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RECORD OF THE ONE HUNDRED AND FIFTY-FOURTH PLENARY MEETING

Held in the conference centre of the Secretariat of External Relations,
Mexico City, on Thursday, 28 September 1972, at 10.40 a.m.President: Mr. FLORES DE LA PEÑA (Mexico)
later: Mr. BERLIS (Canada)

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** GC(XVI)/490.

THE RECORD

GENERAL DEBATE AND REPORT FOR 1971-72
(GC(XVI)/480, 480/Corr.1 and 3, 488) (continued)

1. Mr. GIRAUD (France) expressed his satisfaction that the General Conference should be holding its sixteenth regular session in Mexico, and echoed previous delegates' gratitude to the Mexican Government for its hospitality in extending the invitation.

2. Before proceeding to a review of various aspects of the Agency's work during the past year, he wished to pay tribute to the memory of the late Dr. Nabor Carrillo Flores, whose scientific achievements in nuclear matters in Mexico, particularly in water desalination, were well known, and to that of Dr. Vikram Sarabhai, whose scientific brilliance and high personal qualities in presiding over an earlier session of the Conference had stood the Agency in such good stead.

3. In the French delegation's view, technical assistance continued to represent a vital Agency activity, and additional emphasis on projects aimed at yielding immediate advantages to the receiving countries was desirable. Hence more attention should be paid to expert missions on radioisotope applications, market surveys and so on, rather than to long-term basic research projects.

4. That was the light in which his delegation viewed the market survey at present under way in a number of countries aimed at the construction of small- and medium-power reactors, a policy which seemed to be most promising.

5. In 1972 France was assisting the Agency by making high-grade experts available for important missions and by welcoming 80 Agency fellows at French nuclear centres. His delegation was likewise happy to announce an increase in the French voluntary contribution, subject to the normal parliamentary ratification procedure.

6. At a time when problems of the environment were so much in the limelight, it was his belief that the Agency had an important part to play both in establishing safety standards and as a scientific referee in the eyes of an anxious public.

7. The past year had also witnessed the launching of the International Nuclear Information System (INIS), which had been prepared by experts from Member States and which had enjoyed the full support of France since its inception. His Government likewise intended to lend its support to the international project for irradiation of foodstuffs in progress at Karlsruhe, in the firm belief that the project would yield substantial and immediate benefits to the developing countries.

8. The increase in membership of the Agency justified the expansion of the Board of Governors

embodied in the amendment to Article VI, A-D of the Statute approved in 1970, [1] and it was to be regretted that slow acceptance by Member States professedly in favour of the amendment was delaying its entry into force.

9. His Government had never been opposed to the Agency's statutory responsibility regarding implementation of the system of safeguards, a responsibility which had now become even more onerous with the entry into force of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) [2]. However, it was vital that the Agency's other activities - notably technical assistance in all its forms - should not suffer as a result, and that there should be no discrimination as regards the award of fellowships or participation in scientific meetings against States which had submitted fewer of their nuclear facilities to the Agency's control than had others.

10. The remarks he had just made implied no lack of confidence in the Agency's safeguards system, and France had indeed recently arranged to entrust to the Agency the application of the safeguards envisaged under a bilateral agreement between his Government and Japan on the peaceful uses of atomic energy. The relevant safeguards agreement with the Agency [3] had been approved by the Board of Governors on 21 June 1972 and had come into force on 22 September following its signature, in Mexico City, by the three parties thereto.

11. His delegation was also gratified at the outcome of the recently completed negotiations between the European Atomic Energy Community (EURATOM) and the Agency. The agreement was between the two international organizations with control responsibilities and the States which, under NPT, had undertaken to submit nuclear materials on their territories to control. As was right and proper the agreement implied, on the part of the international organizations party thereto, no political liability with regard to the provisions of NPT itself, but only an obligation to apply the controls established under the Agency's Statute and the EURATOM Treaty.

12. He proposed to conclude his remarks by giving a brief description of France's role in the field of international nuclear collaboration. Whether in respect of natural uranium, enriched uranium or fuel reprocessing, France was prepared to conclude multinational arrangements which would ensure industrial and economic progress. With regard to enrichment, no industrialized country which as yet had no civil production capacity was in a position to construct - on an economically viable basis - a facility adequate to meet its own requirements. A solution at international level was therefore urgently required. The very urgency of the matter -

[1] By General Conference
Resolution GC(XIV)/RES/272, para. 1.

[2] Reproduced in document INFCIRC/140.

[3] Reproduced in document INFCIRC/171.

disregarding the outcome of current research on other processes - would seem to indicate that the fully-proven gaseous diffusion process was the only one which could be employed in the new plants to be constructed. For that reason the French Government had proposed to a number of industrial undertakings that joint studies should be started with a view to solving the technical and economic problems involved in construction of gaseous diffusion plants in various parts of the world. Joint studies had been begun with Australia and with Japan, while in Europe EURODIF, an association of industrialists of six countries soon to be joined by those of two others, had been set up.

13. For irradiated fuel reprocessing, the company "United Reprocessors" had been established by German, British and French industrial concerns, and was also open to extended membership.

14. As an example of a multinational industrial project which had reached completion, mention should be made of the Franco-Spanish Nuclear Power Station at Vandelos in Catalonia, which had started up in 1972. In the field of fast reactors of advanced type, while France was itself completing construction of the 250-MW(e) prototype reactor Phénix, due to go into operation in 1973, it had already laid the foundations for an association of German, Italian and French electricity producers for the construction of a first operational station of 1200-MW(e) capacity.

15. France's effort at international collaboration extended likewise into the field of basic research, two excellent examples of which were the Franco-Soviet bubble chamber project at the Serpukhov accelerator - a model of bilateral collaboration - and the Max von Laue-Langevin Institute operating the high-flux reactor at Grenoble as a joint Franco-German undertaking, with which the United Kingdom was shortly to become associated.

16. While it was true that the Agency had played no direct part in those multilateral activities, it had nevertheless created the atmosphere which had rendered them possible, and much of the credit for that gratifying fact was due to the efforts of the Director General.

● Mr. Berlis (Canada) took the Chair.

17. Mr. AFSHAR (Iran) congratulated the President on his election to that very high office, and expressed the conviction that under his wise guidance the Conference's current session would be a very successful one.

18. On behalf of his delegation he sincerely thanked the Government of Mexico for its kind invitation, which had made it possible for the participants to gather there in that beautiful city and enjoy the hospitality of the Government and the people of that great country, steeped in history and tradition.

19. The Iranian Government considered the Agency to be a model of international co-operation,

with which it was proud to be associated, and pledged its continued support to the Agency's activities, which should serve to upgrade the quality of life throughout the world.

20. Though blessed with an abundance of oil, Iran still recognized the need for alternative sources of energy in the future as well as the important role of nuclear science in agriculture, medicine and many other areas.

21. The first step towards utilization of nuclear energy in Iran had been taken in 1959 with the establishment of the Teheran University Nuclear Centre, and a number of other organizations had also been established in that field. Although pure research was carried out at the Centre, priority was given to research projects having direct application to problems of national interest.

22. In addition to general courses on nuclear energy at both graduate and undergraduate levels, special courses were offered to familiarize participants from various national organizations with the use of radioisotopes in science and industry.

23. Radioisotopes needed for the treatment and diagnosis of disease had still to be imported but the Teheran University Nuclear Centre, with a great deal of invaluable assistance from the Agency, had initiated a large-scale programme for the production of radioisotopes which should soon cover all domestic requirements.

24. The engineering group of the Centre had guided other national organizations in the application of radioisotopes, whilst another division was responsible for radiological safety throughout the country.

25. In the field of electricity generation the Ministry of Water and Power had initiated a nuclear power plant feasibility study in co-operation with the Nuclear Centre's engineering group, and the Centre had presented a paper on the subject at the Fourth International Conference on the Peaceful Uses of Atomic Energy held in Geneva in 1971 (the Fourth Geneva Conference).

26. A very preliminary study had shown that a 500-MW nuclear power plant would be desirable in about 1980 and the Centre was planning the advance training of the necessary personnel.

27. One of the most important activities of the Agency had been the establishment of INIS, which had promoted the world-wide dissemination of nuclear information to scientists and experts concerned with the peaceful applications of nuclear energy.

28. The Fourth Geneva Conference had emphasized the significant role of nuclear science and technology in electricity generation, agriculture and industry and confirmed the vital need for an organization such as the Agency to enable all countries to enjoy the benefits.

29. In regard to the question of NPT, he said that that Treaty was an enormous step towards peace and security in the world. Iran had welcomed and lent its full support to NPT, and a safeguards agreement between Iran and the Agency in connection with NPT was now under negotiation.

30. However, the heavy responsibilities of the Agency regarding NPT should not be allowed to impede its other peaceful activities, which had been extremely valuable to Member States.

31. With reference to the amendment of Article VI, A-D of the Agency's Statute, he declared that Iran supported the proposal that membership of the Board of Governors be increased and had accordingly accepted that amendment. He urged those Member States which had not already done so to accept that amendment without delay.

32. In conclusion, he applauded the constructive work of the Agency over the past year and expressed his country's gratitude for the technical assistance given to Iran.

33. Mr. LEE (Republic of Korea) wished to join the delegates of France and Iran in congratulating the President on his election. Giving a brief outline of the main nuclear projects being implemented in Korea, he said that the construction of the first unit of the nuclear power plant was proceeding according to plan. The power reactor to be installed was of the pressurized-water type with a gross generating capacity of 595 MW(e). The 2-MW TRIGA Mark III research reactor, the construction of which had begun in 1969 and been completed in May, was now in normal operation. It was noteworthy that the technical skill and experience of the Korean scientists and engineers had played a key role in its installation.

34. In view of the increasingly active implementation of the programmes and projects involving the use of atomic energy in the Member States, the time had come to carry out a complete review and re-define the Agency's overall operational programmes within a wider scope. Its assistance programmes should be so oriented in the future as to take more effective account of the immediate requirements of the countries receiving assistance. Although the assistance provided by the Agency had undoubtedly brought considerable benefit to the developing Member States, the pattern of development-oriented programming had remained essentially the same since 1957. The Agency had hitherto concentrated its technical assistance efforts on training fellows, providing services of experts to developing countries, awarding research contracts and so on. That did not sufficiently reflect the current needs of the Member States, for assistance of that kind could not be made available readily for the important projects. It was therefore imperative that the technical assistance policy should allow for greater diversification.

35. In that connection, he suggested, first, that the Agency consider entering into consultations

with the world's leading manufacturers with a view to facilitating the work of standardizing the power reactor. Despite the obvious difficulties associated with the problem, such work was bound to make a positive contribution to the acquisition of technology and to the rapid development of the nuclear industry in the developing countries.

36. Secondly, the training programme should lay emphasis not so much on developing individual capacity as on imparting skills that would be of immediate use for a specific project or programme of the countries concerned. It could thus play a more significant, though indirect, role in developing and improving the various sectors of industry in the Member States. Furthermore, the main fields of training for many years had been the uses of radioisotopes and radiation, whereas the most urgent practical problems facing the developing countries related to the training of personnel to be employed in the construction, operation and management of nuclear power plants. Such training could be imparted most effectively in a permanent special training centre, which could be established at the regional level under the Agency's auspices.

37. He expressed the hope that his suggestions would meet with the approval of most Member States, which were similarly situated as regards technology and economic conditions, including the advanced ones.

38. In conclusion, he wished to assure the Agency of his Government's continued support for its future activities in the peaceful uses of atomic energy for the common good of mankind.

39. Mr. ERRERA (Belgium) likewise congratulated the President on his election. The acclaim with which that had been received indicated the esteem in which he was held and was a merited tribute to the delegate of the country which had offered its hospitality to the Conference.

40. Tlatelolco was a magnificent setting for the Conference, in that formerly it had been witness to the famous pre-Columbian civilization dedicated to the cult of the Sun, the first source of energy and life, whilst now it beheld the gathering of the adherents of a new source of energy - the atom.

41. The past year had been of great significance for Belgium, just as for the other non-nuclear-weapon States of EURATOM and for EURATOM itself, since it had marked the positive outcome of the negotiations leading to the safeguards agreement, of which the Board of Governors had recently taken cognizance. That would permit Belgium to fulfil its obligations under NPT without infringing the foundations of EURATOM, one of the spearheads towards a United Europe.

42. He congratulated all those concerned for the spirit of purpose and mutual understanding displayed throughout the arduous negotiating sessions.

43. Once that agreement had been signed, the procedures leading to parliamentary approval of NPT and the complementary safeguards agreement could be instituted without delay.

44. Much work had already been done in Belgium by the Centre d'étude de l'énergie nucléaire (Nuclear Energy Research Centre) in collaboration with the Agency, EURATOM, the Kernforschungszentrum Karlsruhe (Karlsruhe Nuclear Research Centre) and EUROCHEMIC to establish safeguards procedures that were effective and as little burdensome as possible.

45. With regard to the Agency's programme for 1973-78 and budget for 1973 [4], his delegation welcomed the clear and careful presentation and the fact that henceforth the pattern would be to detail actual projects instead of merely listing general programmes. His delegation also applauded the Director General's intention to present cost estimates of individual programme components in future [5], which would facilitate the proper assignment of priorities.

46. The careful budgeting and sound administration on which the Agency's future programmes were based might serve as a model for other United Nations organizations, as had in fact been rightly noted by the Advisory Committee on Administrative and Budgetary Questions of the General Assembly of the United Nations.

47. In regard to the sub-programmes dealing with radiological safety and waste management, [6] he congratulated the Agency on the fact that its safety standards, based on recommendations of the International Commission on Radiological Protection, had won universal acceptance. The work done by the Agency in connection with the safe transport of radioactive materials and the radiological protection of workers, the general public and the environment was also highly appreciated by all countries.

48. He commended the Agency's system for emergency assistance in the event of radiation accidents and also welcomed the fact that machinery existed for the conclusion of agreements for the rendering of emergency assistance on a bilateral basis among adjacent countries.

49. As regards the sub-programme on waste management, the treatment and disposal of radioactive waste raised a matter of crucial importance. The Agency would have a significant role to play in the matter, especially in regard to the storage of high-activity waste at international sites, with the exclusion of the sea, when in the near future the amounts to be disposed of would increase considerably.

[4] GC(XVI)/485.

[5] Ibid., para. I. 6.

[6] GC(XVI)/485, paras V.10.7-V.10.55 and V.10.56-V.10.98 respectively.

50. As for thermal discharges from nuclear and other power stations, it was unfortunate that 60% of the energy was lost as heat. But there was no evidence to suggest that the heat thus lost constituted pollution, and the Agency's work in the field was of great interest because of the divergence of views. If the receiving medium was normal, there could not be any pollution, considering that the solar energy received by the earth was equivalent to the heat lost by a few hundred million of 1000-MW power plants. As regards the local effect, a joint group of engineers, biologists and chemists had been carrying out a study for 25 years in a 15-mile area on the River Columbia, where nine power reactors were now located, and had found no ecological damage attributable to the heat released into the river. Other groups working in other areas had confirmed the same. Furthermore, as the document in question rightly pointed out, that heat could be recycled and used for domestic heating, desalination of brackish water, cultivation of fruits and vegetables, etc.

51. The application of nuclear techniques for the management of non-nuclear pollutants of the environment and of fresh water in particular were of topical interest. It was hoped that the cost of such nuclear methods and their efficiency, as compared with those of other existing techniques, would be taken into consideration.

52. Where the decommissioning of nuclear facilities was concerned - part of the objective of waste management - the Agency could, and should, play an important part in the matter of the development and administration of the sites involved with a view to ensuring the quality of the environment. It was indeed the operators of the facilities responsible for the deterioration of the site who were best qualified to eliminate such deterioration and advise the authorities responsible for the development of the area and town-planning on the re-establishment of better living conditions.

53. He again recommended that the Agency's laboratories should confine themselves to carrying out work strictly in accordance with its statutory obligations, e.g. safeguards, and refrain from doing research for research's sake. If research was performed for others, the services thus rendered must be paid for in full by the party concerned.

54. In that connection, the Agency should ensure that the specialized agencies such as WHO, UNESCO, ILO, etc., for which it carried out some work, followed the example of FAO in bearing a larger part of the administrative and financial burden involved.

55. Lastly, he wished to assure the Agency of his country's constant interest in its activities, and said that any criticisms it made were constructive in nature. As in the past, the Belgian Government would make available six Type II fellowships, and would be pleased to provide a venue for the proposed symposium on

fuel and fuel elements for fast-breeder reactors to be held in 1973.

56. Mr. ISARANGKUN Na AYUTHAYA (Thailand), after congratulating the President on his election, pointed out that it was particularly appropriate that the generous invitation of the Mexican Government should have brought the General Conference to Tlatelolco, which had given its name to one of the most important treaties regulating the use of atomic energy [7].

57. Turning to the work of the Agency, he said his delegation noted with satisfaction that the Board and the Secretariat had been devoting their greatest endeavours to the Agency's safeguards. Thailand gave full support to the proposed establishment of the safeguards laboratory, and was certain that under the Agency's careful management it would not prove to be an excessive financial burden.

58. At the previous session his delegation had noted that the number of acceptances of the amendment to Article VI.A-D of the Statute was very small. He wished again to urge those Member States which had not yet done so to accept the amendment as soon as possible.

59. Thailand was grateful to the Agency for its customary assistance in promoting the peaceful use of atomic energy. Towards the end of 1972 his country would be participating in the Agency's nuclear power market survey. That venture had been made possible by major contributions from the Agency and from certain advanced countries.

60. He noted with satisfaction that the Agency had set the prevention of food waste as one of the priorities in its programme in the field of food and agriculture, and it was well known that nuclear techniques could be of great assistance in that respect. Everyone knew that rice was the staple diet of the majority of the world's population, and Thailand would be pleased to contribute material to be used for wholesomeness and insect disinfection studies.

61. His delegation also believed that it would be meaningful for the Agency to place increasing emphasis on its scientific programmes and research contracts, activities which certain other international organizations were showing signs of neglecting.

62. At present, there was a discernible trend in world affairs towards an easing of tension among the nations, and he hoped that, as a reflection of that phenomenon, all the greater attention would be focused on the peaceful use of atomic energy.

63. In conclusion, he congratulated the Director General and the Secretariat on the excellent organization of the session and on their skilful

preparation of the documentation before the Conference.

64. Mr. ABS (Holy See) said he first wished to congratulate the President of the General Conference on his election and to express his appreciation to the Government and people of Mexico for the cordial hospitality his delegation had been accorded in Mexico City.

65. The current session of the Conference was an opportunity for the Holy See to restate its position vis-a-vis the Agency, the place it occupied within that organization, and the contribution which it could make to the Agency and which was likely to be expected from it. The Agency had always been considered by his delegation as having two main purposes: peace and development. Such was the result of long efforts by the United Nations for universal supervision of the peaceful utilization of nuclear energy. Although the tasks of the Agency related only to the peaceful use of the atom, i.e. it had not been devised as an effective instrument to cope with the nuclear arms race, it had still been able to make fissionable material accessible to the developed Powers as well as to a great number of countries at all stages of industrial and technical development. That fact had proved extremely beneficial in causing world opinion to cease regarding nuclear energy as merely something destructive. It was now seen rather as a salutary force for building a better world. Thus, by turning fear into optimism the peaceful use of nuclear energy had diverted the mind of man from thoughts of war and strengthened the conviction that peace was possible.

66. At the Palais des Nations in Geneva, the hall in front of the Council Chamber bore an inscription which, quoting from the Old Testament, proclaimed the coming of an age when swords would be forged into ploughshares. Could there be any better description for the work of the Agency, which devoted all its efforts to the peaceful use of an otherwise devastating force? And should not its work be a model to the leaders of all States "to think thoughts of peace", and to strive in all possible ways to retain that precious good, which was the only sure foundation for the progress of mankind? It was true, however, that the history of the past 25 years had not been encouraging. The world had continued along the path of war despite the devastation of two recent world wars. Other conflicts might break out as a result of continuing East-West mistrust, and as the inevitable outcome of the economic gap between the northern and southern hemispheres, between wealthy countries and those of the Third World, which, in the competition for natural resources and economic power, had been at a disadvantage. The world faced the risk of possible nuclear annihilation and nuclear tests were still being carried out.

67. At the same time, over the past 25 years, many open conflicts had been averted through negotiation, mediation, summit meetings and treaties. Examples of that were NPT, the

[7] The Treaty for the Prohibition of Nuclear Weapons in Latin America, reproduced in the United Nations Treaty Series, Vol. 634, No. 9068.

selfless efforts of many people in the United Nations and the organizations connected with it, and the endeavours of the Agency and the international specialists who worked in it. Hence, it had to be stressed from the outset that the Holy See regarded the Agency as a means by which to achieve peace. Its presence in the Agency could consequently be seen in the light of the Holy Father's words to the Secretary-General of the United Nations, during a recent audience, to the effect that although the means involved were different, the efforts of both the United Nations and the Catholic Church converged towards the aim of peace.

68. Peace, however, was only the foundation of a future prosperous world. The corner-stone for that hoped-for prosperity was the progress of the developing countries. The duty of the Agency to increase and expedite the contribution of nuclear energy to world health and prosperity afforded a welcome opportunity to say a few words on the question of development.

69. Material progress alone was not a guarantee for the improvement of the contemporary world order. Because Christians had never failed to recognize the superiority of spiritual values over merely temporal ones, they regarded it a duty and considered it a right to stress the principle that a just and equitable distribution of wealth must be considered an essential condition for the foundation of a better world. Traditional concepts of the "natural" differences between rich and poor, between those nations enjoying power and wealth and those with a less fortunate share had in the past served only as a flimsy pretext for unwillingness to reapportion the means of production and resources among countries.

70. International aid to developing countries had to take into consideration the fact that any support that was not guided by well-balanced principles of technical effectiveness, economic viability and social equity could not make a lasting contribution to the task of development. Foreign investment and foreign enterprise which did not make allowance for the needs and requirements of indigenous populations could not hope to bridge the gap between rich and poor. Unfortunately, in many countries today the growth of the national wealth only benefited a small percentage of the population. Development that was not accompanied by equitable social distribution was not progress but exploitation. His delegation was convinced that the undertaking of the Agency to seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world was a direct contribution to improvement of the lot of many millions of human beings who lived on the margin of the modern economy and were prevented by many ills from fully realizing their potential.

71. Having restated the Holy See's position on the increasingly important problem of peace and development, he wished to express his satisfaction at the conclusion of the formalities between the Holy See and the Agency relating to the application

of safeguards in connection with NPT, to which the Holy See had acceded in February 1971. What was the significance of the participation of the Holy See both in NPT and in the recently signed agreement? When signing the safeguards agreement in June 1972, the Permanent Delegate of the Holy See to the Agency had pointed out that in subscribing to NPT, the Holy See had been motivated by a desire to contribute to the initiative which, by means of disarmament, aimed at promoting security, mutual trust and peaceful co-operation in relations between peoples. The Catholic Church wished to contribute to that cause, aware that it was rendering a service requested and inspired by the spiritual mission it was carrying out in the historical context of the world. The Holy See's adherence to NPT had unique significance - the significance of an assertion of a principle, a visible sign of encouragement and support for the purposes of disarmament and the reduction of international tension that had inspired the provisions of the Treaty.

72. His delegation was convinced that the Holy See could make a special contribution to the Agency, as indeed to all international organizations with which it co-operated - the shaping of the minds of millions of Catholics by inspiring in them respect and sympathy for the work of modern intergovernmental organizations, and readiness to co-operate with them for the benefit of peace and the development of peoples.

73. Mr. CATSAMBIS (Greece), expressing his delegation's conviction that the Conference would accomplish most productive work under the President's competent guidance, and also its delight at being invited to attend the Conference in such a magnificent setting, said that he wished to congratulate the Director General and Secretariat on the Agency's accomplishments during the past year and in particular on the successful work done in drawing up safeguards agreements in connection with NPT. In that connection he was pleased to recall that Greece had concluded a safeguards agreement with the Agency on 1 March 1972. [8]

74. The revision of the Code of Practice on the Safe Handling of Radioisotopes would certainly be of great value and would contribute to the harmonization of rules and regulations at international level.

75. It was unfortunate that international price increases and parity fluctuations had not permitted any overall expansion of the Agency's activities, while leading to a formal increase in the level of the budget. However, his delegation realized that the Agency was doing all within its power to effect a fair distribution of the funds available. It was to be hoped that the Agency would receive Member States' contributions earlier than usual, to enable it to carry out its technical assistance programme effectively. Greece had always endeavoured to meet promptly and in full its obligations as regards contributions.

[8] Reproduced in document INFCIRC/166.

76. As part of its policy of developing culture and science, the Greek Government had set up a council to advise on planning and promotional activities associated with science and technology, and to determine which programmes should be given priority in the light of the country's social, economic, scientific and technological requirements. At the Greek nuclear research centre, a computer facility had been established embodying the use of two computers. A programming and computer consulting service was also available. Courses and seminars were held to encourage the use of modern calculating equipment throughout the country.

77. The setting-up of a laboratory for an 11-MeV tandem Van de Graaff accelerator had also represented a decisive step in the development of scientific research and technology. Another accelerator unit of 3 MeV would be utilized for sterilization of products, preservation of foodstuffs, polymerization of monomers and other applications. Those additional facilities would enable scientists not only in Greece but also in neighbouring countries to pursue experiments which would be of great value in basic and applied research.

78. The production of radioisotopes in Greece had increased, not only covering domestic requirements but also permitting exports abroad. A radioisotope dispensing centre had been established for the supply, control and distribution of foreign and locally-produced radioactive isotopes to hospitals, industry, public institutions and organizations. A bone-bank had likewise been established to furnish hospitals with tissue for transplantations and bone grafting.

79. Activities in the technological field included non-destructive testing, radioactive tracing - especially in solving hydrogeological problems - and irradiation of industrial products.

80. A good deal of successful research had been recently completed in the effort to combat the olive fly (*Dacus oleae*). Important research was also being carried out in soil science, such as studies on soil permeability, nutrition of forest seedlings, and seasonal variations in soil nitrogen.

81. Greece was participating in the Joint FAO/IAEA Wheat Fertilization Programme, which aimed at providing an adequate diet to the expanding world population by increasing agricultural production.

82. The United Nations Development Programme (UNDP) project on prospecting for uranium in Central and Eastern Macedonia and Thrace had now entered its second year and interesting results were expected.

83. Education was one of the main activities of the Greek Atomic Energy Commission. A school of radioisotope techniques had been in operation for some years past, attended by scientists in various disciplines and also engineers. There

was likewise a school of advanced studies where students did laboratory work side by side with scientists and thereby gained valuable research experience.

84. Greece was considering the possibility of constructing a nuclear power station and to that end had requested the assistance of the Agency under its market survey project for nuclear plants. In that connection his delegation wished to thank the Agency for sending a team of experts to Greece in order to assist the authorities concerned in assessing the potential role of nuclear power and planning future Greek policy in that field.

85. In conclusion, he expressed gratitude on behalf of the Greek Atomic Energy Commission for the Agency's valuable assistance in providing fellowships, experts, equipment and advice. The scientific meetings organized by the Agency had enabled Greek scientists to contribute their share to the international pool of knowledge.

86. Mr. KHAN (Pakistan) said that the current session of the Conference had special significance because it was being held in a historic city with a rich heritage and a great future - the city, moreover, where the Treaty of Tlatelolco, banning the introduction of nuclear weapons into Latin America, had been signed. That Treaty was an example that could well be emulated in other regions of the world.

87. A new phase of world history was beginning; the old order was giving way to a fresh and vigorous order, and a new generation of men was appearing at the helm of affairs. They would have to face two paramount issues: security and progress. The Agency could make vital contributions in both spheres, and was well equipped to help in enhancing world peace and prosperity.

88. Significant developments affecting international security had taken place in the past year. The SALT agreements marked yet another important step in reducing the danger of a nuclear conflict. No doubt "vertical" proliferation, proliferation in sheer numbers of weapons, would thereby be checked, but the real purpose of the agreements would be defeated if the energies and resources thus released were channelled towards enhancing the destructive capacity of individual nuclear weapons and their delivery systems instead of being made available to satisfy the pressing economic needs of mankind.

89. Pakistan had noted with great satisfaction the further evolution of the Agency's safeguards system. It supported a flexible system which could be continually improved and simplified - without any sacrifice of reliability - in the light of the Agency's own experience and new technical advances. The Agency and the countries concerned deserved to be congratulated on the successful outcome of their negotiations concerning the application of safeguards in EURATOM countries.

90. But the Government of Pakistan was nevertheless gravely concerned by the prospect of a further proliferation of nuclear weapons. There were already five nuclear-weapon States which had special responsibilities for global security. If one more country tried to break into that group, the delicate balance so far maintained would be seriously upset. Indeed, the flood-gates would be opened, and many other nations would be encouraged to acquire nuclear weapons, thus aggravating the threat of accidental nuclear confrontation. In Pakistan's view, everything possible should be done to avert the dreadful consequences of further nuclear proliferation.

91. Pakistan had placed all its nuclear facilities under Agency safeguards. It believed strongly that all bilateral agreements, without exception, should be brought under the Agency's safeguards system to remove any potential threat to harmony and peace in any region.

92. After security, the second great challenge to world stability was the growing poverty of nations. The developing countries must be given a place in the sun and a stake in peace, not pushed to violence through sheer desperation. Nuclear technology, instead of widening the existing disparity between rich and poor nations, should be used to narrow it. The Agency could play an important part in improving and accelerating economic growth in the developing countries by imparting knowledge and providing assistance in the applications of nuclear energy and nuclear techniques for development.

93. It was a matter for regret that the substantive programme of the Agency, as reflected in the 1973 programme and budget, was not only not expanding but even decreasing by a small amount. That was a great anomaly in view of the world's growing needs. The Agency possessed the infrastructure, the competence and the sound administration required to plan and carry out a much larger programme for the benefit of its Members. The Government of Pakistan accordingly urged the advanced countries to lend greater support to the Agency, so that it could finance more projects and programmes. The Agency could not afford to mark time; it must move forward to maintain the effectiveness and credibility which were so essential if it was to discharge its responsibilities. It would be a disastrous illusion to think that the Agency could perform its safeguards functions in a satisfactory manner without doing full justice to its promotional activities.

94. In technical assistance the Agency had, despite very serious limitations of resources, played a vital role; it had continued to act as a catalyst in promoting the atomic energy programmes of developing countries. But at present the Agency could not meet more than 40% of the requests for technical assistance submitted to it. It was a familiar fact that that discouraged some of the developing countries from even approaching the Agency for assistance. The present target of \$3 million had the same

purchasing power as \$2 million in 1962. That meant that the Agency had in fact frozen the level of voluntary contributions for a decade, during which the requirements of Members had multiplied by an order of magnitude. The irony was that even that target was not being met. Serious consideration should be given to raising the target for voluntary contributions to \$5 million in the near future.

95. The delegation of Pakistan appreciated the importance which the Agency attached to nuclear power and wished to commend the Director General for his initiative in starting a world-wide survey of nuclear power requirements in the developing countries. The survey would help developing countries to obtain an objective review of their nuclear programmes and to see them in an international context. It would help the nuclear industry to make appropriate plans, so that reactor programmes suited to the needs of the developing countries could be evolved. Loan institutions would also get an idea of the future financing requirements of the countries concerned. That project was in fact an excellent example of the type of constructive endeavour which should lead to meaningful co-operation between the developing countries, advanced countries, nuclear industry and financing organizations for achieving a common purpose. The manner in which the project had been financed held out hope that sound programmes would have an excellent chance of attracting outside support.

96. Encouraged by the results of the survey, Pakistan proposed that the Agency should consider a joint programme aimed at promoting the applications of nuclear techniques for enhancing food production and preserving food grains. Such a project could be launched with the co-operation of FAO, interested developing and advanced countries, agricultural and research foundations and international banking organizations. It would provide a focal point for various Agency programmes in agriculture and biology. It would merit and very likely attract additional funds from outside. Over a five-year period it should yield results of great economic significance to the developing countries.

97. The amendment of Article VI, A-D of the Agency's Statute, which would enlarge the Board of Governors and give increased representation to non-nuclear Member States, had yet to be accepted by the required two-thirds majority of the Agency's membership. Pakistan had hoped that, two years after the approval of the amendment, a reconstituted Board would already be functioning to facilitate the implementation of NPT. At the same time, however, it could well understand the hesitation of the many countries which had expressed reservations regarding the amendment. In fact, subsequent events and recent changes in the world scene had tended to justify some of their misgivings. But the matter was important, and it should now be quickly resolved through consultations among the interested Member States, so that the enlarged Board could be constituted as soon as possible.

98. The Pakistan Atomic Energy Commission had just completed a review of all its activities and drawn up a new programme after a careful selection of priorities, which included nuclear power and the applications of nuclear techniques in agriculture, medicine and industry. Pakistan suffered from a serious shortage of conventional energy resources, for proven per capita reserves of coal amounted to only 13 tons equivalent, or 1% of the world average. For future power and energy requirements there was no choice but to turn to atomic energy. The country's first nuclear power station, at Karachi, known as KANNUP, was going through its final full-power commissioning trials. The success of the project had been largely due to hard and dedicated work by Pakistan's young scientists, engineers and technical staff. In planning and implementing the project, however, Pakistan had received most valuable technical and financial assistance from Canada, assistance which was keenly appreciated.

99. Hence it was a pleasure to announce that KANNUP would be formally inaugurated on 28 November. In conjunction with that event an international seminar on nuclear power in the developing countries and an exhibit on atomic energy for development were being planned. All friendly countries were welcome to come and help celebrate the occasion. Its experience with the KANNUP project had given Pakistan the confidence to plan new nuclear power plants, including a 500-MW station in the north and a dual-purpose plant for the production of water and electricity in the Karachi area.

100. Pakistan was an agricultural country and accordingly took special interest in the application of nuclear techniques for enhancing agricultural output. A third centre for atomic energy in agriculture was being planned; and, for nuclear medicine, it had been decided to establish a fifth centre, to be known as the Institute for Radiotherapy and Nuclear Medicine.

101. Pakistan was grateful to the Agency for the technical assistance and moral support which it had consistently provided in connection with the planning and implementation of the country's nuclear energy programme.

102. In conclusion, he wished to express Pakistan's deep appreciation to the Government of Mexico for its invitation to hold the Conference in Mexico City, and for its warm hospitality and excellent arrangements. The sixteenth regular session would undoubtedly be one of the most memorable of all.

103. Mr. QUIHILLALT (Argentina) said that he was particularly happy to offer the President the congratulations of the Argentine Government and delegation on his election. A debt of gratitude was owed to the Republic of Mexico, and in particular to its beautiful capital, for having offered the Conference such a splendid setting for its session and such warm hospitality.

104. Thanks were due, moreover, to the Mexican organizers, to the Director General, and, through him, to the Secretariat as a whole, for the good organization of the session and the excellent services placed at its disposal.

105. The Argentine delegation wished to welcome and offer its best wishes to the new Member, Bangladesh. [9]

106. Argentina was continuing the brisk development of its nuclear programme in accordance with national policy. It was a programme which, as had been pointed out on other occasions, was basically designed to contribute to the progress and prosperity of the country's people. A brief account of the year's achievements would illustrate what he meant.

107. Argentina's first nuclear power station would have a net electrical output of 319 MW and would serve the Gran Buenos Aires Litoral system. That, together with the exploitation of the country's uranium resources on an industrial scale - which was now getting under way - meant that the most modern techniques of electrical power generation were being adopted and that the technological status of the country as a whole was being raised.

108. To ensure that domestic industry would take as large a part in the project as possible, the National Atomic Energy Commission had first undertaken a broad study of the country's industrial and engineering capacity and had subsequently launched an educational programme aimed at instilling in engineers and industrialists an appreciation of what the technology required, so that Argentine industry would be able to undertake the manufacture of important components and systems. Already 40% of the total cost of the project was being covered at home.

109. The stage had now been reached at which the individual systems of the nuclear power station were being put into operation. The trial stage would culminate in the first start-up of the reactor, to take place at the end of 1972 or the beginning of 1973. The first commercial generation of nuclear power was expected to occur about the middle of 1973. The first fuel loadings, though containing Argentine uranium, would be fabricated abroad; but prototypes of power-reactor fuel elements fabricated in Argentina had already been tested in a foreign reactor.

110. A second power station, producing 600 MW, was to be built in the central part of the country. Tenders had been invited without any fore-ordained selection of reactor type in the hope that competition would be lively. The preliminary studies had been carried out and the specifications established by the National Atomic Energy Commission, and it was expected that domestic participation would amount to more than 50% of the total cost. The national power plan called

[9] Bangladesh became a Member on 27 September 1972.

for more than 2000 MW of nuclear power by the end of the decade, and it was hoped that by 1980 domestic participation would amount to more than 80% in each plant.

111. All that meant enormous responsibilities for the National Atomic Energy Commission, which had ceased to be the basic research institution of 15 years earlier and had become, virtually, an enterprise for technological and industrial development, even while retaining research functions.

112. There had also been, in Argentina, a noteworthy increase in the production of radio-isotopes and labelled molecules to satisfy domestic requirements, which were increasing at a rate of about 30% a year.

113. The Commission was co-operating with private industry in the use of intense radiation sources, mainly for the sterilization of medical and pharmaceutical products and the polymerization of wood products, and those activities were yielding results of great economic value.

114. Argentina had maintained its close relationship with the Agency at every level: in the Board and in committees, in symposia, conferences and panels, by offering opinions and proposals for the modification of draft regulations, codes and so on, and by providing, each year, fellowships for trainees from Latin American countries.

115. In 1972 Argentina had placed its nuclear power station under Agency safeguards. Just as, many years previously, it had had the satisfaction of placing the first Latin American research reactor under safeguards, now Argentina was doing the same with its power reactor.

116. In the realm of international co-operation, Argentina maintained cordial "nuclear relations" with numerous countries, especially those of Latin America; proof of that was to be found in the many co-operation agreements relating to atomic energy which Argentina had signed or renewed. In 1972 agreements had been concluded with Bolivia and Paraguay, and within a few days another would be concluded with the Mexican Nuclear Energy Institute.

117. Argentina had received splendid assistance from the Agency, especially in the form of highly qualified experts whose services had been exceptionally valuable.

118. His Government believed nevertheless that the Agency should substantially increase the technical assistance which it offered. Moreover, a regional technical assistance office should be set up in Latin America: that would meet the desires of many Latin American countries.

119. His delegation was thoroughly satisfied with the work of the Secretariat, and in particular with that of the Director General who, it was to be hoped, would long continue to discharge his present duties.

120. Mr. ANDRZEJEWSKI (Poland) said that he wished to join others in congratulating Mr. Flores de la Peña on his election to the post of President of the General Conference. Special thanks were due to the Mexican Government for its invitation to hold the Conference in Mexico City and for the excellent facilities it had provided. Their stay in Mexico would enable delegates to acquaint themselves more fully with that beautiful country, its age-old cultural traditions, its successes in modern technology and, above all, in nuclear technology.

121. Another year had passed, and the Agency had continued to consolidate its position in the world, especially in view of the large number of States which had concluded the safeguards agreements called for by NPT. The Government of Poland, one of the first to enter into negotiations with a view to concluding such an agreement, was happy to note the increasing number of States that had already signed or were in the process of negotiating agreements. In particular, it welcomed the notice received from the Board concerning the approval of a draft agreement with five of the EURATOM countries.

122. Poland, a country which had suffered terribly in two world wars, was vitally interested in that aspect of the Agency's work, and hoped that States which had not yet ratified NPT would do so soon. The negotiation of agreements should also go on at a faster pace. With such an excellent model as a basis for negotiations - that contained in document INFCIRC/153 - there should be no obstacle to completing the process in a relatively short time.

123. The strength of the Agency, as of any other international organization, lay in its universality. Only by according equal treatment to all States could the Agency win true authority. For that reason the Polish Government felt obliged once more to call attention to the fact that one of the German States, namely the German Democratic Republic, was not yet a member of the Agency. The German Democratic Republic was a sovereign country which had displayed dynamic development in science and technology, and particularly in the peaceful uses of nuclear energy. It had also concluded a safeguards agreement with the Agency. The fact that its accession to membership of the Agency had hitherto been blocked was not only contrary to the principle of universality but also a loss to the Agency, whose activities would profit from the contribution that the scientists of the German Democratic Republic could make.

124. The accession of the German Democratic Republic as well as of other countries wishing to participate in the Agency's activities would be of benefit to both the Agency and its Members, as was apparent from the role played by the German Democratic Republic in the Council for Mutual Economic Assistance, the activities of which were of considerable importance to Poland. In that connection he wished to recall that the International Company for the Production of Nucleonic Equipment "Interatominstrument" was based in Warsaw.

125. The annual report for 1971-72 was a clear and concise document and he commended the way in which the various projects had been tackled during that period. His delegation considered that the Agency's most important work lay in the fields of environmental protection, safeguards, technical assistance and information dissemination. In matters of environmental protection, which had recently been brought before the eyes of the world at the United Nations Conference on the Human Environment held in Stockholm, the Agency had a fine record and, in view of the fact that it already had qualified personnel as well as the necessary research and information experience, his delegation felt strongly that the Agency - in collaboration with WHO - was competent to co-ordinate international activities in that sphere, making the establishment of a new organization quite unnecessary.

126. Safeguards activities would soon become a routine matter for the Agency, and he felt confident that the Agency's staff would be able to deal with all the work arising out of NPT. The Polish Government would lend its support to the planning and operation of safeguards by the Agency and the development of techniques facilitating the implementation of safeguards agreements. It would also support the establishment within the Agency - and nowhere else - of an organ to examine all questions connected with the implementation of NPT.

127. Since technical assistance was such an important Agency function, it was gratifying to note that the Agency's funds for that purpose had increased appreciably and that there had also been a significant increase in UNDP allocations for large-scale projects. Those projects, which had risen in number from two to nine since 1971, highlighted the increasingly important role of nuclear technology, to which the Agency was making no mean contribution. In recognition of that fact, Poland would increase its voluntary contribution for 1973 by 300 000 zloty, i. e. by 20%, and would continue to offer ten fellowships.

128. His country had always lent full support to INIS and welcomed the Board's decision to introduce full-scope operation. Poland would participate as fully as possible, and he appealed to all Member States to do likewise, for only then would the success of INIS be assured.

129. The Agency's programme for 1973-78 had been scrutinized by Polish experts, and he was authorized to say that most of it was acceptable. The Secretariat was to be commended for the vast effort devoted to its preparation.

130. The Agency's budget for 1973 once again revealed an unfortunate inflationary tendency, especially with regard to salaries. Increases in budgetary expenditure should be tailored to increases in the national revenue of Member States. Although the increases were largely outside the Agency's control and the Director General had made great efforts to effect savings, means had to be found of reducing costs without impairing the Agency's effectiveness.

131. Finally, his delegation approved the annual report for 1971-72 and congratulated the Agency on its progress, with which Poland was proud to be associated.

132. Mr. MARULANDA (Colombia) said that he was happy to present, in the name of the delegation of Colombia, his cordial congratulations to Mr. Flores de la Peña on his well-deserved election to the post of President of the Conference at its sixteenth regular session which, upon the generous invitation of his Government, was being held in the beautiful capital of Mexico. Congratulations were also due to Dr. Eklund for his wise conduct of the Agency's affairs during eleven years.

133. The Conference had gathered to demonstrate once more a devotion to peace and a firm resolve to place the atom at the service of humanity. On 14 February 1967, in the same building where the Conference was now gathered, the Latin American countries had signed the Treaty of Tlatelolco - a moral lever, at that time, which had made possible the signing of NPT. Colombia, a nation devoted to peace and human understanding, had just ratified that Treaty and would fulfil to the letter the pledges thereby given.

134. Colombia's Institute of Nuclear Affairs had continued to apply nuclear techniques to problems of fertilization and improved root growth in certain plants, in close co-operation with the Colombian Agricultural Institute. For some years cobalt-60 and iridium-192 sources had been in use to detect defects in pressure tubing, in hydroelectric and thermoelectric plants, in industrial storage and chemical processing tanks, and in aeroplane components. The techniques of gammagraphy had been taught in theoretical and experimental courses given by the Institute. Radioisotopes were being applied to problems of hydrology, such as measurements of flow velocity in rivers and underground water and of leakage through dams, and were also being used for quality control and determinations of moisture and density in road-building operations.

135. A great deal of work was being done on the production of labelled molecules with radioisotopes, and effective arrangements had been made for co-operation with the Military Hospital, the National Cancer Institute and the country's universities in medical programmes.

136. Prospecting for radioactive ores was being carried out continuously by radiometric methods, from vehicles and in the field.

137. The building destined to house the 10 000-curie cobalt-60 source donated by the Government of the United States of America through the Agency was nearing completion. The source in question would be used to produce genetic mutations in various types of plant, for research in radiation chemistry, for the sterilization of heart valves and other surgical materials, for the irradiation of foodstuffs, and so on.

138. Turning to the matter of technical assistance, he recalled that under its Statute the Agency was called upon to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. That was in fact its fundamental objective. The developing countries hoped that the Agency would continue to give them technical assistance in the applications of radioisotopes to agriculture (in many instances the foundation of their economy), medicine and industry, and especially in connection with nuclear power.

139. Given the steady depletion of traditional sources of energy, it might be wise for the Agency to organize, perhaps on a regional basis, seminars in which the advantages of medium-sized reactors in the 150-300 MW range could be studied and discussed. The industrialized countries had often argued that such reactors were not competitive, that the large firms were unwilling to design and build them for fear of not finding a market; but power, nowadays, would never cost a country as dearly as not having it at all. The cost per kilowatt/hour in the industrialized countries should not be taken as a hard and fast measure of whether nuclear power should be introduced or not. For a country which totally lacked conventional means of generating electricity, medium-sized power reactors offered the best solution. Hence the Agency should take more decisive action in that respect. It was particularly fitting that it should do so during the second development decade.

140. With the entry into force of NPT many countries had expressed the fear that the Agency might expend a large share of its resources on safeguards to the detriment of its other activities, including technical assistance. The Government of Colombia was anxious that a proper balance should be maintained among the Agency's activities, and, in particular, that priority should be given to technical assistance.

141. During the June meetings of the Board, he had asked the Director General to study the possibility of appointing regional representatives in the geographical areas that received technical assistance from the Agency, and he was now more than ever convinced of the importance of adopting such a policy. The Agency needed to create an image, to impress upon the less-privileged countries that most needed its assistance exactly what it was and what it could do. The presence of the Agency should be felt in the person of its regional representative - not just any representative, but a person familiar with the workings of the Agency, dynamic, enthusiastic and convincing. Many developing countries were not receiving technical assistance simply because they were unfamiliar with the paths leading to the Agency.

142. Science, once the privilege of the few, was becoming part of the patrimony of all peoples. The large nations which were leading the way in scientific, technological and social development had invested huge sums to train their young - the hope of future scientific progress - and to build laboratories, and so on. Research was not a routine activity, far from it: it often required effort and sacrifice bordering on heroism. A scientist was not something that could be improvised; his training was bound to be long and difficult, and indeed was likely to continue all his life.

143. Thus it was vital that no time should be lost in initiating the younger generation into the mysteries of nuclear science, in helping them to learn everything that others had discovered before them. That was the true function of the Agency: to help its Members acquire the mastery of nuclear science which they required in order to take part, as a single large family, in the building of a better future.

● The meeting rose at 1.40 p. m.

