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RECORD OF THE ONE HUNDRED AND FORTY-FOURTH PLENARY MEETING

Held at the Neue Hofburg, Vienna, on Wednesday, 22 September 1971, at 10.30 a.m.

President: Mr. OTERO NAVASCUES (Spain)

* A provisional version of this document was issued on 24 September 1971.

** GC(XV)/469.

The composition of delegations attending the session is given in document GC(XV)/INF/133/Rev. 2.

THE RECORD

ADOPTION OF THE AGENDA AND ALLOCATION OF ITEMS FOR INITIAL DISCUSSION (GC(XV)/468)

1. The PRESIDENT drew attention to the report by the General Committee in document GC(XV)/468 on its consideration of the provisional agenda for the session. [1]

2. In the absence of any comment, he proposed that the Conference approve the agenda as set forth in that document and also accept the Committee's recommendations regarding the allocation of items for initial discussion.

● 3. It was so decided.

STATEMENT BY THE REPRESENTATIVE OF THE SECRETARY-GENERAL OF THE UNITED NATIONS

4. Mr. WINSPEARE GUICCIARDI (Representative of the Secretary-General of the United Nations) said he had been charged to deliver the following message, which would be the last message of U Thant, as Secretary-General of the United Nations, to a session of the General Conference:

> (a) "During my tenure as Secretary-General I have watched with a great deal of admiration the progress of this Agency, which for much of the last decade has been administered so ably by your Director General, Dr. Eklund. Many of you have just come from attending the Fourth International Conference on the Peaceful Uses of Atomic Energy in Geneva, which was jointly sponsored by the United Nations and the International Atomic Energy Agency, and will thus have participated in yet another meeting designed to make man turn away from self-destruction towards the positive use of a force with tremendous potentialities for good. It is towards this objective that the IAEA is mainly dedicated and has indeed contributed so significantly over the last ten years. The entry into force of the non-proliferation of nuclear weapons Treaty has caused the Agency to be charged with important responsibilities, which it has prepared itself to discharge. It has already made substantial progress in the field of safeguards. The Agency remains actively engaged in work designed to fulfil recommendations made by the 1968 Conference of Non-Nuclear-Weapon States. It is continuing its work in the area of nuclear desalting, on planning for the financing of nuclear projects for developing countries and in fostering the use of nuclear techniques in, for example, hydrology, agriculture, medicine and industry. It is increasingly involving itself in the problems of the human environment, where the use of nuclear energy without adequate precautions could have far-reaching ecological effects, while with such precautions it has already been demonstrated that nuclear energy can be a 'clean' source of energy. I believe, however, that the present decade will see the unfolding of even greater possibilities for the peaceful uses of nuclear energy and a corresponding increase in the responsibilities of this Agency. Indeed, your organization is well placed to play a pivotal role in certain areas, in keeping with the growing trend to work through multilateral instruments. It is my earnest hope that in these developments the interest of the developing countries will remain very high in the priorities of the Agency and that your technical assistance activities will increase appropriately.
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> (b) "I have been particularly gratified over the years by the close co-operation between the United Nations and the IAEA. This co-operation is based on the very special relationship established in Article III of the Statute as well as in the relationship agreement between the United Nations and the IAEA[2]. The most recent example of this was the organization of the Fourth International Conference on the Peaceful Uses of Atomic Energy, but this co-operation and co-ordination is a continuous process, generally of a quiet and unspectacular nature. In particular, the work we are doing together in such areas as the economics of power, the implementation of the results of the Conference of Non-Nuclear-Weapon States[3], and the effects of atomic radiation is especially worthy of note. In addition, the IAEA, through its participation in the Administrative Committee on Co-ordination and in other co-ordinating bodies, plays its full part in the development and implementation of projects of interest to the United Nations system as a whole, such as the transfer of technology to developing countries, the human environment and the second development decade. As the possibilities for the peaceful uses of nuclear energy continue to grow, this

[1] GC(XV)/454 and Mod.1.

[2] Reproduced in document INFCIRC/11, Part I.A.

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

co-operation will become even more necessary, and I am confident it will be strengthened.

(c) "On the eve of relinquishing my office I am optimistic about the development of international relations. The cold war has largely disappeared, giving way to the unmistakable beginning of détente. These beginnings could and, as I have repeatedly urged, should be given momentum by the reaching of agreement on a complete ban on nuclear tests. It is also to be hoped that by the end of the new decade the nuclear arms race will have become a mere curiosity in the pages of history.

(d) "In conclusion, may I recall that much of the work of the IAEA, as well as the work of the other agencies, closely affects the activities of other members of the United Nations family. This is why we at the United Nations are concerned, just as you are, to promote effective co-operation, proper co-ordination and, whenever appropriate, concerted action. In the discharge of the tasks stemming from this concern, I, as Chairman of the Administrative Committee on Co-ordination, have greatly benefited from my association with my valued colleague, Dr. Eklund, to whom I take this opportunity of paying a warm tribute. I am much indebted to him, as to my other colleagues on the Committee, for his contribution to the mutual confidence and sense of partnership which have been built up over the years between the various arms of the United Nations system, and which, in an increasing measure, are exemplified in the relations between the IAEA and the United Nations."

STATEMENT BY THE DIRECTOR GENERAL

5. The DIRECTOR GENERAL said that progress was usually a very slow process and particularly in the building of better relations between nations.

6. On the occasion of the fifteenth regular session of the General Conference, he would look back and identify some of the progress made by the Agency since its inception. The origins of the Agency went back more than 25 years, when the nations of the world first began striving for some kind of an international solution to the dilemma posed by the atom. After much discussion, a specific proposal to create an international atomic energy agency had been put before the General Assembly of the United Nations in 1953, but another four years had been needed to draft a Statute and bring it into force.

7. In the early years the Board of Governors had held prolonged series of meetings, hammering out sets of rules and seeking appropriate programmes for the Agency. As a result, by 1961, the Agency had established the beginnings of a safeguards system, had set up laboratories at Headquarters, in Seibersdorf and in Monaco, had worked out a programme of technical assistance and had been very active in carrying out its regulatory tasks. Agency regulations for the safe transport of radioactive materials had been established. With commercial nuclear power still years ahead and bilateralism still dominant in regard to safeguards, the main subject of the Agency's work had been radioisotopes and radiation. As an example of slow progress, the Vienna Convention on Civil Liability for Nuclear Damage, adopted in 1963, had not yet entered into force or been ratified by any major nuclear trading country.

8. In 1963, the Agency had initiated its first large-scale development projects - the Middle Eastern Radioisotope Centre for the Arab Countries in Cairo and the first Special Fund project relating to nuclear energy, in Yugoslavia, also concerned with radioisotope applications. That year, the membership of the Board had been increased from 23 to 25. In 1964, the Agency had taken full responsibility for the scientific programme of the Third Geneva Conference on the Peaceful Uses of Atomic Energy. It had become a well-established forum for the exchange of information and a major publisher of publications relating to nuclear energy. In the same year, 1964, the Agency had formalized its collaboration with the Food and Agriculture Organization of the United Nations by establishing a Joint Division of Atomic Energy in Food and Agriculture. In 1964 also, the Trieste Centre for Theoretical Physics had been established in collaboration with the Italian Government.

9. Since 1964, the trend had been to seek greater efficiency in the scientific programmes and to revise them periodically to meet the actual needs of Member States. That had been done in the light of the developments in many large national atomic energy commissions, where important tasks had been diverted to bodies outside the commissions. Nuclear power, including desalination, had attracted more interest and the same was true of environmental questions. In 1967, the Agency had accepted the offer made by the Austrian authorities to build a permanent headquarters in the Donaupark. In 1968, the Agency had established the International Nuclear Information System (INIS) which, from a modest start, had gained considerable momentum. In the past few years, contributions to the Agency's own programme of technical assistance had increased. The number of Special Fund projects now under execution had risen to six.

10. The Moscow Test Ban Treaty of 1963 had marked an improvement in international

relations and had had a beneficial effect on the overall work of the Agency, particularly on its safeguards activities. Member States soon afterwards had agreed to extend the earlier safeguards system to power reactors of all sizes and to reprocessing and fuel fabrication plants. Bilateral safeguards had begun to be steadily transferred to the Agency. In 1968, the General Assembly had commended the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)[4] and in April 1971 the Agency had completed the preparatory work needed to apply safeguards to all nuclear material in the peaceful activities of non-nuclear-weapon States party to NPT; negotiations were now proceeding with 30 States.

11. In the previous year, the General Conference had adopted a resolution which would have the effect of increasing the membership of the Board from 25 to 33. So far, there had been 13 ratifications of the relevant amendment to the Statute.

12. Looking to the future, he said that nuclear energy, in almost all of its applications, was increasingly being used on a commercial scale, particularly in electric power production. However, the large-scale introduction of nuclear power in national economies also created certain problems of an international character.

13. A dominant impression obtained at the Fourth International Conference on the Peaceful Uses of Atomic Energy (the Fourth Geneva Conference) was that of confidence in the future of nuclear power. The sessions on environmental questions had also been very illuminating. Collaboration with the United Nations Office at Geneva and United Nations Headquarters had been excellent.

14. Recent expressions of concern about the human environment, which had led to the convening of a United Nations conference on the subject to be held in Stockholm in 1972, had repercussions on nuclear power as well. To help the United Nations Secretariat prepare for the conference, the Agency had contributed papers which demonstrated that nuclear power plants were decisively better than fossil-fuelled plants with respect to common atmospheric pollutants, but that the generation and release of radioactivity in various phases of the nuclear fuel cycle required continuing attention to ensure that the acceptably low levels of radiation were maintained. The techniques and concepts used in safety analysis and control of radioactive releases might usefully be adopted in the control of other pollutants.

15. At the previous General Conference it had been proposed that the Agency should serve as a central repository for data on amounts of radioactivity released by the peaceful applications of nuclear energy. In June the Board had discussed the establishment by the Agency of an international register of all substantial releases of radioactive wastes into the seas and oceans. In July, the Agency had convened a consultants' meeting to consider the technical problems associated with establishing a central repository. The consultants had suggested that a register be established now, in co-operation with the World Health Organization, for releases of radioactive materials to any sector of the environment which might go beyond national boundaries. Obviously such a register could only be established with the full co-operation of Member States.

16. In further preparation for the Stockholm conference, a draft convention regulating the transportation and dumping of all materials in the ocean was being drawn up; the proposed IAEA/WHO register could be a component of such a comprehensive regulatory system. Care must be taken to avoid duplication of work in collecting and disseminating information for those registers.

17. In that context, the Agency's programmes and the formulation of standards in environmental radiation biology took on a special significance. It relied heavily on the recommendations of the International Commission for Radiological Protection (ICRP) for the formulation of its standards, guidebooks and codes of practice. Both the International Commission on Radiation Units and Measurements and ICRP had appealed to the Agency for greater financial support and he felt that the valuable work of both organizations justified such an increase; that would be reflected in the 1973 budget.

18. To meet present and future needs for rapid access to nuclear information, the programme of INIS would grow in scope. It was expected that, as a result of a recommendation of a panel of experts, the scope of coverage might almost double by January 1972. The entire INIS operations would, however, first be reviewed by the Board's own Advisory Committee on INIS, in November.

19. The introduction of nuclear power in the developing countries raised special problems for those countries, which looked to the Agency for help and advice. The problems of financing nuclear power had been much discussed at the previous two sessions of the General Conference, and the Secretariat had been studying the matter, and in particular the technical and economic characteristics of nuclear reactors that could be used in the smaller electrical grids of developing countries. A market study was being initiated to determine the future demand for reactors with a capacity below 500 MW(e). At the Fourth Geneva Conference the matter had been dealt with both by a panel and in an informal meeting on the introduction of nuclear power in

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[4] Reproduced in document INFCIRC/140.

developing countries. It had been shown that by 1985, there might be a considerable market for nuclear power in the developing countries, part of which would be for small- and medium-sized reactors. A working group on the subject would meet in October.

20. The introduction of nuclear power would not be the only matter in which the Agency would be called on to help its Members. Particularly for the "new" Members embarking upon nuclear energy programmes, the Agency's technical assistance was crucial. The backbone of that programme was the exchange and training of young scientists, so that the other components of the programme might be used effectively: i.e. so that the expert would have a counterpart and the equipment could be operated. There was also a need for the training of laboratory technicians, to which more attention would be given; in fact, the first training course in Africa for laboratory technicians had recently been organized in Ghana. The increase in funds for technical assistance suggested by the Board would allow the Agency to provide somewhat over 50% of the aid requested, as compared to 26% in 1969. However, the actual value of the assistance given, should the Conference decide to increase the target to $3 million, would attain only the 1962 level.

21. For many developing countries, medical, agricultural and hydrological applications of nuclear techniques were still of primary interest, as good returns could be expected right from the beginning of a programme.

22. There was a second group of developing countries which had already acquired experience in nuclear applications and whose interest lay more and more in larger projects of the Special Fund type. To tap the resources available in the United Nations Development Programme (UNDP), those countries, under the new UNDP procedures which would come into effect in January 1972, must include requests for both small- and large-scale projects in a country plan covering a period of five years. It would be for the national atomic energy bodies, then, to ensure that their projects were included in the country's overall programme.

23. On an official visit to some Latin American Member States in July, the Deputy Director General for Technical Assistance and Publications and he himself had had the opportunity of making on-the-spot checks of what the Agency was doing and what was expected of it in the next few years in those countries. In some of those countries the electrical utilities were already in a position to integrate substantial amounts of nuclear power in the grids, providing that the cost was reasonable. The intensive prospecting activity in some countries was also impressive and would certainly lead to an increase in the known uranium reserves. Fuel element fabrication was also the subject of considerable efforts in Latin America. In collaboration with the United Nations Industrial Development Organization, there would be scope for a substantial contribution from the Agency to the process of industrial development in some of those countries.

24. The Agency's regulatory work had not been completed and quite a lot remained to be done. The Agency would accordingly continue to assist its Member States in establishing national nuclear laws which, if harmonized with each other, would facilitate the attainment of a world nuclear law system. The task became even more important with the commercialization of nuclear power and the increase in trade of nuclear materials.

25. As to future extramural activities, an expansion of the Agency's laboratory facilities in support of the safeguards programme was being studied. The work of the International Laboratory of Marine Radioactivity at Monaco would be reviewed in the autumn by a group of experts, according to the provisions in the agreement between the Agency and the Monegasque authorities. Possible additional activities to be financed by UNESCO and other interested organizations, including for example the study of non-radioactive pollutants in the sea, would be the subject of consultations. The Agency and UNESCO had started negotiations with the Italian Government on the extension of the agreement concerning the International Centre for Theoretical Physics at Trieste, in which, as a first basis for discussion, subject to the approval of the Agency's Board and UNESCO's Executive Council, it had been suggested that the two agencies' contributions should be increased to $200 000 each, on the assumption that the Italian Government would also increase its contribution. The Centre would thus be compensated for the effects of inflation since the Agency's contribution had been fixed in 1968. The first meeting of the newly-established Fusion Research Council had taken place in June, followed by an informal discussion during the Fourth Geneva Conference.

26. An activity of growing importance in the future would be the application of safeguards in connection with NPT. The Treaty for the Prohibition of Nuclear Weapons in Latin America should also be mentioned. Negotiations between the Agency and non-nuclear-weapon States party to NPT were now going ahead, based on the material for the structure and content of NPT agreements worked out by a safeguards committee of the Board during the past year and contained in document INFCIRC/153. Of the 65 States party to NPT, only 30 had formally begun negotiations with the Agency and in only four cases - Austria, Finland, Poland and Uruguay - had the negotiations been completed. In order to have an effective non-proliferation regime, the widest possible application of NPT agreements

was necessary. The time-table laid down in NPT required that most safeguards agreements should come into force by the end of February 1972. In fact no less than 50 countries should conclude agreements with the Agency before that date. However, the initiation of negotiations was up to the States concerned, the Agency not being a party to NPT. The Agency was prepared, and was ready to enter into negotiations with those States that wished to do so as parties to NPT regarding the application of safeguards. The Legal Division had established a branch office in the Congress Centre for the duration of the session. Delegates should use the opportunity to check on the status of negotiations and to hold preliminary discussions with the Secretariat on the matter.

27. The material elaborated by the Board's safeguards committee, in which some 50 Members had participated, had done much to answer the reservations of some countries about the acceptance of international safeguards. He hoped that that might encourage those States which had not yet signed or ratified NPT to do so.

28. If questions of practical interpretation of the safeguards agreements arose in the course of further negotiations, he would follow the usual procedure and call upon a group of experts for advice.

29. The size of the work load for analytical services to be expected in connection with NPT and how it might be distributed among a network of national laboratories, with the Agency acting as an umpire laboratory, was under study. Member States had been asked about their willingness to make their own analytical services available to the Agency on a contractual basis. A technical proposal and cost estimate for an Agency safeguards analytical laboratory as an integral part of a network of national contract laboratories would be presented to the Board in February 1972.

30. The Agency's programme relating to peaceful nuclear explosions was expected to grow as the nuclear-weapon States continued to fulfil their obligations under Article V of NPT. Apart from the technical panels on the subject, the Agency had also convened a group of experts in 1970 to consider the question of appropriate international observation of peaceful nuclear explosions, as foreseen in NPT. A further technical panel on cratering explosions was planned for mid-1972. As a result of an enquiry to the Agency from Madagascar regarding the feasibility of a project involving the use of an explosive device, France, the Soviet Union, the United Kingdom and the United States had indicated their interest in participating in such a study.

31. Turning to problems affecting the everyday functioning of the Agency, he said that the Regular Budget for 1972, which amounted to $16 561 000, [5] had been affected by the revaluation of the Austrian schilling and the difficulties experienced in the world's monetary markets. The 8% salary increase for Professional staff, anticipated last year, had been approved by the General Assembly and had come into effect on 1 July 1971. As the increase had not been budgeted for, it had necessitated a supplementary request for the 1971 budget, and was reflected in the 1972 estimates. He had been concerned about the problem the previous year. The Agency had given its views on the matter to the Special Committee for the Review of the United Nations Salary System. The Agency had repeated its position against a salary increase unless it resulted from a review of the principles underlying the United Nations salary system, some of which went back to the time of the League of Nations. In order to make a positive contribution to the Committee's work, the Agency had suggested that United Nations remunerations be based on an average of the national civil service salary rates prevailing in five of the most developed countries, rather than on the rate in one country only, as now. The Agency had suggested that the adequacy of allowances such as the dependency allowance and the education grant should be examined.

32. As the budget estimates showed, there had been virtually no room for programme increases other than for safeguards for which special financing arrangements had been suggested. A situation in which programmes were held static or even relatively decreased while common staff costs and thus the budget figures continued to rise was obviously not a healthy one. In order to make the best possible use of limited resources and staff, he had initiated a survey of the deployment and utilization of staff in the Secretariat, followed by a number of in-depth studies, as a result of which the redeployment of staff had enabled him to make some savings. For example, in spite of an increase in work load, it had been possible to decrease the number of staff dealing with technical assistance matters from 32 in 1965 to 21 in 1971. In planning the next six-year programme, he had obtained the views of senior staff members before formulating the programme, and future meetings were planned. Efforts would be concentrated on programmes of greatest benefit to Member States, at the same time avoiding too much diversification. In that connection, the suggestions that would be made at the current session of the Conference, as well as the trends reflected at the Fourth Geneva Conference, would help.

33. A day-to-day problem afflicting all international organizations was that of excessive documentation. A recent report prepared for the Secretary-General of the

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[5] GC(XV)/460, Table 2.

United Nations showed that the point of saturation had now been reached and indeed overstepped, and that delegations could no longer absorb the content of the large number of pages of documentation being placed before them. While the problem in the Agency had not yet reached those dimensions, every opportunity should be taken to avoid wastage and reduce paper production to a minimum. He asked Members to co-operate fully in the matter. One step would be to produce one comprehensive report on the Agency's activities for the use of the General Conference, the General Assembly of the United Nations and the Economic and Social Council, instead of individual reports.

34. He expressed appreciation for the continuing and generous support the Agency was receiving from its host Government. An architect had been chosen for the future headquarters and the Austrian authorities had established a governmental body to supervise the next steps. Work was expected to start in 1972 and the building was expected to be ready for occupancy in 1976-77. In the meantime, the Austrian authorities had recognized the Agency's acute space problems and had provided rent-free, additional office space in a new building not far from the Kärntner Ring.

35. He looked to the General Conference to give the Secretariat guidelines in regard to the future and, in particular, the next six-year programme.

GENERAL DEBATE AND REPORT OF THE BOARD OF GOVERNORS FOR 1970-71 (GC(XV)/455, 466)

36. The PRESIDENT drew attention to the statements of financial contributions to the Agency in document GC(XV)/466, which were up to date as of 20 September 1971 and accordingly superseded those contained in Annex G to the Board's annual report for 1970-71 (GC(XV)/455). He then invited delegates to participate in the general debate.

37. Mr. SEABORG (United States of America) said he would first like to read the following message to the Conference from the President of the United States:

> (a) "My warmest greetings to all who are attending the Fifteenth General Conference of the International Atomic Energy Agency. You have my very best wishes for a most productive meeting.
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> (b) "During the past fifteen years, the IAEA has contributed a great deal to the development and international sharing of the peaceful uses of atomic energy. It is especially encouraging to see that the Agency's programmes are continuing to grow in response to the needs of the Member States.
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> (c) "I would like to emphasize my country's deep appreciation of the work the Agency is doing in carrying out the important new responsibilities under the Non-Proliferation Treaty. Already you have adopted basic guidelines for negotiating safeguards agreements and have entered into such negotiations with many governments. These efforts, like your other activities, represent a significant contribution to the progress of mankind.
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> (d) "I believe that mankind has the capacity to build a future in which all men can live peaceful and fulfilling lives. But no single nation can achieve this goal alone. Man's capacity to build will depend, in the end, upon his capacity to share. The International Atomic Energy Agency has done much to foster this capacity and that is why its past contributions and its future potential are important to men everywhere.
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> (e) "On behalf of the people of the United States, I congratulate you on your past achievements and wish you continuing success in the months and years ahead."

38. Like many of those present, he had been involved over the past two weeks in highly productive discussions on nuclear developments with colleagues from countries all over the world. The Fourth International Conference on the Peaceful Uses of Atomic Energy (the Fourth Geneva Conference) had been held with considerable success. Special commendations were in order for Dr. Eklund and the Agency's staff, and for many others, in helping to make that Conference an outstanding scientific and technical contribution to nuclear progress. Due to the extensive advances that had been made over the years, it had been possible at the Fourth Geneva Conference to relate nuclear science more closely to the needs of the developing countries than at the three previous conferences. Thus the papers from both the advanced and the developing countries would be of increased usefulness to governmental administrators, planners and economists.

39. Those who had attended the Fourth Geneva Conference would perhaps recall that the United States exhibit had included a section on the implantation of small needles of californium-252 in and around cancerous tissue to determine whether neutron irradiation was more effective than gamma rays in destroying cancer cells. There was a current research programme under way on that subject in the United States, and supplies of californium-252 needles had recently been lent to participating hospitals in the United Kingdom. It was anticipated that some of the needles in the United Kingdom would have fulfilled their purpose in the research programme in another year or so, but would continue to have many potential uses as neutron sources for such areas

as dosimetry studies, reactor studies, some activation analysis and calibration work. Accordingly, as the needles became available, it was planned to turn them over to the Agency for distribution to universities in Member States, and the details of that transfer would soon be arranged.

40. Shortly before the Fourth Geneva Conference, he had had the honour to visit the Soviet Union as a guest of the State Committee on the Utilization of Atomic Energy and the Academy of Sciences of the USSR. It had been an extensive and stimulating trip, during which he had met leading Soviet scientists and administrators and discussed many of their programmes, involving peaceful nuclear applications. He had also visited a number of national research centres and nuclear power reactors and had been greatly impressed by them.

41. Referring to the second part of President Nixon's statement, he wished to express his high esteem for all those representatives of Member States and staff members of the Agency who had participated in the formulation of the principles which now guided the Agency in concluding safeguards agreements with parties to NPT. The Board's safeguards committee had met frequently over many months. It was encouraging to note that some 50 Member States had taken part in its work. Through constructive effort and the spirit of compromise, they had produced the detailed outline of a safeguards agreement that had the virtues of effectiveness and widespread acceptability. The right of the Agency's inspectorate to verify independently data reported to it had been recognized as basic to the formulation of an objective judgement, while at the same time national systems of accounting for and controlling nuclear material had been explicitly recognized as essential to the effective implementation of Agency safeguards. Consequently, the national systems had to be based on, and provide for, those measures relevant to international as well as domestic safeguards purposes. Protection of the commercial interests of the inspected State had been ensured by the provisions adopted to protect commercial secrets and to avoid undue interference with the country's peaceful nuclear activities. The proposed arrangements also provided for a focusing of the Agency's verification procedures on the nuclear materials having the most strategic significance, namely plutonium and uranium-235. With that solid foundation, he looked forward to adherence to NPT by as many additional nations as possible, and to prompt conclusion of the necessary safeguards agreements between the Agency and States parties to NPT.

42. Some Governments had initially felt it desirable to postpone signing NPT, pending development of the guidelines which would be applicable to Agency safeguards arrangements pursuant to NPT. With the guidelines approved by the Board in June, those States should now find it possible to take steps towards adherence to NPT.

43. Some years before, his Government had stated that when safeguards were applied in connection with NPT the United States would permit the Agency to apply its safeguards to all nuclear activities in the United States, excluding only those with direct national security significance. Discussions had been initiated between the Agency and the United States Government on implementation of that offer.

44. There was a second development of major importance to the Agency's Members that had not attracted as much attention as the formulation of safeguards principles, perhaps because it was more in the nature of a trend that had been gaining momentum through a number of actions and statements by the Member States at Agency meetings and elsewhere. He was referring to the growth during the past two years of the Agency's technical assistance activities, both those carried out under its own programme and those representing part of UNDP. In 1969, President Nixon had announced that one aspect of his new foreign aid policy would be a strong emphasis on technical assistance, and also that it was his intention to increase the portion of foreign aid to be provided through support of the technical assistance programmes of international organizations. That same year, United States contributions in cash and in kind to the Agency's Operational Budget for 1970 had been increased by about 40% over the amounts contributed in 1969. For the 1971 Operational Budget his country was contributing a total of $1 550 000, or almost 11% over 1970, which meant an increase of about 51% in the past two years. United States contributions to the programme in 1972 would be continued at an equivalent rate, subject to appropriations by Congress.

45. Furthermore, he was pleased to renew his pledge, for the thirteenth consecutive year, to donate up to $50 000 worth of special nuclear material for use in Agency projects in research and medical therapy. His Government would also continue to make available, on a cost-free basis, the services of experts and training opportunities in their institutions, and to contribute to the Agency's library.

46. In so far as the Agency's total technical assistance programme was concerned, the report on the provision of technical assistance during 1970 indicated that the Agency had provided more technical assistance in 1970 than in any previous year, and that the total value of the assistance had increased by 6% over 1969.[6] The target for voluntary contributions to the General Fund had been increased from $2 million for 1970 to $2.5 million for 1971, and the Board had recommended that it be increased again to $3 million for

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[6] GC(XV)/INF/131, para. 6.

1972. [7] The proposed increase had his support. He drew attention to the fact that the contributions pledged for 1971 had increased by about 27% over those for 1970. It was hoped that the trend in the pledges for 1972, especially in view of the increase in sound and worth-while requests for assistance and in costs of project implementation, would continue.

47. Another significant feature of the report on the provision of technical assistance during 1970 concerned the steps taken to evaluate the programme both as specifically reported and as implied from the various analyses of the activities. A systematic follow-up and evaluation of the results of technical assistance projects in specific countries was useful in planning the best use of the Agency's limited resources, and in assessing the benefits accruing to the recipient country. The Agency should continue to consider new approaches to assessing the benefits derived by countries receiving assistance.

48. Many of the developing Member States needed more electric power and a number of them were considering the possibility of using nuclear energy, particularly those which did not have sufficient fossil fuels or hydroelectric resources. At the same time, however, there were three main problems in the introduction of nuclear electric generating stations.

49. First, while a developing country normally required relatively small increments of electric power, nuclear plants of the small size range were at the present time frequently not economically competitive with equivalent-sized fossil fuel plants. The economies of scale operated in such a way that larger nuclear power stations provided lower-cost electricity than smaller reactors. Since the evolution to larger reactors had occurred, there had not been a demonstrable market for nuclear reactors in the 100-300 MW(e) range, and manufacturers were not producing them.

50. The second problem was that while nuclear plants enjoyed lower fuel costs than equivalent-sized fossil fuel plants, their capital costs were greater. This meant that special financing arrangements might be needed to provide for the larger loans necessary to cover the capital cost of a nuclear plant.

51. Third, specialized training was required for the operators of nuclear power stations. This should not prove to be as difficult a problem as the others, however, and both the Agency and the reactor manufacturers had adequate experience in providing such training, which carried with it the benefits of bringing additional technology to the country.

52. It was a fact that, for more than ten years, the Agency had been studying those problems. Progress had been made through the Agency's technical meetings and through Agency surveys of the nuclear power situation in developing countries. Agency staff members in the past years had visited the United States and followed the technical work being done in designing and constructing small power reactors and bringing them into operation. In addition, the Agency had financed research contracts with institutions in Member States for study of the technical and economic feasibility of nuclear power reactors suitable for developing countries; and 1970 had seen the initiation of a series of co-ordinated research agreements on technical and cost assessments for such plants. Beginning in 1969, the Agency had published an annual review of Operating Experience with Nuclear Power Stations in Member States and it was planned to continue and expand that valuable activity.

53. It seemed, however, that the time had come for manufacturers to take another look at the feasibility of producing nuclear plants in the 100-300 MW(e) range. The Agency was planning a study of the probable market for such plants. The market study would have to be a very thorough one that would recommend itself to both manufacturers and financial institutions. The developing countries should assess their future requirements in terms of a limited number of sizes and models of reactors, which could then be ordered on a repeat basis, thereby allowing a material reduction in unit costs. He hoped that the results of the Agency's study would show a demand that would encourage manufacturers to design and market improved plants of smaller size, and that the funds required for their construction would be made available on attractive terms.

54. His Government wished to reaffirm its policies on supplying enriched uranium, which had been the subject of recent announcements. Recognizing the continued growth of nuclear power both at home and abroad, a review had been made of the present and prospective capability of the United States to undertake additional commitments to provide enrichment services. Following the review, the United States Atomic Energy Commission would continue to enter into long-term uranium enrichment contracts to meet the fuel requirements for nuclear power reactors in the United States and in co-operating foreign countries. However, in the light of the need to match future requirements more closely with enrichment capacity, its undertakings to supply reactor fuel abroad, like those for domestic reactors, would be made when supply contracts were entered into for individual reactor projects, rather than in advance in conjunction with the ceiling quantities in United States agreements on co-operation.

55. Countries with advanced nuclear power programmes were understandably reluctant to be totally dependent on any one country for enriched uranium. In July 1971, those countries

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[7] GC(XV)/460, para. I.11.

that had indicated interest in a multinational enrichment project were notified of the willingness of the United States to enter into exploratory discussions with a view to possible arrangements for making available gaseous diffusion technology and know-how for one or more multinational projects, subject to appropriate safeguards.

56. Finally, on the subject of reactors, he wished to mention the proposed nuclear energy centre in Puerto Rico, for which a feasibility study had been completed. The centre would be an integrated complex incorporating a 540-MW(e) nuclear power station, a 20-million-gallon-per-day desalting plant and various chemical and other industrial plants consuming large amounts of energy. The study had concluded that a nuclear energy centre would be economically attractive for Puerto Rico, and also that there could be a shift in the agricultural system from the present emphasis on sugar-cane to increased production of fruit and vegetables, thus eliminating the need to import a portion of the island's food and providing income from exports.

57. Commenting on the "environmental era" that had been entered within the past two years in its relation to the peaceful uses of nuclear energy, he felt it unfortunate that often those people who were so rightly concerned about the environment believed that an energy-intensive society such as now existed in the advanced nations must inevitably be "self-destructive". Those who believed it would be possible to reduce the total energy consumption and return to a "more natural" way of life, failed to take into account, first, the increase in future populations, even if population control efforts were successful; second, that the energy demands of the population would increase as the standard of living inevitably increased; and, third, that energy-intensive industries involving recycle plants and the production of synthetics were the key to saving the environment, rather than destroying it.

58. Those countries in the nuclear energy community were probably justified in thinking of themselves as pragmatic environmentalists, in that they were developing a source of energy that could be the least harmful to the environment from a power generation standpoint, while providing the increased power that would be needed for a wide variety of industries and facilities, including pollution abatement. In addition, the questions of nuclear power's safety and its environmental aspects, that were so much on people's minds, were being effectively dealt with, although perhaps that aspect of the matter was not sufficiently well known.

59. It was in that area of public information that there would most likely be an increased contribution by the Agency. An expanded layman's version of the Agency's booklet "Nuclear Energy and the Environment" was in preparation with a view to presenting a balanced, factual discussion of the problems most often raised by environmentalists. The international authority of the Agency was a valuable asset in providing additional information which the public could regard as unbiased. The Agency was developing plans to serve as a central repository for data on the amounts and concentrations of radioactivity released to the environment in connection with civilian uses of nuclear energy, which was very gratifying to see.

60. In conclusion, he wished to make a few predictions regarding nuclear power and the environment in the United States. By the year 2000, it was planned to generate about 1000 million kilowatts of electricity from about 1000 nuclear power reactors, carrying about half the nation's power load. A significant fraction of those nuclear facilities would be powered by fast-breeder reactors, and a number of those would have been in operation long enough to produce sufficient new fuel to refuel themselves and an equal number of other reactors.

61. The annual average whole-body radiation exposure to the population of the United States due to the release of radioactivity into the environment from the normal operation of all nuclear power plants in the year 2000 would be equivalent to less than 1% of the radiation exposure to the population from natural background radiation. Furthermore, the plants emitting that negligible radiation would be indirectly responsible for a reduction of billions of tons of carbon dioxide, millions of tons of sulphur dioxide and large quantities of nitrogen oxides and particulate matter that could be expected each year from fossil-fuelled plants, even those with pollution controls, if one continued to rely on such plants for most of the electricity in the United States.

62. Long before the year 2000, the high-level waste produced in fuel reprocessing would be routinely converted into solids and buried or stored where it could not reach the biosphere. The nuclear plants would be sited and equipped to avoid producing harmful thermal effects and much of their waste heat would be put to beneficial uses. Finally, the nuclear industry would continue to rank high among the safest industires in the country.

63. In addition, he wished to make a prediction of even greater significance than those concerning the quantity of power and the quality of the environment. In view of the greatly accelerated rate of change taking place, not only in scientific and technological development, but in the social sciences as well, in another 30 years one should have learned to apply the increased power far more wisely and in far-sighted ways that would support the just needs of all the people, who would have learned to live in closer harmony with their environment. Man would have made great progress in learning to live with his modern techno-

logical capacity and, with its wise application, to live up to his responsibilities as a human being.

64. Mr. ROUX (South Africa) said that the Agency could look back with satisfaction on a fruitful year, highlighted by the Fourth Geneva Conference and the conclusion of the work of the Board on the structure and content of agreements between the Agency and parties to NPT.

65. He had no doubt that the Fourth Geneva Conference, directed as it was at public leaders, economists and planners, would contribute largely to the full utilization of the benefits of nuclear energy in all developing countries. The Agency was to be commended for its efforts in helping to make that conference an outstanding contribution to nuclear progress. However, it was highly unlikely that in future it would either be desirable or necessary to convene those conferences on such a mammoth scale.

66. There could be no doubt that an effective and acceptable safeguards system would facilitate the international exchange of nuclear materials, equipment and information and would thus further the advancement of developing countries. The previous year he had expressed his country's satisfaction at the establishment of the Board's safeguards committee and the co-operative spirit displayed in its initial assignment.[8] Whilst reservations were held on certain important recommendations of the committee, it was generally agreed that a commendable compromise had been achieved - largely thanks to the efforts of the regular chairman, Academician Straub. The goodwill and sense of responsibility shown in the committee were an all too rare phenomenon in international organizations and provided an inspiring example of how a topic of considerable political delicacy and controversy should be handled.

67. A stage had now been reached where guidelines for the conclusion of safeguards agreements in connection with NPT had been approved and the first such agreements, involving Austria, Finland and Uruguay, had already been concluded.

68. The question still remained, however, whether the Agency should apply to a group of States the same set of controls it applied to a single State, and it might be necessary to reconvene the safeguards committee in that connection.

69. On the financing of safeguards his country still felt that the Agency should not have to bear safeguards costs in nuclear-weapon States except to the extent and for the limited period required to enable its inspectorate to acquire suitable expertise. The Board had authorized the Director General to start negotiations with the the United Kingdom and the United States on that issue.

70. The South African delegation considered that the proposed change in the scale of assessments to finance Agency safeguards activities was contrary to the spirit of the relevant statutory provisions. That was a complex issue and he would merely state that in view of the widespread agreement on a delicately negotiated assessments formula South Africa would not oppose the proposal but would have to abstain.

71. In spite of the achievements of the past year there was concern in South Africa and many other countries over the increasing imbalance between the funds allocated to the payment of salaries and associated personnel costs and the amount expended on direct programme activities. A wage and salary freeze was impossible under current inflation and thus economies might best be achieved by freezing the total number of posts in the establishment under the 1972 budget, leaving it to the Director General to reallocate posts where necessary.

72. His delegation was sceptical about the feasibility of augmenting the General Fund by increasing the contributions target in successive years but noted that there was a gentleman's agreement that there would be no further increase until 1974 at the earliest. Therefore his Government would continue the tradition, jointly initiated by South Africa and Brazil, of contributing to the General Fund on the basis of its percentage contribution to the Regular Budget. But it might have to review the matter in 1972 if a number of other States, financially in a position to do so, failed to contribute to the General Fund on the basis of their assessed percentage. His country was ever prepared to consider providing finance or experts for further technical assistance projects in the region of Africa and the Middle East which had been considered sound by the Agency's Secretariat but for which funds were lacking.

73. Turning to marine disposal of radioactive waste, he emphasized the increasingly vital importance of the problem to countries concerned in nuclear power generation. Situated at the conflux of two great oceans often polluted by oil tankers rounding the Cape of Good Hope, South Africa was particularly interested in an early solution to the problem of marine disposal of radioactive waste. Moreover, South Africa's first nuclear power station (the 500-MW "Koeberg" Station) was to be built on the southernmost tip of the African continent at Duynefontein north of Cape Town and would be commissioned in 1978.

74. There were two basic schools of thought on marine disposal which were not entirely irreconcilable, but if the Agency procrastinated,

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[8] GC(XIV)/OR.136, para. 37.

some other international organization might assume responsibility. He hoped that there would be a full-scale discussion of that subject at the next meeting of the Board, since it had failed to discuss it in June as planned. In the meantime he was pleased to note the progress reported by the Director General in his statement.

75. A further important question was that of uranium supplies. With the increase in demand for nuclear power, it was encouraging that new deposits were being discovered in various parts of the world and he was happy to say that in South Africa, too, "reasonably assured" reserves, recoverable at a cost of up to $10 per lb, had risen from 200 000 to 300 000 tons as a result of new discoveries and improved extraction efficiencies. However, those areas where little or no exploration had been done should be prospected and the Agency could play a useful role in that field, particularly in the case of developing countries with favourable geological conditions.

76. The Agency had established itself as one of the most effective channels of international co-operation, serving to ensure that the benefits of nuclear energy were widely shared, especially by developing countries, and his delegation had no doubt that the Agency was well equipped to fulfil its future role with distinction.

77. Mr. SCOTT (Jamaica) said that the Board and its safeguards committee was to be congratulated on the work it had done in preparing ground rules on the structure and content of agreements between the Agency and States in connection with NPT. His delegation welcomed the fact that those who had worked out those rules seemed to have appreciated that the developing countries would for some time to come require preferential treatment in the various aspects of financing safeguards.

78. Nuclear energy, so it was being said, had come of age, and he would venture to suggest that the Agency had also come of age. The Agency had shown its maturity by the comprehensive range of services and assistance it now offered in research, education and training, and in the compilation and dissemination of nuclear information.

79. The Fourth Geneva Conference had further demonstrated the viability of the use of the atom in agriculture and industry. However, despite the emphasis which had been placed on the development of nuclear electric power at that conference, available statistics on the use of such power in the developing countries were not encouraging. At the end of 1970 developing countries had accounted for only 0.3% of the total electricity generated by the atom. Projections for 1975 and 1980 showed only modest improvements of 1.4% and 7% respectively, those percentages being on the optimistic side. For the foreseeable future it would seem that that source of energy would remain in the service of developed countries only.

80. It was therefore necessary to ask the following questions: firstly, what factors contributed to the continuing lack of comprehension and awareness of the wider use of atomic energy in developing countries; secondly, what could be done to ensure that the scarce resources of developing countries were not wasted on an inappropriate technology; thirdly, what could be done to quicken the pace of the application of nuclear energy in developing countries?

81. Concerning the lack of general comprehension and awareness, it seemed to his delegation that public officials, economists, planners, and technologists in the developing countries still did not have the tools which would enable those countries to participate to the full in the benefits which nuclear power could bring. The introduction of nuclear power involved considerable investment in education, machinery and new institutions, an investment which would have to be made in addition to the large sums needed to improve traditional technologies. A study made by the International Bank for Reconstruction and Development had found that even without recourse to nuclear plants, developing countries would have to find some US $85 000 million for their power development in the 1970s. Going nuclear would add an extra $4500 million to the bill. A point of equally great importance was that two thirds of the additional expenditure resulting from adopting the nuclear alternative would have to be paid in foreign exchange.

82. The seeming lack of interest in nuclear power could also derive from a feeling that its application was still inappropriate in the developing countries. Under the International Development Strategy for the Second United Nations Development Decade, developed countries were committed to assist developing nations in identifying technologies which were appropriate to their needs, and to assist in avoiding the expenditure of scarce resources on unsuitable technologies. In the World Plan of Action for the Application of Science and Technology to Development, [9] developed countries were likewise urged to devote a considerable amount of their research and development expenditure in their own countries to technologies suitable for adoption in developing States. The developing countries themselves were committed to devote a minimum average expenditure on research and development equivalent to one half per cent of the gross national product.

83. A recent review paper produced by the Agency's Secretariat, [10] referring to the

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[9] See United Nations documents E/4962 and Corr.1 (vol. I) and E/4962/Add.1 (vol. II).

[10] GC(XV)/458, Annex.

increase in the size of nuclear power plants, pointed out that smaller and less industrialized countries, which usually paid higher prices for imported fuel and had smaller electrical grids, were unable to absorb large nuclear units and faced a difficult situation in that respect. There were other indications also that the nuclear industry would only be viable if it could benefit from certain economies of scale. The Agency was recognizing the facts of the situation by undertaking a technical and cost assessment of intermediate-sized nuclear power reactors.

84. While a strict commercial orientation might suggest arguments for economies of scale, the existence of home-built reactors in India and Spain already questioned the truth of those arguments. Ways would have to be found for industry in developing countries to make a contribution to the reduction of costs of nuclear plants in the form of local fabrication of components and the provision of managerial know-how.

85. That brought him to the question of what could be done to quicken the pace of application of nuclear power in developing countries. To achieve that aim he wished to put forward three suggestions.

86. First, the Agency should prepare a "Manual on the Introduction of Nuclear Power in Developing Countries". That manual would include all the relevant factors in a single publication, and would cover technical aspects, education and training, legal and institutional frameworks, financing, environmental considerations and international commitments as to safeguards, etc. In preparing the manual, the Agency might wish to draw on the experience of the few developing countries which had or were planning nuclear programmes while bearing in mind that the vast majority of developing countries would be starting practically from scratch in the nuclear power field.

87. Secondly, developing Members, when planning their aid programmes, should take the initiative in suggesting the application of nuclear power as the preferred long-term solution to the problems of the developing countries.

88. Thirdly, the agencies offering multilateral assistance and UNDP should direct particular attention to the need for the developing countries to consider the application of nuclear energy in their economies.

89. He earnestly hoped his suggestion for a "Manual on the Introduction of Nuclear Power in Developing Countries" would be supported by the Conference and that work thereon could be accomodated in the Agency's programme for 1972.

90. Ide ANAK AGUNG Gde AGUNG (Indonesia) said that his delegation had listened with great interest to the statement of the Director General. The Agency had clearly succeeded in implementing the programme outlined by the General Conference at its fourteenth regular session. Among the outstanding accomplishments of the past year had been the framing of material for safeguards agreements in connection with NPT, in particular the clauses on financing; that marked a considerable step towards realizing the peaceful uses of atomic energy throughout the world. The long and exciting deliberations which had finally yielded a general understanding in the Board's safeguards committee were still remembered. His delegation wished to avail itself of the opportunity to congratulate all who had participated in those deliberations and had accordingly had a hand in bringing about their successful issue. The financial arrangement was undoubtedly a product of compromise between conflicting points of view, but it reflected the democratic spirit which had informed the deliberations of the committee and made manifest the desire of the majority to find a solution to an intricate problem which had been the subject of discussion for almost a year. Indonesia had accepted the compromise on the understanding that, at a suitable date after 1975, the financial arrangements would again be reviewed in the light of the circumstances prevailing at that time.

91. His delegation was fully aware that even a provisional agreement could not have been reached without a sympathetic understanding on the part of advanced nuclear countries for the circumstances and needs of the developing countries. He accordingly wished to express his keen appreciation of the co-operative spirit which those countries had displayed, for it had done much to make the discussions on safeguards financing fruitful.

92. It was exhilarating to see that the work of the committee had already given concrete proof of its usefulness in the form of three agreements which had been or soon would be concluded between the Agency and the Governments of Austria, Finland and Uruguay.

93. Another question which had also demanded close attention in the past was the financing of nuclear power in developing countries. His delegation wished to express its appreciation of the work done by the Agency's Secretariat in that matter. The Secretariat's analysis had shown that nuclear power could, in certain conditions, compete very well with conventional power in developing countries. That was a fact that should be brought to the attention of planning agencies, financing institutions and suppliers of nuclear power equipment. The developing countries had now been given a valuable document upon which future plans for nuclear power might be based. His delegation would continue to support the work of the Agency related to the introduction of nuclear power in developing countries. It welcomed the initiative to study the question

of standardization of reactor components and would endorse any study the Agency might plan in relation to the possibilities of financing nuclear power projects.

94. Technical assistance remained, to developing countries, one of the most important parts of the Agency's programme. In some circles it was being urged that the Agency should lay more emphasis on assistance to the least developed among the developing nations, so that they too could benefit from the peaceful uses of nuclear energy. Certainly much time and effort would be required, but those efforts should be undertaken seriously out of fairness to those who at present were not so fortunate as to have the means and manpower to develop the applications of nuclear energy in their countries by themselves.

95. Indonesia had made good progress in the use of nuclear energy with the assistance of the Agency. Since 1969 no less than six technical assistance projects had been completed. In three of them particularly useful results had been obtained, namely in radiography, nuclear medicine and radioisotope production, and activities relating to each of those subjects had continued to grow since the departure of the Agency's experts. In radiobiology and food preservation, research activities had continued and progress had been made. A further expansion of research activities, particularly in food preservation, was anticipated in the near future. Indonesia's only paper at the recent Fourth Geneva Conference had been concerned with food irradiation.

96. In all those applications of nuclear energy, future development would depend primarily on the determination of local scientists, their capabilities and the means available to them. At the same time Indonesia held co-operation with other countries, in particular with neighbouring countries, to be very important. In that spirit it had welcomed the emergence of the Association of South East Asian Nations (ASEAN) in 1967, in which five countries of South East Asia, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand, had pledged to co-operate closely with each other and in particular to strengthen and further their economic relations in order to achieve progress and development for the people of the whole area. Among the objectives of ASEAN, close co-operation in the applications of nuclear energy should find a prominent place. Neighbouring countries would then be able to avoid duplication of effort, save money and make more effective use not only of locally available resources but also of the assistance supplied by the Agency.

97. Indonesia was also pleased to be able to participate in several regional co-operation schemes, such as the Regional Co-operation on Neutron Scattering and the Co-ordinated Rice Research Programme. His Government would be particularly happy if, in return, Indonesia could serve as host to one of the regional co-operation projects sponsored by the Agency. For that purpose it was prepared to organize, in one of its research facilities near Djakarta, a Regional Co-operation Centre devoted to the preservation of food. The possibility had been examined by an Agency expert during a visit to the Research Centre in February 1971. The Research Centre, Indonesia believed, had the necessary equipment and staff; its present activities were concentrated on radurization of fish and shrimp and on disinfestation of rice. As a second priority, work on the eradication of the tobacco beetle was also in progress. Preliminary work had been done on the inhibition of potato sprouting under local conditions, and the stimulation of sprouting was at present under investigation. Analyses of the nutritional value of irradiated food were also being carried out. In order to step up the efficiency of the work, a cobalt-60 irradiation facility (100 000 curies initially), which would be more effective, was scheduled to be installed in 1972.

98. It would thus be evident that Indonesia was making some progress in the applications of nuclear energy, though perhaps not such rapid progress as one might wish to see. But if political and economic conditions were taken into account there seemed no need to be pessimistic; on the contrary, Indonesia held the best hopes for the future.

99. In the past three years, Indonesia could claim significant achievements in many spheres. It had achieved political stability - a prerequisite for development - for the first time since independence. The most recent general elections on 3 July had substantially increased that stability; the results could be considered as a mandate to the present administration to continue its policy of large-scale economic development, as outlined in its first five-year plan. They had also shown that democracy was a living reality in Indonesia.

100. Indonesia had, furthermore, succeeded in eliminating the scourge of inflation in a relatively short period of time. It had regained the confidence of foreign investors. Even its modest nuclear energy programme had brought some useful results. Since the beginning of 1971 two international meetings had been held in Indonesia with the support of the Agency, namely a Research Co-ordination Meeting on Rice Production, in February in Djakarta, and a Study Group Meeting on Research Reactor Utilization, in August in Bandung. On the national plane, a series of draft regulations on the protection of radiation workers and on licensing of radiation facilities had been drawn up by a working group consisting of members of Government departments.

101. All those things had given rise to greater hopes for the future. Results could be

achieved only through hard work on the part of the people of Indonesia, who were conscious of the economic development of their country and of its importance. They wished to accomplish that development in a democratic way, maintaining cordial relations with friendly countries which understood their needs and regarded them as partners in development.

102. Indonesia had endeavoured to use nuclear techniques in a modest way to solve some problems related to the economy. The first five-year plan was based on agriculture, and research work was accordingly being carried out which aimed at increasing food production, one of its most important problems. It was indeed fortunate that the economic policy-making bodies of the country now had a better understanding of the opportunities afforded by nuclear techniques in that sector. A committee consisting of officials from the Ministry of Agriculture, the National Planning Board, the National Atomic Energy Agency and other Government agencies had been set up to explore the possibilities of using science and technology, including nuclear techniques, to increase food production. There would of course be problems of financing, obtaining expert advice, equipment and materials, etc. His delegation sincerely hoped that the Agency would give its support to Indonesia's earnest endeavours.

103. With regard to the Agency's budget for 1972, the discussions in the June meetings of the Board had confirmed the grave concern felt by many Member States concerning their financial responsibilities to the Agency. Some had stated that they could not be expected to increase their contributions every year. On the other hand, it was fully realized that an increase in contributions to the General Fund would be necessary if technical assistance activities were to be maintained at the same level as in 1963. One solution would be to make the use of funds and manpower available to the Secretariat more efficient, so that there would be an equitable balance between expenditures for staff and for technical activities; the Agency would then have more scope to increase its technical assistance activities. At present only 27% of the total budget was allocated directly for technical activities. He realized that Indonesia's proposal to increase the efficiency with which funds and manpower were used was not new; it had been put forward by several Members at previous sessions of the General Conference; but now, more than ever before, it was a problem that merited the fullest consideration of the Agency. One could only hope that a Secretariat study of the matter would yield results just as satisfactory as those that had been obtained in the examination of the financing of nuclear power in developing countries.

104. Mr. LEE (Republic of Korea), describing the main nuclear energy projects now under way in Korea, said that the Korea Electric Company had been proceeding with the construction of a nuclear power plant, the first unit in a series of such facilities scheduled for construction in the country. Work at the site had started in 1970 and preparatory activities were moving forward. The Government bodies concerned were speeding up safety analysis work so that the operator, the Korea Electric Company, could be issued the formal permit enabling it to implement the project according to schedule. The power reactor to be installed was of the PWR type with a gross generating capacity of 595 MW(e). Construction of the plant was scheduled to be completed in 1975.

105. He wished to express thanks to the Agency for its decision to send to Korea a mission consisting of four experts to give detailed advice on safety analysis procedures for determining the reliability and efficiency of the power reactor. It was felt, however, that the mission's proposed stay of about 20 days in Korea was rather short and should therefore be extended.

106. The pulsed 2-MW TRIGA Mark-III research reactor was nearing completion. The building to house it was ready and erection of the reactor itself was expected to be finished by the end of 1971. He was proud to state that the technical knowledge and skill of Korean scientists and engineers were being utilized to the fullest extent in connection with the engineering aspects of the reactor installation.

107. Operation of the Mark-III reactor, in conjunction with that of the TRIGA Mark-II which was now in continuous operation, would enable Korea to meet the steadily increasing domestic demand for radioisotopes for use in industry, agriculture, medicine and other fields. At the same time, research activities making use of high neutron fluxes would thus be greatly expanded.

108. In an effort to further promote the industrial applications of nuclear radiation, his Government had in 1970 submitted to UNDP headquarters detailed proposals for establishing a large radiation processing pilot plant in Korea. UNDP had promised to send a mission to Korea to look into the various aspects of the proposed project. As the Korean Government was anxious to carry out the project in as short a time as possible, it hoped to be able to count on the active support of the Agency. Once under way, the project would accelerate the development of industry still further.

109. As regards the regional co-operation programme on neutron scattering research, proposed as a follow-up to the IPA project (joint training and research project between India, Philippines and the Agency, using a neutron crystal spectrometer), he hoped that the Agency would play a more active role in

encouraging formal signature of the agreement on that programme by the countries concerned at the earliest date. The Korean Government had already informed the Agency of its approval. He wished to emphasize that successful implementation of that programme would contribute to a spirit of friendship and co-operation among the scientists of interested countries in Asia and the Far East, and especially Korea, Indonesia, Thailand, the Philippines and India.

110. His Government wished to avail itself of the opportunity of thanking the Agency for the various kinds of assistance it had provided thus far under the regular programmes.

111. As regards the revision of Article VI of the Statute, Korea had become the tenth Government to deposit, on 11 August 1971, its instrument of acceptance with the depositary Government.

● The meeting rose at 12.55 p.m.