International Atomic Energy Agency

INFCIRC/43
15 May 1963
GENERAL Distr.

THE AGENCY'S ANNUAL REPORT TO THE ECONOMIC AND SOCIAL COUNCIL OF THE UNITED NATIONS FOR 1962-63

The text of the Agency's annual report to the Economic and Social Council of the United Nations for 1962-63 is reproduced in this document for the information of all Members.

ANNUAL REPORT BY THE INTERNATIONAL ATOMIC ENERGY AGENCY TO THE ECONOMIC AND SOCIAL COUNCIL FOR 1962-63

(For the period 1 April 1962 - 31 March 1963)

CONTENTS

List of Abbreviations

ACC	Administrative Committee on Co-ordination
Agency	International Atomic Energy Agency
Board	Board of Governors of the International Atomic Energy Agency
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
ILO	International Labour Organisation or International Labour Office
IMCO	Inter-Governmental Maritime Consultative Organization
TAB	Technical Assistance Board
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

I. GENERAL

1. In pursuance of ECOSOC Resolution 694 E (XXVI) and Resolutions GC(II)/RES/24 and GC(VI)/RES/115 of the General Conference of the International Atomic Energy Agency, the following report is submitted to the Council by the Board of Governors.

2. The membership of the Agency has increased from 77 to 81, the new members being Bolivia, Liberia, Saudi Arabia and Uruguay.

3. The amendment to Article VI. A. 3 of the Agency's Statute, providing for more equitable representation on the Board of Governors of the Agency of the area of Africa and the Middle East [1], entered into force on 31 January 1963.

4. At the sixth regular session of the Agency's General Conference held in Vienna in September 1962, the Agency's Budget for 1963 was approved as recommended by the Board. It was decided that the Regular Budget should be US $7 337 500, and that the target for voluntary contributions to the General Fund for 1963 should be US $2 million [2].

5. In another resolution [3] the General Conference requested the Director General to give full co-operation to the Secretary-General of the United Nations in the fulfilment of the task entrusted to him by ECOSOC Resolution 891 E (XXXIV)

> "to continue to keep under review, in co-operation with the regional economic commissions and with the related agencies concerned, the basic aspects of economic and social consequences of disarmament and the problems arising therefrom on the national and international plane".

Other resolutions of the General Conference are dealt with under the appropriate subject headings.

II. CO-ORDINATION WITHIN THE UNITED NATIONS SYSTEM

6. In the past, questions of co-ordination have arisen mainly because of the need to find effective means of helping Member States (a) to deal with nuclear energy as one of several alternative forms of energy, (b) to develop the use of nuclear science techniques in agriculture and medicine, and (c) to control and regulate radiation hazards.

7. With regard to nuclear power, the General Conference adopted a resolution requesting the Board and the Director General to explore ways and means of establishing closer co-operation between the Agency, the United Nations, the specialized agencies and the World Power Conference on matters of power in general and of the economics of power in particular [4]. Arrangements are being made for closer contact with the competent offices of the United Nations Secretariat. It is now the practice for the Agency's preliminary assistance missions and power missions to include conventional power as well as nuclear power experts.

---

[1] See paragraph 4 of last year's report to ECOSOC - United Nations document E/3612 (Agency symbol number INFCIRC/35) - and document INFCIRC/41.

[2] General Conference Resolutions GC(VI)/RES/117 and GC(VI)/RES/118. In this connection the Council may be interested to note that, in pursuance of General Conference Resolution GC(VI)/RES/120, a proposal for biennial programming within the framework of annual budgets is under consideration by the Agency (see also the thirtieth report of the Advisory Committee on Administrative and Budgetary Questions to the General Assembly - United Nations document A/5332, Annex B, paragraph 123).

[3] General Conference Resolution GC(VI)/RES/130.

[4] General Conference Resolution GC(VI)/RES/128.

8. The growing use of nuclear science techniques in oceanography and hydrology has increased the need for a co-ordinated approach in these matters. The first is being satisfactorily dealt with by the Agency's participation in the work of the Intergovernmental Oceanographic Commission and in the ACC Sub-Committee on Oceanography; as far as hydrology is concerned, the Agency participates in the ACC Sub-Committee, has been effectively co-operating with WMO, and is now looking forward to taking part in the preparation of UNESCO's long-term programme in hydrology.

9. With regard to radiation effects and hazards, full technical co-operation continues with UNSCEAR and, pursuant to General Assembly Resolutions 1629 A (XVI) and 1764 A (XVII), with WMO with a view to setting up a world-wide system for the measurement of atmospheric radioactivity. The question of responsibility, within the United Nations family, for radiation protection and safety regulations remains complex because of the number of interested agencies, notwithstanding the fact that the Agency is explicitly charged in its Statute with regulatory responsibilities [5].

10. Aware that the possibility of holding a third international conference on the peaceful uses of atomic energy might be considered at the seventeenth regular session of the General Assembly, the General Conference proposed that there should be full consultation and co-operation with the United Nations in organizing such a conference. [6] The General Assembly subsequently decided that such a conference should be held in 1964 and requested the Secretary-General to make the necessary arrangements

> "with the assistance of the United Nations Scientific Advisory Committee, in co-operation with the International Atomic Energy Agency and in consultation with interested specialized agencies." [7]

11. The Agency has so far entered into relationship agreements with the United Nations [8] and seven specialized agencies [9]: ILO, FAO, UNESCO, WHO, ICAO, WMO and IMCO. The relationship agreements establish certain principles of co-operation and enumerate means of achieving it. In the case of FAO and WHO, it has proved desirable to implement these agreements by setting up inter-secretariat working groups that meet about twice a year to review current activities and plan future co-operation. The question of setting up a working group with UNESCO is being considered. Although experience with these working groups is still limited, they are so far providing an effective means of joining together or harmonizing the different programmes of the agencies involved.

12. The fact that nuclear science techniques have an increasing range of applications in other fields of activity means that it will continue to be necessary to give close attention to co-ordination and avoidance of duplication. These questions become simpler to the extent that the specialists in nuclear science techniques are concentrated in one agency, and have direct contact with specialists in different disciplines in the other agencies wishing to introduce or employ the techniques. It is noted, however, that the allotments in the programmes and budgets of certain other agencies for work in the application of radiation and radioisotopes continue to grow, in some cases more rapidly than the Agency's own.

---

[5] Article III.A.6.

[6] General Conference Resolution GC(VI)/RES/129.

[7] General Assembly Resolution 1770 A (XVII).

[8] Document INFCIRC/11.

[9] Documents INFCIRC/20 and Addendum 1.

III. UNITED NATIONS DEVELOPMENT DECADE

13. The Agency is engaged in preparing a long-term programme for its own activities, which will cover approximately the same period as and will be integrated into the United Nations family's plans for the Development Decade. For this purpose the Director General has submitted material to the Secretary-General on the programmes currently being studied by the Board and the Secretariat, on the following three subjects:

(a) The development of human resources through the Agency's exchange and training programme;

(b) The contribution of nuclear science to agriculture and hydrology; and

(c) Nuclear power as a factor in industrial development and economic diversification.

Since the United Nations has high-lighted the role of science and technology in the Development Decade, e.g. by holding in February 1963 the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, the Director General has also submitted material to the Secretary-General of the United Nations on the contributions the Agency hopes to make in the next few years to the general advancement of nuclear and related sciences.

IV. TECHNICAL ASSISTANCE AND TRAINING

14. Among the matters the Board would like to bring to the attention of ECOSOC, one of the most important is the continuing difficulty of financing the Agency's regular technical assistance programme from voluntary contributions from Member States which constantly fail to reach the target. In 1960, only US $1 007 842 were actually available under the regular programme, although a target of US $1 500 000 had been set for that year; in 1961, only US $980 881 compared with a target of US $1 800 000; and in 1962 US $1 146 294 when the target was US $2 million. In general, the gap between requests and resources continues gradually to increase.

15. The financial problems hampering the Agency's own programme make it necessary for it to look increasingly to EPTA (as well as to Governments for contributions in kind) to provide resources for its technical assistance. By the same token, the nuclear science programmes of developing countries depend on EPTA not only for financing long-term or large regional projects, but also for smaller projects which, by providing a crucial missing element (in the form of an expert from abroad or the training of a specialist), are of far greater value than their cost would suggest. As far as the Agency's financial position is concerned, it is desirable that there should continue to be, within the United Nations family, a central source of finance for smaller as well as larger technical co-operation projects. In the administration of centrally financed programmes such as EPTA the difficulties facing the smaller and especially the newer agencies should continue to be borne in mind, especially as the national authorities concerned with the technologies of some of the newer agencies have been established only recently. It should be noted in this connection that the Agency relies entirely on TAB Resident Representatives for its field liaison with Member States in the developing areas and has no local or regional representatives of its own. [10]

16. As far as fellowships are concerned, the actual number of awards has remained relatively stable, although there has been an increase in the average length of awards. However, the total cost of the fellowship component of the entire programme has decreased from 50.9% of the programme in 1960 to 36.7% of the programme in 1962. The number of training courses and visiting professors has increased.

---

[10] Liaison at Headquarters, on the other hand, is mainly conducted through accredited resident delegations of Member States.

17. With regard to other forms of technical assistance, ten States in Africa and the Middle East were visited by a preliminary assistance mission from the Agency in April/June 1962. Preliminary assistance missions have now been sent by the Agency to most developing States, with the exception of certain States in Africa, and follow-up missions and other more specialized visits are gradually replacing them.

18. The total resources available for technical assistance over the last three years have grown (from US $1 647 204 in 1960 to US $1 989 553 in 1962), the main factor being the increase in the Agency's allocations under EPTA. In addition to these resources, training provided free of charge by Member States and gifts of equipment were estimated to be worth an additional US $1 million in 1960, and US $680 000 in 1962.

19. Two individual developments of interest were:

(a) The approval by the Board in September 1962 of a draft agreement regarding the establishment in Cairo of a Middle Eastern Regional Radioisotope Centre for the Arab States and the subsequent inauguration of the Centre on 18 March 1963; and

(b) A proposal by eight delegations at the sixth regular session of the General Conference for the establishment of six medical centres and six physics laboratories in the developing countries; the Governments concerned offered to contribute one-third of the resources required to implement the programme and one-third of the 300 fellowships proposed in connection with it. The General Conference requested the Board and the Director General to make a most careful study of the proposal, in order to determine how this and other offers of a like nature may best be introduced into the over-all long-term plan now in the process of elaboration, as soon as the necessary detailed information regarding such offers has been made available. [11]

V. THE SPECIAL FUND

20. In May 1962 the Agency was designated to act as Executing Agency for a Special Fund project for nuclear research and training in agriculture in Yugoslavia. This will be the first Special Fund project for which the Agency will serve as Executing Agency. It is hoped that similar nuclear science training and applied research projects in other countries will be considered eligible for the Special Fund's assistance.

21. Certain Member States of the Agency, such as Pakistan and the Philippines, are now contemplating individual nuclear power projects. The Agency has helped by making preliminary surveys and it is hoped that certain of these projects will qualify for pre-investment surveys.

22. Nuclear science techniques may have a subsidiary role in many other Special Fund projects. The first problem is to ensure that the Governments and experts preparing the request are aware of the possibility of using a nuclear science technique, which is often one which has been recently developed. The second is to assess the extent to which the technique can be employed in the particular project. In the case of certain groundwater projects which Governments have prepared with FAO, there has been early consultation with specialists from the Agency regarding the possibility of using radio-isotope techniques. The third problem is the procedural one of refunding the cost of the Agency's participation. In the case of one FAO project this has been resolved by means of a sub-contract.

23. It is hoped that the type of co-operation which is being worked out with FAO in relation to groundwater projects can be extended to other organizations dealing with

---

[11] General Conference Resolution GC(VI)/RES/131.

hydrology, and to other subjects in which nuclear science techniques and the Agency's scientific staff and facilities can play a subsidiary but useful role.

VI. MAIN TRENDS IN THE TECHNICAL PROGRAMME

24. Details of the Agency's recent scientific work are given in the latest annual report to the General Assembly [12]. The following is a brief summary of the main developments and trends in the Agency's work which is of economic or industrial interest to developing countries and has been undertaken since last year's report to ECOSOC [13].

Nuclear power and reactors

25. While much further progress will be necessary before nuclear power and especially smaller plants become economically competitive on a wide scale, there has been substantial technical advance, and commercial prospects have improved in the past year. The installed capacity of nuclear power plants - which are almost all still in technically advanced countries - amounted to some two million kW(e) at the end of 1962, and operating experience has been very satisfactory on the whole. In special areas where fuel costs are high and other technical and economic factors are propitious, nuclear power plants now being built are expected to be competitive. As a means of meeting the needs of developing countries, the Agency is assessing the extent of the potential demand for reactors of the same type and approximately the same power which might be more cheaply built than the individual units that are "tailor-made" to meet special and varying requirements.

26. The Agency held five conferences and symposia dealing with subjects such as technical problems of reactor construction and operation, methods of ensuring safety and the selection of reactor sites. Attendance ranged from 100 to 250 experts, many of whom came from developing countries.

27. Technical assistance under this heading included the award of 95 fellowships under the 1962 programme for nuclear reactor studies and nuclear engineering; 27 experts were in the field in 1962.

28. Among the several panels and study groups convened, one of particular interest was held in Bangkok in December 1962 for experts from the new research reactor centres in the Far East and South East Asia. The meeting discussed common problems and plans and means of co-ordinating the programmes of the various centres. Further projects included the visit of an advisory mission to Pakistan to evaluate possible sites for a power reactor and the evaluation of safety aspects of reactors in Manila and Bangkok. A project for co-operation between nuclear research institutes in Norway, Poland and Yugoslavia under the Agency's auspices is now being elaborated.

29. Agreements were signed with Belgium, the Congo (Leopoldville) and the United States of America regarding the reactor centre at Leopoldville. The fuel contained in the reactor was donated by the Belgian Government and transferred to the Congolese Government, and the Agency assumed the health, safety and safeguards responsibilities previously contained in bilateral agreements. The United States has agreed to make available to the Congo free of charge the enriched uranium for up to five supplementary fuel elements and some equipment.

---

[12] United Nations documents A/5163 and Addendum 1 (Agency symbol numbers GC(VI)/195 and INFCIRC/39).

[13] United Nations document E/3612 (Agency symbol number INFCIRC/35).

Research and services in the physical sciences and chemistry

30. Four scientific meetings under this programme included a six-week Seminar on Theoretical Physics at Trieste, Italy, in July/August 1962, in which 103 physicists took part, many from developing countries, and an International Summer School in August/September 1962 in the Czechoslovak Socialist Republic. The remaining two meetings were specialized scientific symposia in Canada and the United Kingdom of Great Britain and Northern Ireland.

31. The Agency is co-operating with UNESCO to raise the standards of teaching in the physical sciences in developing countries as an essential step towards the training of the cadres of scientists and engineers these countries will need when they embark on nuclear power programmes and expand nuclear science applications. During 1962, 59 experts and visiting professors were serving in the field, and 143 fellowships were awarded in nuclear research, analytical and radiation chemistry and theoretical physics. The Agency's Laboratory at Seibersdorf near Vienna has launched a programme for the distribution of radioactive samples to institutes, laboratories and hospitals for calibration of their nucleonic instruments. The Agency is also co-operating with the Austrian Government in a new project for training scientists at the reactor of the Österreichische Studiengesellschaft für Atomenergie GmbH at Seibersdorf.

Applications of radioisotopes and radiation

32. Applications of radioisotopes and radiation continue to be the most immediately interesting use of nuclear science in developing countries. A seminar was held in November 1962 especially for the purpose of helping developing countries to utilize the isotopes that their small research reactors are now producing.

33. More attention is also being given to the use of radioisotope techniques in determining the size and recharge rate of underground water reservoirs which are of vital importance for irrigation and farming in arid and semi-arid areas. A Symposium on the Application of Radioisotopes in Hydrology was held in Tokyo in March 1963.

34. Medical applications of isotopes are the subject of most of the Agency's technical assistance programme under this heading. 179 fellowships in the applications of radioisotopes were awarded under the 1962 programme and 42 experts were serving in the field in 1962. Four training courses in medical, agricultural and food processing applications were held in 1962 [14].

35. In the research programme special attention is being given to the use of radioisotopes in tropical medicine and the use of radiation to destroy insects in stored grain and to eliminate insect pests through sterilization of the male. A regional research project to promote more efficient use of fertilizers in rice growing has been started, in which institutes in Burma, Hungary, Pakistan, the Philippines, Thailand and the United Arab Republic and the Agency's Laboratory are co-operating.

Health, safety and waste management

36. Adequate radiation protection presents special problems in the new institutes in developing countries. Under this heading the Agency awarded 44 fellowships under the

---

[14] A regional training course on medical applications of radioisotopes, Athens, May/June; an FAO/Agency international advanced course on radioisotope techniques in the animal sciences, Cornell University, United States, July/August; an FAO/WHO/Agency international training course on surveys for radionuclides in foods, Cincinnati, United States, September/October; and a regional training course on radioactive isotopes in agriculture, with particular emphasis on soil-plant relations, Ankara, October/November 1962.

1962 programme, and 20 experts were serving in the field in 1962. The shortage of health physicists is especially acute, and one Member State has offered to organize large training courses to help relieve it. Work of special interest to developing countries included the preparation of a manual on radiological protection services in small nuclear centres. Special attention was also given to problems of treating and disposing of radioactive waste and to facilitating the safe international transport of radioactive materials.