cent (at a price corresponding to the lowest international price in effect at the time of delivery), the United Kingdom made available 20 kg

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[33] Reactor safety has also been studied in connexion with problems of third-party liability.

[34] See paragraph 191 below.

of enriched uranium (at a price and on conditions which are not less favourable than the most favourable price and conditions which the United Kingdom Atomic Energy Authority are offering or are prepared to offer at the date of the contract in question to any other customer outside the United Kingdom for the supply of similar material), and the United States offered to make available to the Agency 5 000 kg of contained uranium-235 (at the charges published by the United States Atomic Energy Commission and applicable to the domestic United States distribution of such material in effect at the time), plus such quantity of nuclear material as will equal the total of the amounts of such material made available by all other Member States of the Agency before 1 July 1960. Therefore, in May 1959 the Agency was able to satisfy requests from Member States for fissionable materials to a total amount of 5 140 kg.

186. Offers of source materials to the Agency have been received by the Agency from Canada (uranium), Ceylon (thorium ore), India (thorium), Portugal (uranium concentrates), and the Union of South Africa (uranium concentrates). These offers, which were received by the Agency before the second regular session of the General Conference, have also been held open beyond 31 December 1958. In addition to the above-mentioned offers, Belgium and Czechoslovakia have offered uranium metal and uranium oxide to the Agency.

187. Surveys of the technical data of these offers as well as the conditions, prices and terms of delivery have been prepared, and a summary of these offers is given in annex X.

188. On 23 September 1958, Japan submitted to the Agency a request for assistance from the Agency in the purchase of three tons of natural uranium, to be used in the Japanese research reactor project. In accordance with a procedure approved by the Board, the Director General invited those Member States which had offered materials to the Agency to submit sealed tenders, and notified all other Member States of the Japanese request. After technical, legal and economic analyses of the tenders, they were submitted to the Board which examined and approved the project in accordance with Article XI of the Statute, and subsequently decided to accept the offer by Canada to supply the requested three tons of natural uranium free of charge. In accordance with Article XIV.E of the Statute, and taking account of the handling charges incurred by the Agency, the Board decided to charge the Japanese Government a price of \$35.50 per kilogramme.

189. Accordingly, agreements for the acceptance and supply of the uranium with the Canadian and Japanese Governments were negotiated and signed on 24 March 1959. The necessary steps for the sampling and testing of the uranium took place during May 1959. A member of the Agency's staff was sent to Canada in order to reach an agreement with the Canadian and Japanese representatives on sampling procedures, to arrange for the chemical analysis of the samples by a United States laboratory, and to witness the taking of the samples and the measurement of the danger coefficient of the uranium.

190. An affirmative reply has been given to a tentative enquiry from the Government of Finland as to whether the Agency would be able to supply to it, in 1960, about 3.6 kg of contained U 235, enriched up to 20 per cent.

(b) Equipment and facilities

191. In implementing technical assistance projects, the Agency had to develop technical and financial procedures for the selection and procurement of equipment requested as part of the project. The first such request was received from the Government of Brazil and letters were subsequently sent to all Member States, asking whether they were prepared to supply the equipment required. In reply the Government of France has indicated that it might be able to supply equipment to the Agency at a substantial rebate. In addition, a selection was made of firms in Member States which were in a position to supply the requested equipment. The final choice of the equipment was made after careful analysis of the data. The purchase of this equipment is financed from EPTA funds.

192. In connexion with the recommendation of the Preparatory Commission concerning the establishment of a coupon system for the purchase of books and publications, the Agency has studied the extension of such a system to equipment and spare parts. A study of the possibilities has shown that it might be more advisable to join the existing UNESCO coupon scheme than to start a new one; this question is presently being considered with UNESCO and a decision will be taken when the conditions for such an arrangement have been determined. The first request for equipment under the coupon system has been received from the United Arab Republic.

193. A further activity has been the procurement of scientific instruments and apparatus needed for the Agency's own laboratory programme. While the cost of the laboratory will be met primarily from the Agency's General Fund, Canada and the Netherlands have offered gifts of equipment apart from their contributions to the General Fund.

(c) Information and advice

194. The compilation and classification of information on the technical details and prices of equipment and materials have been continued. The Agency is now in a position to give advice in regard to instruments and apparatus commercially available in Member States.

195. Studies are also under way in regard to the standardization of nuclear equipment in different Member States, to the standards adopted and to the results obtained thereby. A survey has been undertaken in order to provide information as to the electrical characteristics of the grids as well as to the climatic conditions prevailing in Member countries, insofar as they have a bearing on the technical characteristics to be required for nuclear equipment.

I. Economic studies

Background

196. The Board's programme for the implementation of resolution GC(II)/RLS/27 is described below. While recognizing the need for a thorough investigation



of the problems of demand for and supply of energy in less developed areas and the Agency's responsibilities in this field, the Board felt that this long-range undertaking would require a more limited programme of preliminary studies which would be of immediate interest to the less developed countries and at the same time pave the way for expanded activities in the future. Moreover a gradual approach maintaining a constant check on the results achieved will remove many difficulties and provide a solid basis for wider endeavours. Consequently, the immediate programme consists of the following steps:

- (a) A tentative evaluation of the technical suitability of available reactor systems for possible use in less developed areas;
- (b) An economic study of the reactor systems found technically suitable under (a);
- (c) A preliminary selection of less developed areas where there seems to be a prima facie case for the introduction of small and medium size reactors; and
- (d) An application of the findings of the first two categories of studies to suitable cases in order to establish a tentative list of less developed areas likely to derive particular benefits from small or medium size nuclear power plants and which would therefore appear to warrant further detailed surveys by specialized teams.

197. In order to carry out this programme, the following activities have been started:

- (a) The collection of all available technical data relevant to reactor systems for small and medium power output (electrical output of up to 50 MW);
- (b) The initiation of systematic analyses of nuclear power costs and subsequent economic studies of reactor systems found technically suitable for less developed areas; and
- (c) The collection of detailed information on the present and expected future power situation as well as all economic data relevant thereto for countries having expressed their intention to participate in the programme of the Agency.

#### Implementation of the programme

198. The following steps have been taken with a view to implementing this programme:

- (a) A circular letter was sent to all Member States to ascertain whether they desired to participate in a survey of their electric power needs. By 1 May, 31 replies had been received out of which 16 expressed positive interest in the survey and the intention to participate, six replies indicated that the matter was under study and nine were negative. The 16 positive replies came from Argentina, China, Finland, Greece, Italy, the Republic of Korea, Pakistan, the Philippines, Portugal, Thailand, Tunisia, Turkey,

the Union of South Africa, the United Arab Republic, Venezuela and Yugoslavia. Several of these countries expressed their interest in small and medium size reactors as a means of introducing their technicians and industries to the problems of nuclear power plant operation, thus preparing for the introduction of larger nuclear units in the future (a position which would tend to confirm the connexion mentioned above between short and long term programmes). Furthermore, some of the negative replies contained offers of assistance to the Agency in the discharge of its tasks under resolution GC(II)/RES/27;

- (b) Consultations have been held with the appropriate officials of the United Nations and with the International Bank for Reconstruction and Development. These organizations have offered the Agency their full co-operation;
- (c) A study has been started of the technical suitability of existing reactor systems for less developed areas taking into account such factors as technical feasibility, simplicity of operation, reliability and safety, size, effect of environment, fuel cycles and fuel availability.
- (d) A preliminary study has begun of the economic aspects of nuclear reactor systems with particular reference to less developed areas. This study has revealed the need for extreme care in interpreting available data and for approaching each case separately; and
- (e) A general programme has been launched for the collection of the information required to make a preliminary selection of less developed areas that are of particular interest for the purposes of these studies. To this end:
  - (i) A general compilation and analysis of existing publications has been made from which basic information on the power situation of less developed areas could be obtained;
  - (ii) An outline of the type of data sought by the Agency has been drawn up, bearing in mind the need for accurate, reliable and up-to-date information on all aspects of the power situation in less developed countries. The outline has been despatched to the Member States having expressed their intention to participate in the survey as well as to the United Nations, its regional economic commissions and the International Bank. The Agency has drawn the attention of ECOSOC to this study in its first annual report to the Council, which the Council will consider at its 28th session in July 1959; and
  - (iii) Preliminary assistance missions as well as the other visiting teams of the Agency have been instructed to seek detailed data on all matters covered by the above-mentioned outline through direct contact with the responsible officials of the countries visited.

199. Incoming information is being classified and analyzed to enable a selection to be made of the most promising situations.

## J. Technical facilities

### Functional laboratory

200. During the first session of the General Conference, the Board recommended that the Agency should undertake the construction and equipment of a functional laboratory in Austria, and that \$400 000 should be set aside in the 1959 budget for such construction, adding an indication that a further \$200 000 would be required in the 1960 budget for laboratory equipment. This recommendation was approved at the second regular session of the General Conference. Detailed plans were then prepared and the Board approved them during its meetings in April 1959. At that occasion, the United States offered \$600 000 as a gift towards the cost of constructing and equipping this laboratory, which would permit the Agency to carry out the construction in a single stage. Subsequently, an architectural and engineering contract was awarded and it is expected that the laboratory will come into operation in October 1960.

201. The site selected for the laboratory lies adjacent to the laboratories and reactor which the Austrian Centre (Studiengesellschaft für Atomenergie) is at present installing near Seibersdorf, 33 km south-east of Vienna. This choice will not only considerably reduce the cost of site development, effluent disposal, guards, library and utilities, but will also enable the two laboratories to work in close collaboration. The Studiengesellschaft has stated its willingness to put part of its land, comprising an area of 60 000 square metres, at the Agency's disposal at a nominal fee. Negotiations are at present in progress with the Austrian Government to bring this site within the scope of the Headquarters Agreement.

### Functions of the laboratory

202. At its second session the General Conference recommended that the functions of the laboratory should not exceed the following:

- (a) Standardization of isotopes and preparation of radioactive standards;
- (b) Calibration and adaptation of measuring equipment;
- (c) Quality control of special materials for nuclear technology;
- (d) Measurements and analysis in connexion with the Agency's safeguards and health and safety programmes; and
- (e) Services to Member States which could be undertaken with the facilities provided to carry out the aforementioned activities. [35]

203. In accordance with the Scientific Advisory Committee's recommendation, the laboratory has been planned with an eye to the greatest possible flexibility in operation, thus allowing for varied work related to the functions listed above; the precise nature of this work will be largely determined by the Agency's other activities.

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[35] GC(II)/RES/25, B.

204. The plans envisage the construction of a one-storey laboratory consisting of three service blocks and five functional units, namely a chemical unit, an electronics unit, a health physics unit, a radioisotopes standards unit and a workshop. The present layout allows for the addition of further blocks if the work-load of the laboratory should increase in the future.

205. In order to perform certain laboratory services, the need for which arose immediately after the Agency came into operation, a provisional laboratory was installed in 1958 in the basement of the headquarters building. It consists of a small chemical laboratory, a counting room for low activities, an electronics shop and a workshop. By now they are equipped with the major part of the necessary apparatus. Work was started on setting up and calibrating the equipment and the first inter-comparisons have been made between calibrated samples provided by various international laboratories issuing standard radioactive samples. A start has also been made with some radio-analytical work for other international organizations which do not have their own laboratory facilities. For instance, some samples of milk ash were provided by UNSCEAR with the request to determine the content of radioactivity. The appropriate chemical separation and physical measurements were carried out, and a comparison with the results of two national laboratories which analyzed the same samples showed a very good agreement between the results. This type of service can now be performed on a routine basis upon request. The electronics section and workshop have been engaged in adapting the equipment either purchased or donated (for example, by the Governments of France and the Netherlands) and have also constructed an improved electronic scanning device which was demonstrated during the seminar on Medical Radioisotope Scanning.

#### Mobile radioisotope training units

206. During the second session of the General Conference, the Agency received as a gift from the United States two trucks equipped as self-contained isotope laboratories providing facilities for basic training in radioisotope techniques. Each laboratory consists of two parts, one permitting basic radiochemical separations and the other basic physical measurements. There is room for six trainees to work at the same time. When sent to a Member State upon request, the unit is used for lectures and demonstrations given by scientists either recruited locally or sent by the Agency with the unit. During its meetings in April, the Board approved a standard agreement between the Agency and the Government of the recipient country for the use of these units.

207. One of the units was delivered in October 1958, and was given an initial try-out in collaboration with three Austrian universities; in the light of the experience gained, a number of small modifications of the unit had to be made. In spring 1959 the unit was used in Greece, in conjunction with a radioisotope training course organized by the Greek Atomic Energy Commission, for which the Agency provided a lecturer in radiochemistry under its exchange of scientists programme. Subsequently, the unit was used in Yugoslavia for training in industrial uses of isotopes in co-operation with the Yugoslav Atomic Energy Commission. The second unit is still in the United States for modification in the light of the experience gained with the first unit. The need for some adaptations and additions has become apparent, in order to make the laboratory more versatile and adaptable to the particular needs of groups of trainees.

## K. Civil liability and State responsibility for nuclear hazards

### Background

208. Late in 1958, a panel of experts was selected by the Director General to advise him on any action that might seem desirable in the field of civil liability and State responsibility for non-military nuclear hazards. The panel consists of ten experts recommended by Member States, representing several legal systems, and is under the chairmanship of Ambassador Paul Ruegger of Switzerland.

### Implementation of the programme

209. The panel met in Vienna in February and in May 1959. Concrete proposals for its deliberations were prepared in advance, and preparatory studies were conducted on legal and technical problems. The panel was further briefed on technical questions by the scientific staff of the Agency.

210. The activities of the panel are expected to lead to specific recommendations which the Director General may be able to submit to the Board in the autumn. These recommendations will concern the following:

- (a) Civil liability for nuclear hazards. It is expected that a draft international convention, which already passed a first reading by the panel in May, will be submitted by the panel with a view to co-ordinating on a worldwide scale the basic substantive, procedural and jurisdictional rules concerning liability for nuclear damage, and the subsidiary liability of States as opposed to the latter;
- (b) International responsibility of States. Some general comments by the panel are expected in this domain; and
- (c) It may also be possible for the panel to recommend to the Agency further measures to be taken in some special areas, such as international transportation, and to examine the question of joint action concerning emergency measures.

## L. Safeguards

211. In the initial programme the Agency assumed various functions and responsibilities with regard to safeguards. [36] These include the development of Agency safeguard procedures in connexion with assistance supplied, the application of safeguards on request and the development of internal safeguard measures for the Agency's own operations and the provisions of assistance in this regard to Member States.

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[36] GC.1/1, paragraphs 80 - 85, and GC(II)/36, paragraphs 156 - 165.

## Implementation of the programme

212. The Secretariat has prepared and submitted to the Board a set of general principles which might be used in determining the Agency's safeguards that would be applied to various types of assistance. The Secretariat has also submitted to the Board a set of detailed regulations for use in enabling these principles to be applied.

213. Pending the adoption of general principles and regulations for the application of safeguards, the Agency has developed the safeguards that are to be applied in conjunction with the supply of three tons of uranium metal to the Government of Japan by the Agency. These safeguards provisions specify the reports and inspections that will be required until the JRR-3 reactor reaches the stage of first criticality.

214. The Secretariat is preparing a manual of the internal procedures which may be followed by the Agency in its own operations, or which may be made available to Member States or other organizations to assist them in maintaining adequate records of source and special fissionable materials, and in ensuring that these materials do not constitute a hazard to health and safety.

215. The Government of Japan has requested the advice of the Agency in setting up a system for the accounting, stock-taking, measurement and storehousing of source and special fissionable materials in that country. The Agency is now arranging to provide this assistance.

216. The Agency has placed research contracts for the development of techniques for the non-destructive analysis of irradiated fuel elements. These techniques will be of assistance to the Agency and to many Member States in the measurement of the composition of irradiated material that is required for the purpose of maintaining accurate safeguards records. [37]

## M. Public information

217. During the past year the object of the Agency's public information work has been to stimulate interest in and provide factual information on the Agency's aims and activities through existing channels of information in Member States.

218. Regular press releases have given a running account of the Agency's developments. The steadily growing number of such issues is a good indication of the Agency's activities. These releases, although not normally of topical news interest to the daily press, have been well received and used in technical and trade press, as have special articles written on request.

219. Publication of a non-technical quarterly bulletin was begun in April 1959. The first comments received from readers have been positive and encouraging.

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[37] See annex IX.

220. Increasing emphasis has been given to liaison work with national and international non-governmental organizations which in many countries play an important part in the shaping of public opinion and provide good channels for the distribution of information.

221. Work in radio, television and film programmes has also been given growing attention. The joint production for group showings of a basic documentary film on the origins and development of the Agency is now being considered with the United Nations.

222. In the educational field, work has begun with the planning of a basic manuscript on nuclear theory and practice, as a teaching aid in secondary schools. This project is being carried out jointly with UNESCO.

223. Excellent working relations have been maintained with the information services of the United Nations both at headquarters and in the field. This has greatly facilitated the distribution of information on the Agency over a much wider area than could have been reached from Vienna only, and has also made possible activities which otherwise might well have been beyond the resources of the Agency.

ANNEX I

THE BOARD OF GOVERNORS: 1958-59

A. List of Members and their Governors

<u>Member</u>	<u>Governor</u>
(Up to 4 October 1958)	(30 June 1959)
(From 5 October 1958)	
ARGENTINA <sup>c/</sup>	ARGENTINA <sup>c/</sup> Admiral D.H. Lopez
AUSTRALIA <sup>a/</sup>	AUSTRALIA <sup>d/</sup> Mr. A.D. McKnight
BRAZIL <sup>a/</sup>	BELGIUM <sup>e/</sup> Professor J. Errera
CANADA <sup>a/</sup>	BRAZIL <sup>d/</sup> Mr. C.A. Bernardes (Chairman)
CZECHOSLOVAKIA <sup>b/</sup>	CANADA <sup>d/</sup> Mr. M.H. Wershof
FRANCE <sup>a/</sup>	DENMARK <sup>e/</sup> Mr. H.H. Koch
GUATEMALA <sup>c/</sup>	FRANCE <sup>d/</sup> Dr. B. Goldschmidt
INDIA <sup>a/</sup>	INDIA <sup>d/</sup> Dr. H.J. Bhabha
INDONESIA <sup>c/</sup>	INDONESIA <sup>f/</sup> Dr. T. Sudjarwo
ITALY <sup>c/</sup>	JAPAN <sup>d/</sup> Dr. H. Furuchi
JAPAN <sup>a/</sup>	KOREA, REPUBLIC OF <sup>c/</sup> Mr. W.Y. Sohn
KOREA, REPUBLIC OF <sup>c/</sup>	NETHERLANDS <sup>f/</sup> Mr. H.F. Eschauzier
PAKISTAN <sup>c/</sup>	PAKISTAN <sup>c/</sup> Dr. N. Ahmad (Vice-Chairman)
PERU <sup>c/</sup>	PERU <sup>f/</sup> General J. Sarmiento
PORTUGAL <sup>b/</sup>	POLAND <sup>e/</sup> Mr. W. Billig (Vice-Chairman)
ROMANIA <sup>c/</sup>	ROMANIA <sup>c/</sup> Professor V. Novacu
SWEDEN <sup>b/</sup>	TURKEY <sup>c/</sup> Mr. S. Yemiscibasi
TURKEY <sup>c/</sup>	UNION OF SOUTH AFRICA <sup>a/</sup> / UNION OF SOUTH AFRICA <sup>d/</sup> Mr. D.B. Sole
UNION OF SOUTH AFRICA <sup>a/</sup>	UNION OF SOVIET SOCIALIST REPUBLICS <sup>a/</sup> / UNION OF SOVIET SOCIALIST REPUBLICS <sup>d/</sup> Professor V.S. Emelyanov



Member

(Up to 4 October 1958) (From 5 October 1958)

Governor

(30 June 1959)

UNITED ARAB REPUBLIC<sup>e/</sup>

UNITED ARAB REPUBLIC<sup>f/</sup>

UNITED KINGDOM OF  
GREAT BRITAIN AND  
NORTHERN IRELAND<sup>a/</sup>

UNITED KINGDOM OF  
GREAT BRITAIN AND  
NORTHERN IRELAND<sup>d/</sup>

UNITED STATES OF  
AMERICA<sup>a/</sup>

UNITED STATES OF  
AMERICA<sup>d/</sup>

VENEZUELA<sup>f/</sup>

Mr. I. Fahmy

Mr. M.I. Michaels

Mr. P.F. Foster

Dr. M. Roche

- a/ Designated by the Preparatory Commission under Article VI.A.1 of the Statute.
- b/ Designated by the Preparatory Commission under Article VI.A.2 of the Statute.
- c/ Elected by the General Conference at its first regular session under Article VI.A.3 and B of the Statute.
- d/ Designated by the Board under Article VI.A.1 of the Statute.
- e/ Designated by the Board under Article VI.A.2 of the Statute.
- f/ Elected by the General Conference at its second regular session under Article VI.A.3 and B of the Statute.

B. Composition of the Board's Committees

1. The Committees are listed in the order in which they were established.
2. Each Committee is presided over by the Chairman or, in his absence or disability, by one of the Vice-Chairmen of the Board.

COMMITTEE TO ADVISE THE DIRECTOR GENERAL ON  
NEGOTIATIONS WITH SPECIALIZED AGENCIES

Established on 17 December 1957

Composition up to 4 October 1958:

Sweden  
Union of South Africa  
Union of Soviet Socialist  
Republics

United Arab Republic  
United States of  
America

COMMITTEE TO ADVISE THE DIRECTOR GENERAL  
ON PERMANENT HEADQUARTERS

Established on 20 March 1958

Composition up to 4 October 1958:

Argentina  
Canada  
India

Italy  
Japan  
Romania

Latest composition:

Argentina  
Canada  
India

Japan  
Netherlands  
Romania

**COMMITTEE ON AGREEMENTS FOR THE SUPPLY OF  
FISSIONABLE, SOURCE AND OTHER MATERIALS**

Established on 3 July 1958

Composition up to 4 October 1958:

Brazil  
India  
Sweden  
Union of South Africa  
Union of Soviet Socialist  
Republics

United Arab Republic  
United Kingdom of Great  
Britain and Northern  
Ireland  
United States of  
America

Latest composition:

Canada  
India  
Japan  
Poland  
Union of South Africa

Union of Soviet Socialist  
Republics  
United Arab Republic  
United Kingdom  
United States of America

**AD HOC COMMITTEE ON RULES REGARDING THE ACCEPTANCE OF  
VOLUNTARY CONTRIBUTIONS TO THE GENERAL FUND AND THE  
ACCEPTANCE OF SERVICES, EQUIPMENT AND FACILITIES**

Established on 7 October 1958

Latest composition:

Argentina  
France  
India  
Netherlands

Union of Soviet Socialist  
Republics  
United Arab Republic  
United Kingdom  
United States of America

**COMMITTEE ON NON-GOVERNMENTAL ORGANIZATIONS**

Established on 15 January 1959

Latest composition:

Australia  
France  
India  
Japan

Peru  
Union of Soviet Socialist  
Republics  
United Arab Republic  
United States of America

**TECHNICAL ASSISTANCE COMMITTEE**

Established on 19 January 1959

Latest composition:

Argentina	Korea, Republic of
Belgium	Netherlands
Brazil	Poland
Canada	Union of Soviet Socialist Republics
Denmark	United Arab Republic
France	United Kingdom
India	United States of America
Indonesia	Venezuela
Japan	

**ADMINISTRATIVE AND BUDGETARY COMMITTEE**

Established on 19 January 1959

Latest composition:

Argentina	Poland
Belgium	Union of South Africa
Canada	Union of Soviet Socialist Republics
Denmark	United Arab Republic
France	United Kingdom
India	United States of America
Japan	

**AD HOC COMMITTEE ON THE AGENCY'S PRIVILEGES AND IMMUNITIES**

Established on 13 April 1959

Latest composition:

Canada	Union of Soviet Socialist Republics
France	United Arab Republic
Indonesia	United Kingdom
Japan	United States of America
Korea, Republic of	
Poland	

**C. Meetings of the Board**

<u>Date</u>	<u>Number of meetings held</u>
1958 1 - 8 July	7
16 - 20 September	7
3, 6 and 7 October	5
4 November	1
1959 7 - 19 January	15
12 March	1
7 - 17 April	14
16 - 30 June	22
Total 1958-59	<hr/> 72

A N N E X    I I

Resident Representatives of Member States accredited to the Agency

<u>State</u>	<u>Resident Representative</u>
BELGIUM <sup>a/</sup>	Professor J. Errera
BULGARIA	Mr. I.P. Daskalov
CZECHOSLOVAKIA	Dr. P. Winkler
DENMARK <sup>a/</sup>	Mr. J. Christensen
GREECE	Mr. T. Griva Gardikioti
INDIA <sup>a/</sup>	Dr. B. Rajan
INDONESIA <sup>a/</sup>	Mr. R. Soobagio
IRAN	Mr. A. A. Azizi
ISRAEL	Mr. Y. Sahar
ITALY	Mr. G. Guidotti
POLAND <sup>a/</sup>	Mr. L. Loszczynski
PORTUGAL	Dr. M. de Fontes Pereira de Mello Fonseca
SPAIN	Mr. J.S. de Erice y O'Shea
VATICAN CITY	Mgr. C. Zacchi
UNITED ARAB REPUBLIC <sup>a/</sup>	Mr. I. Fahmy
UNION OF SOVIET SOCIALIST REPUBLICS <sup>a/</sup>	Mr. L.M. Zamyatin
UNITED STATES OF AMERICA <sup>a/</sup>	Mr. P.F. Foster
YUGOSLAVIA	Mr. S. Nakižonović

Permanent Representative of the Secretary-  
General of the United Nations to the IAEA

Mr. A. Dollinger

<sup>a/</sup> This State is also a Member of the Board of Governors during the year 1958-59.

ANNEX III

Contributions to the 1959 budget and advances to the Working Capital  
Fund paid by Member States up to 30 June 1959

	ASSESSED		PAID		OUTSTANDING	
	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund
	\$	\$	\$	\$	\$	\$
AFGHANISTAN	3 135	1 200	-	-	3 135	1 200
ALBANIA	2 090	800	-	800	2 090	-
ARGENTINA	56 953	21 800	-	21 600	56 953	200
AUSTRALIA	80 465	30 800	40 353.47	30 800	40 111.53	-
AUSTRIA	17 765	6 800	1 017	6 800	16 748	-
BELGIUM	62 178	23 800	49 500	23 800	12 678	-
BRAZIL	53 295	20 400	2 644	20 400	50 651	-
BULGARIA	6 793	2 600	3 396.50	2 600	3 396.50	-
BURMA	5 225	2 000	-	2 000	5 225	-
BYELORUSSIAN SOVIET SOCIALIST REPUBLIC	23 512	9 000	5 878	9 000	17 634	-
CAMBODIA	2 090	800	-	800	2 090	-
CANADA	154 660	59 200	154 660	59 200	-	-
CEYLON	5 748	2 200	5 748	2 200	-	-
CHINA	250 800	96 000	-	60 890	250 800	35 110
CUBA	13 062	5 000	-	-	13 062	5 000
CZECHOSLOVAKIA	41 278	15 800	41 278	15 800	-	-
DENMARK	31 872	12 200	31 872	12 200	-	-
DOMINICAN REPUBLIC	2 612	1 000	-	1 000	2 612	-
ECUADOR	2 612	1 000	2 612	1 000	-	-
EL SALVADOR	3 135	1 200	3 135	1 200	-	-
ETHIOPIA	5 748	2 200	-	-	5 748	2 200
FINLAND	17 765	6 800	17 765	6 800	-	-
FRANCE	278 493	106 600	278 493	106 600	-	-
GERMANY, FEDERAL REPUBLIC OF	207 955	79 600	109 043	79 600	98 912	-
GREECE	9 405	3 600	1 800	3 600	7 605	-
GUATEMALA	3 657	1 400	-	1 400	3 657	-
HAITI	2 090	800	-	800	2 090	-
HONDURAS	2 090	800	-	-	2 090	800

	ASSESSED		PAID		OUTSTANDING	
	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund
	§	§	§	§	§	§
HUNGARY	19 332	7 400	-	7 400	19 332	-
ICELAND	2 090	800	2 090	800	-	-
INDIA	145 255	55 600	145 255	55 600	-	-
INDONESIA	25 080	9 600	1 018	9 600	24 062	-
ISRAEL	7 837	3 000	7 837	3 000	-	-
ITALY	101 365	38 800	-	38 800	101 365	-
JAPAN	96 140	36 800	96 140	36 800	-	-
KOREA, REPUBLIC OF	6 270	2 400	6 270	2 400	-	-
LUXEMBOURG	3 135	1 200	-	1 200	3 135	-
MEXICO	33 963	13 000	1 627	13 000	32 336	-
MONACO	2 090	800	2 090	800	-	-
MOROCCO	5 748	2 200	1 218	2 200	4 530	-
NETHERLANDS	55 908	21 400	55 908	21 400	-	-
NEW ZEALAND	20 900	8 000	609	8 000	20 291	-
NICARAGUA	2 090	800	-	800	2 090	-
NORWAY	24 035	9 200	1 018	9 200	23 017	-
PAKISTAN	27 170	10 400	778.82	10 400	26 391.18	-
PARAGUAY	2 090	800	-	-	2 090	800
PERU	7 315	2 800	-	2 800	7 315	-
POLAND	76 285	29 200	60 169	29 200	16 116	-
PORTUGAL	12 017	4 600	12 017	4 600	-	-
ROMANIA	24 557	9 400	12 787.50	9 400	11 769.50	-
SPAIN	55 385	21 200	2 236	21 200	53 149	-
SUDAN	5 748	2 200	-	-	5 748	2 200
SWEDEN	71 583	27 400	2 645	27 400	68 938	-
SWITZERLAND	49 115	18 800	49 115	18 800	-	-
THAILAND	7 837	3 000	-	3 000	7 837	-
TUNISIA	2 612	1 000	-	-	2 612	1 000
TURKEY	30 305	11 600	16 366	11 600	13 939	-
UKRAINIAN SOVIET SOCIALIST REPUBLIC	89 870	34 400	22 467.50	34 400	67 402.50	-
UNION OF SOUTH AFRICA	33 440	12 800	33 440	12 800	-	-

	ASSESSED		PAID		OUTSTANDING	
	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund	Administrative Budget	Working Capital Fund
	\$	\$	\$	\$	\$	\$
UNION OF SOVIET SOCIALIST REPUBLICS	681 863	261 000	340 932	261 000	340 931	-
UNITED ARAB REPUBLIC	21 422	8 200	-	7 000	21 422	1 200
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	381 425	146 000	381 425	146 000	-	-
UNITED STATES OF AMERICA	1 698 648	650 200	16 400	650 200	1 682 248	-
VATICAN CITY	2 090	800	-	800	2 090	-
VENEZUELA	20 900	8 000	609	8 000	20 291	-
VIET NAM	7 837	3 000	7 837	3 000	-	-
YUGOSLAVIA	17 765	6 800	5 459.25	6 800	12 305.75	-
<b>TOTAL</b>	<b>5 225 000</b>	<b>2 000 000</b>	<b>2 034 959.04</b>	<b>1 950 290</b>	<b>3 190 040.96</b>	<b>49 710</b>
<b>NEW MEMBER STATES</b>						
IRAN	13 063	5 000	-	5 000	13 063	-
IRAQ	6 270	2 400	6 270	2 400	-	-
PHILIPPINES	19 855	7 600	-	-	19 855	7 600
	<b>39 188</b>	<b>15 000</b>	<b>6 270</b>	<b>7 400</b>	<b>32 918</b>	<b>7 600</b>

ANNEX IV

Voluntary contributions pledged to the General Fund for 1959  
up to 30 June 1959

	<u>Pledged</u>	<u>Equivalent in US \$</u>	<u>Paid</u>
ARGENTINA	£Stg. 2 000	5 600	5 600
AUSTRALIA	US \$10 000	10 000	-
AUSTRIA	US \$2 000	2 000	2 000
BELGIUM	US \$10 000	10 000	-
BRAZIL	US \$15 000	15 000	-
CANADA	US \$50 000	50 000	50 000
CEYLON	Rupees 5 000	1 050	1 050
CHINA	US \$5 000	5 000	-
CZECHOSLOVAKIA	Kr. 100 000	13 888	-
DENMARK	US \$9 150	9 150	9 150
FINLAND	US \$5 000	5 000	5 000
FRANCE	Ffrs. 14 700 000	30 000	-
GERMANY, FEDERAL REPUBLIC OF	US \$20 000	20 000	-
GUATEMALA	US \$1 000	1 000	-
INDONESIA	US \$2 000	2 000	2 000
ISRAEL	Isr. £2 000	1 111	1 111
ITALY	US \$19 400	19 400	5 000
JAPAN	US \$20 000	20 000	20 000
MEXICO	Pesos 25 000	3 125	-
MONACO	US \$1 000	1 000	1 000
NORWAY	Kr. 50 000	7 000	-
PAKISTAN	Rupees 20 000+\$4 000	8 000	-
POLAND	Zlotys 100 000	25 000	-
PORTUGAL	US \$3 500	3 500	-
SWITZERLAND	Sfrs. 50 000	11 628	11 628
THAILAND	US \$2 000	2 000	2 000
TURKEY	Tqs. £30 000	3 333	3 333
UNION OF SOUTH AFRICA	US \$10 000	10 000	-
UNION OF SOVIET SOCIALIST REPUBLICS	Roubles 500 000	125 000	-



	<u>Pledged</u>	<u>Equivalent in US \$</u>	<u>Paid</u>
UNITED ARAB REPUBLIC	EG.£3 000	7 321	7 321
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	£Stg 44 642.17.2.	125 000	125 000
UNITED STATES OF AMERICA	US \$500 000	500 000 <sup>a/</sup>	500 000
VATICAN CITY	US \$2 000	2 000	2 000
VENEZUELA	US \$2 000	2 000	-
VIET NAM	Ffrs. 1 000 000	2 041	2 041
YUGOSLAVIA	US \$3 000	3 000	3 000
		<u>1 061 147</u>	<u>758 234</u>
UNITED STATES OF AMERICA (Matching contribution)		61 147	-
		<u>1 122 294</u>	<u>758 234</u>

<sup>a/</sup> In addition, \$600 000 for the Agency's functional laboratory.

A N N E X V

Offers of experts

<u>State</u>	<u>Number of experts offered</u>	<u>Exponso to the Agency</u>
Argentina	Not specified	None, except possibly cost of trip
Australia	Not specified	Not specified
Belgium	"A few"	Not specified
Canada	Not specified	Canada will pay in so far as its financial provisions permit
Czechoslovakia	10	Not specified
Denmark	Not specified	Not specified
France	5 - 10	The Agency or the recipient country to pay
India	Not specified	Not specified
Israol	Not specified	Not specified
Italy	Not specified	Not specified
Japan	2	None
Switzerland	Not specified	Not specified
Union of South Africa	"A few"	Not specified
Union of Soviet Socialist Republics	20 - 30	None
United Kingdom of Great Britain and Northern Iroland	Not specified	Not specified
United States of America	20 - 30	None

ANNEX VI

Type II fellowships available for 1959 and candidates selected for award  
(at 30 June 1959)

	<u>Available</u>	<u>Selected for award</u>
Argentina	10	8
Belgium	5	5
Czechoslovakia	13	5
Denmark	4 - 5	4
France	12	12
Hungary	4	2
India	5	5
Israel	2	1
Italy	10	10
Japan	20	15
Pakistan	5	2
Poland	5	5
Romania	7 - 9	2
Spain	5	4
Switzerland	4 - 5	3
Union of Soviet Socialist Republics	60	20
United Arab Republic	6	2
United States of America	60	60
Yugoslavia	5	2
<b>Total</b>	<b>242 - 246</b>	<b>167</b>

A N N E X VII

The Agency's meetings in 1959<sup>1/</sup>

<u>Title</u>	<u>Dates</u>	<u>Place</u>
Meeting of Experts for the Technical Addendum to the Manual of Safe Handling of Radioisotopes	16-20 February 1- 3 June	Vienna
Panel on Civil Liability and State Responsibility for Nuclear Hazards	23-28 February 11-22 May 20-29 August	Vienna
Seminar on Medical Radioisotope Scanning (co-sponsored by WHO)	25-27 February	Vienna
Panel on Radioactive Waste Disposal into the Sea	16-23 March 24-30 June	Vienna
Panel on Transportation of Radioisotopes, and Radioactive Ores and Residues of Low Specific Activity	2- 9 April 19-24 October	Vienna
Symposium on Radioactivation Analysis (co-sponsored with Joint Commission on Applied Radioactivity)	1- 3 June	Vienna
Scientific Advisory Committee	4- 5 June End October	Vienna New York, USA
Symposium on the Immediate and Low Level Effects of Ionizing Radiations	22-26 June	Venice, Italy
Seminar on Atomic Energy and its Educational Problems (co-sponsored by UNESCO)	6-10 July	Saclay, France
Advisory Committee on Scientific and Technical Information	13-17 July	Vienna
Panel on the Transportation of Large Radioactive Sources and Fissile Materials	13-20 July	Vienna
International Conference on the Preservation of Foods by Ionizing Radiations (co-sponsored by Massachusetts Institute of Technology and United States Atomic Energy Commission)	27-30 July	Cambridge, USA
Study Group on the Use of Radioisotope Teletherapy Units and Supervoltage Radiation in Radiotherapy (co-sponsored by WHO)	3- 5 August	Vienna
Meeting of Experts on Physics of Heavy Water Lattices	31 August - 4 September	Vienna

<sup>1/</sup> Meetings of the General Conference and of the Board and its Committees have been omitted from this list.

<u>Title</u>	<u>Dates</u>	<u>Place</u>
Conference on the Application of Large Radiation Sources in Industry, and especially to Chemical Processes	8-12 September	Warsaw, Poland
Symposium on the Metrology of Radionuclides	14-16 October	Vienna
Conference on the Disposal of Radioactive Waste	16-21 November	Monaco
Symposium on Diagnosis and Treatment of Acute Radiation Sickness (co-sponsored by WHO)	Second half of 1959	Switzerland

## A N N E X VIII

### Participants in Agency panels

#### A. PANEL ON CIVIL LIABILITY AND STATE RESPONSIBILITY FOR NUCLEAR HAZARDS

<u>Member</u>	<u>Representing</u>
MR. G. BELLI	Italy
DR. G.N. CARRUTHERS	United Kingdom of Great Britain and Northern Ireland
MR. E. DIAMOND	United States of America
MR. Y. KANAZAWA	Japan
MR. B.N. LOKUR	India
DR. A. NIKOLAEV	Union of Soviet Socialist Republics
PROF. F. RIAD	United Arab Republic
AMBASSADOR RUEGGER (Chairman)	Switzerland
AMBASSADOR P. WINKLER	Czechoslovakia
DR. E. ZALDIVAR	Argentina

#### B. PANEL ON THE TRANSPORTATION OF RADIOISOTOPES AND RADIOACTIVE ORES AND RESIDUES OF LOW SPECIFIC ACTIVITY

<u>Member</u>	<u>Representing</u>
DR. A.A.M. AHMAD	Pakistan
MR. G.E. ANDRE (Chairman)	Belgium
DR. G. CALCAGNO	Central Office of International Railway Transport
MR. V.E. HANINGER	United States of America
PROF. E. MARTIN	Federal Republic of Germany
DR. MORENO Y MORENO	Mexico
DR. W. PATLIKOWSKI	Poland
MR. A.H.K. SLATER	United Kingdom

<u>Observer</u>	<u>Representing</u>
MR. A. DOLLINGER	Secretary-General of the United Nations
MR. A. FAIRBAIRN (Assistant)	United Kingdom
MR. LAREAU	International Labour Office
MR. LECOMTE	International Air Transport Association
MR. J.A. NEWTON	International Civil Aviation Organization
MR. O. PENDAR	United Nations
DR. P. TAILLARD	World Health Organization

C. PANEL ON RADIOACTIVE WASTE DISPOSAL INTO THE SEA

<u>Member</u>	<u>Representing</u>
DR. B. AZER	Sweden
PROF. F. BEHOUNEK	Czechoslovakia
MR. H. BRYNIELSSON (Chairman)	Sweden
MR. P. COHEN	France
MR. A. DOLLINGER	Secretary-General of the United Nations
DR. A.K. GANGULY	India
MR. H. HOWELLS	United Kingdom
MR. LAEVASTY	Food and Agriculture Organization
DR. C.L. MAWSON	Canada
DR. D.W. PRITCHARD	United States of America
PROF. N. SAITO	Japan
MR. J.B. SCHIJF	Netherlands
DR. P. TAILLARD	World Health Organization
MR. V. VESILY	Czechoslovakia

ANNEX IX

Research contracts

A. Details of research contracts awarded by the Agency prior to June 1959

<u>Subject of research</u>	<u>Institution</u>	<u>Country</u>	<u>Amount of the Agency's contribution (in United States dollars)</u>
Investigation of the factors controlling the distribution of fission products in the biosphere, using a scintillation spectrometer	First Chemical Institute of Vienna University	Austria	3 950
Investigation of electrophysiological responses of biological systems, in particular of nerve cells, to irradiation with small doses of X-rays and other types of ionizing radiation	Pharmacological Institute of Vienna University	Austria	3 975
Research on the non-destructive analysis of irradiated and unirradiated fuel elements for nuclear reactors	Nuclear Energy Research Centre	Belgium	8 000
	Atomic Energy Commission		France
	United States Government	United States of America	3 500
Investigation and development of a new method of monitoring and dosimetry for low fluxes of fast neutrons, involving the use of a bubble chamber	Physics Institute of the University of Trieste	Italy	7 000
Investigation on the mode of the protective action of certain sulphydric compounds against radiation effects on the synthesis of desoxyribonucleic acid, using tritium-labelled thymidin	Physiological Institute of Vienna University	Austria	4 560



<u>Subject of research</u>	<u>Institution</u>	<u>Country</u>	<u>Amount of the Agency's contribution (in United States dollars)</u>
Investigation of patients carrying echinococcus cysts, using iodine 131-labelled rose bengal, and of patients suffering from thalassaemia or sickle-cell anaemia, using iron-59 and chromium-51	Department of Clinical Therapeutics, Athens University, Division of Radioisotopes, Alexandra Hospital, Athens	Greece	7 920
Investigation of the fundamental radiobiological problem of variations in the radiosensitivity of different micro-organisms, and its bearing on health and safety problems and sterilization of bacteria by radiation	Choster Beatty Research Institute, London, in collaboration with the Bacteriology Department of the Chelsea Polytechnic Advanced Institute of Science Technology of London University	England	6 000
Development of inexpensive ion-exchange and absorption substances, made of wood material for the treatment of radioactive liquid waste	Atomic Institute, Vienna	Austria	2 500
Cytogenetical investigations on the effect of ionizing radiation on human cells grown <u>in vitro</u>	Institute of Medical Genetics, University of Uppsala	Sweden	1 300

B. Details of research contracts at present in an advanced stage of negotiation

Development of cheaper method of enriching calcium-46 by electromigration separation	Atomic Energy Commission, Saclay	} France	10 000
	Atomic Energy Research Establishment, Harwell		

<u>Subject of research</u>	<u>Institution</u>	<u>Country</u>	<u>Amount of the Agency's contribution (in United States dollars)</u>
Investigation of the uptake of radioactive wastes by lowland rice from soil contaminated with radioactive wastes in irrigation waters, and the subsequent decontamination	Instituto of Plant Nutrition and Fertilizer, Faculty of Agriculture, University of Tokyo	Japan	3 000
Investigation of two hereditary haemolytic diseases prevalent in Thailand, using radioisotope techniques to study the mechanism of erythropoiesis and red-cell destruction in affected individuals	Faculty of Medicine, and Siriraj Hospital, University of Medical Sciences, Bangkok	Thailand	3 900

A N N E X X

List of offers of source material made to the Agency

<u>State</u>	<u>Material offered</u>	<u>Price</u>
Belgium	<ul style="list-style-type: none"> <li>(a) Uranium concentrates containing 70-80 per cent <math>U_3O_8</math>;</li> <li>(b) Uranium oxides <math>UO_2</math>, <math>UO_3</math> and <math>U_3O_8</math>;</li> <li>(c) Uranium metal; and</li> <li>(d) Miscellaneous salts.</li> </ul>	\$8.00 per lb of $U_3O_8$ contained.
Canada	<p>Natural uranium in the form of:</p> <ul style="list-style-type: none"> <li>(i) Metal;</li> <li>(ii) The oxides <math>UO_2</math> and <math>UO_3</math>;</li> <li>(iii) <math>U_3O_8</math> concentrates; and</li> <li>(iv) Salts as ammonium diuranate and <math>UF_4</math>,</li> </ul> <p>all except <math>U_3O_8</math> are available in a state of nuclear purity.</p>	<p>Ceiling of \$8.00 per lb for <math>U_3O_8</math> in concentrates. Uranium metal in state of nuclear purity not exceeding \$34.50 per kg.</p>
Ceylon	Monazite, 30 tons, thoria content 8.14 - 9.64 per cent.	\$315.00 per long ton (2240 lbs).
Czechoslovakia	<ul style="list-style-type: none"> <li>(a) Uranium metal; and</li> <li>(b) In the future, also ores and concentrates.</li> </ul>	
India	Monazite containing more than 9 per cent of thorium.	
Portugal	Uranium oxide, 100 000 kgs in the form of concentrates containing 15-20 per cent $U_3O_8$ .	\$10.00 per lb uranium oxide contained.
Union of South Africa	Uranium concentrates containing 86 per cent $U_3O_8$ .	<p>Appr. \$8.00 per lb of contained <math>U_3O_8</math> (Subject to varying reductions according to the magnitude and the period of contract).</p>

A N N E X   X I

Members of the Scientific Advisory Committee

Professor H.J. BHABHA (India)

Sir John COCKCROFT (United Kingdom of Great Britain and  
Northern Ireland)

Professor V.S. EMEL'YANOV (Union of Soviet Socialist Republics)

Professor B. GOLDSCHMIDT (France)

Dr. B. GROSS (Brazil)

Dr. W.B. LEWIS (Canada), and

Professor I.I. RABI (United States of America)