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RECORDS OF THE TWELFTH REGULAR SESSION (24-30 SEPTEMBER 1968)

ONE HUNDRED AND TWENTIETH PLENARY MEETING

Held at the Neue Hofburg, Vienna,
on Wednesday, 25 September 1968, at 10.40 a.m.

President: Mr. SANDOVAL VALLARTA (Mexico)

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* GC(XII)/390

The composition of delegations attending the session is given in document GC(XII)/INF/103/Rev.2.

ADOPTION OF THE AGENDA AND ALLOCATION OF ITEMS FOR INITIAL DISCUSSION (GC(XII)/387)

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(XII)/387).

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 1967-68 (GC(XII)/380, 389)

3. Mr. LAURILA (Finland) said that instead of discussing the Agency's general activity since the last session of the General Conference, he wished to deal with some special questions that could be considered of major importance for the whole of mankind as well as specifically for the Agency.

4. An important and interesting report on the effects of the possible use of nuclear weapons and on the security and economic implications for States of the acquisition and further development of these weapons had been submitted soon after the last session of the General Conference to the Secretary-General of the United Nations by a group of expert consultants, among them some of the original creators of nuclear weapons technology.[1] The most interesting aspect of the report was that it showed clearly and objectively how impractical nuclear weapons would be if used in an actual war, and that their value was highly questionable even from the standpoint of psychological warfare. Although the report showed convincingly that if mankind acted rationally in every situation, nuclear weapons would never be used, the history of mankind did not entirely bear out that the actions of decision-makers always followed rational patterns.

5. In addition to the frightening potential of the nuclear weapons stocks now in the hands of five Powers, the number of countries with the requisite resources to acquire their own nuclear weapons was rapidly increasing. Furthermore, the fast-growing number of nuclear power plants increased the potential capacity for making plutonium for bombs, even if the plutonium produced was not necessarily suitable as weapon-grade material.

6. The first proposals for control and total prohibition of weapons of mass destruction had been made more than 20 years before. Since that time the problem of nuclear disarmament had been discussed at a great many conferences and meetings, though not in vain, as shown by the drastic reduction in the fallout figures, following the Partial Nuclear Test Ban Treaty of 1963, despite the fact that two nuclear-weapon countries were not parties to the Treaty.

7. Although the slow progress made might be criticized, there was no reason for defeatism. The biggest step forward to date had been the Treaty on the Non-Proliferation of Nuclear Weapons [2], signed by 80 States. Though it was not a final solution to the problem of nuclear armaments, it was to be warmly welcomed as a most promising achievement. In the opinion of his delegation, the Agency was obliged to do all in its power to ensure its implementation.

8. Mankind considered the verification of the implementation of treaties and agreements a prerequisite for their credibility. Under Article III.1 of the NPT, the Agency was entrusted with vital tasks and duties which it would perform when the Treaty came into force; Article IV obliged the Parties to the Treaty to promote peaceful exchange in the field of nuclear technology and, if possible, to co-operate with other States, especially non-nuclear-weapon States, for that purpose. Article V stated that the benefits of the peaceful application of nuclear explosions would be made available to non-nuclear-weapon States "under appropriate international observation" and "through an appropriate international body". He considered that the Agency was the appropriate body to carry out the obligations under that article.

9. The fundamental concept of an organ such as the Agency had already been in existence in the 1940's. Although when first established, the Agency's function had been limited to the peaceful uses of atomic energy, no one could fail to note that the long process of building up the Agency had also entailed efforts to establish a system for controlling nuclear armament, and the Agency had no moral right to avoid the fulfilment of its new duties under the NPT.

10. The NPT comprised close-knit political, organizational and technical elements that could not be separated if the aim in mind was to establish a meaningful safeguards system. Since the NPT was intended to cover the whole world, there would have to be a world-wide safeguards system, and one possibility would be a strongly centralized system with one organization in control of activities everywhere, while another would be a system with organizations acting on a regional basis and subordinate to a central organization.

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1) See United Nations document A/6858.

2) This Treaty, which is the subject of Resolution 2373 (XXII) adopted by the General Assembly of the United Nations on 12 June 1968, is subsequently referred to in this record as "the Treaty" or "the NPT".

11. The question of safeguards was considered to be of cardinal importance in the Agency's Statute, and safeguards control was one of its major activities. But safeguards control in the spirit of the NPT would be a far wider and more exacting task than the Agency's present safeguards activities. Nevertheless, his delegation felt that the Agency should be accepted as the central organization referred to because of its background, the prominence given to safeguards in the Statute, and the experience already gained by the Agency in that connection. But the most important reason was that, if the Agency was not the body responsible for safeguards, it would be deprived of a large part of the duties forming the basis of its existence. Furthermore, the foundation of a new organization was not to be recommended since the number of international organizations was already rather large and membership of them might be a burden for smaller countries.

12. Reliable estimates of the cost of safeguards activities under the NPT and the manpower needed should be made as soon as possible. In addition, the Agency should make an evaluation of its own activities, and the basic philosophy of safeguards technology should also be objectively studied. Systems planning techniques had now been sufficiently developed to permit the optimum system to be devised for the technical implementation of the NPT safeguards principles. Although his delegation realized that that would inevitably involve political factors, he wished to stress the importance of objective systems analyses. The existing safeguards controls technology contained elements that were unessential, and which to some extent even afforded possibilities of industrial espionage. The main purpose of safeguards should be to control and record the existence and flow of materials and not to exercise detailed control over facilities producing raw materials which could be used to manufacture weapons.

13. The only way in which the Agency could ensure its recognition as the central organization in a world-wide safeguards system was for it to develop the optimum system of safeguards control. But even then the services of regional organizations could be utilized. His delegation thought that even the creation of new regional bodies might become desirable. In that connection he referred to the proposal for free-trade areas for peaceful nuclear activities submitted by the Finnish delegation at the Conference of Non-Nuclear-Weapon States.[3]

14. Referring to Finland's own endeavours to enter the atomic age, he said that eight years before, a study of the prospects of nuclear power in Finland had been made in co-operation with the Agency. A report on the study, published by the Agency[4], showed that nuclear power could only be incorporated rationally in a country's electric power system provided that certain requirements as regards size, technical level and degree of integration were fulfilled. Although those requirements were met in the case of Finland, the programme had been postponed since the administration had been faced with new and unforeseen problems in that connection. As soon as large nuclear power plants were constructed, they would be placed under Agency safeguards; Finnish research reactors had been subject to Agency safeguards since 1962.

15. As one of the countries designated to serve on the Board of Governors, Finland would make every effort to contribute to the solution of vital problems facing the international community within the framework of the Agency.

16. Mr. SEABORG (United States of America) deeply appreciated the honour of representing the United States of America for the eighth time at the General Conference and congratulated the Director General and staff of the Agency on their competence and dedicated service to the world-wide scientific community.

17. He was confident that the NPT, which had been signed by more than 80 States, would enter into force and that an increasing number of States would become party to it. The Treaty would call for renewed dedication on the part of Member States to enable the Agency to discharge the heavy responsibilities facing it.

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

> "I welcome this opportunity to speak, through Chairman Seaborg, to the Delegates to the Twelfth General Conference of the International Atomic Energy Agency.
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> "A year ago, I said that we stood at a crossroads in man's quest for peace and progress in that, if we could confine the future uses of atomic energy to peaceful purposes, we could improve the lives of people all over the world; whereas if more nations should be inclined to follow the costly road toward military exploitation, the atom would be a heavy burden on their ascent to a better life and an increasing threat to the peace of the world.
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> "The non-proliferation treaty, which has been signed by many nations, is a further step toward ending the peril of nuclear war and en-

3) Held at Geneva from 29 August to 28 September 1968.

4) Technical Reports Series, No.2.

suring the equitable sharing of the peaceful uses of atomic energy under effective safeguards for the benefit of all nations. As I said at the United Nations on June 12, 'nations that were long beset by differences have — in this great treaty — found common ground in their need to use the incredible force of the atom for peace, and not for war.'

"We must not permit this opportunity, which this treaty has given us, to be lost. Each of us should do all within our power to bring about early ratification of the treaty.

"With congratulations for your past accomplishments, I send you the best wishes of the people of the United States for your future endeavors."

19. The United States reaffirmed its support of the Agency and believed that, in making the benefits of the peaceful uses of atomic energy available to the largest possible number of countries, care must be taken to ensure that atomic energy would not be used for the destruction of mankind.

20. He believed the Agency's programme for accelerating and enlarging the contribution of nuclear energy to peace, health and prosperity throughout the world, which had been developed with the assistance of many Menber States, would make even greater progress in future because of the remarkable advances made in using atomic energy in everyday life. The Agency would achieve even greater successes when the NPT created conditions which would facilitate closer international co-operation. The Treaty had focussed world attention on the Agency which, in his view, would be capable of discharging the enormous responsibilities with which it was faced. The onerous work which would have to be done should be started immediately by the Agency with a view to carrying out its task when the Treaty came into force.

21. The Agency already had an effective safeguards system which was suitable for application to a wide range of activities and was not prejudicial to national nuclear energy programmes or commercial interests. Inspectors were available who could enable the Agency to discharge the wider responsibilities envisaged. While the safeguards system would permit such responsibilities to be discharged to the satisfaction of all parties to the Treaty, his Government was prepared to co-operate with the Agency and other Member States in further improving and simplifying the system. In that connection the application of the concept of "strategic points", which was foreseen in the Treaty, should be closely studied. The United States would continue to carry out work on research and development and inform the Agency and its Member States of the results obtained, which so far had been encouraging.

22. With regard to the need for additional safeguards inspectors, he reiterated his Government's readiness to co-operate fully with the Agency in an expanded international safeguards training programme. He commended the Director General on his efforts to develop plans for building up the Agency's safeguards staff with a view to shouldering increased responsibilities. His Government would continue to assist the Agency in recruiting highly qualified staff and provide training opportunities; a safeguards training course was already under way at Argonne National Laboratory in which an Agency staff member was participating.

23. In addition to safeguards activities, attention should continue to be given to activities of interest to developing countries. In that connection it was the responsibility of Member States to provide adequate funds for the technical assistance programme. The United States supported the Operational Budget proposed for 1969[5] and would continue to contribute a substantial proportion of the funds required, both in cash and in kind. It would also continue to provide the services of cost-free experts, training opportunities and certain items of equipment. For the tenth consecutive year, it would make available up to $50 000 worth of special nuclear material for use in Agency projects covering research and medical therapy. His Government strongly supported the Programme and the Regular Budget proposed for 1969[6] and hoped other Member States would do likewise.

24. In his address to the United Nations on 12 June 1968 and on the occasion of the signing of the NPT, President Johnson had stated that the United States would engage in the fullest possible exchange of equipment, materials and scientific and technological information relating to the peaceful uses of nuclear energy and that the needs of the developing countries would be given particular attention. The United States could take pride in the fact that it had maintained, over the past decade, an unparalleled programme of co-operation with other countries in the peaceful uses of nuclear energy, and it would continue to do so in future.

25. The advances being made in nuclear energy activities would have a stimulating effect on the Agency. Recently nuclear power plants with a capacity of up to 1200 MW(e) had become commercially available and were being incorporated in utility systems in the United States and elsewhere.

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5) GC(XII)/385, paras 681-685.

6) Ibid., part II and paras 645-680 respectively.

26. The cost of water desalting was being substantially reduced as the size of desalting installations increased. With the growth in the world's population and in the per capita demands for water, desalting was playing an expanded role in many arid areas of the world. His Government had for several years been studying, frequently in co-operation with the Agency, the possible use of nuclear desalting plants to provide water and power in Israel, the United Arab Republic, Greece, Mexico and the United States itself.

27. A report had been drawn up and made available to the Agency on the use of nuclear energy centres as industrial and agro-industrial complexes which indicated that low-cost, nuclear-generated electricity could be used in the operation of large-scale industrial complexes and associated agricultural development. Fresh water, chemicals and metallurgical products could be produced and used to make the surrounding land productive. Consideration had also been given to the effect such centres could have on the economy of arid coastal regions. Special attention was being given to the possible use of such centres to meet the chronic shortage of water and power in the Middle East. The Agency could play a useful and constructive role in those studies.

28. In co-operation with Member States the Agency had promulgated a series of standards, codes of safety and manuals which were extremely valuable.

29. Many Member States had also shown keen interest in the collection and dissemination of scientific and technical information by the Agency. The rapid increase in the data available and the progress made in the use of computers had led the Agency to introduce the International Nuclear Information System (INIS), and a number of Member States as well as EURATOM had lent experts to carry out a detailed study of INIS which might permit it to start operating on a small scale in 1970.

30. Notable successes had been achieved by the International Centre for Theoretical Physics at Trieste and the International Laboratory of Marine Radioactivity at Monaco.

31. A considerable number of regional co-operative projects were being carried out under the auspices of the Agency, particularly in developing countries. In that connection the Republic of Korea and Thailand were now participating in the joint India-Philippine-Agency programme of neutron spectrometry studies; regional radioisotope research and training courses had been held at Cairo and Kinshasha; the Central American countries had collaborated with the joint FAO/IAEA Division of Atomic Energy in Food and Agriculture in a project to demonstrate the feasibility of eradicating the Mediterranean fruit fly, and the Joint Division was also co-operating with the Government of Austria and the European Nuclear Energy Agency in a food irradiation project and with the Government of Iceland and the United States in a fish irradiation project.

32. The Agency could play a leading part in connection with the uses of nuclear explosives for peaceful purposes, which offered exciting prospects for the future. The parties to the NPT were required to co-operate in making available to the non-nuclear-weapon States, on a non-discriminatory basis, the benefits derived from such uses and, in that regard, the Treaty provided that States could request assistance through an appropriate international body. In his Government's view that body should be the Agency, which should also devise procedures for meeting such requests, and the Conference should ask the Director General and the Board to start studying the subject.

33. The United States would continue to carry out a programme of research and development regarding nuclear explosives particularly suitable for peaceful purposes and their potential use, and information, technical advice and assistance would be provided to countries on request. The work in question would involve evaluation of specific projects or general applications in other countries and, where it seemed useful from the point of view of overall research and development, nuclear experiments might be carried out in such countries. In the United States, legislation to facilitate the practical uses of nuclear explosives was already being considered by Congress.

34. In conclusion, he wished to reiterate his Government's belief that the NPT represented a major step forward in the effort to end the peril of nuclear war and further advance international co-operation in the peaceful uses of nuclear energy. A number of complex problems would have to be solved, but much had already been done, particularly by the Agency, in the development of nuclear science for peaceful purposes and the organization of the world community to permit the use of nuclear energy for the benefit of mankind. The work still to be done represented a challenge which, with intelligence and good-will, could be met successfully.

35. Mr. HULUBEI (Romania), after stressing that the strengthening of international peace and security was a prerequisite for bringing to fruition the many-sided process by which mankind attained higher levels of civilization and progress, said that it was only if international peace and security were ensured that modern scientific and technical progress could be harnessed for the benefit of all countries. At a time when the existence and continuous refinement

of nuclear weapons — the most destructive which history had ever known — exposed mankind to a danger of unprecedented gravity, the Romanian people, through its Government, solemnly affirmed that peace could only be secured if relations between States were based on generally accepted principles of independence, sovereignty, equal rights and non-interference in the domestic affairs of States, and that increasing respect for those principles could help to curb the arbitrary actions which still beset international relations.

36. Nowadays more than ever in the past, energetic action on the part of all States was necessary to eliminate sources of tension, to ban force as a means of settling international problems and to bring about a climate of confidence and co-operation which would free mankind from fear and from the disastrous consequences of war.

37. The rapid development of Romanian industry and the national economy was due to the tremendous efforts made by the Romanian people.

38. The Chairman of the Council of Ministers, Mr. Ceausesco, had recently stated that the country devoted 30% of the national revenue to the development of its socialist economy, in the knowledge that that was the only means whereby it could ensure a prosperous future. International peace and security were the corner-stones in that constructive work, in which the whole population was involved. Romania considered that all matters of dispute could and should be settled by negotiation alone and that in international relations it must be the force of law and not the law of force which should prevail.

39. Nuclear research and the use of nuclear physics and related disciplines in the various sectors of economic and social life played an important role in any programme of scientific research. While the harnessing of nuclear energy, thanks to the work done in numerous scientific centres throughout the world, was a momentous step in the history of science and represented one of the hopes of mankind, it remained true that it also, unfortunately, gave rise to international dissension and profound concern owing to the danger of a destructive war which threatened mankind.

40. It was for those reasons that Romania had always been unreservedly in favour of prohibiting the use of nuclear weapons, suspending the testing and production of such weapons and reducing and finally liquidating the present stocks of nuclear weapons and the means of transporting them.

41. Conclusion of the NPT represented an important step towards increased security for all States, both large and small, and towards more effective and meaningful international co-operation with a view to the peaceful use of nuclear energy in a great variety of fields.

42. International organizations and bodies had an important part to play in bringing into being a climate conducive to co-operation, without which efforts to promote progress and civilization must surely fail. However, in order that they might work effectively, it was in his view essential that they should reflect the realities of the present-day world and uphold the vital interests of all nations. The Romanian delegation accordingly regarded as unacceptable the abnormal situation which led to the People's Republic of China being deprived of its rightful place in the Agency, where the principle of universality should be observed.

43. The Romanian delegation also considered that it was necessary to end the unjustifiable discrimination which was exercised in regard to other socialist States - in particular the German Democratic Republic, North Viet-Nam and North Korea - which did not take part in the Agency's activities.

44. It was on the other hand glad to note that Liechtenstein, the Niger and Zambia had been approved for membership of the Agency.

45. The Agency had a number of notable and praiseworthy achievements to show on the occasion of the twelfth session of its General Conference. It had made its mark as an organization which was useful to its Member States because of the contribution it made to the development of international collaboration in the peaceful applications of nuclear energy.

46. In its safeguards system, in favour of which the Romanian delegation had voted in 1965, the Agency had a means of carrying out one of the major tasks allotted to it. In June 1968 the Board of Governors had approved extension of the system to plants for converting and fabricating nuclear materials.[7]

47. In order to ensure due respect for the sovereignty of States the Romanian delegation considered it essential that any system for controlling the nuclear activities carried out in safeguarded facilities should be agreed to by all the States concerned. The provisions embodying such a system should be unequivocal and equitable, they should be based on the principle of the equality of States and allow all States without distinction the right and the possibility to carry on, unhindered, research in the nuclear field and to apply the results of nuclear science for their peaceful development.

7) See document GC(XII)/INF/99.

48. The peaceful use of nuclear energy implied that all States had an inalienable right to benefit from the progress made in scientific research, to free access to the information and results obtained in nuclear science and technology, to participation on as wide a basis as possible in the exchange of information and, finally, to nuclear equipment and materials.

49. In the Romanian delegation's view, the generous support given by the Agency to the scientific and technical development of the non-nuclear countries must not be jeopardized by any additional expenses in which the Agency might find itself involved as a result of implementation of the NPT.

50. The progress that had been made during the past year bore out the value of the Agency's efforts to ensure that atomic energy made an effective contribution to peace, health and prosperity throughout the world. The devoted work of the Agency's Secretariat under the able direction of its Director General had been an important factor in bringing that progress about.

51. The Annual Report of the Board of Governors to the General Conference for 1967-1968[8] described the progress made. Special mention should be made of technical assistance, the organization of scientific conferences and symposia and the establishment of INIS.

52. The important contribution of nuclear power development to the general improvement of the national economy was undeniable. In the present-day conditions of economic, technical and social development, nuclear power occupied a place which would rapidly become ever more important. His delegation was glad to note that increasingly close attention was being paid to questions of nuclear power, in accordance with the wish which it had expressed in previous years. In its view the Agency's programme for 1969-74 would serve to stimulate its activity in that area of major importance.

53. In accordance with Resolution GC(X)/RES/215, which recommended close co-operation with ILO and UNESCO, in particular in the training of technicians and the transfer of nuclear know-how to developing countries, the Romanian delegation suggested that the Agency pay special attention to the training of technicians in 1969-70. It was in favour of continued close collaboration with WHO in holding courses dealing more particulary with nuclear accidents, and favoured a more systematic approach to the problem of training specialists, an extremely complex matter in the nuclear field.

54. The Secretariat was to be congratulated on the attention it was paying to the fellowship programme. Means should be found to make the maximum use of Type II fellowships and to obtain a larger number of specialists with higher qualifications. The Agency should also collaborate with UNESCO and ILO in training specialists at graduate and technician level. It should also pay more attention to organizing courses, seminars and study tours, and to the procedure for training fellows.

55. With regard to research contracts he welcomed the efforts made to tackle problems of practical interest, which offered immediate advantages both from the point of view of the Agency and from that of the development of research in Member States. The co-ordinated research projects undertaken in certain fields had helped substantially in clarifying important problems and it seemed that the research contract programme would gain in value and effectiveness if that method were extended.

56. The work done to draw up safety standards and regulations governing radiation protection and the transport of radioactive materials also merited close attention because of the helpful guidance it gave national authorities responsible for drawing up or bringing up to date their own regulations.

57. The Agency was also to be commended for the initiative it had taken in publishing an annual review of the research carried out in Member States on questions of radiation protection.

58. Romania, which had engaged in an ambitious programme of economic and industrial development, was keenly interested in the development of co-operation in the peaceful uses of atomic energy and for that reason followed the Agency's activities with close attention. It supported the Agency wholeheartedly and welcomed the proposal to convene a fourth International Conference on the Peaceful Uses of Atomic Energy in 1970 or 1971.[9] Lastly it supported the Agency's efforts to expand the scale of its technical assistance and was therefore prepared, as in the past, to make its contribution to the Operational Budget.

59. Mr. ROUX (South Africa) said that the last few months had witnessed a birth and a death, both of more than casual interest in relation to nuclear energy. The birth had been that of the NPT; the death, the passing of Otto Hahn, one of the discoverers of the fission process, whose name would live on with those of the Curies, Rutherford, Fermi, Strasmann and Bohr. It must have been a considerable satisfaction to Hahn - an old opponent of nuclear weapons - to see the glimmerings of

8) GC(XII)/380.

9) General Assembly Resolution 2309 (XXII).

sanity among the nations of the world. Imperfect though the terms of the NPT might be, many believed it could represent the first step towards nuclear disarmament, a move towards stopping mankind's mad, headlong rush to suicide.

60. In that context, a special tribute was due to the President of the Conference for the energy and enthusiasm which he had shown in helping to promote the denuclearization of Latin America.

61. Thus, the statesmen had now produced a Treaty on the Non-Proliferation of Nuclear Weapons, and it was time for the scientists and the Agency to make their contribution to the enterprise. The Agency's safeguards system would have to be looked at in a new light. The voluntary principle, formerly a feature of the safeguards system, would give way to definite obligations on the part of those States which acceded to the Treaty. What had been tolerable under a voluntary system could not necessarily be accepted under a mandatory one, and the criteria for implementation of safeguards would have to be remodelled on sound statistical lines. Much more had to be learned about the critical points of the uranium fuel cycle, so that the procedures could be adapted accordingly. The NPT itself was full of obscurities and ambiguities which had provoked criticism from many countries; they would have to be clarified, and it would be the Agency's function to perform that task so that its obligations under the Treaty could be effectively discharged. The precise interpretation expected of the Agency would require much thought and study, and much consultation with Member States.

62. During the deliberations of the Conference of Non-Nuclear-Weapon States there had been frequent references to the organization, responsibilities and activities of the Agency. It was his understanding that any proposals adopted by that Conference would have to be referred to the General Assembly of the United Nations, which would determine whether and to what extent they should be referred to the Agency. The nuclear Powers, although able to participate in the Conference of Non-Nuclear-Weapon States, had not had the right to vote. At the present stage, therefore, it would be improper for the General Conference to take a position with regard to anything that had happened during the previous four weeks in Geneva.

63. The Agency was faced with the mammoth task of implementing the control functions laid down in the NPT. His delegation attached particular importance to avoiding unnecessary and wasteful inspection routines. There should be no mistake about one thing: the implementation of the Treaty would be extremely costly in terms of money and qualified manpower. The inspecting staff would increase, according to evidence presented to the United States Senate by the Brookhaven National Laboratory, to at least 394 and possibly twice that number by 1971; the corresponding expenditure was estimated by the same authority to lie between $13 000 000 and $30 000 000 for that year. An effective system to prevent the spread of nuclear weapons might be thought to be cheap at any price, but that could not justify wasteful expenditure, nor should it encourage the Agency to dissipate its resources (especially in terms of qualified inspectors) over an unnecessarily wide field.

64. An almost impossible task awaited the Department of Safeguards and Inspection unless a realistic and balanced approach were taken. In his delegation's view an essential prerequisite was to determine the relative importance of the various stages of the fuel cycle, to ensure that the Agency's authority was exercised at the most critical points of the cycle. The safeguards system should concentrate on the control of special fissionable material of significance for military purposes. Source material had no direct application in the manufacture of weapons and should receive a correspondingly low priority. In general, a much higher degree of effectiveness would result if the control measures started further along the chain.

65. In the same context, the organizational framework which the Board had established for the Agency would need adaptation. However, although safeguards responsibilities were likely to increase enormously as time went on, they must never be allowed to overshadow the Agency's other important objectives. It was of the utmost importance that a clear perspective should be maintained when adapting the organizational framework to accommodate increased safeguards responsibilities. In the view of his delegation, the solution should be sought in the direction of a permanent safeguards committee with wide representation of Member States, which would advise the Board on all matters relating to safeguards, and to which the Board would delegate specific functions in that field. Procedures would have to be prescribed for that committee which would satisfy Member States that their legitimate wishes concerning safeguards could not easily be brushed aside.

66. In the interests of efficiency it would be necessary to maintain the present high standards of competence within the Inspectorate. That could be done only by retaining the skilled services of the Agency's inspectors. It had long been his Government's contention that the engagement of well-qualified nuclear scientists as inspectors on short-term contracts was basically unsound and largely unproductive. Staff of the high calibre needed to carry out complex inspections of nuclear installations

were unlikely to be attracted by the prospect of interrupting their careers in their home countries for a few years and then returning home with a possible loss of seniority. Another disadvantage, from the Agency's point of view, was that a large portion of the contract period had to be given over to training and was therefore unproductive, while the remaining period was, by normal industrial and commercial standards, scarcely long enough to be truly useful. Though there were some sound arguments on the other side, his delegation had no doubt that the Agency's safeguards inspectors should be offered an assured career, so that incumbents could discharge their duties in an impartial manner as truly international civil servants.

67. Whatever the solution decided upon, the important new responsibilities conferred by the NPT could not be properly discharged unless political issues were excluded entirely from the Agency's activities and left to the United Nations where they properly belonged. If the Agency were so weak as to trade in political issues it would only contribute to its own disruption and to the frustration of the whole noble objective.

68. However, the Agency would have to retain a sense of perspective not only in safeguards but through the whole range of its activities. Now was the time, before commitments became too heavy, to adopt a realistic and rational approach to future work. A dispassionate definition of the objectives of the Agency - followed by effective pruning of the side issues that had grown up over the years - would be needed. Duplication and imitation by the Agency of existing facilities in Member States must be rigorously avoided, and the activities in which the Agency was engaged as to the objectives aimed at and their ultimate benefit to Member States should be subjected to a searching assessment.

69. The Chairman of the United States Atomic Energy Commission had recently pointed out that the time was past when scientists could work on any project that engaged their attention. If that was true in a large Member State, it applied a fortiori to the Agency, which had comparatively small means at its disposal.

70. Much had been said recently about the need for safeguards research and development, and it was his delegation's view that the planning and launching of a co-ordinated programme in that field should rest squarely on the shoulders of the Agency. The valuable work which some Member States had already undertaken should continue, but it was nevertheless advisable for the Agency to co-ordinate the studies already under way, and to stimulate and promote further research where appropriate. Though the Agency might itself have to undertake some research, it should as far as practicable avoid establishing facilities and providing staff, and should concentrate rather on initiating investigations at existing centres in Member States by the award of research contracts and other means. In the interests of efficiency and economy, the principle of over-all co-ordination, guidance and encouragement of research in Member States was one which his delegation recommended whole-heartedly; it was, moreover, equally applicable to all fields of nuclear research with which the Agency was concerned.

71. The absence of funds sufficient to enable the Agency to carry out every desirable project (especially in technical assistance) was a perennial problem. It was evident that the effect of the NPT on the structure and the operations of the Agency would not be confined to the Department of Safeguards and Inspection. Article IV.2 of the Treaty provided for "the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy". It was not yet clear how that article would be implemented in practice. Presumably it meant more than just a continuation of the existing methods and tempo of exchange, and the views of the sponsors of the Treaty as to how it should be put into effect would be awaited with keen interest.

72. Everyone knew that the Agency's technical assistance was provided primarily in the form of technical and scientific training and expert advice, and that equipment was also supplied in accordance with the provisions established during the review of the Agency's activities.[10] Those general principles were valuable and should continue to guide the Agency. What could not be defended so easily was the undertaking of relatively long-term commitments to accept responsibility for a substantial portion of the running costs of research institutions.

73. There were basically two categories of research institution: regional centres catering for the needs of the Member States within their areas, and institutions wholly or partly financed by the Agency, as at Seibersdorf, Trieste and Monaco. For the former category, certain guiding principles had already been formulated which were designed to limit the Agency's financial responsibility to a reasonable and tolerable level. With regard to the latter category, it had been argued that the Agency had already fulfilled its function in promoting the establishment of those institutions and that it should now withdraw its contribution towards running costs. His Government would subscribe to that view if there were any other national or international bodies available to replace the Agency; however, as no alternative

10) See documents GC(XI)/362 and Add. 1 and 2.

sponsors could be found at present, a time limit on the period during which the Agency should continue to extend financial aid in the form of straight subsidies ought seriously to be considered. The period would of course differ for each institution, and they would continue to qualify for financial assistance in other forms, such as research contracts and fellowships.

74. It seemed that, especially in the light of the growing demands on its limited resources, the Agency's involvement with any such institution in future should be limited to:

(a) An expert assessment of the need for and the feasibility of the institution;

(b) Provision of expert advice on the planning and setting up of the institution;

(c) Training of key personnel to staff the institution; and

(d) Guidance and advice on the operation of the institution for the first few years of its existence, to ensure that it was founded on sound administrative principles.

75. It remained his country's convinction, a conviction born of the real experience of South Africa, that progress must come from one's own resources and efforts. In the economic sphere the watchword had been "Trade not Aid". In nuclear energy the problem of promoting the advancement of the developing countries should be approached in much the same spirit, by encouraging and assisting Member States to build with the bricks of Agency assistance on the foundations of their own resources and efforts.

76. The Agency's obligations and responsibilities were likely to increase substantially in the coming few years, partly as a result of the provisions of the NPT, and partly because the application of nuclear techniques throughout the world was becoming more intensive and more extensive. The consequent increase in the facilities which the Agency would be called upon to supply would inevitably require more expenditure and a larger annual budget. South Africa was not opposed to that inevitable development, provided that the additional expenditure involved was properly motivated, and that each item was assessed according to the criteria of merit, priority and relevance to the functions and objectives of the Agency. Expansion of the budget should not imply a relaxation of the principles of sound budget administration which had been observed in the past. While the Agency should not be prevented by lack of funds from performing the tasks for which it was designed, it must continue to realize that those funds were in short supply and must be carefully husbanded.

77. On the subject of technical information, South Africa had noted with gratification the steady progress being made in the development of INIS under the Agency's administration. The Director General and his staff should be encouraged to pursue their efforts in that direction with energy and with due regard to sound organizational principles. Given those prerequisites, INIS could become one of the chief functions of the Agency, and one of its most important contributions to the scientific world.

78. Another activity to which his Government attached significance was the application of nuclear techniques to agriculture. The problem of feeding the rapidly expanding population of the world was one which loomed larger every year, and nuclear science in general, and the Agency in particular, had much to offer towards its solution. Nuclear techniques could be applied to improve crop production and to prevent wastage through deterioration of the final product, and it was important that the Agency should continue to take an appropriate part in the development of those techniques and more particularly in the dissemination of information about them.

79. When the Agency had been established it had been difficult to foresee precisely the pattern and the tempo of developments in the atomic energy field over the subsequent two decades or so. However, the pattern was now much clearer, and it could be justifiably claimed that the architects of the Statute had succeeded to a gratifying degree in establishing a sound organization. They had furnished the potential to grapple effectively with the increasing demands of the nuclear age, demands which were closely associated with satisfying the universal desire for the security and economic progress of the world.

80. All the present indications were that the tempo of development was increasing rapidly. If there was some justification for the contention that the Agency's facilities had not been fully utilized during the past decade, there should be no such justification during the succeeding one. Expanded opportunities for applying nuclear techniques for the benefit of mankind were to be welcomed. The Agency faced a challenge which would be both stimulating and satisfying. The South African delegation had no doubts about its ability to meet that challenge.

81. Mr. NIISEKI (Japan) expressed the hope that the Agency, which had since its foundation played so significant a role in the peaceful uses of nuclear energy, would quickly respond to the

great new challenge posed by the expected entry into force of the NPT.

82. A detailed account of the development of the peaceful uses of nuclear energy in Japan during the past year could be found in document GC(XII)/INF/101/Rev. 1. The construction of nuclear power stations had proceeded in accordance with the Long-Range Programme on Development and Utilization of Atomic Energy worked out by the Atomic Energy Commission of Japan. The installation of two light-water reactors had already been sanctioned during the current year, thus increasing Japan's nuclear power generation capacity to 2500 MW. In order to ensure the stable supply and efficient use of cheap nuclear fuel, the Government of Japan had authorized two Japanese enterprises to undertake nuclear fuel fabrication services on an industrial scale; the first was scheduled to start operation in 1969 with an annual output of 140 tons, the second in 1970 with an annual output of 100 tons. Japan had furthermore entered into agreements for co-operation in the field of nuclear energy with the United States of America and the United Kingdom, and a group of Japanese electricity enterprises had concluded a long-term contract to import natural uranium from Canada.

83. In addition, remarkable progress had been made in the chemical application of nuclear energy. The Japanese Atomic Energy Research Institute had succeeded in polymerizing trioxane by radiation on an industrial scale, thereby opening up a new field in the chemical application of radiation. Finally, a Basic Programme on the Research and Development of Nuclear Fusion had been drawn up by the Atomic Energy Commission.

84. As a result of the remarkable advances made in peaceful uses of nuclear energy since the Agency's foundation, the power reactors in the world, including those under construction or being planned, now totalled 213. The world's nuclear power generation capacity was expected to reach 30 000 MW by 1970, and more than 300 000 MW by 1980.

85. Developed countries were currently devoting much effort to the development of a fast-breeder reactor, which would play a leading role in nuclear power generation in the future, and of an advanced converter reactor, which would fulfil an intermediate but important function between existing reactors and the fast-breeder reactor. The Agency should play an active role in facilitating the exchange of technical information on those projects.

86. The expected ten-fold increase in the world's nuclear power generation capacity over the next ten years was likely to intensify certain safety problems relating to the transportation of nuclear materials, nuclear facilities, and radioactive waste management. The Agency should continue to take an interest in problems connected with radioactive waste and study how such waste should be disposed of.

87. New areas in which the Agency could conduct long-term research and development work included nuclear fusion, steel-making with the aid of reactors, process-heat and transuranium elements.

88. In granting aid to developing countries, the Agency should consider how peaceful uses of nuclear energy could best be combined with the economic development of those countries. It should, moreover, henceforth shift the emphasis, which had until now been placed on agriculture and medicine, to the utilization of multi-purpose reactors to further the necessary economic and social development programmes. Its first task, however, should be to assist developing countries to plan their long-term programmes relating to nuclear power generation, and train the required technical personnel.

89. The most important matter facing the Agency at the present time was the role it should play in the implementation of the NPT, the purpose of which was not only to prevent the proliferation of nuclear weapons, but also to develop peaceful applications of nuclear energy. The Agency appeared to be particularly well qualified to act as a centre for international co-operation in the peaceful uses of nuclear energy under the NPT. In that connection, it ought to consider, as a matter of urgency, what concrete measures it could take to make the provisions of Articles IV and V of the NPT effective and meaningful. It was, furthermore, important for the future economic development of non-nuclear-weapon States that the Agency should become the central organization for implementing the provisions of Article V of the NPT and ensure that the non-nuclear-weapon States were granted access to the benefits to be derived from peaceful nuclear explosions.

90. The Agency should tackle the important problem raised by the proposed application of its safeguards system under the NPT by making, at an early date, a blueprint of possible solutions of the technical, financial and staff problems likely to arise. It should also make efforts to simplify its safeguards techniques, without reducing their effectiveness; such simplification was desirable also from the financial point of view. In his delegation's view, the costs arising from the application of the Agency's safeguards should be borne by the Agency, since the latter applied its safeguards for the sake of the international community.

91. The Agency's safeguards system should be applied to all States on a non-discriminatory basis. While such safeguards should play a vital role under the NPT in ensuring that atomic energy was used exclusively for peaceful purposes, the primary responsibility still rested with each State, that of carrying out its obligations in that regard.

92. Sir Philip BAXTER (Australia) said that the past year had seen a marked increase in the world-wide use of nuclear power and related technologies. That trend reflected the confidence which now existed in the safety of nuclear power, its reliability and, not least, its cleanliness, a matter of growing importance to Australia and other countries where air pollution was causing increasing concern. Above all, it reflected the increasing competitiveness of nuclear power. His country was now on the threshold of introducing economic nuclear power. The Australian Atomic Energy Commission was working closely to that end with the power generating authorities of New South Wales and Victoria, where nuclear power would be economic in unit sizes of 500 MW and above from 1975 onwards. Taking cost, fuel supply and all other relevant factors into account, the type of reactor chosen would probably be the natural-uranium-fuelled power reactor, moderated by heavy water. By standardizing on one power reactor type for the initial series of nuclear stations, Australia would achieve economies through replication of ordering and production of components, many of which would be made locally, and thus greatly assist the establishment of a domestic nuclear manufacturing industry.

93. On the basis of power consumption estimates, it was expected that Australia would have to bring into operation the equivalent of fifteen 500-MW power stations between 1975 and 1980 and the equivalent of a further 36 between 1980 and 1985. It seemed reasonable to assume that half that installed capacity would be nuclear. The actual size of the units would tend to encrease: by the late 1970's at least one Australian State would be looking for stations with an output of 750 MW and in the 1980's units of 1000 MW or more would be in demand.

94. For units of that size it was expected that fast-breeder reactors would be economic by the late 1980's. Their interest lay of course in the promise of reduced power generating costs. A substantial initial inventory of plutonium would be needed, however, to establish a «family» of fast-breeder power reactors in Australia; and although those reactors would produce more fissile material than they consumed, the extra production would not suffice to fuel all new fast-breeder reactors being built. For those reasons countries which planned to use fast-breeder power reactors should take immediate steps to ensure future stocks of plutonium. In Australia, the policy he had described appeared to meet that requirement.

95. In carrying out its programme Australia enjoyed fruitful collaboration with the United Kingdom, Canada, the United States of America and France. The Australian Atomic Energy Commission had sent to Canada and the United Kingdom some 30 scientists and engineers to work on joint projects relating to power reactor systems fuelled by natural uranium.

96. In view of what he had said it was understandable that Australian research was mainly focussed on natural uranium reactors. For some years past Australia had been collaborating with the Indian Atomic Energy Commission, through the exchange of scientists and the division of experimental and theoretical projects between Trombay and Lucas Heights, in studies relating to the reactor physics of such reactors; that collaboration had recently extended into the field of materials science and technology. It was noteworthy that that collaboration, based on mutual interest and mutual confidence, was between countries which were geographically far apart: a common frontier was no prerequisite for peaceful co-operation.

97. Australia was not, however, neglecting other useful nuclear power systems. For example, it was still doing work on high-temperature gas-cooled reactors, specifically those fuelled with a ceramic mixture including enriched uranium. Indeed, no country could afford to abandon completely the idea of introducing enriched-uranium reactor systems. At the same time it would hardly be prudent to base one's power industry on a fuel cycle which could be satisfied by a limited number of sources only. The certainty of obtaining future supplies and the economics of enriched-uranium reators were a matter of serious concern to countries like Australia which, although possessing their own uranium deposits, did not have enrichment facilities. Australia had for some time past been engaged in a programme of work on enrichment processes, including the gas-centrifuge method of uranium isotope separation, which promised to be cheaper than the gaseous diffusion method. It was aware that other countries were engaged in similar programmes and it seemed regrettable that there should be duplication in developing a technology which was so important to the peaceful uses of atomic energy, but which continued to remain classified.

98. All that had been said in the past about the benefits of radioisotopes remained valid. Indeed in the growing field of radiation chemistry the promise still lay largely in the future: the new irradiated, resin-impregnated timbers with their remarkable properties and potential new uses, and the

new polymers and polymerization methods that were in prospect, were only some of the developments in that field which might, in time to come, prove of great importance to mankind.

99. Australia, which had voted in favour of the General Assembly resolution «commending» the NPT, favoured an effective treaty, as it favoured measures directed towards a degree of world-wide disarmament. To be effective, the Treaty must attract a large number of adherents, including specifically those non-nuclear-weapon States that had achieved, or had the means to achieve, a significant measure of nuclear development. The absence of Communist China from the signatories was a matter for concern. From Australia's viewpoint it was important that the Treaty should not impede the civil development of nuclear science and technology, and in that respect the present text of the Treaty required clarification on a number of points. One area of particular concern related to the scope and manner of application of safeguards under the Treaty, a matter for which the Agency would be responsible. There were many aspects to be considered. First of all, there was the agreement between the Agency and each non-nuclear-weapon State party to the Treaty. Secondly, there was the safeguards inspectorate: it was essential that inspectors be given a tenure of office much longer than at present and conditions of employment which would not encourage them to seek alternative employment or to neglect their loyalties to the Agency. Thirdly, there was the question of the peaceful uses of nuclear explosives, referred to in Article V of the NPT. It was unfortunately a fact that some important peaceful uses of nuclear explosives were inhibited by the provisions of the Partial Nuclear Test Ban Treaty. Australia, which had recently had the pleasure of receiving two leading United States experts who had pointed the way to potential peaceful uses of nuclear explosives in Australia, hoped that where the technique could be used with advantage to national development and without danger, all countries would be willing to co-operate in securing the necessary amendments to that treaty.

100. In fields of endeavour directly sponsored by the Agency much good work had been done. The Board of Governors had promoted the Agency's interests enthusiastically and economically and the Secretariat was to be congratulated on enabling Member States for the first time to ascertain the cost of programmes on a project basis. The next important project would be INIS. If properly organized, INIS would bring untold benefits, particularly to developing countries. It would however be a costly and time-consuming enterprise, and it was essential that it should be thoroughly planned.

The meeting rose at 1 p.m.