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President: Mr. TORKI (Tunisia)

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* GC(XIII)/418.

GENERAL DEBATE AND REPORT OF THE
BOARD OF GOVERNORS FOR 1968-69
(GC(XIII)/404, 416) (continued)

1. Mr. KRASIN (Byelorussian Soviet Socialist Republic) said the Agency was performing a variety of useful activities designed to improve co-operation between countries in the peaceful uses of atomic energy, thereby helping to accelerate the progress of science for the benefit of the world community as a whole.

2. In the year under review the Agency had taken a number of steps to improve methods of research into problems of power engineering, isotope applications, medicine, etc. By regularly holding seminars, symposia and panels the Agency was helping to speed up the exchange of scientific and technical information, to improve the qualifications of creative institutions and to determine the most up-to-date trends in the development of science and technology.

3. The Byelorussian delegation considered that, from the technical and organizational point of view, the Agency was meeting the demands made upon it. It therefore seemed perfectly natural that it should be the Agency that was entrusted with the safeguards functions under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). He was convinced that the Agency would be equal to that task.

4. The availability of up-to-date and complete information on the latest achievements was extremely important for the selection of the lines along which science and technology should be developed. The Agency was carrying out extremely useful activities in that respect. Recently, there had been a satisfactory development in the form of panels with the participation of experts as observers. Such meetings of experts could result in the more general dissemination of the most useful information, the assessment of particular scientific achievements and the making of recommendations as to their application.

5. His delegation wished to express its approval of and interest in the announcement that a Fourth International Conference on the Peaceful Uses of Atomic Energy was to be held.

6. When speaking of the Agency's activities it was impossible not to mention the sterling services of the Director General.

7. In the past year the Byelorussian SSR had taken a new step forward in the peaceful application of atomic energy. During that period the Institute of Nuclear Power Engineering of the Academy of Sciences of the Byelorussian SSR had constructed a multipurpose gamma unit with a 200 000-curie cobalt emitter. At the same Institute work had

been carried out on radiation chemistry and studies had been made of the properties of new coolants, which were regarded as promising for use in nuclear power stations.

8. Papers by Byelorussian scientists had been published in journals of the Byelorussian Academy of Sciences and in the main journals of the Soviet Union.

9. In the last few years scientists of the Byelorussian SSR had engaged in a wide range of research on the peaceful uses of atomic energy and, with their published work, had made a definite contribution to the overall achievements of science.

10. The rapid progress of science in his country doubtless owed much to the fruitful co-operation of Byelorussian scientists with those of the other Republics of the Soviet Union and also with scientists in other countries.

11. The Byelorussian delegation had noted with satisfaction the growing role of the Council for Mutual Economic Assistance (COMECON) in consolidating the efforts of a number of countries in the peaceful uses of nuclear energy, and also the closer working relations between COMECON and the Agency.

12. International co-operation in many matters had become an integral part of progress. All Member States were aware of the fruitful role of international co-operation in the peaceful uses of atomic energy. The number of Member States of the Agency was showing a regular increase, which was only to be expected. In that connection his delegation welcomed the admission of Ireland as a Member State and wished it every success in the peaceful uses of atomic energy.

13. At the same time the Byelorussian delegation wished once again to draw the attention of the General Conference to the question of the admission to the Agency of the German Democratic Republic, a country which was making extensive use of atomic energy for peaceful purposes. The Government of the German Democratic Republic had stated its readiness to place its nuclear plants under Agency safeguards. A number of its research institutes were carrying out work on nuclear physics and the development of nuclear physics equipment. Preparations had been made for the production of radioisotopes. Those facts were convincing evidence that the German Democratic Republic had all the prerequisites for participation in the work of the Agency, and that its membership would bring undoubted benefits to other countries.

14. The people of the Byelorussian SSR were preparing to celebrate 1970 as the centenary of the

birth of Vladimir Ilich Lenin, a thinker of genius and founder of the Soviet State. The workers of the country were preparing to celebrate that anniversary with a great creative upsurge. His delegation was glad to learn that many international organizations intended to commemorate the centenary and it expressed the hope that the event, which was of great significance to the Byelorussian SSR, would also be marked by the Agency in its activities.

15. Mr. OTERO NAVASCUES (Spain) said that his country's Nuclear Energy Board (JEN) had gone ahead with the programmes described in the report covering the previous period (1967-68) and had completed the work it had planned.

16. He would confine himself to the work which had actually been completed, and wanted in the first place to mention the various phases of the nuclear fuel cycle. On the basis of the experience gained during the previous year, the first aerial prospecting campaign had been completed, covering an area of about 24 000 km². At the same time a great deal of prospecting had been done on foot and using motor vehicles. About one third of the national territory had been explored, and an area including the northern and southern edges of the central Cordillera had been discovered which offered excellent prospects. At present a sampling and mining project was being carried out in granite areas in different provinces of his country.

17. During the period under review about 80 000 tons of uranium ores had been extracted. On the basis of the European Nuclear Energy Agency classification, his country's reserves amounted to more than 260 000 tons.

18. An experimental static leaching installation with a capacity of 15 000 tons per year had been built and put into operation for treating marginal ores. The Andujar uranium plant had continued producing uranium concentrates at a rate of 60 tons of U₃O₈ per year. It had also been decided to construct a uranium plant in the town of Rodrigo (Salamanca) as a joint enterprise of the National Institute of Industry and JEN, and the Government had appointed a joint control commission to study the means of financing the installation. The site had already been chosen and the construction work was due to begin shortly. Work was being continued on the technological development programme and recently a pilot plant for treating low-content ores by leaching had been put into operation. The plant had a capacity of 1000 tons of ore per day.

19. A production line had been started up for the manufacture of fuel elements on a semi-industrial level for light-water reactors. Advanced fuel element prototypes had been developed for the JEN-1 reactor. The design of those elements was such as to permit

better utilization of the reactor core for carrying out irradiation experiments. Production of 200-kg metallic uranium billets had been started on a semi-industrial scale, on the basis of the magnesiothermy method. Uranium tubes were also being manufactured on a semi-industrial scale for the Vandellós reactor.

20. The Ibero Nuclear Company had been formed for the purpose of studying the possibilities of manufacturing fuel elements in Spain. The partners in that company were the National Institute of Industry and various electric companies. JEN was acting as the company's technical organ. A research contract had been signed between JEN, the Madrid Electricity Company and the Westinghouse Electric International Company for the evaluation of fuel elements of advanced design. Those elements were being irradiated in the José Cabrera reactor.

21. The M-1 installation introduced during the previous period was continuing its normal operation of reprocessing fuel from the JEN-1 reactor. A study was also being carried out on the construction of a new installation of higher capacity to satisfy the country's requirements.

22. The OIES radioactive-waste treatment plant, which was put into service during the previous year, was operating as planned. A new plant was also under construction for the recovery of fission products of commercial value; it was hoped to put that plant into operation during the coming year. The JEN-1 and JEN-2 research reactors had continued in operation, and with their use it had been possible to gain experience in reactor physics. At present the JEN-1 reactor was being modified to increase its power to 5 MW, and studies were being carried out to increase its power to 10 MW so as to make available a greater capacity for the supply of isotopes and to provide a basis for carrying out experiments on material testing and neutron flux. Experiments on the measurement of fast neutrons had been continued on the Coral I fast experimental reactor.

23. In connection with the desalination of water, work was being continued on the methods of fast distillation, electrodialysis, reverse osmosis and solar distillation, and various pilot plants were in operation. Work had just been started on a fast distillation plant with a capacity of 2000 m³ per day and on another which would produce 50 m³ per day by electrodialysis. One of the engineering projects, carried out with the collaboration of different undertakings, was the Aquarius project concerned with the feasibility of constructing an agro-industrial complex in the Almería region, with a dual-purpose nuclear power station. A study had also been made of the possibility of building a dual-purpose nuclear power station for increasing the electric power in the Catalan region and increasing the supply of water for Barcelona and its suburbs.

24. The number of radioisotope users in Spain continued to increase and at the end of 1968 had reached a total of 511, the number of curies used being 10 500; most of the users were concerned with medicine and animal biology, followed by industrial applications, physical chemistry research, agriculture and plant biology, in that order. The number of authorized installations using radioactive materials had been 300 at the end of 1967.

25. Some of the more important studies on industrial applications related to the detection of leaks in reservoirs, the determination of river flow rates, the irradiation of wood and foodstuffs (fish, strawberries, oranges, garlic and onions), safety in respect of the consumption of irradiated foodstuffs, the determination of wear in internal combustion engines, the production of labelled compounds, and research on new radiopharmaceuticals.

26. The Institute of Nuclear Studies had carried on with its work of co-ordinating and promoting basic research and with the organization of highly specialized courses in the nuclear field. In particular, he wanted to mention the courses on nuclear engineering for graduates, and others on the use of radioisotopes in engineering and industry, on nuclear medicine and instrumental analysis; those courses were attended by a total of about 100 students. The laboratories of JEN were assisting a number of fellowship holders who were just starting on nuclear research or carrying out special tasks. The Institute of Nuclear Studies had continued to support studies on theoretical physics, radiochemical research, biological research, instrumentation and other basic studies. Recently, two departments dealing with molecular biology and solid-state physics had been established in the Institute of Nuclear Studies.

27. In December 1968 the 153-MW(e) José Cabrera nuclear power station at Zorita had been officially inaugurated. By 1 July 1969 the station had produced 333.7 million kWh. Authorization had been given for the building of a 500-MW(e) power station in Lemoniz, which would go into operation in 1975. Authorization had been requested for three units of more than 500 MW(e). The operation of the Santa María de Garoña and Vandellós power stations (440 MW(e) and 480 MW(e) respectively) had continued normally.

28. The recently approved National Electric Plan for the period 1972-1981 provided, among other things, for the construction of nuclear installations to produce a total of 8000 MW(e).

29. The Board's annual report for 1968-69 (GC(XIII)/404) showed how far the Agency's work had advanced in recent years and the extent to which it had benefited a number of countries.

30. Spanish scientists and engineers had been selected by the Agency for foreign missions, especially in America. JEN had also been awarded a number of research contracts and had attached maximum importance to that work.

31. However, as had been pointed out the previous year, the Government of Spain was concerned at the lack of Spanish nuclear energy experts on the Agency's staff. Spain was still inadequately represented in the Secretariat although the appointment of Spanish technical experts to P-3 and P-4 posts had slightly corrected the situation in which there had been no Spanish national among the senior scientific staff.

32. His delegation was concerned at such a situation, which could be regarded as discriminatory. For seven years there had been not a single Spanish national at Director level to which, with the logical rotation of those posts for the filling of which not only experience in nuclear energy matters but also the principle of geographical distribution were important considerations — it would have been reasonable or natural for Spanish scientists and technicians to have been appointed.

33. NPT provided that the Agency would be called upon to perform the inspection duties required under that Treaty. His delegation was concerned at the fact that those inspection duties, which would of course be performed for the parties to the Treaty, might result in the Agency having two, if not three categories of Member States: the nuclear-weapon States, parties to the Treaty, which would never be inspected; the non-nuclear-weapon States, parties to the Treaty, which would be inspected and, finally, those which were not parties to the Treaty and had large nuclear installations, some of which had been placed voluntarily under Agency safeguards and some of which were covered by bilateral agreements — which States would evidently lose none of their rights within the Agency or be discriminated against.

34. His Government was also concerned at the considerable cost to which inspections would give rise, owing to the vast increase in the number of nuclear installations throughout the world. It seemed logical that those costs should be met by countries making use of the Agency's services, whether in the form of currently applied safeguards or safeguards resulting from NPT. It did not seem fair that many developing countries, for which the production of nuclear electricity was not yet economic or feasible, and which would not draw on the inspection services, should have to assume obligations arising out of such inspections.

35. As it had stated frequently, the Spanish Government considered that the application of safe-

guards, their development (with maintenance of maximum industrial secrecy) and their gradual simplification should be administered by a body subordinate to the Board of Governors whose members would be scientists and technicians from the countries subject to inspection.

36. Just as countries which did not possess large nuclear installations should not have their contribution increased by having to pay costs under that heading, so also was it illogical that those countries should participate in devising inspection and safeguards techniques, whilst other countries with large nuclear installations were exempt from that requirement.

37. The Agency was now at a cross roads which could lead either to the provision of better services to its Member States, which had to work together harmoniously, or else to the making of distinctions which could turn into discrimination, something which should be avoided at all costs. It was to be hoped that the Board and the Secretariat would take great care that such a situation could not arise.

38. Mr. QUIHILLALT (Argentina) said his delegation was happy to welcome Ireland as a new Member State.

39. He wished to express his Government's satisfaction at the Board's decision to reappoint Dr. Eklund as Director General for a new period of office, a decision that he felt certain would be approved by the General Conference. Dr. Eklund's experience, competence and dedication would ensure the performance of outstanding work by the Agency.

40. Argentina was fulfilling a debt of gratitude in making particular mention of the assistance that it continued to receive from the Agency and which had made possible, among other achievements during the year under review, the signing of a new trilateral safeguards agreement between the Agency, the United States of America and the Argentine Republic¹⁾; the conclusion of an agreement with the World Health Organization, in collaboration with the Agency, by which the Argentine Atomic Energy Commission was designated as a regional reference centre for secondary dosimetric standards; and the conclusion of an agreement for the transfer to Argentina of a Siemens SUR-100 training reactor, donated by the Federal Republic of Germany, and an agreement for the transfer of a low-temperature, liquid-nitrogen irradiation loop, offered by France²⁾.

41. Added to that was the support received under the technical assistance programme, which in the present year consisted of a larger number of fellowships for advanced professional training and the

services of experts in a variety of projects being carried out under the supervision of the Argentine Atomic Energy Commission.

42. As a result of Argentina's positive efforts in nuclear energy matters and of the benefits stemming from international co-operation, steady progress was being made in the efforts to narrow the gap between that country and those which were technologically more advanced.

43. An example of the achievements during the year under review was the work connected with the nuclear power production programme, first and foremost the Atucha reactor. The original idea of a nuclear power station to be set up in the coastal area of greater Buenos Aires found expression in the construction of the 319-MW(e) Atucha power station, using a natural-uranium heavy-water moderated reactor. The work, which was scheduled for completion in the middle of 1972, was proceeding in accordance with the time-table and plan drawn up.

44. With regard to the Córdoba pre-investment project, a study had already been made of the feasibility of establishing a nuclear power station alongside the Los Molinos dam, 55 kilometres south-west of the city of Córdoba.

45. The result of that study had shown that the erection of a nuclear power station servicing the Province of Córdoba was feasible from the technical point of view, desirable from the economic standpoint and practicable from a financial viewpoint.

46. As regards the fuel cycle, the discovery of a large deposit near the uranium-bearing region in the south of Mendoza Province would clearly improve the economic conditions for exploitation in that region and increase the level of economically exploitable resources.

47. On the subject of uranium prospection, it was worth while mentioning that there was a regional training course in progress at present in Argentina, sponsored by the Agency and attended by professional people from Argentina, Bolivia, Brazil, Colombia, Ecuador, Peru, Uruguay and Venezuela.

48. Studies and arrangements for the installation of a fuel fabrication plant providing fuel elements for power reactors had made progress, and it was hoped that the plant would be able to start industrial-scale production in 1973.

49. Progress had also been made in the application of nuclear irradiation techniques, particularly in food and agriculture, with the setting up at the Ezeiza Atomic Centre of new laboratories for agronomic and veterinary applications and the completion of a semi-industrial irradiation unit at the same

1) INFCIRC/130, 130/corr.1 and 130/corr.1/Rev.1.

2) INFCIRC/128.

Centre as part of the installations of the intense radiation sources division.

50. The studies on possible industrial applications had shown a need for equipment with which research could be carried out on a pilot scale and crucial information obtained in advance on such matters as the economic aspects of a process, prior to its introduction into manufacturing practice.

51. That requirement, and also the need for equipment for use in applications that had now reached the industrial scale, had been the factors which had led to the decision to build the semi-industrial irradiation plant.

52. The regional centre for secondary dosimetric standards, to which he had referred, was to commence activity in the present year and would enable radiotherapy service centres of the Latin American region to calibrate instruments used for radiation measurements in connection with clinical dosimetry and with radiological protection.

53. As regards the Board's annual report, he said that although his delegation accepted the document, a critical examination of the period in question indicated that the gains in areas of particular importance to developing countries had been very slight.

54. The funds available to the Agency for its technical assistance programme remained at the same level as, or lower than, that of previous years. Technical assistance showed a decline in relation to the Agency's overall activity and, should that trend continue, within a few years it would lose all meaning as compared to other activities.

55. As far as proposed solutions were concerned, voluntary contributions did not even reach the \$2 million target, and the Director General's appeal in his address to the previous General Conference³⁾ did not seem to have met with success. His delegation wished to state that the Argentine contribution was equal to the percentage recommended.

56. Not very much had come of the recommendations in Resolution H.II and Resolution I of the Conference of Non-Nuclear-Weapon States for a study of ways and means of increasing the funds available for technical assistance⁴⁾, except for the proposed agreement between the Government of Sweden and the Agency relating to co-operation in the provision of assistance to developing countries. The latter could be a trial experiment which, if effective, should be further developed. His delegation congratulated the Government of Sweden and the Agency on taking that action.

3) GC(XII)/OR.119, para.41.

4) United Nations document A/7277.

57. In the matter of technical assistance, even within its present limitations, certain concepts with regard to the proportion of aid offered in terms of equipment and experts should be reconsidered. Although Argentina, for special reasons, at present considered aid received in the form of expertise to be more valuable than equipment, the situation could not be generalized and was subject to time factors and local circumstances, which should be analysed in each individual case.

58. With reference to the review of Article VI of the Statute, his Government had followed the matter very actively and had carefully studied all the proposals put forward. It was of the opinion that Article VI should be amended by adapting it to existing conditions and to the criteria laid down in Resolution GC(XII)/RES/241. Everything indicated that, given the machinery available and the present rate of progress, even though a detailed study of the matter could be carried out, it would be some time before the hoped-for modification of Article VI could be arrived at.

59. Referring to the provision of services in connection with nuclear explosions for peaceful purposes, he said his country considered that all international activities for the peaceful uses of atomic energy should be centralized in the Agency, including nuclear explosions or any other activity or development by which nuclear energy could contribute to the general well-being. The Agency's Statute, organization and procedures had been devised for the provision of services of that kind, and the only way in which the situation could be affected by the emergence of new types of activities would be a change in the volume of the Agency's work, as a result of an increase in requests for technical assistance by Member States.

60. For those reasons his delegation considered that services in connection with nuclear explosions were among the functions envisaged in Article III of the Statute and that the Agency should therefore act in full conformity with what was stated in that Article, and without departing from the provisions of paragraph III.C thereof, which stated: "In carrying out its functions, the Agency shall not make assistance to members subject to any political, economic, military or other conditions incompatible with the provisions of this Statute."

61. It was therefore quite feasible for the Agency to undertake immediate work to promote a maximum exchange of information and expertise on nuclear explosions for peaceful purposes, since the subject was one in which many Member States were interested and on which very little information was available.

62. With reference to the fund of special fissionable materials, he recalled that his Government had always sought to have the Agency implement one of the basic conditions envisaged by the Preparatory Commission and laid down in the Statute, namely, that it should act as an international supplier of fissionable materials for power reactors. The request made in that regard by the Conference of Non-Nuclear-Weapon States⁵⁾ had again demonstrated how important it was for the development of nuclear power production in many countries that a supply of fissionable material should be available on an international scale. An analysis of the Board's memorandum on the subject⁶⁾ showed how little progress had been made along those lines over the past 13 years and how urgent it was to adopt a more positive attitude which would enable the Agency to make provision on a regular and long-term basis for the supply of fissionable materials for power reactors to Member States requesting them.

63. Mr. GUZINA (Yugoslavia) welcomed Ireland as a new Member of the Agency.

64. Recalling that the Director General, in his opening statement, had described the past year as the "Year of Non-Nuclear-Weapon States"⁷⁾, he said that Member States which did not possess nuclear weapons were closely studying how NPT would affect them when it came into force. It was essential that the nuclear-weapon States should discharge their obligations under NPT, particularly Articles IV, V and VI, if the Treaty was to fulfil the hopes placed in it.

65. Developing countries would be unable to enjoy the benefits to be derived from the use of nuclear energy if they lacked the financial resources required to carry out their nuclear energy programmes, and in that connection he deplored the steady decline in the funds available for the provision of technical assistance by the Agency. A number of States had failed to respond to the Director General's appeal to make voluntary contributions to the General Fund at the same percentage rate as their assessed contributions to the Regular Budget, and he hoped they would do so in future.

66. His delegation was prepared to approve the proposed budget but regretted that the increase of approximately 9% in the Regular Budget was mainly attributable to an increase in administrative expenses and laboratory costs. Care should be taken to ensure that the large increase in expenditure on safeguards activities did not militate against the interests of the developing countries. The Agency's main task was to help the developing countries to close the ever-

widening technological gap between them and the more advanced countries, and accordingly he hoped a reasonable balance would be maintained between all its activities, bearing in mind the limited resources available and the growing needs of Member States, particularly the developing countries.

67. The Agency could not perform its function successfully if Member States were not adequately represented in the Board, and Article VI of the Statute should therefore be amended as soon as possible so as to bring it into line with the current situation. While an increase in the membership of the Board was necessary, it was even more important that seats should be allocated to States in a democratic and equitable manner. The General Conference should instruct the Board and the Ad Hoc Committee of the Whole to Review Article VI of the Statute to continue their study of the matter with a view to submitting a proposed amendment of the Article to the General Conference at its next session.

68. Referring to the establishment of the International Nuclear Information System (INIS), he paid a tribute to the useful preparatory work done by a number of Member States, technical working groups and experts and was confident that the dissemination of scientific information would be of benefit to all Member States, particularly the developing countries.

69. It was unfortunate that less than 2% of nuclear power plants were located, or were to be built, in the less-developed countries since that would further widen the technological gap between them and the highly industrialized countries. He welcomed the steps taken by the Agency to study the feasibility of building small and medium-size nuclear power plants. The study of the possible use of nuclear energy for desalting sea water, irrigating arid land, etc. was also very useful, although at that stage the cost seemed to be very high.

70. He realized that technical and health and safety problems relating to the use of nuclear explosives for peaceful purposes required further study but considered, in that connection, that the Agency should make timely preparations to provide Member States with the necessary services under appropriate international control.

71. He was convinced that the Agency would continue to promote international co-operation in the peaceful uses of nuclear energy and would thus contribute to the preservation of peace and the progress of all mankind.

72. His delegation supported the reappointment of Dr. Eklund as Director General of the Agency.

5) Ibid., Resolution J. II and III.

6) GC(XIII)/409.

7) GC(XIII)/OR.127, para.29.

73. Mr. PASECHNIK (Ukrainian Soviet Socialist Republic) said his delegation noted with satisfaction that, although the Agency had not yet become a universal, international centre for the peaceful uses of atomic energy, it was nevertheless fulfilling a definitely useful function and playing an increasingly significant role.

74. The past year had been marked by a widening of the applications of atomic energy for peaceful purposes. Important steps had been taken in the basic sciences. With every new discovery in those fields, the revolutionary nature of man's penetration into the secrets of the microcosm and sub-microcosm was becoming increasingly obvious. On the eve of the hundredth anniversary of the birth of the great scholar and thinker, V.I. Lenin, Soviet scientists were pleased to note that Lenin's struggle for the triumph of the dialectical and materialistic conception of the laws governing the development and knowledge of nature, society and human thought had been crowned with success, and his wise prophecy of the ways in which the crisis in physics at the beginning of the twentieth century could be avoided had been fully justified.

75. Having, examined the Board's report on the Agency's activities in 1968-69, his delegation could, in principle, approve the main trends in those activities. An analysis of the activities carried out over the past year indicated that the Agency's efforts had been concentrated on the solution of three problems:

(a) Preparations for implementing the Agency's safeguards system in connection with NPT;

(b) Organization of international co-operation in the interest of utilizing experience in the field of nuclear power and the applications of isotopes and nuclear radiation in industry, agriculture, health and scientific research; and

(c) Assistance to developing countries in the use of atomic energy to improve their national economies and raise their living and cultural standards.

76. The Board's report rightly noted that, although NPT had not yet come into force, the Agency was already paying close attention to the provisions of the Treaty relating to international safeguards and to the prospects which it opened up for a further development of the peaceful uses of nuclear energy. However, certain aspects of the Treaty which directly affected the Agency's activity in those directions called for further comment. Since the aim of the Treaty was to prevent a further proliferation of nuclear weapons in the world, it was inevitable that attention should be directed towards the countries among those whose Governments had not yet signed the Treaty which were trying to obtain nuclear weapons.

77. Criticism of the idea of non-proliferation had continued in certain capitals from the very beginning of talks on that vital international problem right up to the present. Certain States had launched a whole multitude of arguments against NPT in an attempt to frustrate the signing of the Treaty. Despite the barriers which certain States had placed in the way of a solution of the problems of non-proliferation, it could be stated with confidence that the peace-loving nations were putting a stop to the proliferation of nuclear warheads in various countries and continents. It was therefore a source of satisfaction to note that the individual, and perhaps the most important, articles of NPT were being carefully studied by the Agency and the Board.

78. One of the important facets in the Agency's activity was the international exchange of scientific and technological information on important applications of atomic energy. Assistance in the construction of desalination plants and agro-industrial complexes was another significant aspect of its work.

79. His delegation was gratified to note the Board's decision to make a start with INIS in 1970. Scientists of his country were playing an active part in the establishment of that system.

80. The Ukrainian SSR attached great importance to fundamental research on medium-and low-energy nuclear physics, where one of the most important tasks was the development of a microscopic theory of the nucleus. Experimental approaches to that problem had already produced valuable results. A 2-GeV linear electron accelerator had been used to determine — by the pulsing method — the distribution of nucleons in the nucleus, to arrive at nuclear form-factors and to obtain additional evidence of periodicity in nuclear properties.

81. Using a set of neutron sources covering the entire fission-energy spectrum (VVR-M reactor, precision electrostatic generators), Ukrainian scientists were obtaining data on the neutron-physics characteristics of structural materials.

82. The Marine Hydrophysics Institute of the Ukrainian Academy of Sciences was studying the level of radioactivity in sea water and developing a theory on the diffusion of radioactive contamination in the oceans. The same Institute had also studied various aspects of the problem of disposal of radioactive wastes into seas and oceans. Data obtained had shown that such waste should not be discharged into the Black Sea. Those findings had been discussed at the twenty-third session of the General Assembly of the United Nations and had been reported in the relevant United Nations documents.

83. Successful use was being made of radioisotope equipment in many of his country's industries.

84. During the period under review the Agency had paid special attention to the review of Article VI of its Statute. Since the drafting of its Statute in 1956, and the establishment of the Agency, considerable changes had taken place in its structure and in the nature of its activities. Those changes should be taken into account in trying to solve the problem of the composition of the Board. The primary problem that had to be borne in mind was the important political factor represented by NPT, which had already been signed by 90 States.

85. Many countries would soon be making wide use of atomic energy. For example, the East European countries — the socialist countries — were carrying out large-scale atomic energy development programmes. The interests of the socialist countries should be taken into account in increasing the composition of the Board.

86. The decay of the colonial system, and with it the founding of new independent States, was making further progress. The Ukrainian SSR sympathized with the demands of those countries for better representation on the Board.

87. His delegation had already drawn attention to the fact that the Agency was not yet a universal organization. A number of States were, in breach of the Statute, being discriminated against. The German Democratic Republic, for instance, was an independent, sovereign German State, and with every year it was making greater use of atomic energy for peaceful purposes; its Government had been one of the first to sign and ratify NPT.

88. In conclusion, his delegation wanted to thank Mr. Eklund for his many years of successful work as Director General of the Agency and for his agreement to remain in that post for a further term.

89. Mr. BRYNIELSSON (Sweden) said his delegation had great pleasure in supporting the reappointment of Dr. Eklund as Director General of the Agency and wished to pay tribute to his constructive and dedicated leadership during the past eight years.

90. In his opening statement the Director General had placed special emphasis on the possible contribution of nuclear technology to the economic and scientific advancement of developing countries. The Agency should do all it could to provide technical assistance, and Member States should ensure that it had adequate funds to do so. In addition to making their usual voluntary contribution to the General Fund, the Swedish authorities had recently prepared an agreement with the Agency relating to co-operation in the provision of assistance to developing countries. The agreement had been approved by the Board the previous week and would

come into effect when it had been formally approved by the Swedish Government.

91. In response to the Director General's invitation his delegation had, for the information of the Conference, provided a written statement on the developments in Sweden's nuclear energy programme during the past year⁸⁾, and he wished to draw attention to some of the information contained therein.

92. Sweden was one of the countries which were introducing the use of nuclear power at the fastest rate. The net electrical output of nuclear power stations already built or under construction would be about 3300 MW, which constituted the highest per capita production of nuclear power in the world.

93. Sweden produced uranium, using the low-grade shale, with only 300 grams of uranium per metric ton, that was available in large quantities in the southern part of the country. The work had been a technical success so far and a \$5 million development programme to reduce production costs had been initiated.

94. The siting of large nuclear power stations for combined district heating and electricity production close to population centres was of considerable interest to many countries and was being closely studied in Sweden.

95. The location of nuclear facilities raised the serious problem of the effects of the increased use of modern technology on the human environment. His Government welcomed the growth in international co-operation in efforts to solve that problem. The Agency should play an active part in such efforts, not only by organizing meetings and symposia on the subject but also by taking part in the work carried out by other organizations; he had in mind, in particular, the United Nations Conference on the Human Environment which it was planned to hold in 1972.

96. The Agency's most important responsibility under NPT would be the application of safeguards, and he noted with satisfaction that the Board had approved safeguards agreements with 30 Member States. His Government, after consultation with the United States Government, would request that negotiations be undertaken with a view to transferring responsibility to the Agency for applying safeguards to material and facilities in Sweden in relation to its bilateral agreement with the United States.

97. Sweden was in favour of the extension of the Agency's safeguards activities which the assumption of its new responsibilities under NPT would entail and was confident that it would discharge

8) GC(XIII)/INF/113/Rev.1.

those responsibilities successfully under the direction of the Inspector General, Dr. Rometsch.

98. Sweden would be a Member of the Board during the coming year and would do its utmost to contribute to the successful completion of one of the most important tasks facing the Board, namely the review of Article VI. There was an understandable desire on the part of many States to make the Board more representative of the present membership of the Agency and that could be achieved through a modest increase in its membership, bearing in mind the need to preserve its efficiency as the governing body of the Agency.

99. Mr. BRILLANTES (Philippines) said that the Philippines had always attached great importance to regional and sub-regional co-operation, a notable example of which was the India/Philippines/Agency regional joint training and research programme using a neutron crystal spectrometer, named the IPA project after its sponsors⁹⁾. It had been organized in 1964 to train workers and conduct research in neutron spectrometry. India had helped to initiate it by the loan and subsequent donation of the principal equipment, the Agency had defrayed the travel and living expenses of the experts and awarded fellowship grants to interested Member States in the region, and for its part, the Philippines had provided the site and the use of the I-MW research reactor at the Philippines Atomic Research Centre in Quezon City.

100. By the end of the project 11 scientists from the Republic of China, Indonesia, Korea, the Philippines and Thailand had undergone intensive training on the installation, operation and use in research of the neutron spectrometer. Most of those countries already had neutron spectrometry projects in their own centres, and India and the Philippines had built their own spectrometers.

101. The successful conclusion of the project had indicated a practical approach in promoting regional co-operation in that part of the world which could be useful to other developing areas. With that end in view the Agency had convened in Manila, in March 1969, the Organizational Meeting for a New Regional Co-operative Project to Succeed the IPA Project, and also two other scientific meetings.

102. The Manila meeting had drawn upon the lessons learned and experience gained from the IPA project and recommended a broader form of agreement, under the auspices of the Agency and administered by a regional committee, to promote training, research and development in nuclear science and technology, including the effective utilization of research reactors.

103. Participating Governments were called upon to offer the Agency Type II fellowships for specific projects under the agreement, support joint programmes, meet the cost of locally available consumable items and provide supporting personnel and facilities when available, while for its part the Agency was requested to bear the cost of the transfer of equipment, fellowships and committee meetings, and to make arrangements for the services and the assignment of experts.

104. The proposal for broader regional co-operation in the peaceful uses of atomic energy had been communicated by the Agency to the countries concerned. Eight countries in the region had already expressed support for the undertaking. India and the Philippines had formally accepted the proposal, and the Philippines had already offered two Type II fellowships. His delegation therefore noted with gratification the continuing efforts in that area.

105. Turning to the Agency's Regular Budget for 1970, he wished to reiterate that Agency programmes for technical assistance, research contracts, food and agriculture and life sciences, and other activities of direct and immediate benefit to developing countries, should not be held up for the purpose of making more funds available for INIS and safeguards activities, which were mainly of interest to the nuclear-weapon States and technologically advanced countries.

106. There would shortly be 103 Member States in the Agency, the majority of which belonged to the developing regions of the world. It would therefore be fair and good management practice to increase those of the Agency's activities that were of direct and immediate benefit to the majority of its Members.

107. Furthermore, although his country supported NPT, as evidenced by its early signing of the Treaty last year, he wished to call attention to the high costs of mandatory and universal safeguards required by the Treaty and to the need for establishing a more equitable system of assessing contributions by Member States to finance the Agency's safeguards activities under NPT. The present safeguards activities of the Agency were financed from the Regular Budget, which came mainly from the contributions of Member States, assessed in accordance with United Nations practice. But the intensity of the safeguards activities required of the Agency was directly related to each country's volume of nuclear installed capacity and activities related to nuclear fuel. Those factors should therefore serve as additional criteria in the assessment of contributions to meet safeguards costs.

108. Since the inception of the Agency the question of financing the safeguards activities had always been the subject of much discussion among Member

9) See documents INFCIRC/56 and Add.1.

States. It had been the subject of lengthy deliberations during the Conference on the Statute and again during the Board's meetings in February 1965 and February 1966. However, no final decision on the matter had so far been reached. In view of the mandatory and universal nature of safeguards under NPT and the disproportionately high costs involved in the implementation of such a safeguards system, the Member States of the Agency should consider a new method of financing safeguards lest all the other resources of the Agency be diverted in the future into such operations. The Board should be urged to look for a new method of financing the safeguards activities of the Agency and report on the matter to the next General Conference.

109. With regard to the review of Article VI of the Statute, his Government strongly believed in the need for an early solution of the problem posed by the composition of the Board that would provide for equitable representation of the various Member States, and adhered to the criteria enumerated in Resolution GC(XII)/RES./241. Its views on that question had already been stated in detail during the meetings of the Board and the Ad Hoc Committee of the Whole.

110. With regard to representation in the Board it should be borne in mind that, in addition to the vastness of its area and its huge population, Asia and the Pacific region had made impressive advances in nuclear technology since 1956. Agency reports indicated that in 1956 Asia had only had one research reactor and no nuclear installed capacity. Today there were in Asia 30 research reactors with 871.75 MW(e) nuclear installed capacity. It was predicted that by 1980 the region would have about 11 000 MW(e) nuclear installed capacity. Those were clear indications that the region of Asia and the Pacific was making steady progress in the efforts devoted to the peaceful application of nuclear energy.

111. As to the role which the Agency might assume in connection with nuclear explosions for peaceful purposes, there would have to be proper international observation to protect health and ensure safety in the surrounding areas. The technological progress attained by the more advanced countries should not have the effect of jeopardizing the health of the population around the area of explosion. In the matter of financial aid, Article XI.B of the Statute provided that upon request, the Agency could assist any Member or group of Members to make arrangements to secure necessary financing from outside sources to carry out projects, but that in extending such assistance the Agency would not be required to provide any guarantees or assume any financial responsibility for the project.

112. Like many other development projects in the developing countries which remained unimplemented because of inadequate financing, projects involving nuclear explosions for peaceful purposes would definitely be shelved unless a more workable financing system was available to developing countries, as envisaged under Article V of NPT.

113. Bearing in mind the resolutions adopted by the Conference of Non-Nuclear-Weapon States, he wished to emphasize the urgency of studying further the ways and means of increasing the funds available for technical assistance and for financing nuclear projects in the developing countries. It was necessary to undertake a comprehensive study of the capital and foreign exchange requirements for carrying out nuclear projects in developing countries during the next decade, to examine ways to secure financing for such projects from international and other sources on favourable terms, and to formulate suggestions concerning the constructive role that the Agency could play in that regard. Along with other countries, his delegation had accordingly sponsored a resolution along those lines.

114. He strongly supported the Agency's role as a supplier of fissionable material under appropriate safeguards. With the growing awareness in the developing regions of the economic advantages of nuclear power and with the gradual establishment of nuclear power plants in some developing countries, that role was bound to grow. The availability of a continuous supply of fissionable material through the Agency would enable developing countries to select their nuclear power systems on purely economic and technical grounds rather than on the basis of other considerations that were not directly related to nuclear power planning. He expressed the hope that in the immediate future the super Powers would be able to make more generous offers of fissionable material to the Agency, thereby enabling it to achieve its central role as the world's supplier of fissionable material.

115. In conclusion, he called for joint efforts and co-operative endeavours in the coming Second Development Decade to ensure that the further application and exploitation of nuclear energy would meet the needs of the human being in a manner befitting his dignity, and to that end pledged his country's voluntary contribution for 1970 to the General Fund in the full amount assessed so as to help the Agency to discharge its growing and expanding activities.

116. Mr. YOO (Republic of Korea) wished first to express his country's deep gratitude to the Director General and his staff for their dedication to the peaceful uses of nuclear energy and their outstanding achievements during the past year. At the same time,

he was happy to extend a most cordial welcome to Ireland, the Agency's newest Member.

117. The past year had marked the tenth anniversary of Korea's atomic energy programme. During those ten years a great deal had been accomplished in reactor engineering, in radiochemical production and in the application of nuclear energy to many other fields of science and technology. The anniversary year had been highlighted by the power upgrading of the TRIGA Mark II reactor from 100 to 250 kW — a task which had been undertaken entirely by Korean scientists and engineers without the help of foreign experts, apart from occasional consultation with the reactor supplier in connection with the technical specifications of the plant. Thus Korea's reactor engineers had demonstrated their own competence and proved the solid foundation of reactor technology in Korea.

118. Another significant event during the tenth anniversary year had been the ground-breaking ceremony for a TRIGA Mark III reactor with pulsing capacity and a power rating of 2 MW. The reactor was intended to go critical in 1971 and at present the construction and civil engineering work was making rapid progress. As everyone knew, the higher neutron fluxes obtainable from the larger research reactors offered definite advantages in neutron physics and reactor physics experiments, as well as in radioisotope production.

119. Korea's nuclear power generation programme was in the hands of the Korea Electric Company, which during the past year had completed its evaluation of power reactor tenders submitted by various manufacturers. The choice resulting from that evaluation was a 600-MW(e) pressurized water reactor of the Westinghouse Corporation. A partial solution had been found to the problem of finance, and construction was expected to start some time in 1970. The Korean Government's Office of Atomic Energy had received much valuable assistance from the Agency in connection with its power programme, and took the present opportunity of expressing its heartfelt gratitude.

120. Other useful work had been done in the country's laboratories. Thermal neutron radiography techniques, using the thermal column of the TRIGA reactor, had been perfected. Sintered UO₂ fuel had been prepared. Wood-plastic combination materials had been produced, and further research was in progress. The carbon-14 dating laboratory, in which the carbon of the specimen to be dated was converted into benzene and mixed with scintillation liquid, had been completed. With the help of that method it had been possible to assign an accurate date to Korean artefacts several thousand years old, the age of which had till recently been a subject of dispute among local archaeologists.

121. The Radiological Research Institute of the Korean Office of Atomic Energy was in charge of nuclear medicine and the clinical applications of radiation and radioisotopes. Thanks to continuing financial support and improved equipment, the Institute had become a centre where cancer patients could be sure of accurate diagnoses and effective radiation therapy. Owing to the rapidly increasing number of patients, the Institute had recently been expanded and now included a Division of Research as well as a cancer hospital. The hospital itself possessed most of the latest equipment for diagnosis and therapy, including a scanning unit, a cobalt-60 remote control therapy unit, a laryngography unit and X-ray radiography and irradiation facilities.

122. Further progress had been made in the applications of radiation therapy and radiochemical techniques in two other large hospitals: Seoul National University Hospital, which had installed a modern scintigraphy unit, and Yonsei University Hospital at Seoul, which had opened a cancer department. Both were using many of the short-lived radionuclides produced by the Atomic Energy Research Institute.

123. Radiation and radiochemicals had also been applied in four types of agricultural work, namely plant mutation, soil chemistry, food preservation and insect control. The Radiation Research Institute for Agriculture, also under the Office of Atomic Energy, was the principal organization entrusted with those tasks. In the work on radiation mutagenesis, efforts were being concentrated largely on producing desirable mutations in rice and soy bean, various strains of which were at present being tested at the Institute's experimental farm. The Institute would also have a gamma greenhouse by the end of the year, where the effects on various plants of chronic exposure to gamma rays could be investigated.

124. The progress of atomic energy in all fields was heavily dependent on training. Korea's training programme included four separate courses relating to power reactors, industrial applications, agricultural applications and medical applications. Nearly 100 electrical and mechanical engineers of the Korea Electric Company had completed the first course during the past year: those were the scientists who would eventually be responsible for the construction and operation of Korea's first power reactor. About 50 scientists and engineers were to be trained each year in each of the courses.

125. Turning to the industrial applications of nuclear energy, with special reference to the developing countries, he said that Korea had two closely related problems. One was to establish the feasibility of an industrial project by means of a pilot plant, and the second to finance the pilot plant. To solve those problems, the Korean Government was

planning to request, through the Agency, assistance under the United Nations Development Programme (UNDP) with a view to establishing its first radiation processing pilot plant. The relevant documents would be submitted to UNDP early in 1970 so that the project could start in 1971. His Government was convinced that the project would mark a turning point in the industrial applications of atomic energy in Korea.

126. In conclusion, he expressed the deep respect which his country felt for the Agency and communicated his Government's assurance that it would give strong and continuing support to the Agency's activities.

127. Mr. da COSTA RIBEIRO (Brazil) said that, anticipating that it would without doubt obtain the unanimous approval of the General Conference, he wished to welcome the decision to reappoint Dr. Sigvard Eklund to the post of Director General. He likewise welcomed the entry of Ireland into the Agency.

128. He wished first of all to refer to the technical assistance programme. Like many other delegates, he regretted that that programme had not developed at the same rate as other programmes which were being given greater attention by the Agency. Possible ways of ending the existing stagnation should be given more thorough study. The Brazilian delegation considered that fusion of the Regular and Operational Budgets would probably be the best means of achieving that end, although an amendment of the Statute would be required.

129. Member States had been recommended to increase their voluntary contributions. Brazil's contribution for 1970 would be slightly higher than the proportion of its assessment suggested by the Director General.

130. The technical assistance activities carried on by the Director General and the Secretariat were praiseworthy, considering the limited resources at their disposal. He expressed his satisfaction with and appreciation of the Agency's contribution to Brazil's nuclear programmes.

131. With regard to the review of Article VI of the Statute, the Brazilian delegation shared the concern of other delegations which wanted a formula to be found which, without departing too far from the present wording, laid the basis for a reform acceptable to the majority of Member States. For that reason, the Brazilian Government was in favour of a solution along the lines of the Italian Government's revised proposal.

132. The action taken by the Agency in requesting the main States which were suppliers of special

fissionable materials to increase the amount of enriched uranium to be provided through the Agency to interested Member States was commendable.

133. Referring then to the Agency's programme for 1970, he said that the Brazilian delegation wished to draw attention to two activities of universal interest. The first was the work on hydrology which for the past two years had been the subject of close co-operation between the Agency and the Brazilian National Nuclear Energy Commission; there were plans for extending the programme which the Agency might undertake the following year in the Latin American countries. The second activity which he had in mind was the work on dosimetry, in view of the modest but effective effort the Agency was devoting to the subject. At a meeting sponsored recently by the Agency, the growing need to devote more resources to dosimetry in Latin America had been demonstrated. The Commission would support the steps taken by the Director General in that direction.

134. With regard to the progress made by Brazil in the peaceful uses of atomic energy, he said that the Government's contribution to the Commission's budget had been increased in 1969, making it possible to carry out a programme which included the improvement of already existing laboratories, the construction of new installations and an increase in the senior staff.

135. The Commission was continuing to support the activities of the country's three main centres for nuclear studies, which, like the Commission itself, were maintaining their collaboration with the country's universities and research institutions.

136. Brazil was continuing to develop and intensify its search for uranium and thorium, using advanced techniques, modern equipment and a greater number of staff. The surveys carried out in the Poços de Caldas deposits in the State of Minas Gerais offered new prospects from the point of view of the economics of ore prospecting in that region, but the reserves at present being investigated did not exceed a few thousand tons of uranium. There were other districts in that region with encouraging prospects. Still better prospects had come to light in the north-eastern region, where, in addition, the minerals could be more easily processed industrially. Other regions of Brazil continued to be the subject of systematic surveys.

137. Various Brazilian institutions were making rapid progress in dosimetry. The Commission was re-equipping its installations and drawing up a new programme of work for its dosimetry laboratory so as to create the capacity and conditions needed to enable it to discharge its new and extended responsibilities.

138. The country's first nuclear power station, with a capacity of 500 MW(e), was to be constructed in the central southern region. The relevant technical and economic studies had been carried out by Brazilian study groups with occasional foreign participation; the Agency had contributed in arranging the visit of a group of experts to Brazil from April to June 1968. Conclusions relating to the siting of the power station were now being formulated and the specifications for the installations and equipment were being drawn up. It was foreseen that the power station would be incorporated in the grid in 1976.

139. The intensive study of the large reserves of water power in Brazil was being continued in order better to determine their power-producing potential and economic viability, taking into account the necessary transmission lines. Many of those reserves required an investment of less than \$200 per kW of installed power, which was economically attractive for hydroelectric power stations. It was because of the existence of that very economic water power potential that, in the nuclear power programme, provision had been made — to give some idea of

the orders of magnitude involved — for levels of 1500 MW(e) in 1980, some 13 000 MW(e) in 1990 and a total installed capacity of 35 000 MW(e) in the year 2000.

140. The Institute of Radioactivity Studies in Belo Horizonte was continuing its studies on the development of natural-uranium, heavy-water reactors, with the possibility of using thorium. The Atomic Energy Institute in São Paulo was studying high-temperature reactors, while the Institute of Nuclear Engineering in Rio de Janeiro was carrying out studies on fast reactors.

141. Finally, he wished to reaffirm the confidence and hope inspired in the Brazilian authorities by the lofty aims of the Agency. Despite the difficulties that had been encountered, the Agency had rendered real services to Member States, and in particular to the developing countries. It was his fervent hope that co-operation between Member States would make possible the rapid development of the Agency's activities on an international scale so that it could fully attain the objectives laid down in its Statute.

The meeting rose at 5.45 p.m.