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on Wednesday, 27 September 1967 at 10.40 a.m.

President: Mr. NEUMANN (Czechoslovak Socialist Republic)

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* GC(XI)/368.

ADOPTION OF THE AGENDA AND ALLOCA- TION OF ITEMS FOR INITIAL DISCUSSION [GC(XI)/367]

1. The PRESIDENT suggested that the Conference accept the recommendations made by the General Committee in regard to the agenda and the allocation of items for initial discussion [GC(XI)/367].

2. *The recommendations of the General Committee were accepted, and the agenda was thereby approved.*

GENERAL DEBATE AND REPORT OF THE BOARD OF GOVERNORS FOR 1966-67 [GC(XI)/355, 355/Corr.1, 366]

3. Mr. SEABORG (United States of America) said he wished to convey the deep regret felt by the United States delegation at the death of Sir John Cockcroft, who had been an outstanding pioneer in the field of nuclear energy and who had done so much towards establishment of the Agency.

4. He deeply appreciated the honour of representing the United States for the seventh time at

the General Conference of the International Atomic Energy Agency and of addressing his fellow delegates to the Conference, and noted with gratification that the success achieved to date by the Agency was the composite result of the work done by all its staff, who were to be congratulated on their competence and dedication to the pioneer cause of the peaceful uses of nuclear energy.

5. He wished to read the following message to the Conference from the President of the United States of America:

"I welcome this opportunity to speak, through Dr. Seaborg, to the Delegates to the Eleventh General Conference of the International Atomic Energy Agency.

"Today, we realize, more than ever before, the power of science and technology to influence economic, social and political developments in all nations and regions of the world. We also realize that the fullest development of scientific knowledge and the effective peaceful uses of that knowledge demand international co-operation and goodwill of an unprecedented degree.

"We stand today at a crossroad in man's quest for peace and progress. If we can confine its future development to peaceful purposes, the atom will be a powerful force for improving the lives of people all over the world. If more and more nations follow the costly road toward military exploitation, the atom will be a heavy burden on their ascent to a better life — and an increasing threat to the peace of the world.

"We still have the chance to do something about this. In Geneva and the world's capitals, we see hopeful progress toward a treaty which will halt the spread, of nuclear weapons. Your task here is the exciting and hopeful one of finding more and better ways of putting the peaceful atom at the service of all mankind. As you accomplish your task and as you return to your scientific institutions and your capitals, I urge you to reflect on the danger to our common goals and even to our very existence which lies along the path of nuclear proliferation.

"In sending you the best wishes of the American people for another successful and productive Conference, I commend to you the inspiring words of your own Statute: "The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity throughout the world".

6. It was a pleasure to contemplate the Agency's increasingly meaningful future in the new headquarters building which the Government of Austria proposed to construct in the Donaupark and make available to the Agency on such generous terms. He

wished to take the opportunity of looking into that future, particularly with regard to scientific progress and the applications of nuclear science and nuclear energy to basic world problems.

7. It was generally agreed that the rise of science was a central phenomenon of the times, that its growth and influence pervaded daily life, and that it related directly to almost every current major problem of mankind — to war and peace, population and hunger, water and weather, as well as to labour and leisure. Modern communication had shrunk the world and placed all its people in intense social involvement, but at so rapid a rate that economic, social and cultural differences had been magnified before other branches of science and technology had had a chance to help solve the most intolerable of those differences. It was now imperative for all those involved in worldwide co-operation in scientific and technological endeavours to find ways to use their energy and resources to reconcile those differences and to bring all men the fullest benefits of the twentieth century.

8. Energy was one factor central to all modern development, and the Conference's own field of nuclear energy was clearly the most promising and versatile source of energy for the near and distant future, provided greater resources and co-operation could be devoted to its development and application. The rapid acceptance of nuclear power plants as a reliable and economic means of generating electricity had led the United States to broaden its thinking on the application of nuclear power. Amongst other things, scientists were beginning to take a serious look at some of the possibilities that might result from the production of very low-cost electricity in very large reactors, and the use of such reactors for multiple purposes. The United States would soon be starting construction of a large dualpurpose generating-cum-desalting plant in the Los Angeles area of California which would generate 1 800 000 kW of electricity and, at the same time, desalt 150 million gallons of water per day. One could now think in terms of how such power and water, produced by plants that some day would be much larger and yet relatively less costly to build, could be utilized in other ways besides supplying large metropolitan areas with electricity and water.

9. There were several most promising possibilities. One involved the building of nuclear power and desalting plants on the arid coasts of the world and the creation of productive agricultural communities in those otherwise unproductive areas. Such a plan would call for the nuclear plant to produce power, fresh water and even its own fertilizers to support a crop specially developed to thrive under the conditions created. During the past summer, a task force from Oak Ridge National Laboratory had undertaken a study of that type of agro-industrial complex, operating under up-to-date, scientifically controlled conditions. Among the crops

considered were special, recently developed breeds of grain. The Agency had sent one of its senior staff members to join in the study, which had aroused great interest in several countries. It was expected that reports, which would be made available to the Agency and interested Governments, would be issued later in the year or early in 1968.

10. It was interesting to note some of the figures that had emerged from the preliminary study: a complex that would produce 10 000 MW of electricity and 400 millions gallons of water per day could also produce a sufficient quantity of ammonia and phosphorus per day to yield enough grain to feed tens of millions of people a year at a level of 2400 calories per day. Part of that food could be produced by highly scientific farming on 200 000 acres of previously unproductive land surrounding the complex, but most would come from increased crop production on other land making use of fertilizer obtained from the complex. Such an idea, seriously pursued, might well lead to a great new contribution by the atom to the welfare of mankind.

11. With the advent some day of compact units, which made very low-cost nuclear power available to a greater number of countries, Man could also look forward to that power being used in a variety of ways tailored to the needs of an individual country or region. Nuclear plants could be used not only to produce electricity and fresh water, but to help process raw materials from the earth, sea and atmosphere, to produce chemicals, fabricate new materials and products and recycle waste materials. It was foreseeable that in due course such plants might greatly affect the economy of a country, helping it to exploit its most common resources and to develop new industries and markets from other resources whose use had become economic. Such developments, once started, might have striking effects on an entire country, particularly one making its first major strides towards industrialization. Eventually, regional barriers that might have existed for centuries in some areas of the world would break down, giving further impetus to development as well as the progress of knowledge.

12. Most other applications of nuclear energy were extensions of technologies already beginning to be used successfully and in order to derive full benefit from many of them, international co-operation was essential. One which came to mind was the role of nuclear energy in world-wide weather forecasting, as initiated by the World Meteorological Organization with its "World Weather Watch", in which weather stations in remote locations, which were unmanned and powered by small reactors or isotopic power sources, would play an important part. Such stations, strategically located all over the world, would be the sensors that, together with the weather satellites, would supply a stream of information on global weather which, through continuous analysis by a computerized weather laboratory, might make possible highly accurate, long-

range forecasts for every place on earth. The proper use of such forecasts would save some countries millions of dollars annually, quite apart from the human losses and misery it might avert. The next step beyond accurate global weather forecasting would be some form of weather modification; as regards extensive use, that might be a long way off, but serious investigations were already under way and the prospects seemed hopeful.

13. Another important future use of remote nuclear-powered stations was as synchronized orbiting communications satellites capable of transmitting information and television pictures directly to any individual receiver regardless of its location on earth. It would appear that such satellites could ultimately serve as a world-wide communications network which, combined with the computerized information networks now being developed, could link all mankind.

14. There were other fascinating prospects for using nuclear energy in the familiar areas of biology and medicine, industrial applications and the peaceful uses of nuclear explosives, but because so much of Man's long-range future depended on success in the near future, attention should be given to the prospects of the International Atomic Energy Agency itself.

15. Having watched the Agency's growth from infancy to mature achievement over the past ten years, he felt it might be useful to try to foresee the character of its growth and responsibilities during the next decade. He had already outlined the great advances and promise of the Agency in a speech he had made on 31 August in Rochester, New York, copies of which would be made available to delegates in printed form.

16. He considered that if even a significant fraction of his predictions on the future uses of energy were realized, and having regard to the international co-operation that was an essential factor in many of the developments mentioned previously, the Agency's programmes could reasonably be expected to grow in usefulness and importance and to become an integral part of the development and application of nuclear science and technology.

17. For instance, the sizable growth in nuclear power that had already taken place was bound to lead to an increased demand on the Agency to assist Member States in assessing the role that nuclear energy could play in their economies. In addition, and to an increasing degree, the Agency would be called upon to advise nations on problems of reactor siting and safe operating procedures and to deal with the international implications of waste disposal. Those increased demands would have to be reflected in the Agency's future programmes for training, advisory services and equipment.

18. As another example, he expressed the great

confidence of the United States in the progress and promise of the Agency's safeguards programme and stressed his Government's warm dedication to international safeguards, as a means of ensuring that peaceful nuclear activities did not contribute to the spread of nuclear weapons, and its policy of encouraging the widespread application of the Agency's Safeguards System.

19. It was envisaged that the Agency should play an important part in connection with the proposed non-proliferation treaty. With the application of Agency safeguards to a number of its own reactors, including the Yankee Nuclear Power Station and the irradiated fuel reprocessing plant of Nuclear Fuel Services, the United States had demonstrated its conviction that those safeguards would not interfere with peaceful nuclear energy activities.

20. He noted with pleasure that, as a result of the Agency's ten-year experience with safeguards, agreements had been signed whereby the Agency assumed responsibility for administering safeguards in relation to 16 United States bilateral agreements with other countries, and that the Board of Governors had very recently approved agreements transferring to the Agency the administration of safeguards in relation to United States bilateral agreements with the Republic of Korea, Colombia and Venezuela.

21. He still believed there was a serious and increasing need for additional safeguards inspectors, a need which could most effectively be met by an expanded Agency training programme in international safeguards. The United States was prepared to co-operate fully with the Agency in that endeavour.

22. His country's faith in the Agency's development was based on the greatly increasing direct and indirect benefits it expected all Member States to receive from participation in the Agency's programmes. The safeguards programme was a prime example, but there were many others, of which he could mention only a few.

23. For instance, in connection with the proposed International Nuclear Information System (INIS), the United States foresaw an important role for the Agency in developing an international co-operative system for the collection, processing and distribution of nuclear information. It also felt there was a broader role to be played by national and regional organizations in collecting and analysing information such as that contained in Nuclear Science Abstracts and making it available to the Agency and through it to other countries, not least the developing countries.

24. The Agency's scientific meetings not only resulted in the increased dissemination of scientific and technological data but provided individual scientists with the opportunity for invaluable personal discussion with their colleagues in other countries.

25. The question of providing assistance to the developing countries covered a vast and complex field, in which the Agency was making a significant contribution, not least as regards the problem of adapting advanced techniques and equipment to the needs of developing countries. In his view, the provision of experts, equipment and fellowships was the most important direct way for the Agency to discharge its responsibilities to the developing countries, and the chronic lack of adequate funds to finance its technical assistance programme was one of the most serious problems the Agency faced. Requests for technical assistance would increase as nuclear techniques brought to bear more directly in helping the developing countries solve their problems. If the Agency was to meet those increasing needs, the technical assistance programme must grow, and its failure to do so was due to the inadequate voluntary contributions. It was clear from the Review of the Agency's Activities [1] which the Board had carried out at the request of the General Conference [2] that, although a large proportion of the Agency's resources had in fact been devoted to meeting the needs of the developing countries, more could and should be done in future, but that the limiting factor would probably be the availability of funds.

26. As he had previously indicated, his delegation foresaw increased demands on the Agency in many areas of its activity. It strongly supported the Budget for 1968 [3] and hoped that, when drawing up the programme for 1969-70, Member States would ensure that the Agency had the necessary resources in terms of funds, information and manpower to meet its increasing responsibilities. The United States would provide some 35 % of the total cash contributions made by Members to finance the Operational Budget for 1968 [4]. In addition, for the ninth consecutive year, it would make available up to \$50 000 worth of special nuclear material for use in Agency projects in research and medical therapy. It would also continue to make available to the Agency on a cost-free basis the services of its experts, training opportunities in its institutions and certain items of equipment, whenever it could. Finally, it would continue to nominate outstanding people for the Secretariat and for technical assistance posts.

27. The likely pattern of future developments, as he had attempted to project them, posed a challenge not only to the Agency but to all men, in whatever field of activity, of whatever country or condition, to strive with intelligence and goodwill to contribute their utmost to the betterment of the human condition.

[1] GC(XI)/362.

[2] ByResolution GC(XI)RES/217.

[3] GC(XI)/360.

[4] For full details, see document GC(XI)/364/Rev.3, para. 1, footnote c) to the table.

28. Mr. QUIHILLALT (Argentina) said there was no need for him to dwell on Argentina's consistent and enthusiastic support of the Agency, which was a logical consequence of its complete identification with the Agency's ideals. From the establishment of the preparatory Commission down to the present, Argentina had contributed extensively to the work of the Agency, lending it moral support and contributing staff and money as best it could.

29. In those circumstances he felt justified in expressing concern as to the relative importance of the goals that had been achieved, as viewed in the light of those which had been envisaged when the Agency was established, and in asking to what extent it had fulfilled its basic objective as defined in the Statute, that of seeking to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world".

30. He did not think it was unfair to say that the work of the Secretariat, which had been very useful in other respects, had thus far made no appreciable progress in contributing to the peace and prosperity of the peoples of the world. It was in matters of health that it had doubtless made its most positive contribution — by drafting regulations and standards which were universally accepted and by promoting and popularizing the use of radiation and radioisotopes in research, diagnosis and therapy.

31. He also wished to leave entirely aside the question of the responsibility of the Secretariat to contribute to world peace. As far as it could, it had so contributed, by intensifying the exchange of ideas and information between various nations. It was the Member States which must bear the responsibility for the very limited achievements in that direction. For a number of reasons there had been a considerable delay in concluding a universal agreement on atomic disarmament, in which matter the Agency ought to exercise the main control function.

32. In the absence of such an agreement it had been necessary to experiment with the only feasible alternative and develop a system of safeguards which, while providing adequate guarantees, would not impede development of the peaceful uses of atomic energy or place an excessive financial burden on the countries that were applying it. Pending the conclusion of such an agreement on a world-wide scale, there were areas in which the system could be applied on a trial basis, particularly Latin America which, with its peaceful traditions, had concluded a Treaty for the Prohibition of Nuclear Weapons. The reasons for its application on a trial basis were that all the guarantees requested of the nuclear Powers to enable the Treaty to come into force had not yet been given and the contribution to world peace would obviously be merely illusory if only the nations that did not possess nuclear weapons were subject to control.

33. Nonetheless, Argentina was that very day signing the Treaty for the Prohibition of Nuclear Weapons in Latin America and, with regard to Article 28(1), wished to express its satisfaction with the inclusion of provisions safeguarding the peaceful development of nuclear energy. It was Argentina's understanding that those provisions ensured the use of atomic energy as an indispensable adjunct in the process of Latin American development and that they were therefore a basic prerequisite for achieving an acceptable balance of mutual responsibilities and obligations between the nuclear and non-nuclear Powers in so far as the spread of nuclear weapons was concerned.

34. Argentina believed that the Agency should play an outstanding role in connection with the Treaty, not only so that it could realize one of the aims for which it had been established but also so that it could ensure that Member States would derive the maximum benefit from its impartiality and experience in dealing with the staffing and financial problems involved in setting up a system of security and safeguards.

35. As to contributing to the prosperity of nations, it had not been possible to achieve very much through technical assistance, the main instrument for the purpose. The basic idea that atomic energy should help reduce the gap between different countries in the matter of technical progress and living standards was still only an ideal. It should be realized that that was the crucial problem and the one to which first priority must be assigned if any tangible results were to be achieved, but it should also be realized that the sums made available to the Agency for carrying out such an ambitious programme were ridiculously low. It was imperative that financial support for the provision of technical assistance should be increased, both by larger contributions on the part of the Great Powers and by a change in the system of voluntary contributions. One other problem was the sceptical attitude — accompanied by a withdrawal of co-operation — which he understood had been taken by certain Member States.

36. As far as the situation in Argentina was concerned, the level of activities and achievements in the peaceful uses of atomic energy was such that it was already possible to formulate a clearly defined policy. A medium-term nuclear energy programme had therefore been drawn up aiming at (i) the development of nuclear raw materials of domestic origin; (ii) the use of atomic energy in solving the problem of increasing electricity requirements; (iii) promoting the use of large radiation sources to improve the health and well-being of the population and intensifying their use in medicine, biology, industry and agriculture; (iv) improving the production of basic materials by the large-scale use of techniques for food preservation, pest elimination, the optimum use of fertilizers and soil control.

37. The past year had been a period of intensive work in Argentina and had been characterized by definite progress. Among the outstanding achievements had been the completion of a production and experimental reactor designed and built entirely in Argentina (like the three earlier reactors). The new reactor, which was located at the Ezeiza Atomic Centre and had become critical in May, would enable Argentina to produce new isotopes in greater numbers and on a commercial scale and thereby to reduce its imports of them considerably. A building and installations for the group working on problems of safety, hazard prevention and radiation control had also been put into use at the Centre.

38. Negotiations were also progressing satisfactorily with regard to the construction of the Buenos Aires nuclear power station. About a dozen bids had been received for the project even though firms had not been officially invited to tender. All the bids provided for financing arrangements, some of which were very interesting, and the authorities were at present studying them before making a final decision.

39. The interest that had been shown in that project by nuclear industrial centres all over the world and the opportunities for obtaining help in implementing it showed that the desire to use nuclear electric power in promoting the progress and development of Latin America was not an utopian dream. He was confident that the first Argentine power reactor would become a reality within the scheduled period, and he hoped that the nations with power problems similar to those of Argentina would also be able to solve them in the near future.

40. Argentina, reaffirming its policy in favour of international solidarity, would continue to make its own special contribution to the activities of the Agency.

41. Mr. ROUX (South Africa) said that since the tenth regular session of the General Conference in the previous year, which had constituted a landmark in the Agency's activities, the Agency had continued its work with renewed vigour. That had been reflected, for example, in the review of the Agency's activities which had, to a large extent, been aimed at further promoting the uses of atomic energy in the developing countries.

42. The Director General had appealed to Member States to increase their voluntary contributions to the General Fund to the level of their assessed contributions to the Regular Budget, with a view to enabling the Agency to overcome one of its major difficulties, namely its inability to fulfil its obligations with the limited funds available. He earnestly urged Member States to respond to that appeal. As the pace of development in the use of atomic energy increased, an ever-growing number of nuclear techniques would be perfected and the

developing countries would need more and more assistance from the Agency in order to use those techniques to the best advantage. Thus it was regrettable that, despite the Director General's appeal, there had been little or no increase in the total value of the contributions to the General Fund, which was used to finance such assistance. Since 1961, when the delegation of Brazil and his delegation had jointly sponsored a resolution urging Member States to pledge contributions to the General Fund in the same ratio as their assessed contributions to the Regular Budget [5], South Africa had constantly acted in accordance with that resolution and was continuing to do so in respect of 1968.

43. The more advanced Member States were also required to guide and assist those Members — and non-Members — in which the development of the peaceful uses of atomic energy was still at an early stage. Geographical considerations would inevitably play an important part, and South Africa fully realized that it was in a unique position to assist its immediate neighbours and other African States in many applications of atomic energy. On more than one occasion his Government had offered to consider requests for assistance, especially from other States on the African continent, and it now wished to reiterate that offer. In that connection, he was pleased to announce that his Government had decided to set aside an amount each year to form a fund which could be used to finance the provision of appropriate technical assistance to countries in the area of Africa and the Middle East. In that way it would, once again, be responding to the Director General's appeal in an effective, if indirect, manner since the Agency would not be involved in any expenditure.

44. His delegation, consisting largely of scientists, had welcomed the Director General's suggestion that delegations should submit written statements on developments relating to nuclear energy in their countries, before the General Conference, for publication by the Agency, since the resulting document would be very detailed and extremely valuable to other Member States. Accordingly his delegation had submitted a summary of the most recent developments in South Africa for subsequent publication by the Secretariat and he hoped other delegations would do likewise.

45. The application of safeguards should keep pace with the growth in the use of atomic energy to ensure that it was used only for peaceful purposes. He welcomed the expansion in the Division of Safeguards and Inspection, but pointed out that, in addition to having enough inspectors, the existing high level of competence in the Division must be maintained. In that connection he recalled that Article VII.D of the Statute laid down that the Agency should "secure employees of the highest standards of efficiency, technical competence, and

[5] GC(V)/RES/100.

integrity". It was undesirable that so many inspectors were employed on short-term contracts; such contracts did not provide a sound basis for efficient operation and their average duration should be considerably extended in future.

46. With regard to the proposal for extending the Agency's Safeguards System to plants for processing or fabricating nuclear materials, it was essential to define what was meant by "processing or fabrication plants". Furthermore, care should be taken to ensure that safeguards were essential and that the Agency did not hamper the development of the peaceful uses of nuclear energy by applying them to all plants in the fuel cycle.

47. His delegation warmly supported the recent proposals for setting up INIS, since there was little point in spending time and money on research if the results were not made readily available quickly. He believed the operation of INIS would be one of the Agency's most important tasks in future.

48. The Agency was already playing a very valuable role in the dissemination and exchange of information through its scientific conferences, symposia and seminars. Those meetings were, however, necessarily restricted in scope and the number of participants was limited. He therefore suggested that the time had come for the Agency to consider the possibility of holding a fourth United Nations Conference on the Peaceful Uses of Atomic Energy, particularly as the matter was to be raised at the current session of the General Assembly and such conferences provided an opportunity for a comprehensive review of all atomic energy activities. Moreover, it was generally agreed that the United Nations should call on the Agency to play a much larger part in all such activities. One of the subjects requiring early consideration was the extent to which financial and other responsibilities should be shared. If the General Conference failed to agree on that subject, it should be referred to the Board of Governors.

49. Turning to administration and finance, he said he strongly supported the Director General's proposals to implement the recommendations of the General Assembly's Ad Hoc Committee of Experts to Examine the Finances of the United Nations and the Specialized Agencies. Those recommendations were sound and would help to achieve uniformity of procedure within the United Nations family.

50. His delegation thanked the Austrian Government for its generous offer to provide the Agency with a permanent headquarters at the Donaupark.

51. He was sure many countries, like South Africa, while eager to embark on nuclear development programmes, were alarmed at the enormous cost of such programmes in the advanced countries. Many Member States had reached the stage at

which they needed to undertake at least an embryonic research programme, and the Agency could play a vital part by providing guidance and assisting in the training of the initial group of scientists. While it was true that the cost of fully implementing such a programme might subsequently seem to be prohibitive, he would point out that South Africa had learned, over the past few years, that with determination and the help and guidance of more experimented countries and the Agency a surprising amount of progress could be made with very limited resources.

52. Regardless of the fact that their views differed on many subjects, Member States must combine their efforts to achieve the Agency's main objective of promoting the peaceful uses of atomic energy so as to contribute to the health and prosperity of all peoples throughout the world. The degree of co-operation between Member States would determine the extent to which they could jointly promote peace and the outcome of their efforts to help one another and thus achieve the Agency's objectives.

53. Mr. SANDOVAL VALLARTA (Mexico) wished to express his condolences on the death of Sir John Cockcroft, the great initiator of the age of the industrial and peaceful uses of atomic energy.

54. At the tenth regular session of the General Conference, the Mexican Government had reported on the preparatory work for the drafting of a treaty for the prohibition of nuclear weapons in Latin America (known as the Treaty of Tlatelolco) and on the part that the Agency would play in applying its system of safeguards and inspection to ensure compliance with the Treaty [6]. It was a matter of public knowledge that the Treaty had been approved in Mexico City on 12 February 1967 and opened for signature there on 14 February, on which date it had been signed by the duly authorized representatives of Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Panama, Peru, Uruguay and Venezuela. It had subsequently been signed by Nicaragua, Paraguay, Brazil, Trinidad and Tobago and the Dominican Republic, and on the present day, 27 September, by Argentina. That meant that the Treaty had been signed by 20 of the 21 States that had been members of the Preparatory Commission for the Denuclearization of Latin America which had approved it in Mexico City.

55. At the February meetings of the Board of Governors the Governor from Mexico had requested that the Board's agenda for its series of meetings in June should include an item dealing with the Treaty, at which time he had indicated that an approved text would soon be submitted officially to the Agency for distribution.

56. At the June series of meetings, the Director

[6] GC(X)/OR.103, paras 74 and 75.

General had presented a memorandum setting forth clearly and concisely the relations between the Agency and the countries which had signed the Treaty of Tlatelolco, as far as safeguards and inspection were concerned.

57. Article 13 of that Treaty provided that:

"Each Contracting Party shall negotiate multi-lateral or bilateral agreements with the International Atomic Energy Agency for the application of its safeguards to its nuclear activities. Each Contracting Party shall initiate negotiations within a period of 180 days after the date of the deposit of its instrument of ratification of this Treaty. These agreements shall enter into force, for each Party, not later than eighteen months after the date of the initiation of such negotiations except in case of unforeseen circumstances or force majeure".

58. On the same occasion the Governor from Mexico had proposed, and the Board had agreed, that the Director General should be given the responsibility of preparing a draft agreement between Mexico and the Agency to cover the above-mentioned points, for consideration by the Government of Mexico and the Agency. That work would be carried out in the near future in accordance with the provisions of the above-mentioned Article 13.

59. The Mexican Government, in accordance with the provisions of the Mexican Federal Constitution, had submitted the Treaty of Tlatelolco for consideration and approval by the Senate of the Republic during its meetings beginning on 10 September. The Treaty had been approved unanimously at the meeting of the Senate on 12 September. The instrument of ratification had been deposited by the Mexican Government on 19 September, and the Treaty had come into force for Mexico on the same date, the Mexican Government being depositary Government under Article 26 of the Treaty. As a result the Mexican Government would, in accordance with the above-mentioned Article 13, immediately start formal negotiations on conclusion of a bilateral agreement between Mexico and the Agency to cover the application of the Agency's system of safeguards and inspection to all nuclear activities taking place in the territory of Mexico. In that connection, the Governor from Mexico would request the inclusion in the agenda for the Board's series of meetings in February 1968 of an item relating to the Board's consideration of the said bilateral agreement.

60. On 7 October 1965 an agreement had been signed in Washington between Mexico, the United States of America and the Agency for the establishment of a joint study group to consider the feasibility of a nuclear plant for producing fresh water and electric power in the arid areas of north-western Mexico and the south-western part of the United States. The joint study group had met three times (in 1965, 1966 and 1967). The Mexican members

had presented, or would present, various studies on the climatology, oceanography and hydrology of north-western Mexico, on the electric power requirements in that area (from 500 to 2000 MW(e)), and on the agricultural use of water with a flow-rate up to 20 m³/s at a cost of from US\$0.048 per m³. Preliminary studies had also been carried out on the possibility of building the proposed plant in the arc of the coast of the Gulf of California between San Felipe (State of Baja California) and Puerto Peñasco (State of Sonora).

61. Work was continuing on the erection of buildings for the Mexican Nuclear Centre and on the purchase and installation of equipment. A substantial portion of the apparatus and equipment had been built in Mexico.

62. In September 1966 the Reactor Group had moved to the new buildings in Salazar (State of Mexico) where the Triga III reactor was to be installed. It would have a power of 1 MW(th) in steady-state operation and of 3000 MW in pulsed operation, and was expected to become critical early in 1968. The reactor would be used for the production of radioisotopes, the consumption of which had multiplied sixfold within a period of three years, for activation analysis in industry and agriculture, and for the training of specialized staff, etc.

63. With a view to meeting future requirements an analogue computer had been designed and built for solving problems relating to irradiation time in the production of radioisotopes, an experimental rig utilizing the Mössbauer effect had been installed and put into operation, and various studies had been published on the optimization of irradiation schedules for the production of radioisotopes as a function of demand.

64. The tandem 12-MeV Van de Graaff accelerator, now in the final installation and testing stage, would be able to accelerate heavy ions having energies of up to 54 MeV. It would be used mainly for experimental research on nuclear structure.

65. In collaboration with the University of Mexico, work had been completed on the design and construction of the deflector and selector magnets of the accelerator laboratory, which would include systems for magnetic field stabilization that were not to be found in commercial magnets, and also on a magnetic spectrograph of very wide range and high resolution, capable of measuring particle polarization.

66. In the instrumentation laboratory the staff was studying, designing, building and analysing instruments and devices which were either not available on the commercial market, or which could be produced in Mexico at greatly reduced cost. It had now become possible to grow sapphire and

ruby crystals and to control their chemical composition. Work was now under way on the developments of monocrystals of alkaline halides and silicon detectors with phosphorus diffused at high temperature.

67. Research on theoretical nuclear physics, which was being done in collaboration with the University of Mexico, aimed at achieving an understanding of the fundamental phenomena of nuclear structure and reactions, for example of the elementary particles related to the origin of nuclear structure given at the Agency's International Centre for Theoretical Physics by the head of the Mexican theoretical nuclear physics programme.

68. In close collaboration with the experimental group working with the Nuclear Centre's accelerator, an electronic computer programme had been drawn up for calculations on nuclides between oxygen-16 and calcium-40, and a study was being made of the problem of analogous isobaric states.

69. The National Nuclear Energy Commission organized regular training courses in nuclear techniques at various levels, beginning with the sub-professional. With a view to improving the practical training given in the courses organized or sponsored by the Commission, low-cost electronic equipment was being built for the handling and utilization of radioactive substances. The Commission had awarded 153 fellowships in the past year for specialized study, more than one third of them for study outside Mexico.

70. Mexico had followed with interest and sympathy the Agency's project for the establishment of an international nuclear information and documentation centre and was prepared to support it.

71. Mexico had made ample use of international technical assistance, under both the United Nations programme and that of the Agency, in the form of fellowships, provision of experts and equipment, and research contracts like that relating to the maize study. As a modest token of its appreciation Mexico had decided to raise its voluntary contribution to the Agency's General Fund to US\$16 500 for 1968. In that connection he viewed with satisfaction the decision to dissociate the sending of experts from the provision of equipment. That decision would undoubtedly increase the Agency's opportunities for providing technical assistance.

72. Mr. MARULANDA (Colombia) said the delegates present were directly responsible for the general policy governing the peaceful uses of atomic energy in their respective countries and that task was very different in the developing countries from what it was in the advanced countries. The Agency had been established for the specific purpose of promoting the civil uses of nuclear energy throughout the world, particularly in those countries which were scientifically and economically less-developed. With

its very limited financial resources, the Agency was meeting requests for technical assistance and in that connection he wished to thank the Director General for the excellent work he was doing.

73. He wished to take the opportunity to describe some of the scientific activities being carried out at the Nuclear Institute in Colombia.

74. The nuclear reactor at the Institute, donated by the United States Government, had been operating for two years without interruption, and was being used for research, training and the production of short-lived radioisotopes.

75. Research had been carried out on power calibration and flux distribution with a view to establishing precisely neutron density at specific points where samples were irradiated. The sensitivity of the reactor and the correlation between its reactivity and temperature had been determined; its power had been increased from 10 to 20 kW with a view to reducing the irradiation time. It was hoped that the reactor would be operating at 50 kW by the end of the present year. A large number of students from Colombian universities had played a direct part in the research work.

76. The possibility was now being investigated of modifying the reactor core with a view to achieving a maximum flux density by providing an irradiation point in the centre of the core, without affecting the critical mass of uranium-235.

77. Pneumatic systems were being designed for the transmission of the samples already irradiated to the various laboratories in the Institute within very short periods (tenths of a second).

78. Work was now being carried out on the following subjects: (i) reactor pulsing (experiments to measure reactivity had been started with the reactor in a sub-critical state, using a Kaman 14.3 MeV neutron generator); (ii) the dynamic behaviour of the reactor and determination of the transfer function; and (iii) spectrometry of epithermal neutrons.

79. With regard to training, co-operation was being maintained with the universities through courses and seminars and by providing advice to people studying for degrees in chemistry, electronics, mechanics and civil engineering. Theoretical and practical courses were also being held in the Physics Faculty of the National University and similar courses would be held in the Engineering Faculty as from the beginning of the following year.

80. A considerable amount of work was being carried out in agriculture, particularly with regard to the three staple food products in the national diet: maize, rice and kidney beans.

81. A contract had been concluded with the

Agency to carry out research on: (i) the most suitable time for using nitrogen in maize cultivation; (ii) methods of applying nitrate fertilizer; (iii) the interaction between nitrogen and phosphorus; and (iv) the most suitable source of nitrogen for maize cultivation.

82. At the "La Libertad" experimental farm in the eastern plains various types of research had been carried out with phosphorus-32 produced in the reactor in order to determine the most appropriate method of using phosphate fertilizers in rice cultivation; that work was being performed in conjunction with the National Federation of Rice Growers.

83. The response of different varieties of kidney beans to neutron and gamma irradiation had been studied, and that had made it possible to obtain strains in which the shoots offered higher resistance to disease; preparations were being made to cross those strains with commercial varieties.

84. The use of liquid fertilizers with fruit-tree grafts (peach, plum and apple trees) had also been studied in the field for the purpose of observing the movement of ^{32}P -labelled phosphates within the stock and determining the extent to which the grafting and cicatrization had been successful when different polyethylene materials were used to protect the graft. Other activities being carried out in agriculture were irradiation of foodstuffs, the eradication of the cotton worm by the sterile male technique and the irradiation of seeds in order to obtain beneficial genetic mutations.

85. Valuable work had been, and was being, done for the metallurgical industry with the Institute's industrial gamma-radiographical equipment. Help had been given to the electrical industry by investigating welds in high-pressure tubing, and also to the oil and brewing industries. In February 1968 such services would be extended to the road construction and surfacing companies, with a new unit for studying soil density and humidity.

86. In the case of biochemistry, studies were in progress on possible goiterogenic factors in food from areas with a high incidence of goitre. More specifically, investigations were being made of the effect of yuca on various parameters of the thyroid function, including thyroid weight, radioactive iodine uptake, iodine combined with proteins and the intra-thyroidal metabolism of iodine. As to the problem of radiological safety, the Institute had for several years been carrying out systematic sampling of air, milk, water, green fodder, vegetables and fish in order to determine the radionuclides which could be increasing environmental radioactivity and to be able to formulate the necessary safety provisions at the appropriate time.

81. Five sampling and analysis units were now operating in the country, the most important of

which was the one at the Institute, which was working with equipment donated by the French Government. The others were being operated by students and university professors in four towns. As part of an expansion of the national environmental radioactivity monitoring programme, it was intended to establish ten further units.

88. The Institute was co-operating closely with the United States Atomic Energy Commission in preliminary studies relating to the opening of a new inter-oceanic canal.

89. With regard to neutron activation analyses, work had been done to determine traces of selenium and tellurium in sulphur, copper and potassium, of manganese and zinc in barley and wheat seeds, of vanadium in Colombian oil, and of arsenic in tobacco leaves.

90. Prospecting for radioactive ores was in progress throughout the country, and preparations were being made for carrying out analyses of uranium ores by detection of delayed fission neutrons.

91. In view of the non-availability of particle accelerators or nuclear reactors for the frequent production of short-lived nuclides, the Institute was studying the possibility of using what were called "radioisotope generators" or, more descriptively, using a literal translation of the original English term, "radioactive cows", in which a short-lived daughter nuclide was separated from a long-lived parent.

92. Of particular interest was the fact that much of the research carried out at the Institute was being performed with equipment received from the Agency and was being conducted by Colombian staff trained abroad under the Agency's fellowship programme.

93. In conclusion, he drew special attention to the obvious disproportion between the rapid scientific and technical progress being made in the modern world on the one hand and the moral development of man on the other. He expressed the hope that, under the Agency's auspices, nuclear energy would be directed exclusively towards the promotion of human welfare, the enrichment of intellectual experience, the search for truth, and the achievement of international solidarity and a rapprochement between all races and creeds.

94. Mr. TÉTÉNYI (Hungary) said that the eleventh session of the General Conference was being held at a time when nations were paying close attention to the negotiations for a nuclear weapons non-proliferation treaty, which had now reached a crucial phase. The Hungarian People's Republic deeply desired a successful outcome to those talks and it would be among the first States to give its assent to such a treaty should it be concluded. His delegation considered that the Agency

ought to express its readiness to ensure effective supervision of the treaty, and it agreed with the Director General that the Agency was capable of performing the control function [7].

95. Hungary was fully aware of the proposals put forward by the Soviet Union to the Board of Governors with a view to perfecting the Safeguards System. The proposals were of importance and ought to be adopted.

96. Before agreement on non-proliferation could be reached, a number of obstacles preventing an effective solution to the problem in Europe must be overcome. Hungary had carefully studied the statements made by representatives of the Governments of the Polish People's Republic and the Czechoslovak Socialist Republic at the tenth session of the General Conference. The Governments of those two countries had, it would be recalled, expressed their readiness to place their atomic installations under Agency safeguards if the Federal Republic of Germany would do the same [8]. However, the Federal Republic of Germany had made no response. It had stubbornly refused to recognize the situation that had evolved after the Second World War. Many States noted with anxiety the continued growth in the production of fissionable materials in the Federal Republic and at the same time the absence of effective international control. The German Democratic Republic, the other German State, whose Government had on many occasions shown its devotion to the cause of peace and its desire to remove the atomic threat, had joined with the Polish and Czechoslovak Governments in expressing readiness to place its atomic installations under Agency safeguards, on the same condition [9].

97. The Hungarian Government considered that an extension of Agency safeguards to Central and South-East Europe would be of major significance in preserving peace and lessening the atomic threat. It could be an important step forward and might even serve as a catalyst in bringing about a general treaty on non-proliferation. The Hungarian Government was accordingly prepared to place installations producing fissionable materials in Hungarian territory under Agency safeguards, on condition that the Federal German Government followed its example. Hungary hoped that the Federal German Government would study the situation that had arisen, in which its stand remained the sole serious obstacle to agreement on non-proliferation, and that it would draw appropriate conclusions.

98. Turning to the Agency's work during the preceding year, he noted that the number of Member States had grown and welcomed Sierra

Leone as a new Member. However, he observed that a situation continued to exist where, for political motives, obstacles were placed in the way of certain countries wishing to join the Agency. He cited as an example the German Democratic Republic, which had made great progress in the peaceful application of atomic energy. On many occasions the Government of the German Democratic Republic had expressed its desire and willingness to utilize all its achievements in the application of atomic energy solely for peaceful purposes. The fact that it could play no part in the work of the Agency could only be regarded as abnormal.

99. More attention should in his view be given to the applications of atomic energy in developing countries and in that connection he supported the idea of sister laboratories in different countries, as suggested by the Director General.

100. In June 1967 the Institute of Isotopes of the Hungarian Academy of Sciences had expressed its readiness to use the good offices of the Agency to conclude an agreement on joint work with any institute or corresponding organization in a developing country, the country to be selected in conjunction with the Agency. Within the framework of such an agreement the Institute of Isotopes would render assistance in the production of isotopes and labelled compounds, in the use of isotopes in industry and research, and in the use of large radiation sources, by sending information and experts and by providing places for research students and trainees. He hoped that an agreement of the kind proposed could soon be concluded and that laboratories and institutes in other countries would find it possible to sign agreements of a similar nature.

101. He noted the growing degree of co-operation between Hungarian laboratories and the Agency and, in particular, the continued research on radiation sterilization and radiopharmacology in line with a complex plan suggested by Hungary three years previously. In June 1967 a symposium on radiation sterilization had been held in Budapest. Research into the disposal of radioactive waste was making steady progress.

102. In his opinion there was still considerable scope for a further extension of the Agency's activities and for enhancing its role in international relations. At the same time it should not be forgotten that the work of the Agency was greatly dependent on the mutual relations between its Member States. In that connection, one was bound to feel alarm at the worsening international situation caused by the filthy colonial war being waged by the United States of America against the Vietnamese people.

103. The number of States and international organizations denouncing that war was growing. The Hungarian Government demanded an unconditional withdrawal of American troops from Viet-Nam and

[7] GC(XI)/OR.111, para. 36.

[8] GC(X)/OR.103, para. 56, and GC(X)/OR.104, para. 14.

[9] See document GC(X)/INF/91.

a halt to aggression. That was the main prerequisite to any improvement in the international situation, which all countries and all international organizations, including the Agency, had an interest in seeing brought about.

104. The Hungarian Government attached great importance to the Agency's work and hoped that it would continue to execute the tasks it was entrusted with and to serve the high ideals enshrined in its Statute.

The meeting rose at 12.50 p.m.