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* GC(VIII)/285.

GENERAL DEBATE AND REPORT OF THE BOARD OF GOVERNORS FOR THE YEAR 1963-64
(GC(VIII)/270, 270/Corr.1, 270/Add.1, 2 and 3, 280)(continued)

1. Mr. SALVETTI (Italy) said that the year 1964 might be described as a highly important one in the history of atomic energy because, at both the regional and world levels, major advances had been made towards new developments and further progress. The Third International Conference on the Peaceful Uses of Atomic Energy had been the most noteworthy event and had shown the decisive role that atomic energy was called upon to play in the future.
2. The forecasts made at the Second International Conference on the Peaceful Uses of Atomic Energy in 1958 had been shown to be well-founded, and the intensive work of the ensuing years had surpassed the most optimistic expectations. Nuclear energy had become one of the essential elements of progress in science and technology and the Agency had come to occupy a leading position in the nuclear world. The opening of the International Centre for Theoretical Physics in Trieste would provide it with a very efficient tool for carrying out the fundamental task of training experts, chiefly for service in the developing countries.
3. Referring to the report of the Board of Governors for 1963-1964 (GC(VIII)/270 and Corr.1 and Add.1, 2 and 3), he expressed his delegation's satisfaction at the Agency's sustained progress towards ever more specific and worthwhile goals in the work of its experts, scientists and administrative staff.
4. The revision of the system of safeguards, of the regulations governing the transport of radioactive materials and of those governing health protection were indicative of the Agency's capacity for rapid adaptation to the new needs created by progress in science and technology. He hoped, however, that it would redouble its efforts to allocate more funds for technical assistance to the developing countries, and, in particular, that the request of the Congo for establishment of a regional radioisotope centre could be met in the near future.
5. Italy's second five-year plan for nuclear energy called for a total appropriation of 160 000 million lire; if approved it would come into effect on 1 January 1965. In the first phase of the plan, studies and analyses would

be made of operational experience with nuclear power plants such as the water reactors at Garigliano and Trino Vercellese and the gas-cooled reactor at Latina. The 175-M⁷(e) pressurized water reactor of Italy's third nuclear power station at Trino Vercellese had first attained criticality in June 1964. The second phase of the plan would begin with a medium-term programme lasting perhaps ten years and concerned with reactors derived from the first-generation plants, followed by a long-term programme in which the fullest use would be made of fertile materials in breeder reactors.

6. Italy intended to make increasing technical and financial efforts in the nuclear sector, since its future depended on the completion of its industrial evolution through scientific and technological progress. Italy's energy production pattern was characterized by a remarkable yearly growth of consumption (8% in 1952-62), the progressive exhaustion of hydroelectric resources and the considerable burden on the balance of payments imposed by importing huge quantities of fuel for thermal plants. So far, no major deposits of uranium had been found on Italian territory, but even if Italy remained entirely dependent on foreign countries for its supplies, nuclear fuel costs would probably have a smaller incidence on its balance-of-payments position than the purchase of conventional fuels. Nuclear energy was therefore expected to occupy an increasingly important position in Italy's production of electricity, and it could reasonably be assumed that 2500-3000 M⁷(e) of nuclear power capacity would be installed during the next decade.

7. While implementing its own programmes, Italy would not fail to intensify and broaden its international relations, in particular with the various international agencies; it would continue to give the fullest support to the work of the Agency. Twenty fellowships would again be sponsored in 1964 for scientists who wished to continue their studies in Italy, and every effort would be made to help the Agency in its technical assistance programmes by finding the men and means required. Furthermore, Italy would be happy to place its experts and institutions at the disposal of the Agency in order to contribute to the success of surveys, the drafting of new standards and regulations, and any other activities within the Agency's field of work.

8. In conclusion he expressed the hope that the eighth session of the General Conference would mark a further step towards improved international relations with broader participation and renewed singleness of purpose, and that science, putting aside political and ideological differences, would make an increasingly effective and decisive contribution to the welfare of mankind and the progress of civilization.

9. Mr. SALOM-SUJICA (Yugoslavia) recalled that the seventh year of the Agency's activity had coincided with the improvement in the international situation following the conclusion of the Moscow Partial Test Ban Treaty; that could not be other than favourable to the evolution of the Agency's programme.

10. The Moscow Treaty was the first major step towards disarmament and showed that even the most complex problems could be solved by negotiation. Its immediate result had been to reduce humanity's fear of radiation and radioactive fall-out, which had already reached a level dangerous to human health; now, one year later, radioactivity had considerably decreased and many radioactive elements had completely disintegrated.

11. During the current year, negotiations and efforts towards conciliation between East and West had continued. The Treaty had led to the conclusion of other agreements and measures - such as the treaty forbidding the launching of satellites with nuclear warheads, the declaration on the peaceful uses of outer space, the decisions of the United States, United Kingdom and Soviet Governments to cut down the production of fissionable material for military purposes, and the decisions of the United States and Soviet Governments to reduce their military budgets - which would gradually bring about the conditions necessary for the adoption of more effective disarmament measures.

12. During the last few months, however, there had been attempts at interference in the internal affairs of countries in South East Asia, in Cyprus and the Congo, which had seriously endangered peace, but which had been severely condemned throughout the world and had been quickly brought to an end.

13. In pursuing its active policy of peaceful coexistence, Yugoslavia would continue, as in the past, to work for the peaceful solution of all problems, for the elimination of causes of world tensions and for respect for the equality of all nations. It supported all efforts that were being made in that direction

and attached particular importance to agreements on disarmament measures. An understanding on that subject would favourably affect the development of international relations and co-operation, particularly within the United Nations and its specialized agencies. The Agency, therefore, should strive to make an even greater contribution to peace and the use of atomic energy for peaceful purposes, since peace was the very prerequisite of its existence and prosperity in peace the aim of its activities.

14. The Yugoslav delegation noted with satisfaction that, in accordance with the decision taken by the General Conference at its seventh session^{1/}, the Agency had drawn up a two-year programme, which was a more effective instrument for its purposes and would also enable Member States, when drawing up their plans, to make better use of the opportunities afforded them.

15. The expansion evident in the Agency's programmes, the two-year programme among them, was rather modest, and in some sectors there had even been reductions, owing to a rate of increase in funds which seemed somewhat inadequate in the light, say, of the way in which activities relating to the peaceful utilization of atomic energy were expanding in the advanced countries and in similar agencies. The expansion of the Agency's activities depended upon factors beyond its control, but it was clear that the funds available to it were not commensurate with the importance of its work, and the Agency might well encourage its Members to provide financial and material resources for whose utilization Agency intervention would not be required.

16. It remained none the less true that the gulf between the needs of Member States and the Agency's capabilities was still growing, and the fact that in 1965 and 1966 the Agency would not even be able to meet 30% of the requests for technical assistance was bound to arouse anxiety.

17. The Agency had indeed been able to provide valuable help to the developing countries, but that help could not be confined to research in physics, chemistry and biology, nor to the use of radioisotopes. It needed to be expanded in respect of the technological skills essential for economic and industrial development, so that nuclear energy could be used in new and much more widespread forms.

^{1/} GC(VII)/RES/154.

18. The Agency could only meet the ever-increasing number of requests which would be submitted if it had the support of those of its Members whose technical level was high enough to enable them to make a valuable contribution. More attention should be paid to that aspect of the Agency's functions than to attempting an excessive intensification and diversification of its activities.

19. The Agency should bear in mind that the number of countries producing nuclear power was steadily growing, even amongst the developing countries, and it should not allow itself to be outstripped by the course of events.

20. The Agency had played an extremely valuable role in the past and the Yugoslav delegation hoped that it would be able, in the future, to realize the hopes placed by the peace-loving peoples of the world in the opportunities opened up by the use of atomic energy.

21. Mr. OTERO NAVASCUES (Spain) said that during the last few years, Spain, where fossil fuels were generally expensive and possibilities for hydroelectric development were limited, had stimulated the peaceful utilization of atomic energy and the construction of large reservoirs and power stations. Thanks to nuclear power, which could now compete with thermal power in almost all parts of the country, it was possible to meet the rapid growth of consumption, which was at present rising at a cumulative rate of 11.5%.

22. The National Atomic Energy Board employed 1100 people, 270 of them having higher degrees. Proven reserves of uranium were over 10 000 tons, but possible reserves were far greater. The first 150-M^W nuclear power station had already been ordered and three stations of 300 M^W each would be installed before 1972.

23. During the next few years a prototype plant would be submitted for Government approval. Priority consideration was also being given to the problem of desalting sea water, with the ultimate aim of irrigating arid regions in the south and south-east, and with the immediate purpose of developing tourist areas.

24. Spain was collaborating with other countries under bilateral agreements. Its laboratories were open to scientists from all over the world and to many fellows from friendly countries.

25. Spain was participating in EUROCHEMIC, the joint European undertaking for developing the processing of irradiated fuels, and was a member of the European

Organization for Nuclear Research (CERN). It hoped that the Agency would carry out its functions without excluding any country, and that the financial burdens would be equitably shared.

26. It was desirable that the number of nuclear power stations should increase in the immediate future, but many feared that such an increase might lead to the use of atomic energy for non-peaceful purposes and to a dangerous increase in the number of countries possessing atomic weapons. He hoped that the safeguards the Agency had to apply to its own projects under the terms of its Statute would be applied on an international scale.

27. Spain was anxious that the Agency should quickly acquire experience in the administration of safeguards so as to be able to provide a substitute for the system of safeguards based on bilateral agreements.

28. The safeguards system should be confined to those activities which might lead to utilization of atomic energy for non-peaceful purposes. On the other hand, if transactions involving natural uranium or the supply of equipment were subject to a system of safeguards, the price of nuclear power would in the long run rise. It would be much more practical to apply safeguards exclusively to transactions covering fissionable materials, such as enriched uranium or plutonium, and to their production. Safeguards were justified only in the final stages of the transformation of natural into enriched uranium or in the production of plutonium. All discrimination in the application of such safeguards as were necessary should be eliminated. The renunciation by all countries of the use of nuclear weapons would make possible the maximum development of atomic energy for the well-being of mankind and the most harmonious relations between States Members of the Agency.

29. Mr. BERGMANN (Israel) said that the Israeli Government was grateful for the assistance and encouragement it had received from the Agency on the scientific and technical level. The Advanced Inter-regional Training Course on the Cellular and Molecular Aspects of Radiobiology which had been held in Israel under the auspices of the Agency had been attended by outstanding experts from twenty different countries. The success of the Course was in his opinion mainly due to the fact that its subject had been clearly defined, being limited to the molecular and cellular aspects of the problem.

30. The Israeli delegation would also like to acknowledge the advice and help given by the Agency in selecting suitable candidates under the fellowship programme initiated by the Israeli Government, mainly for scientists from developing countries. The programme had been of benefit not only to the visitors but also to Israel, by helping to keep it in touch with the main stream of nuclear research in the world. Fellowships available for the year 1965/66 were to be increased from 60 to 90 man-months.

31. Israel had given a partial picture of its achievements in the field of nuclear research in the papers it had submitted to the Third Geneva Conference, and he would therefore confine himself to a few remarks regarding developments in the current year. Israel's first research reactor had been fully equipped for continuous operation at 5 M^w and further additions had been made to improve its utilization, such as a device to load and unload the thermal column without shutting down the reactor, and six rabbit lines to transfer the radiated samples from the central terminal to the various laboratories (one such line made it possible to have the sample at its destination within five seconds of leaving the core).

32. In the physics group, the work on elementary particles had been continued, while the work on the resonance scattering of capture gamma rays had been considerably extended and had shown the existence of a "magic number effect", the resonances tending to occur in closed shell nuclei of 82 neutrons or 82 protons plus 126 neutrons.

33. Ample use had been made of the reactor for isotope production and activation analysis, and many new uses, especially in regard to the occurrence of photo-neutrons, had been discovered. A fairly extensive programme for the production of labelled organic compounds had also been put under way.

34. Israel's reactor was now so fully occupied that a start had been made with the establishment of a new research centre around a second reactor, which had been under construction for some time. The new centre would make it possible to study, among other things, neutron diffraction, a method which, particularly in the field of organic chemistry, had not yet been exploited to the full. The number of problems awaiting such a tool as neutron diffraction had turned out to be infinite, and it might be desirable for the Agency to promote and co-ordinate an international programme on the subject.

35. The Israeli nuclear programme was not concerned only with pure research. The use of isotopes for medical, industrial and forensic purposes was increasing at a satisfactory rate, and a company was being set up to apply irradiation techniques to food preservation as an industrial venture. In that connection he thought the Agency was to be commended for its work in regard to the successful development of irradiation techniques for insect eradication. Irradiation methods were only one facet of that complicated and important problem, a more difficult but essential task being to devise methods for rearing the insects in the very large numbers required, and to study their biological and ecological habits. It was also important to compare the results obtained with those obtained by other methods such as chemosterilization. In addition to the insect eradication projects on which Israel was collaborating with the Agency, an attempt had been made to eradicate by the sterile male technique the ticks responsible for spreading relapsing fever. The insects in question lived so far below the ground that no insecticide spray could penetrate to them, and they could subsist for several years without food, so that their eradication had not hitherto been considered possible. Scientists in Israel were confident that the dispersal of laboratory-grown sterile ticks in suitable numbers would provide a final solution to the problem.

36. Israel attached great importance to the possible use of nuclear energy for the desalination of sea water and to the role the Agency could play in that regard, and had invited a representative of the Agency to be present at the deliberations of the joint United States-Israeli committee which had undertaken the study of a dual-purpose reactor in Israel. As he saw it, the purpose of such installations, bearing in mind the low population density of the arid zones, was to produce water for agriculture, not drinking water. That meant large quantities - of the order of 100 million cubic metres per year - and a price to the consumer varying from 3 to 7 cents per cubic metre. Such quantities and prices could only be achieved with a very large reactor, the optimum size and type still being a matter for discussion, though it seemed that for a very large reactor the combination of natural uranium and heavy water had distinct advantages. The nuclear aspects of the problem might well prove much less difficult than the mechanical and thermal ones; and if, as was hoped, the Agency were to play a directive and co-ordinating role in that field, its

scientific staff would be well advised to study not only the reactor part of the problem but also the technology of the desalting processes, especially as no other agency was likely to take the initiative in that direction. They should also take into consideration as deserving serious study, all other factors affecting the global problem of water supply to agriculture, including the exact water requirements of the main crops, the inhibition of evapo-transpiration from the irrigated plants, the production of more salt-resistant plant mutants and the possibility of relieving the adverse effect of salt by the addition of other constituents to the fertilizers.

37. It had been said that the developing countries would not need the large amount of electricity generated by very large reactors serving dual-purpose plants and that therefore the whole project would not be practical. Certainly, some attention would have to be devoted to the planning of electricity consumption in countries wishing to desalt sea water. However, the outlook from a long-term point of view seemed to him promising: agriculture in the arid centres of the world would require, in addition to sweet water, fertilizers in very large quantities, and large-scale fertilizer production entailed large quantities of electricity.

38. In keeping with its policy of collaboration with the Agency, the Israeli Government had agreed to negotiate with the Agency on the inspection of the swimming-pool research reactor which had hitherto been subject to safeguards applied under a bilateral agreement with the United States of America. It was to be hoped that the Agency, in undertaking the duties of inspection that were increasingly being transferred to it, would preserve its technical character as a specialized agency. If the Agency engaged in policing instead of promoting and regulating the activities of its Member States it would, in his opinion, seriously prejudice its future usefulness as a means of transforming the dreams of humanity into the realities of everyday life.

39. Mr. ERRERA (Belgium) thanked the Director General and his staff for the highly competent way in which they had performed the tasks allocated to them in organizing the Third International Conference in Geneva. In his view, the Conference had very largely justified the hopes that had been placed in it.

40. One fact which stood out clearly from the Conference was the increased importance of nuclear energy for the developing countries for power production and the desalination of sea water, and also in the field of radioisotope techniques. The Agency was to be congratulated on the important role it continued to play in those spheres.

41. The Conference had shown that the nuclear industry was gradually acquiring the status of an independent sector of the economy and it had confirmed that nuclear power could very soon be expected to become competitive. That fact had been fully appreciated by the Agency, whose programme for 1965-66 laid particular emphasis on the repercussions the Geneva Conference was likely to have on the power production aspects of its work.

42. Belgium was also concerned with the development of nuclear power and had just established a nuclear programme for the period 1964-67. The programme had been drawn up in the light of the advances made in the nuclear industry and took account of the fact that large-scale power stations were now becoming economically viable. The paramount consideration in drafting the programme had been to ensure that Belgium should take its place in the main stream of technological progress and basic scientific research and should concentrate its efforts on a limited number of tasks chosen as a function of their economic and scientific value. The budget foreseen for the programme amounted to over 40 million dollars in three years, and contributions to international projects were of the same order of magnitude.

43. The main emphasis was on technological research and associated work, with priority being given to the Vulcain reactor. The latter was suitable as a land-based reactor or for marine propulsion and was based on the principle of variable moderation. It was of a particularly compact design, the entire primary circuit being enclosed in the reactor vessel. The development of the reactor was being carried out in Belgium as a joint project by the United Kingdom Atomic Energy Authority (U.K.A.E.A.), the Syndicat Vulcain and the Nuclear Research Centre at Mol, under an Anglo-Belgian agreement for co-operation. The work involved theoretical and experimental physics as well as conventional and nuclear technology.

44. Other Belgian activities in the field of physics included the construction and operation of the VENUS critical test facility (Vulcain Experimental Nuclear Study) at the Mol Nuclear Research Centre. The first experimental core had reached criticality on 30 April 1964. Tests were progressing satisfactorily and providing important data on the physical features of Vulcain-type cores, which were moderated by mixtures of heavy and light water. In addition, the work of adapting the 10-MW(e) BR3 reactor for operation with a Vulcain core had been energetically pursued since 1962. The purpose of the BR3-Vulcain experiment was to investigate the evolution of the physical characteristics of a Vulcain core and to carry out endurance tests on major components of such a core. It was planned to load the Vulcain core into BR3 at the beginning of 1965. A few months would then be devoted to trials, after which the station would start to feed electricity into the Belgian power grid for a period of about three years.

45. Parallel work was proceeding on the development and testing of the various novel devices used in the Vulcain reactor. In view of the commercial value of such a reactor, the results obtained had been used to draw up complete plans for a 72-MW(th) prototype. Thorough economic studies showed that, because of the low estimated investment and operational costs involved, the use of Vulcain reactors on a competitive basis was already a feasible proposition, especially for the developing countries.

46. A further aim of the programme was plutonium research, which fitted into the traditional pattern of Belgian industry and was expected to lead to the use of that fuel in thermal reactors and later in fast reactors. Research was centred mainly on the study of fabrication processes for ceramic fuels based on mixed oxides and carbides of plutonium and uranium. At the very outset of the project, EURATOM had placed a number of large-scale fuel development contracts with the Association Belgo-Nucléaire (Mol Nuclear Research Centre), the aim being to make it possible to insert a dozen UO_2/PuO_2 rods into the BR3 power reactor. The elements in question had already been withdrawn from the reactor following a burn-up of 6000 MWd/t.

47. The development of the fuels had necessitated a whole range of investigations and the laboratory concerned was now one of the most complete in Europe

for the development of ceramic fuels containing plutonium. It covered an area of over 700 m² and possessed more than 60 completely equipped glove boxes.

48. The final aim of the current phase of the work was to carry out research on plutonium-enriched cores for use in water-moderated reactors, mainly of the PWR type. The programme would culminate in the insertion of a full UO₂/PuO₂ fuel load in the BR3 power reactor in about 1969.

49. The short-term aims of the programme were concerned with the development of proven types of water-moderated reactors and the improvement of fuels. Longer-term projects included halogenation of irradiated fuels and the development of fast reactors. For the former, the programme provided for the operation of a hot facility on a semi-pilot scale and the advanced study of methods for separating plutonium and uranium fluorides.

50. In the case of fast reactors, the programme was aimed mainly at fuel development, the study of sodium technology, the conceptual design of a transient test reactor, investigation of neutron spectra in the cores of fast reactors and the development of a new design principle involving the use of superheated steam as coolant.

51. In fundamental research, Belgium was participating in the work of CERN at Geneva and was also carrying out a complementary programme of its own on problems of high- and low-energy physics.

52. The Inter-University Institute of Nuclear Sciences had also undertaken research on nuclear chemistry and plasma physics.

53. Clearly, the programme he had outlined would be modified if it should become necessary to do so. As it stood, it showed that his country was determined to forge ahead and promote the growth of a nuclear industry.

54. In addition to its voluntary contribution, Belgium was able to offer the Agency an additional six 10-month Type II fellowships annually. As most Belgian technicians and scientists knew English, even candidates who only knew English would be able to benefit from a study period in Belgium.

55. In addition, Belgium was prepared to participate in the operation of the TRICO Centre in Leopoldville by sending teaching staff to organize courses in

French and English and by establishing scientific co-operation on specific subjects of common interest to Belgian research workers and research workers of the Congolese Regional Centre.

56. The Belgian authorities greatly appreciated the Director General's efforts to establish closer collaboration between the Agency and specialized agencies such as the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), whose work in certain fields ran parallel to that of the Agency.

57. Mr. de CASTRO (Philippines) said that the Director General and the Secretariat of the Agency were to be congratulated on their contribution to the organization of the Geneva Conference. His delegation hoped that its results would show the correct perspective and direction for the activities not only of the Agency but also of the national atomic energy authorities of Member States and that, as a result, the benefits of the peaceful uses of atomic energy would be still more effectively and efficiently realized.

58. Significant developments had taken place in the Agency during the past year. One of them, of particular interest to the developing countries, was the change in the organizational and functional structure of the Agency, involving the formation of a new Department of Technical Assistance. The Agency's valuable contribution to the atomic energy endeavours of developing countries could not be over-emphasized. While the scope and extent of its assistance had expanded over the years, the need for aid was expected to increase as more and more research centres were established in the less-developed Member States. The Philippine delegation accordingly approved of the reorganization undertaken with a view to providing machinery for more effective and efficient utilization of the Agency's resources for technical assistance.

59. It was not, however, enough that those changes had been made; it was of equal and perhaps even greater importance that the Agency should be provided with sufficient resources to meet the various requests for technical assistance from the less-developed countries. The present system of financing the technical assistance programme through voluntary contributions was inadequate, and as it had stated at the previous General Conference, his delegation would support any proposal calculated to stabilize the financing of the Agency's Operational Budget^{2/}.

60. As a Member of the Board of Governors, the Philippines had been privileged in the past to support the statutory principle of wider geographical representation in the staff of the Agency; his Government was gratified that a Deputy Director General from an Asian country now headed the Department of Technical Assistance and was sure he would serve the Agency well.

61. The Philippine Government had agreed to transfer to the Agency the administration of safeguards for materials and facilities transferred to the Philippines under its agreement with the United States of America for co-operation in the peaceful uses of atomic energy. The Philippines, which had always supported the implementation of the Agency's system of safeguards, hoped that the transfer of that responsibility to the Agency would help to strengthen its role in establishing safeguards against the use of certain materials and facilities for military purposes.

62. A valid criticism of that part of the Agency's work, however, was that it was directed primarily against countries with no nuclear military potential and did not affect countries which were actual or potential nuclear Powers. It was hoped that those Powers might eventually be included in a truly international safeguards system which would put countries to the least possible inconvenience and yet still be effective.

63. Among developments in the Philippine atomic energy programme, he would mention that the centre established for research work in such fields as agriculture, biology and medicine, industry and the physical sciences had continued to increase both its facilities and its manpower. The research reactor, which had first reached criticality on 26 August 1963, had been available for use in research, in test production of radioisotopes and in training and education, even before it came into full-power operation at 1 MW on 11 August 1964.

64. At the Second Regional Study Group Meeting on Research Reactor Utilization, conducted under the auspices of the Agency in Manila in 1963, engineers and scientists of the Philippines had exchanged ideas and views with more experienced colleagues from other reactor centres in the region and from Europe and the United States. The Philippine research reactor was to be used first for isotope production and activation analysis, with a view to the effective application of radioisotope techniques to agriculture, medicine, science and industry.

65. In co-operation with the Agency, the Philippine Government had completed arrangements for the regional training course on the medical application of radioisotopes to be given in Manila from 19 October to 11 December 1964. All scientists and doctors of the region who wished to participate would be very welcome.

66. The Philippine Government had recently joined the Government of India and the Agency in a five-year trilateral agreement for a regional training and research programme. The Philippines would provide appropriate facilities at its atomic research centre, for which India would provide a complete working neutron crystal spectrometer with ancillary equipment, and the services of a technician and a senior scientist for at least six months. The Agency would provide support for the Indian technician and scientist as well as training fellowships for qualified nominees of Governments participating in the programme.

67. In the field of nuclear power, the Philippines was at present studying the power supply situation in Luzon, the principal island, with a view to determining when it would be most advantageous to introduce nuclear power into the island's expanding grid. That study was a United Nations Special Fund project, for which the Agency was the executing agency, and substantial progress had already been made in it. It was hoped that before the next session of the General Conference nuclear power would have taken its logical place in the power development programme of the Philippines, and his delegation wished to express its gratitude for all the assistance given by the Agency.

68. In response to a suggestion made at the Study Group Meeting on Research Reactor Utilization held in Manila, the Philippines Atomic Energy Commission had agreed to undertake the bi-monthly publication of an Asian Atomic Newsletter for one year. The third issue was due to appear in September 1964, and the Philippine Government hoped that the Newsletter would become an important means of promoting closer regional and international collaboration in the peaceful uses of atomic energy.

69. In conclusion he assured the Conference of the continued support of the Philippines for the Agency's objectives and activities.

70. Mr. BILLIG (Poland), speaking of the significance of the Third Geneva Conference, said that it had again highlighted the basic problems

associated with the development of nuclear power production and had provided an outline of future developments based not only on the hopes prompted by large-scale scientific discoveries but also on the accumulated experience and major achievements of various countries in the practical uses of atomic energy.

71. As far as the Agency's future activities were concerned, one major conclusion emerged; during the new phase that had been ushered in there was a need for a long-term programme designed to provide all countries, and especially the less-developed ones, with effective and extensive assistance in the practical development of atomic energy. Every country and every area of the world had its own particular requirements. Some countries would be interested more particularly in the development of nuclear power production, others in the wide application of isotopes and yet others in techniques for the desalination of water. The Agency's assistance had to be extremely varied and geared to the specific conditions and needs of individual countries.

72. The Polish delegation considered that economic problems would emerge as a priority item on the Agency's programme of work in the near future and proposed that such problems be given careful study. It was possible that in about two years' time a special conference would have to be organized under Agency auspices to consider the economic aspects of the development of atomic energy. In view of the different methods practised in different countries, it might also be worth considering the creation of a unified system of costing.

73. It would also be useful to arrange for extensive studies of an economic nature to be carried out to investigate various aspects of the use of atomic energy on an industrial scale.

74. International collaboration was playing an increasing part in the use of atomic energy for peaceful purposes, and one example of close co-operation and mutual assistance in that field was afforded by the Council for Mutual Economic Aid. The Agency too had a special part to play in that sphere, but it was important that its role should expand. Poland and a number of other countries were at present engaged in negotiations aimed at ensuring international collaboration for a programme of work on the physics of the fission process and neutron diffraction. Poland was also interested in collaboration in regard to the techniques of nuclear fuel fabrication and metallurgy, questions of vital importance for the future development of nuclear power.

75. The Agency had undoubtedly rendered useful service in the field of training. In his opinion, however, the resources and methods applied for that purpose were no longer sufficient. He was all the more perturbed at the recent evidence of a tendency to curtail that branch of the Agency's work.

76. In that connection he recalled the proposal to set up in various countries, through the intermediary of the Agency, reactor centres (with various types of reactor) where fellows could be sent for training purposes and for work in connection with the training of personnel to service the expanding programmes for reactor construction and nuclear power.

77. The recent conference of eminent scientists in Geneva, to consider how atomic energy could best be used in the service of mankind, had coincided, for the Polish people, with the twenty-fifth anniversary of the outbreak of the Second World War and the invasion of Polish soil by Nazi Germany. "Conventional" weapons and "conventional" methods of warfare had sufficed to eliminate one fifth of Poland's thirty million inhabitants. The glow from the atomic bomb dropped on Hiroshima and Nagasaki had provided a terrible curtain-fall to the Second World War. His delegation had accordingly decided to remind the General Conference at its present session of the fearful threat that hung over all mankind and to take the present occasion to urge yet again that work on the drafting and signing of an agreement on complete and universal disarmament be speeded up in order to ensure lasting peace on earth.

78. Mr. RANDERS (Norway) said that the Norwegian Government was happy to observe the steady progress made in what it considered the most useful activities of the Agency, namely technical assistance, safeguards against the military use of atomic energy and international regulatory functions.

79. He considered that the time was approaching when early planning of large atomic installations in developing countries might become an important aspect of the Agency's technical assistance programme, although the actual erection of industrial or other facilities was not a task suited to international action and far exceeded the financial resources of any existing international organization. Nevertheless, help in co-ordinating the assistance given by several countries to a developing country for atomic energy purposes certainly came within the scope of the Agency's work. Funds for the Agency's technical assistance activities should be made available in the form of assessed contributions to its budget.

80. The difficult task of ensuring that atomic energy was not used for military purposes was one of the Agency's essential tasks. However, the Norwegian Government felt that any action that could be taken by international agreement to reduce the possibility of further atomic weapons production - in addition to steps taken by the Agency under its Statute - was desirable. It therefore considered that all nations should voluntarily report their fuel transactions to an international body such as the Agency.

81. Referring to the Agency's current review of its safeguards system, he said that the principal aim of such a system must be the control of highly enriched fuel, which alone represented a direct danger as a potential nuclear explosive. If the system was discriminatory, as some had claimed, that was true only in the sense that it tried to prevent those who did not have atomic weapons from being able to get them. The new system of control - which would, after all, not be the final one - would probably have its shortcomings, but it should be given a chance to prove its value.

82. One of the Agency's most important tasks, and one which it alone could perform, was the drafting of rules and regulations concerning various aspects of atomic energy. International agreements were necessary in connection with the transport of radioactive materials, civil liability, health protection, waste disposal into the sea and elsewhere, and so forth.

83. The Agency should not be over-afraid about the overlapping of its work with that of other international organizations; a certain amount of overlapping was often desirable, especially in the field of scientific research. Moreover, co-ordination sometimes involved more effort than was actually involved in carrying out the same work in more than one place. The Agency should therefore not hesitate to attack a number of important problems which called for urgent solution.

84. Mr. HOCHSTRASSER (Switzerland) said that since the Third Geneva Conference had provided an opportunity for an exchange of views on the peaceful uses of atomic energy and for a review of the various countries' programmes, he would restrict himself to the technical problems related to the Agency's activities.

85. First, he wished to compliment the Director General and his staff on the work done in the past year and in particular on the successful organization of

the scientific part of the Geneva Conference. The Swiss scientists who had participated in Agency symposia in the period under review had profited greatly from them. Effective co-ordination of the meetings organized by the Agency and other institutions was most important, and he particularly welcomed the co-operation with the International Council of Scientific Unions' Joint Commission on Applied Radioactivity in organizing a symposium on isotope mass effects in chemistry and biology. Increasing participation of scientific societies in the organization of such meetings would ensure their usefulness and success.

86. He recalled that the Agency was at present devoting considerable attention to the matter of safeguards. As Switzerland might embark in the near future on the construction of full-scale nuclear power plants, it was particularly concerned that a simple and effective inspection system should be developed. Although the speedy introduction of nuclear power stations was highly desirable, it was not yet absolutely necessary to use that source of power, and he felt that by exaggerating the requirements of its safeguards system the Agency might discourage rather than promote the peaceful uses of atomic energy. His delegation hoped that the current review of the present system would dispel such fears.

87. His delegation shared the regret expressed by the authors of the programme for the next two years that the Agency would not be able to meet all requests for assistance, fellowships, etc., as a similar situation also existed in his own country. There, too, it had been necessary to make choices and introduce priorities in the face of ever-increasing demands. In that respect his delegation noted with regret that the largest increase in the 1965 budget was in administrative expenses. He hoped that efforts would be continued to abolish certain non-essential posts and to restrict the number of posts at higher grades.

88. Governors and delegates could also play their part in cutting administrative costs by settling their business more quickly and efficiently, so that some of the considerable sums currently devoted to financing the General Conference and the meetings of the Board of Governors could be put towards scientific and technical assistance to the developing countries. A welcome step in that direction was the decrease in recent years of time lost in discussing political problems outside the Agency's scope.

89. The Swiss Government had decided the year before to make a voluntary contribution calculated on the same basis as its regular assessed contribution. It would follow the same policy in 1965. In addition, it had offered two fellowships to enable scientists from developing countries to spend one year at the new International Centre for Theoretical Physics at Trieste. It had also given various items of equipment to the Agency's laboratory at Seibersdorf. The total of those offers represented more than double Switzerland's voluntary contribution.

90. Mr. SAVELEV (Ukrainian Soviet Socialist Republic) said that not much more than a year had elapsed since the signature of the Moscow Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, during which time there had already been some evidence of increased mutual confidence in relations between States. As a result further progress had been possible: in particular outer space had been closed to the military uses of atomic energy and there had been some decrease in the flow of fissionable materials into national stockpiles of nuclear armaments. As the Head of the Soviet Government, Mr. Khrushchev, had pointed out, the last-mentioned development made it possible to devote a greater quantity of fissionable material to the peaceful uses of atomic energy - in nuclear power stations, in industry, agriculture and medicine, and in implementing large-scale scientific and technical projects, for example for the desalination of sea water. That meant that the conditions for the Agency's work were improved, though in view of the fact that there were still areas where international tension was likely to erupt, it was the Agency's duty to make a greater contribution to strengthening international peace than it had done in the past.

91. Referring to the work done by Ukrainian scientists in seeking means of solving the more important theoretical problems and developing new uses of atomic energy, he said that construction of a new 2-GeV linear electron accelerator had recently been completed in Kharkov.

92. In Donetsk, the centre of the coal industry, it had, after a number of experiments, been decided that radioisotopes could usefully be employed in underground signalling equipment. Radioisotope equipment was used in the Ukraine in blast-furnace processes and in rolling mills as well as for automatically measuring the thickness of continuously rolled steel plate, gauging

the thickness of films and coatings, controlling coal beneficiation processes and calculating and checking the quantity of finished products. Radioisotopes were also of inestimable help in carrying out geophysical research and in surveying the Ukraine's geological deposits of petroleum, gas, coal, metals and other minerals.

93. The use of radioisotopes and radiation in Ukrainian agriculture was at present mainly at the research and experimental stage. Radioisotopes were used in the Ukrainian Agricultural Research Institute's agrochemical laboratory to investigate the most effective use of fertilizers and to work out a system of applying fertilizers in the crop rotations of the wooded and wooded-steppe zones, as well as to study the effect of fertilizers on the yield of leguminous crops.

94. He welcomed the co-operation that had been initiated between the United States and Soviet scientists in the desalination of sea water. Progress in that matter was of great importance to the southern areas of the Ukraine adjoining the Black Sea, and in particular the Crimea, where suitable nuclear stations could supplement the existing artificial irrigation systems. Another area that was in particular need of fresh water was the Donets basin (Donbass), where a water deficit was expected by 1970. The minehead washing plants in the Donbass gave rise to considerable quantities of salt water and up to 600 million cubic metres were wasted every year. If that water could be desalted by means of atomic energy, that would go a long way towards solving the Donbass water supply problem.

95. Turning to the question of the need for concluding an agreement on complete and universal disarmament with strict international control, he said that the Ukrainian Government was opposed to any attempt to substitute the control of armaments for an agreement on disarmament. In that connection, he drew attention to the United States' proposal to the Committee of Eighteen, designed to turn the Agency into an organ for inspecting the production of fissionable materials. Similar proposals had already been put forward by the Western Powers at the disarmament negotiations, but had led to nothing. The Agency had its own tasks, laid down in the Statute, and it would be a fundamental error to use it for carrying out functions which were entirely alien to it.

96. The statement made by Senator Williams in the United States Senate in March showed that the United States' proposal to place the Yankee reactor under Agency safeguards was designed to place the United States in a position where it could demand of the Soviet Union that it admit inspectors to its reactors. It was, in fact, another attempt on the part of certain circles in the United States to use the Agency to impose on the Soviet Union inspection without disarmament. All such attempts were completely unacceptable to his delegation.

97. Referring to the part which the Ukraine could play in implementing the socialist countries' proposal for a programme of technical assistance to developing countries, he expressed regret that the Western Powers had shown no inclination to take part in that programme, which had undoubtedly delayed its implementation and obliged the developing countries to seek means of obtaining what they needed outside the Agency.

98. The socialist countries' decision to modify their initial proposals - by supplying, instead of the six physics laboratories, an equivalent (in terms of cost) number of radiological laboratories, and by making experts available, up to the limits of the fellowships that had been earmarked, to assist in installing the laboratories and training local personnel - stemmed from careful study of the requests which the developing countries had presented. Their proposal was a material contribution to the work of the Agency, and his delegation hoped that it would now be implemented.

99. In conclusion, he pointed out that the Agency had so far devoted little attention to nuclear power. Moreover, the figures showed, for example, that it spent more on supplying experts and professors than on equipment. However, the primary need of countries in receipt of assistance was for equipment. He was also perturbed at the tendency to a diminution in the amount of resources devoted to training purposes. In his view, it would also be desirable for the Agency to take a more active part in studying methods of waste disposal other than disposal into the sea and in drawing up suitable recommendations.

100. Mr. AL-NAHED (Kuwait) thanked all Members who had supported his country's application for membership of the Agency. Kuwait would do all in its power to further the Agency's aims.

101. Kuwait had recently begun using radioisotopes for medical purposes and a radiotherapy centre and cobalt unit were already in operation. A study of underground water reserves was being carried out in co-operation with other Arab countries.

The meeting rose at 5.55 p.m.