



International Atomic Energy Agency

General Conference

GC(X)/OR.105

2 March 1967

GENERAL Distr.

ENGLISH

OFFICIAL RECORDS OF THE TENTH REGULAR SESSION (21-28 SEPTEMBER 1966)

OFFICIAL RECORD OF THE ONE HUNDRED AND FIFTH PLENARY MEETING

Held at the Neue Hofburg, Vienna,
on Friday, 23 September 1966, at 10.40 a.m.

President: Mr. SARASIN (Thailand)

CONTENTS

<i>Item of the agenda*</i>		<i>Paragraphs</i>
10	General debate and report of the Board of Governors for 1965-66 (<i>continued</i>):	1 — 87
	Statements by the delegates of:	
	Israel	1 — 12
	France	13 — 30
	Japan	31 — 43
	Pakistan	44 — 59
	Uruguay	60 — 63
	India	64 — 75
	Iran	76 — 87

* GC(X)/343.

GENERAL DEBATE AND REPORT OF THE BOARD OF GOVERNORS FOR 1965-66 [GC(X)/330, 341] (continued) 1)

1. Mr. DOSTROVSKY (Israel) said his delegation would like to pay a tribute to the Director General, his predecessor and the Agency staff, past and present, who had seen the Agency through its first critical years to the present tenth anniversary of the General Conference.

2. He also wished to congratulate Singapore and Uganda on joining the Agency; their delegations,

1) GC(X)/OR.104, paras. 1 to 126.

he was sure, would make a useful contribution to the Conference's work.

3. Commenting on some national activities in atomic energy that deserved mention, either because of their scientific and technical interest or because they illustrated what could be done with modest equipment and facilities, he pointed out first that Israel was a small country with limited resources and great development problems, but that its programme covered a wide spectrum of activity in basic and applied nuclear sciences.

4. Israeli physicists had recently perfected techniques for observing resonance scattering of gamma-rays from neutron capture, thus making it possible

to study nuclear energy levels in a region hitherto inaccessible. For instance, by such techniques nuclear energy levels of a few hundred electron volts could be scanned with a resolution of 1 eV, making it possible to study bound and unbound nuclear levels in the region 6-9 MeV above ground.

5. The mechanism of fission, the basic process on which all atomic energy activity depended, was still not fully understood, and much effort was being devoted in Israel to study of that process. For instance, two experiments of the scattering chamber type, involving the use of multiple coincidences and multi-parameter analysis, were in progress. The first was designed to study correlations between parameters such as mass, energy, angle of fission fragments and neutrons, and the alpha, gamma or X-rays accompanying the process. The correlations observed were compared with predictions of various models of neutron fission. The second experiment was for study of very short-lived fission fragments located at the edges of the charge distribution curve; observations were being made by means of rapid separations of fission products from a source located in a special gas loop in the reactor. Work was going on at the moment, too, on the design and construction of an on-line mass separator which would make it possible to separate individual nuclides and provide a steady source of even the shortest-lived isotopes.

6. In regard to the uses of radiation for various purposes, a number of groups were carrying out basic research in radiation chemistry and radiobiology. From that work it was hoped to derive possible new methods for the synthetic production of certain chemicals, and new products of polymerization reactions, e.g. in plastics and modified wood. Irradiation of agricultural products was also under study in the hope of finding ways to prolong the storage or shipping life of a range of local products. Successful results in those pilot experiments could have a considerable impact on his country's economy.

7. The work being done in activation analysis and isotope production was already well known and had reached the status of a routine service available to all.

8. The absence of water in sufficient quantities was a major problem in Israel so that research and development work in hydrology and desalination had been started early. The potentialities of isotope techniques in hydrology had been quickly recognized by chemists and physicists but accepted with hesitation by hydrological engineers. His delegation accordingly welcomed the steps being taken by the Agency to promote acceptance of those methods. Techniques based on the analysis of naturally-occurring isotopes and on the use of artificially-injected isotopes had been developed and used in

his country. The Agency had taken a prominent part in the global mapping of deuterium, tritium and oxygen-18 in precipitation and rivers, for which work it was to be commended.

9. Nevertheless, more work was necessary on the fundamental aspects of isotope kinetics and distribution in well-defined transport stages of the hydrological cycle; and it was essential that the interpretation of isotopic data be made within a wider context. His delegation would therefore recommend that the Agency's programme be broadened by extending the theoretical basis of the present work with the aim of arriving at quantitative interpretations of hydrological systems; and by greater integration of hydrological studies with geochemistry, geophysics, atmospheric chemistry and meteorology.

10. The main desalination processes studied had been freezing, electro dialysis and distillation, and sizeable experimental plants based on each of those methods were now in operation in Israel. The report on the joint study undertaken in conjunction with the United States Government - copies of which were freely available - indicated the technical feasibility of nuclear desalination by means of a dual-purpose plant providing one hundred million tons of water per year and 200 MW of electricity. However, such a plant would be economic for Israel only if financing arrangements could be made at very low interest rates. Plants of the kind would, in his opinion, be in very limited demand for at least ten years to come, since the need of the developing countries was for facilities on a smaller scale, to produce water for local requirements only, in the absence of extensive distribution networks. It would be useful if the Agency arranged for a more intensive study of that problem in its programme of symposia and seminars.

11. Israel supported the programme of work before the Conference, in particular the technical assistance activities outlined. It was to be hoped that that work would not be curtailed by lack of funds. Israel would maintain its contribution to the General Fund and continue its support of the training programme, as in past years, by the award of Type II fellowships.

12. In conclusion, he expressed his delegation's fervent hope that scientific objectivity and a spirit of equity would pervade the deliberations and decisions of the Conference and mark the work of the Agency in its second decade and thereafter.

13. Mr. HIRSCH (France) expressed his Government's gratitude to the Austrian Government for the hospitality which had always been so generously extended to the Agency and to the delegations of Member States.

14. In the general context of the development of atomic energy in the world, it was appropriate to take stock of the Agency's achievements and to attempt to define the policies which would provide the best return on the resources of an organization whose growth rate should roughly parallel the average rate of increase of the budgets of its Member States.

15. On the one hand, the Agency had not yet reached a position where it was able effectively to fulfil one of the essential tasks which had initially been allotted to it, that of a broker in nuclear materials and an intermediary in international transactions involving power reactors. On the other hand, the development of the political situation had not yet allowed it to assume the technical role it could play in controlling genuine world nuclear disarmament which, it was to be hoped, would be speedily achieved.

16. That situation, which restricted the Agency's field of activity, had caused it to develop primarily in the direction of the provision of technical assistance and the dissemination of knowledge. At the same time it had been necessary to apply to the Agency's budget a kind of stabilization plan in order to ensure that the development of national and of international organizations did not get out of line. It was from that standpoint that the French delegation approved the Budget for 1967²⁾ and the outlines of the Programme for 1967-68³⁾, which should allow the Agency to consolidate its position in the rapid development of nuclear power applications.

17. The tendencies first noted two years previously had been confirmed, and the expansion of nuclear power generation was now proceeding at a rate which should impress the most sceptical observer. The average tempo at which new nuclear power stations were now being commissioned throughout the world represented every month an installed capacity of more than 1000 MW(e), or more than the total installed capacity in about one third of the countries of the world. When all the nuclear power stations at present in existence and those under construction were in operation, in four or five years' time, the installed nuclear capacity in the world would exceed 30 000 MW(e).

18. In France the Fifth Development Plan specified a rate of construction of nuclear power stations which was double that provided for under the preceding Plan and thus involved the installation of a capacity of 500-1000 MW(e) per year. The third nuclear power station of Electricité de France, EDF-3,

had gone into operation in March 1966 and would soon achieve its full power of 480 MW(e); for about a year it would be the most powerful electricity-generating reactor in the world.

19. The industrial breakthrough of nuclear power was of course due not only to the technical success of a few reactor types whose reliability of operation was now established. It had also been essential that economic considerations should justify the choice of nuclear power in open competition with the various alternative power sources available; those considerations entailed high unit power levels and the highest possible utilization factors, which in turn facilitated the adoption of nuclear power in the most highly industrialized countries and restricted its economic justification in most of the developing countries, for whom the Agency should be able to play a useful rôle as an impartial adviser.

20. His delegation hoped that the Agency would pursue and expand its studies on the possible introduction of nuclear power into the less industrialized countries, and France was prepared to continue to supply experts to participate in that work. It was also in favour of carrying out general economic studies, in particular those which might lead to the establishment of a set of methods which could be generally applied, in view of the extent to which economic comparisons were rendered uncertain and problematical by the absence of clearly defined basic data and by the introduction of doubtful assumptions.

21. The industrial success of proven reactor types should not retard scientific and technical endeavours to develop new types and to discover new applications; the Agency must of course follow and participate in such activities. He was thinking in particular of fast-neutron breeders and the use of the heat produced by reactors to desalt water. The latter task was a long-term one, but the inevitable increase in fresh water requirements justified the efforts being made, and it was highly desirable for the Agency to pay close attention to the studies and activities undertaken at both national and international level, for it was above all the developing countries which would first have to solve the problem of desalination.

22. On the other hand, it seemed that the prospects for the nuclear applications of thorium were still distant, since most experts no longer expected a serious shortage of uranium in the coming years. While his delegation was not opposed to the Agency engaging in studies on thorium, it felt that the effort devoted thereto should be limited, and that resources should be concentrated on subjects of more immediate interest.

23. There was a natural link between reactor operation and plutonium production; the quantities

2) GC(X)/333.

3) GC(X)/332.

produced annually would shortly be reckoned in tons. His Government was too aware of the risks presented by such stocks not to be interested in discussions on ensuring the exclusively peaceful uses of fissile materials. It had approved the document extending the application of Agency safeguards to reprocessing plants. However the fact was, as emerged from the section on safeguards in the annual report of the Board of Governors for 1965-66 [GC(X)/330 and 341], that the power reactors in respect of which agreements subjecting them to Agency safeguards had come into force belonged to countries which also had substantial military atomic programmes. Furthermore, a large part of the world remained completely free from the Agency's control. It was therefore to be hoped that the experience acquired in that difficult field would one day be put to really good use within the framework of general nuclear disarmament. Finally, he recalled that France was agreeing only temporarily that the application of safeguards by the Agency should be financed from the Regular Budget.

24. Technical assistance would for the near future continue to account for the bulk of the Agency's activities. His Government approved the recent emphasis on relatively large regional projects and the efforts made to co-ordinate the grant of fellowships, missions undertaken by experts, gifts of equipment and the allocation of research contracts in such a way that those various forms of assistance were made to contribute to the success of a project. Such a concept of technical assistance necessarily entailed considerably greater effort on the part of the Secretariat and assumed a great deal of understanding and goodwill on the part of the receiving countries, but the results obtained would be beneficial for all, and would in the last analysis ensure a fairer distribution of the limited resources available. Too often in the past the assistance provided to Member States had not been linked by any simple criterion to the industrial development, the foreseeable needs or the nuclear effort of the receiving countries; one could only hope that it had at least been a measure of those countries' devotion to the ideal of international co-operation. France, at all events, would continue to accept fellows from the Agency (30 during the past year) and to place experts at the disposal of the Secretariat.

25. His Government hoped that the Agency's financial contribution to the running of international centres would decrease in the future; that contribution should be confined to the establishment of institutions, whose subsequent financial independence would be the mark of their success.

26. At the same time, while stressing the importance of rigorous budgeting, his delegation congratulated the Agency on the scientific success of

the International Centre for Theoretical Physics at Trieste.

27. The various international regulatory activities concerned with health and safety constituted one of the Agency's undeniable successes. France would continue to place experts at the Secretariat's disposal for the further pursuit of those activities.

28. The Agency's laboratories were continuing to perform a useful function, and his delegation was in favour of a reasonable expansion in their work. The French Government had decided to donate to the Agency's Laboratory a coincidence counting unit worth 170 000 francs (\$34 000), intended for the accurate measurement of beta-gamma emitters; the unit included an automatic sample-feeding device and a computer coupled with a print-out device.

29. The Laboratory of Marine Radioactivity at Monaco was now providing interesting results on the development of radioactivity in the sea. A reasonable extension of the laboratory, whose work certainly lay within the framework of the Agency's activities, should be provided for.

30. Since its establishment, the Agency had been fortunate enough to have, at the various levels of the Secretariat, a competent and loyal staff which in a very short time had established a sound reputation for efficiency. France had supported the candidature of Mr. Eklund for the post of Director General in 1961, and in 1965 had approved the renewal of his term of office. The French Government was satisfied with his management of the Agency and thought that the efficacy of his work would further increase if, without neglecting the important aspect of contact with Member States, he could devote more time to his essential role at the head of the Secretariat. It was through the quality of its staff and the support now given to it by all Member States that the Agency would succeed in playing an ever-increasing part in the development of atomic energy at international level.

31. Mr. ASAKAI (Japan) said he would avail himself of the opportunity to extend a warm welcome to the delegates of Jamaica, Jordan and Panama, which had recently been admitted to membership of the Agency.

32. At that significant juncture in the Agency's history, it was a matter for gratification to note the steady progress that had been made, both in building up its membership and in the parallel steadfast development of activities. At the time of the Agency's creation, great hopes had been placed in the future role of atomic energy for economic development. After the initial period of enthusiasm, however, the Agency had been faced with various

difficulties of technical and economic nature which had necessitated the careful selection of activities and the adoption of programmes of a somewhat unambitious nature.

33. It was true that the Agency had assisted developing countries in the preliminary evaluation of nuclear energy requirements, the construction and safety evaluation of reactors, pre-investment studies, evaluation of tenders for nuclear stations, and other important matters. Its activities in power production, however, had been affected by the slow-down in nuclear development caused by the difficulty of achieving economic nuclear generation of power. Consequently more emphasis had been placed on the various uses of radioisotopes and on related technical assistance and training. The utilization of radioisotopes in fertilization, mutation breeding and disinfection had contributed to the solution of the food problem, and the diagnostic applications of radiation sources had served to improve health. The Agency had done significant work, too, in formulating safety standards for radiation protection and preparing technical manuals.

34. There had also been steady development in the Agency's activities to ensure that atomic energy was used for peaceful purposes only. Despite the limitation of the Agency's authority and functions, the safeguards system had been steadily reinforced by the adoption of the revised safeguards document⁴⁾ at the previous General Conference and the provisional approval in June 1966 of special procedures for application to reprocessing plants. Agency safeguards as at 30 June 1966 were being applied to 54 reactors in 23 countries - an indication that its role in the sphere had been more widely recognized.

35. The steady but somewhat unspectacular work of the past nine years offered a ray of hope for the future. In that connection, he would express his country's concern about the way in which the Agency was formulating its programme. There had been talk recently regarding the need for keeping the Agency's budget under strict control. Certainly it was essential to keep the budget to the necessary minimum but that did not mean that the Agency should be discouraged from embarking on important and useful programmes for the future. The use of atomic energy was developing fast and the Agency could have no promising future if the courage to initiate effective projects was lacking. It was a matter for regret that some of the advanced countries had not as yet contributed towards the Agency's technical assistance activities in the last fiscal year. Technical assistance was one of the Agency's major functions and he would strongly urge the Member States concerned to make voluntary contributions to the

General Fund in amounts that were at least the same percentages of the target as were their assessed contributions to the Regular Budget.

36. His Government had from the outset actively co-operated with the Agency. In 1959 it had set the precedent for utilizing the Agency as a "clearing-house" for the supply of nuclear materials; in 1963 it had been the first to transfer to the Agency the administration of safeguards in relation to its bilateral agreement with the United States, and in June 1966 had made a similar transfer in respect of its agreement with Canada. At present, ten reactors and seven critical assemblies in Japan were subject to Agency safeguards. Those actions demonstrated the trust placed by his Government in the Agency, as well as the earnest hope of the Japanese people that safeguarded world-wide disarmament would thereby be brought nearer to the realm of feasibility.

37. Commenting briefly on recent developments in Japan, he said that the announcement at the Third International Conference on the Peaceful Uses of Atomic Energy⁵⁾ that nuclear power had developed to the stage of economic feasibility had encouraged his country, together with many others, to revise its long-term programme, with a view to introducing private ownership of special nuclear materials and to developing power reactors suited to future demands. The prospect now was that the generation of nuclear power in Japan would reach a capacity of 1500 MW(e) by 1970 and more than 12 000 MW(e) by 1980.

38. Needless to say, the Agency should play a more active part in the current stage of full-scale development of atomic energy, and to that end its two main functions of promoting peaceful uses and ensuring that atomic energy would be used for peaceful purposes only should be strengthened. It was noteworthy that in the United Nations Disarmament Commission and elsewhere the use of Agency safeguards had been advocated with a view to preventing the proliferation of nuclear weapons. With the increasing possibility that more countries would eventually acquire nuclear weapons, it would become appropriate for the Agency to study what role it could play with regard to the non-proliferation of nuclear weapons. In that connection, the statement made by the delegate of Norway⁶⁾ was highly interesting and deserved serious consideration.

39. In the course of the appeal it had made to Member States at the last session of the Conference, to co-operate with the Agency to ensure universal application of its safeguards, the Japanese delegation had suggested that the safeguards system should

4) INFCIRC/66.

5) Held at Geneva from 31 August to 9 September 1964.

6) GC(X)/OR.104, paras. 88 and 89.

be extended to cover reprocessing plants⁷⁾. It was gratifying that that suggestion had been followed up. The procedures established for that purpose together with those for reactors, should be reviewed in future in the light of actual experience and, to provide the basis for that experience, it was to be hoped that other countries would follow the United States example by also placing reprocessing plants under Agency safeguards.

40. A second suggestion made at the same time, that a system for registering the international transfer of all nuclear materials be instituted⁸⁾, had evoked favourable reactions; his Government fully believed that such a system would contribute - at the very least - to preventing the proliferation of nuclear weapons.

41. The rapid developments in recent years in regard to nuclear energy had brought problems in their train, and it was to be hoped the Agency would make greater efforts to help countries in that sphere by facilitating the exchange of information, convening panels and so on. Further work would be needed too on radioactivity in the sea, a problem that would take on added importance with the greater use of nuclear energy, and it was desirable that the Agency should serve as a clearing-house in solving that problem.

42. The future growth in the use of nuclear power raised the serious problem of securing nuclear fuels in sufficient quantities. The Agency should expand the study of world uranium and thorium resources which it was conducting in co-operation with the European Nuclear Energy Agency. While at present there was an over-production of plutonium as a result of the increase in nuclear power generation, the development of fast-breeder reactors would also increase the future demand for plutonium; such a situation would cause, at least temporarily, a dislocation in supply and demand in the case of plutonium, and it was therefore desirable that the Agency should look into the matter of the future supply of, and demand for, that element as well.

43. His Government would continue to co-operate to the greatest possible extent with the Agency in its work for the further betterment of mankind.

44. Mr. USMANI (Pakistan) said that since embarking upon its nuclear energy programme in 1960, Pakistan had established a broad base of some 500 scientists and engineers, and set up a number of laboratories in different parts of the country.

45. Pakistan's first research reactor had gone critical in December 1965 and had been operating at full power since June of the current year. An agricultural research centre had been established and two more were in the planning stage. Almost all the major teaching hospitals had radioisotope centres for diagnosis and treatment, and further centres were under construction.

46. The results of the country's modest programme had been encouraging. Pakistan scientists had been sent as visiting professors to universities abroad, had published research papers in journals of international repute, and had obtained a number of research contracts. Above all, the country's atomic energy programme had stimulated scientific activity and awareness in Pakistan.

47. In certain fields, such as the disinfestation of stored food grains and the sterilization of medical supplies, Pakistan planned to begin pilot-scale operation, with subsequent transition to commercial operation.

48. Pakistan's first power reactor (a heavy-water reactor of 137-MW capacity) would be in operation by 1970, and a 140-MW nuclear power station would go into service a year or two later. The country's long-term nuclear power generation plan would be ready within a year, and would include a study of the potentialities of nuclear reactors for power generation and desalination in West Pakistan.

49. Many other developing countries could achieve what Pakistan had achieved in the past six years, and the country's facilities were open to all who wished to collaborate in promoting the peaceful uses of atomic energy.

50. He thanked the Agency and several of the Member States for the assistance they had provided. He hoped that their support would continue and increase, so that one day Pakistan would be able to repay its debt of gratitude.

51. Turning to the Agency's activities, he considered that there was a lack of balance in the geographical distribution of the Agency's staff. The developing countries were now able to provide qualified persons, for whom more key Professional posts should be reserved during the next decade, in order to ensure that the staff was more representative of the Agency's membership.

52. A greater proportion of Agency seminars and symposia should be held in developing countries. Similarly, the work of the Laboratory at Seibersdorf and other Agency research establishments should be examined with a view to moving them to parts of the world where they would be of more benefit to the developing countries.

7) GC(IX)/OR. 94, para. 11.

8) *Ibid.*, para. 10.

53. The International Centre for Theoretical Physics in Trieste, which could not have come into existence without the support of the developing countries, should also extend its activities to other parts of the world whenever host countries could be found. In addition, the Centre should be placed on a permanent footing with more generous financial support from the Agency.

54. In the field of nuclear power, a survey by the Agency of the small- and medium-power reactor requirements of developing countries would stimulate the development of such reactors for sale. The Agency could also perform a useful role by arranging with producing countries for the supply of fuel for such reactors at subsidized prices and by obtaining financial support for projects approved by the Agency from the International Bank for Reconstruction and Development and similar organizations. Such actions by the Agency would induce countries to turn to it for assistance and thereby ensure that its safeguards were widely applied.

55. The Agency had been ineffective in preventing the spread of nuclear weapons: the number of countries possessing such weapons had increased, while some of the major Powers had by-passed the Agency and made available nuclear "know-how", materials and equipment without suitable safeguards. The result was that countries could now be divided into four categories: the "Nuclear Club", highly industrialized countries that had established their own nuclear facilities, countries that had received nuclear "know-how", materials and equipment under bilateral agreements, and countries that were likely to acquire such "know-how" within the next ten years.

56. If the countries belonging to the second category did not subject their nuclear facilities to Agency safeguards, why should less-developed countries be expected to do so? Why should, for example, the members of the European Atomic Energy Community (EURATOM) advocate the Agency's safeguards for others while claiming that the EURATOM system of safeguards was adequate for themselves? Such double standards should be eliminated.

57. Countries falling into the third category should be induced by moral and economic pressures to subject their nuclear facilities to Agency safeguards. If such an approach were unsuccessful, regional arrangements on the lines of EURATOM should be set up to enable the inspection of one country's facilities by another. Pakistan would adhere to any international or regional safeguards system provided that there was no discrimination in its application.

58. The Agency could assist countries belonging to the fourth category by drafting a standard bi-

lateral agreement which all supplying and receiving countries would be expected to follow as far as possible.

59. One way in which the Agency could help in reducing international tension would be to invite those Member States which did not belong to the "Nuclear Club" to sign an undertaking not to use nuclear energy for military purposes, thereby demonstrating their good faith.

60. Mr. FRANGELLA (Uruguay), recalling that it was the fourth time he was representing his country at the General Conference, affirmed that the Agency, by the generous exchange of knowledge it made possible, without political or racial discrimination, and also by the assistance it provided to developing countries, constituted one of the supreme achievements in the history of mankind. The immense benefits resulting from the judicious and equitable manner in which the Director General and the Board of Governors had performed their task had enabled developing countries to make rapid advances in the use of atomic energy.

61. As in former years, he would give a brief account, first of the benefits received by his country during the past year, then of the work done:

(a) During the last session of the General Conference, held in Tokyo, a trilateral agreement had been signed by the Agency, the United States Atomic Energy Commission and Uruguay for the supply of fuel for a research reactor;

(b) Early in the present year, two Agency experts had come to Montevideo to provide information on safeguards;

(c) In March, a mission sent to Chile and Peru had been invited by his country's Atomic Energy Commission to give lectures in Montevideo;

(d) Three fellowships had been awarded: one for training in electronics and nuclear science in France; one for histophysiological research in Italy; and one in theoretical physics (quantum mechanics) in the International Centre in Trieste;

(e) A young Uruguayan expert was attending a course in radiotherapy physics in London and another was attending a regional course in radioisotope application in Bogotá;

(f) Two experts had been provided, one of whom specialized in uranium prospecting and the other in the use of radioisotopes in medicine;

(g) Under the technical assistance programme, a project on the use of radioisotopes in hydrology would soon be started by the Engineering Faculty and under a research contract between the Agency and the Faculty of Medicine in Montevideo work was being done in the Nuclear Centre on the use of radioisotopes in the study of hydatidosis;

(h) For the year 1966 assistance had been requested for the following four projects: the establishment of a radiochemistry laboratory; the radiosterilization of meat and meat products, fish, eggs, fowl, etc.; the eradication of apthous fever in Uruguay by means of radioactivity; and the absorption of ^{32}P -labelled phosphoric acid and its alkaline salts by sugar cane and the use of radioisotopes in agriculture;

(i) Turbanite and carnotite samples had been requested, and provided, for use in research.

62. The main work done during the year included the following:

(a) Technicians from the National Administration of Fuels, Alcohol and Cement had continued to prospect for thorium ore in black sand on a beach on the Atlantic coast, which also contained titanium;

(b) Prospecting for uranium had started, with an Agency expert, and 7000 kilometres of road, together with the adjoining strips of ground, had been covered, using car-borne recording instruments; according to the expert's report, the result was encouraging. By agreement between the French and Uruguayan Atomic Energy Commissions, three French experts had spent three months organizing, with Uruguayan experts, field teams for scintillometric prospecting, geochemical analysis, and surveying with a staff of 22 technicians. He paid tribute to the generous co-operation accorded in that connection by the Argentine Atomic Energy Commission and the goodwill shown by the Brazilian Atomic Energy Commission;

(c) A nuclear energy centre had been set up in the Faculty of Medicine in the Maciel Hospital in Montevideo for radioisotope research and treatment. Thus Uruguay had two State nuclear medicine centres and one private one;

(d) The Society for Nuclear Biology and Medicine had been set up; almost all the

Uruguayan experts working with radioisotopes in biology and medicine were members;

(e) The Institute of Oncology of the Ministry of Public Health, which had had an 18-MeV betatron for the past three years, had begun to make known the results obtained. It was also planned to purchase a 40-MeV betatron, which could penetrate to malignant tumours at any depth;

(f) A 100-kW research reactor had been obtained, which was similar to that in Bogotá; since there was no power reactor, it would have to be used to train experts as well as for research and the preparation of short-lived radioisotopes;

(g) The State National Council was considering the purchase of a cobalt-60 plant for the preservation of potatoes, onions and carrots;

(h) Finally, Uruguay had signed a bilateral agreement for co-operation with Israel and agreements with other countries were being considered. Participants had been sent to the study group on research reactors in Caracas and the Pan-American meeting of the Inter-American Nuclear Energy Commission.

63. Having thus summarized the work done during the past year, he expressed gratitude on behalf of his Government and the Uruguayan Atomic Energy Commission for the co-operation they had received and assured the Conference that the commitments they had entered into would be carried out and that his country would be pleased to co-operate with other Member States.

64. Mr. SARABHAI (India) considered it a great privilege to lead his country's delegation for the first time to the Agency's General Conference. It had been deeply touched by the many messages of sympathy received on the occasion of the tragic death of his predecessor, Dr. Homi Bhabha, who had contributed so much to the Agency's work and whose loss had been keenly felt by India and the entire scientific world. He was particularly grateful for the tribute paid to Dr. Bhabha by the Representative of the Secretary-General of the United Nations. He was glad the Agency's revised safeguards system had taken into account the interests of developing countries, whose cause had been championed by Dr. Bhabha.

65. He welcomed the new Members of the Agency and said his delegation looked forward to co-operating with them in promoting its work.

66. He congratulated the Agency on the successful

way it had performed its task in spite of the difficult political issues involved. The dissemination of scientific knowledge was extremely important since it could help to close the gap in economic and social development between the developing countries and those more advanced, provided all Member States devoted themselves unselfishly to the cause of peace.

67. He welcomed the special financial contributions made by several States, since he considered that the Agency's activities should be largely financed from voluntary contributions. India had once again offered a voluntary contribution of \$35 000; because of its difficult foreign currency situation that contribution must, unfortunately, be made in local currency, but it could be used to supply services and equipment produced in India. Since the increased voluntary contributions which countries could afford would, however, hardly enable the Agency to meet the growing needs, it was necessary to establish priorities, examine the cost effectiveness of activities and reduce administrative costs. The establishment of regional offices, for example, was likely to increase administrative costs rather than promote scientific work. The Agency should therefore concentrate on the following four major long-term activities: the dissemination of knowledge through scientific meetings and seminars; the provision of fellowships, particularly to nationals of developing countries to enable them to be trained outside their own countries; provision of support on a non-continuing basis to promote international co-operation; and the administration of safeguards, on request, in relation to bilateral and multilateral agreements.

68. He agreed with the comments made regarding the inadequate number of appropriate posts allocated to nationals of countries in Asia, Africa and Latin America.

69. He stressed the importance of making increasing use of experts and facilities provided by developing countries for training purposes, since such experts had wide experience in improvisation in overcoming difficulties, and trainees were more likely to return to their home countries and would be better equipped to continue their work than those trained in the more advanced countries. That had been amply demonstrated by the joint neutron-spectrometer project in which India had collaborated with the Philippines.

70. The construction of India's first atomic power station with a capacity of 400 MW(e) at Tarapur had passed the half-way stage and the station was expected to be fully operating by October 1968. It would operate in inter-connection with two power grids having both conventional thermal and hydro capacity. An environmental survey laboratory had been operating for the last two years, and meteorological studies were also being carried out. At a

later stage India would be happy to offer full training facilities for scientists and engineers at Tarapur.

71. The Radiation Medicine Centre at Trombay was engaged in the diagnosis and therapy of various human diseases and would provide advanced training in nuclear medicine to people from Asian countries.

72. The Board's decision to extend safeguards to reprocessing plants had been unduly hasty and had not allowed Member States sufficient time to study the matter in detail. It should be borne in mind in that connection that it was not the plants or equipment but the nuclear material contained therein which would be placed under safeguards, provided it was subject to safeguards under the revised system; furthermore, the Agency should seek technical advice since very little experience was available. He suggested that the Agency should also consider in the near future the application of safeguards to isotope-separation plants used to produce uranium-235.

73. Considerations of national security and political prestige tended to impede the wide acceptance of the Agency's safeguards system, and the prospect of reaching agreement on the non-proliferation of nuclear weapons would be seriously reduced if the Agency's safeguards system was used for political ends. The non-proliferation of nuclear weapons could best be achieved by an extension of the Moscow test ban treaty and by agreement by the Eighteen-Nation Committee on Disarmament in Geneva on the lines of the resolution of the General Assembly of the United Nations which emphasized the need for an acceptable balance of mutual responsibilities and obligations on the part of the nuclear and non-nuclear Powers. In that connection he thought the proposal to establish a nuclear-free zone in Latin America merited the Agency's support. India had established, in co-operation with the United Kingdom, a seismic detection station and the data obtained were freely available to all countries.

74. One of the most important uses of atomic energy, from the point of view of developing countries, was in food production and preservation. New strains of rice and ground-nuts had been developed in India which appeared likely to increase crop-yields, and the experience gained was available to any country interested. In co-operation with Canada, a facility was also being set up at Trombay to carry out extensive tests in food preservation, which should be of great interest to developing countries.

75. In conclusion, he pledged his country's whole-hearted support for the aims and objectives of the Agency.

76. Mr. HESSABI (Iran) remarked that the current session, being the tenth, was a memorable landmark in the Agency's history and gave occasion for an assessment of the work done in early years. His delegation wished to express appreciation of the activities carried out by the Agency in that period.

77. One point to which attention should be drawn was that the Board of Governors was no longer truly representative of the Agency's membership, which had greatly expanded since 1957; the distribution of seats among the developed and the developing countries was inequitable. The same was true of the administrative and executive staff, in which many of the geographical areas were not adequately represented.

78. The Agency's major function under the Statute was to work for the development of the peaceful uses of atomic energy, and one of the main objects of its creation had been to provide assistance in that sphere to the developing countries. The situation in that regard was now such as to make the smaller countries feel that their main purpose in joining the Agency had not received adequate attention; the Director General in his statement at the 101st meeting had made the position plain.

79. The usefulness for mankind in general of the Agency's scientific research work was of course recognized; but the same work was being done on a much larger scale by well-equipped national laboratories - which would, he was sure, be willing to undertake research on any specific problem the Agency cared to refer to them - so that the Agency's purpose would be better served if it acted as a clearing-house for the exchange of information on the results of the national research that was being done.

80. The symposia and scientific panels which were being convened by the Agency in increasing number were of benefit mostly to the advanced countries that were engaged in research on the subjects studied. Meetings on practical subjects, of which they had inadequate knowledge, would be of greater benefit and more immediate interest to the majority of Member States.

81. The inescapable conclusion was that the distribution of funds among the various activities should be revised, to give more adequate emphasis to sectors from which the majority of Member States might benefit. Such sectors included: water desalination and hydrology, food preservation, soil fertility, insect eradication, pesticide residues, plant breeding and genetics, animal production, nuclear medicine, health and safety and waste management, together with the preparation and dissemination of information, the standardization programme, and

the programme for education and training in nuclear science and technology. The Agency should also give a fillip to research work in the developing countries, by providing more guidance and material assistance for that purpose.

82. It would be appropriate at that juncture for the Conference to make an appraisal of the results obtained over the first years of the Agency's existence; an assessment of that kind would help in determining future goals and plans and better ways of achieving the desired aims. His delegation, after consultation with the other Afro-Asian Members, was submitting a joint draft resolution to that end in the Programme, Technical and Budget Committee⁹⁾.

83. The need for more equitable representation of the developing countries in the Agency's administration had already been brought to the Director General's attention and certain groups of Member States had the matter under consideration with a view to having appropriate steps taken.

84. All Member States, in endeavouring to increase their potential for harnessing atomic energy for the greater welfare of their peoples, were seeking assistance from the Agency, in greater or smaller measure according to the level of technical development obtaining. Apart from financial aid, guidance in the preparation and execution of programmes would in many instances be most helpful.

85. During the past year, work on various aspects of atomic energy had been actively pursued in Iran. The 5-MW research reactor under construction was due to be completed in 1967. A number of courses on radioisotope applications had been organized - the 150 trainees taking part were now employed in various organizations - and post-graduate courses in nuclear science were available. The electronics laboratory had designed and built radiation measuring equipment; and a film-badge service to cover the whole country had been established, as well as a documentation centre.

86. Radioactive sources for medical applications had been installed in various hospitals throughout the country; cancer research was being conducted in Teheran, where a radiodiagnostic centre had also been established. In addition, research had been started on agricultural problems and in hydrology. In the latter connection, Iran would welcome more speedy and effective technical assistance from the Agency for drawing up and executing appropriate projects, using radiation techniques.

87. In conclusion, he expressed his country's best wishes for the greater success of the Agency in the future.

9) GC(X)/COM.1/101/Rev.1.