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Chairman: Mr. Francisco URRUTIA (Colombia).

AGENDA ITEM 67

International co-operation in developing the peaceful uses of atomic energy: report of the United States of America (A/2734, A/2738, A/C.1/L.105) (*continued*)

1. Mr. DU PLESSIS (Union of South Africa) said that during the current session two debates had taken place which might prove to have been of the greatest significance, one on disarmament and one on international co-operation in developing the peaceful uses of atomic energy. It was true that time and effort would still be needed before the hopes engendered by the disarmament debate could materialize, but the fact remained that the smaller nations looked to the great Powers to proceed with the disarmament negotiations in the same spirit of good will.

2. A further stride forward had been taken with the decision to discuss, in the First Committee, the related, and no less important, question of the peaceful use of atomic energy. The delegation of the Union of South Africa acknowledged with gratitude the powerful lead given by President Eisenhower, which had resulted in an exchange of ideas not only between the United States and the USSR, but also between the United States and several other countries, including the Union of South Africa. It was a matter of regret that the results of the exchange between the United States and the Soviet Union had so far been disappointing, but there were grounds for hope that those results would not be final and that they merely signified a cautious approach to a great problem. The Government of the Union of South Africa was happy to be associated in the negotiations concerning the proposed international atomic energy agency.

3. It was clear that in those preparatory discussions the Governments principally concerned must face many difficult problems, going to the very roots of their national security and well-being. It was imperative that it be left to the Governments concerned to find common accord freely and in full consciousness of their responsibilities to their own peoples and to the world. A modest but sound beginning was preferable to an overly ambitious but less secure project. The United Nations had an equally important part to play

by creating and preserving a climate favourable to the negotiations and to common understanding.

4. The proposal that the international agency should negotiate an agreement with the United Nations similar to those of the specialized agencies seemed reasonable, but in view of the many imponderables inherent in the matter it would be better to defer until later the question of the legal relationship which should be established between the agency and the United Nations.

5. As had already been said, the establishment of the agency and the holding of the proposed scientific conference were two distinct operations, although both were aimed at the same general objective. The Government of the Union of South Africa welcomed the United States proposal that such a conference should be held, under the auspices of the United Nations, to enable experts to exchange views and to contribute to the development of knowledge in the matter.

6. In comparison with the achievements of the more powerful nations, the endeavours of the Union of South Africa in the field of nuclear research were obviously modest. Considerable quantities of radio-active isotopes were imported to the Union of South Africa for use in agriculture, biology, medicine and industry. In that connexion, South African scientists had developed a method whereby short-lived isotopes could be speedily transported; it was hoped, moreover, to produce short-lived isotopes in the near future, when the cyclotron under construction was completed. A mission of South African experts would shortly proceed to the United Kingdom, to investigate the possibilities of collaboration with the United Kingdom Government in the civil development of atomic energy.

7. The Union of South Africa was one of the principal producers of uranium. It was possible, moreover, that the prospecting currently in progress might reveal that the country's mineral resources were even greater than had been believed. The discovery of those minerals had taken place without the public announcements which usually accompanied enterprises on such a large scale, as it had been necessary both in the national and in the international interest to observe a degree of discretion in the disclosure of details. In view of the strategic importance of uranium and of the need for strict security measures, the Government had assumed control of the operations through the South African Atomic Energy Board, which undertook the responsibility of prospecting for and mining radio-active materials. That body acquired and disposed of or held the materials and undertook the production of atomic energy.

8. A contract had been entered into between the Board and the appropriate agencies of the United Kingdom and United States Governments for the purchase of uranium oxide. At the same time, twenty-four South African gold mines had agreed to under-

take the extraction of uranium from the residue slimes of the gold production plants. The extraction of the ore and its processing into uranium oxide was a difficult and naturally costly business. In that connexion, the assistance provided by the United Kingdom and United States Governments had been extremely useful. The Government of the Union of South Africa hoped that the vast resources at its disposal could be used for peaceful purposes.

9. Mankind stood on the threshold of a new era; it was presented with an extraordinary opportunity as well as with a challenge. It was to be hoped that patience and wisdom would bring about a further lifting of the iron curtain of fear. If the United Nations succeeded in the two essential tasks of disarmament and international co-operation in the peaceful use of atomic energy, it would still be faced with a third, and even more important, task, that of helping to bring together freely in conference the masterminds of the world in the fields of the verities and humanities. For the direction of such men was necessary if mankind was not to lose itself in the labyrinth of its own scientific ingenuity. The contributions which could be made by the Albert Schweitzers of the world were as important as those of the Albert Einsteins of the world.

10. General ROMULO (Philippines) recalled that in his statement before the General Assembly on 27 September (479th meeting), he had pointed out that the United States proposal on the peaceful uses of atomic energy was the most important item on the agenda of the ninth session. He had also stressed the gratification of the Philippine delegation at the fact that the USSR had offered to reopen negotiations on that paramount question. He recalled, further, that as President of the fourth session of the General Assembly, he had addressed himself to the five great Powers requesting them to endeavour to find a solution of the problem of the peaceful use of atomic energy and to consider the possibility of holding a scientific conference on the subject. It seemed that the United Nations was at last ready to take action with regard to the problem of atomic energy.

11. The United States must be commended for the initiative it had taken, first in the original over-all plan offered by former President Truman, and now in the practical measures suggested for carrying out President Eisenhower's proposal. General Rómulo welcomed the fact that the views of the principal Western atomic Powers in the matter were much alike. He strongly urged that the undertaking should be linked with the United Nations as closely as possible.

12. It was to be hoped that the USSR would lend its co-operation and support to the plan. It was apposite to recall that on 6 November 1954, Mr. Saburov, the Deputy Prime Minister of the Soviet Union, had stated in Moscow that Soviet science had already achieved outstanding results in the matter of using atomic energy for peaceful purposes, instancing the fact that an electric power station operating on nuclear fuel was already functioning in the USSR. It seemed that the time was opportune for the Soviet Union to offer its contribution to the development of the peaceful uses of atomic energy. The United States had promised to place a large number of documents at the disposal of foreign libraries. That was a challenge to the Soviet Union; it was to be hoped that the Soviet Union would accept it, in a desire to give mankind the benefit of its own experience.

13. General Rómulo was glad that a conference of experts was being contemplated. It might be that the scientific examination of the question should cover wider fields than the utilization of atomic energy for peaceful purposes.

14. An examination of the atomic problem raised the question whether control of atomic disarmament was still possible. The debate on disarmament at the current session had revolved largely around the timing of disarmament controls and around the question of what should be done in case of violations. It seemed, however, that the problem of control itself should have been broached before an examination of those questions.

15. Generally speaking, the only control envisaged was in the form of inspection, the adequacy of which was doubtful. It might be useful to recall the study once prepared by the United Nations Atomic Energy Commission¹, which had stressed the dual nature of the atomic process. Whatever the final aim, whether peace or destruction, the process leading up to the production of fissionable material was the same, and only at the point of production was there a decision as to use. General Farrell had testified to the Commission that it would take less than forty-eight hours to convert fissionable materials into atomic weapons. An inspector would not be able to check, without risk of error, stockpiles of minerals or even fissionable material in the course of production. Because of the difficulties of such inspection, most Members of the United Nations had approved (resolution 191 (III)) a control plan relying on international management. The Soviet Union had rejected that concept and had insisted on the right of national operation in the matter; it had even opposed quota controls, arguing that that might enable outsiders to dictate the scale and tempo of the economic development of States.

16. It would now appear that the Western Powers were abandoning the concept of international management. The United Kingdom representative had recently talked of "something akin to managerial control". However, the USSR representative had opposed that suggestion also as implying an invasion of domestic sovereignty. The working paper (DC/53, annex 4) submitted by the United States on 25 May to the Subcommittee of the Disarmament Commission raised such issues as majority rule and inspection. Furthermore, the United States had said that its paper would be equally applicable to a programme based on Soviet concepts and to one based on United States concepts. However, the question was whether there really existed any new factors justifying the belief that international inspection would adequately block all loop-holes in the production of atomic materials.

17. Moreover, the existing stocks of atomic materials raised an even graver problem. The United States, the United Kingdom and the USSR already possessed large plants producing atomic explosives which they used for experimental purposes. How could United Nations inspectors detect all the fissionable material already produced? General Rómulo recalled, in that connexion, the statement by the American physicist, Professor Oppenheimer, to the effect that it was practically impossible to detect clandestine imports of atomic weapons. If there existed sufficient confidence

¹ See *Official Records of the Atomic Energy Commission, First Year, Special Supplement*, part IV, pp. 20 et seq.

in the world, control might not constitute a major problem; unfortunately, that stage had not yet been reached.

18. It was consequently problematical whether atomic control was possible, and the Disarmament Commission might find it advisable to ask the scientific conference to look into the question.

19. Nevertheless, controls alone could never prevent a war. Only mutual co-operation and trust would, in the final analysis, enable mankind to live in peace. The United Nations could facilitate such co-operation, especially through the specialized agencies. It was encouraging to see the Soviet Union joining more of those agencies. The field of atomic energy was certainly fruitful ground for United Nations co-operation. The Secretariat was already publishing a series entitled *An International Bibliography on Atomic Energy*² and was keeping it up to date, although the chosen extracts might certainly have been more valuable if the General Assembly had only authorized publication long before. The World Health Organization had helped the countries of Latin America to obtain radio-active isotopes from the United States and the European Organization for Nuclear Research had been set up in Geneva through the initiative of the United Nations Educational, Scientific and Cultural Organization.

20. General Rómulo suggested that one of the libraries of material on atomic energy which the United States delegation had promised to make available to other States should be entrusted to the United Nations, either in New York or in Geneva. The United Nations would then request all States to place in that library their collections of official non-secret documents. It was the United Nations which, through technical assistance, helped nations and peoples in their development. The United Nations should therefore also gather information on the peaceful utilization of atomic energy.

21. The representative of the Philippines also proposed that all States distributing and using radio-active isotopes should be invited to report to the United Nations on their findings regarding the uses of those products in medicine, agriculture and industry, so that the United Nations might publish those findings for the benefit of all mankind. The same States might submit recommendations on that subject forthwith.

22. With regard to the proposed agency, General Rómulo envisaged it as a United Nations agency operating under the General Assembly on the same lines as the United Nations Children's Fund.

23. General Rómulo noted that Mr. Lodge had stated (707th meeting) that the United States Government had originally visualized the international agency as holding fissionable materials itself, but that after the Soviet rejection of the United States proposals, all the States consulted had concluded that it might be preferable if the agency acted as a clearing-house. He

had also said that small reactors should be built in as many parts of the world as possible, and that their construction would take approximately a year and would in many cases cost well under \$500,000. Those reactors, Mr. Lodge had said, could produce most of the radio-active isotopes required and would facilitate the technical training of a new generation of atomic scientists.

24. It was to be hoped, however, that the United Nations agency would have a capital of at least \$500,000 at its disposal. It might well be, indeed, that co-operation in the atomic field would have to continue for the time being on a bilateral basis, but the goal should be international action. The United Nations should launch its own co-operative atomic reactor project, inviting contributions of fissionable materials or uranium from every country able to provide even a token contribution, and money from others. The United States and the Soviet Union, which had already produced a large number of atomic weapons, should be able to contribute at least the equivalent of one atomic weapon or 220 pounds of fissionable material. The United Nations reactor could be used for the production of radio-isotopes and for the training of international technicians and it could contribute to the development of the various national atomic institutions. Effective international co-operation in developing the peaceful uses of atomic energy would herald the advent of a better world.

25. Mr. MUNRO (New Zealand) spoke of the contribution to atomic research made by a New Zealander, Lord Rutherford. On his death in 1937, a Soviet scientist, Peter Kapitza, had paid a tribute in which he listed the many countries from which Rutherford's students had come. Kapitza's own research work in the United Kingdom had been terminated when the Soviet Union authorities refused to grant him an exit visa. Until then atomic research had proceeded on a free and international basis, but within a few years the international exchange of information on atomic energy had virtually ceased, for reasons of national security. The policy followed by the great Powers was largely attributable, of course, to the fact that, since the outbreak of the Second World War, research had been concentrated on the military applications of atomic discoveries. In the post-war period, the by-products of atomic production had become widely available to non-producing countries. New Zealand, for example, had benefited from the distribution of radio-isotopes by the principal producing countries.

26. President Eisenhower's speech of 8 December 1953 (470th plenary meeting), however, had marked the beginning of a new stage in which, to use his words, it was possible to consider steps designed to put the atomic weapon into the hands of those who would know how to adapt it to the arts of peace. One might now hope for a reversion to the basis of international co-operation which would enable present-day Rutherfords and Kapitzas to join in unravelling the many mysteries which still remained. While no one nation could hope by itself to match the pooled efforts of a group of nations, even the smallest countries which might have little to offer by way of raw materials or industrial capacity might produce scientists such as Rutherford and Niels Bohr whose genius was capable of transforming the life of all mankind. The great Powers could no longer afford to proceed with that work inde-

² AEC/INF/7, AEC/INF/7/Rev.1 and Corr.1 (mimeographed documents only) — AEC/INF/7/Rev.2. United Nations Publication, Sales No.: 1949.IX.1.Vol. I — AEC/INF/7/Rev.2/Add.1. United Nations Publication, Sales No.: 1950.IX.2 — AEC/INF/7/Rev.2/Add.2. United Nations Publication, Sales No.: 1953.IX.1 — AEC/INF/8, AEC/INF/9, AEC/INF/10 (mimeographed documents only) — AEC/INF/10/Rev.1. United Nations Publication, Sales No.: 1950.IX.1 — AEC/INF/10/Rev.1/Add.1. United Nations Publication, Sales No.: 1951.IX.1 — AEC/INF/10/Rev.1/Add.2. United Nations Publication, Sales No.: 1953.IX.2.

pendently of one another, for the world had become too small and the hour was too late. Fortunately, President Eisenhower's statement had shown a generous spirit on the part of the United States, which had been confirmed by the statement made by the United States Secretary of State, Mr. Dulles, on 23 September 1954 (475th plenary meeting), that the United States would press on in partnership with other, to convert a great lethal force into a tool of humanitarianism and of statesmanship.

27. The Netherlands representative had aptly noted on 8 November 1954 (708th meeting) that the countries which, owing to lack of mineral resources, were not in a position to play a preponderant part in the development of atomic science, were as much concerned with such problems as any other country. The New Zealand delegation therefore recalled with satisfaction Mr. Dulles assurance that all nations willing to take on the responsibilities of membership would be welcome to join in the planning and the execution of the programme he had outlined.

28. It was appropriate that the United Nations should be asked to take cognizance of the negotiations currently being conducted among eight of the Powers principally concerned for the establishment of an international agency. Furthermore, the agency, when created, should be brought into an appropriate relationship with the United Nations, perhaps as a specialized agency, although the exact nature of the relationship might be more clearly envisaged when more progress had been made in defining the scope and structure of the agency. All States should have an opportunity to express their views, as the Canadian representative had suggested (707th meeting), before the agency was finally constituted and its working relationship with the United Nations defined.

29. Mr. Munro associated himself with the previous speakers who had expressed the hope that the Soviet Union would agree to co-operate in the negotiations for the establishment of the agency. At the same time, those negotiations should not be unduly protracted; all who had listened to Mr. Moch's summation (708th meeting) of what he had called the "energy balance sheet of the universe"³ must realize that time was running short. It was true that, over a large area of the earth, conventional sources of power had yet to be fully utilized, but countries whose existing resources were fully developed would object to any undue delay in the diffusion of the technical knowledge and, ultimately, the distribution of the materials, required for the construction of nuclear power plants.

30. Progress had to be made in stages: the dissemination of theoretical knowledge had to come first; the practical training of scientists next; after that, the construction of research reactors. Not till then could the production of electric power from atomic energy begin. In the case of New Zealand, alternative sources of power might well be a necessity by the time the educative process—which might take years—was completed. In the North Island of New Zealand, the full utilization of the resources of hydro-electric energy was already in sight. While considerable relief might be found in the utilization of geo-thermal steam, it was nevertheless possible that New Zealand would be seeking additional power within a decade and that

the only practical source would then be the use of atomic energy.

31. That did not mean that New Zealand had been idle in the atomic energy field or that it contemplated for itself purely the role of a beneficiary in the international development of atomic energy. On the contrary, the Government, in close consultation with the United Kingdom, had been examining the possibility of establishing in New Zealand a plant for the combined production of heavy water and electricity from geo-thermal steam. On 22 July 1954, it had been announced by the Prime Minister of New Zealand that general agreement had been reached with the United Kingdom Atomic Energy Authority for the construction of such a plant. The production of heavy water by that plant might begin in about three years' time, and would then play a part in the rapidly expanding application of atomic energy to industrial purposes throughout the world.

32. The New Zealand Government, which would like to see a resumption of truly world-wide co-operation among atomic scientists, supported part B of the seven-Power draft resolution (A/C.1/L.105), concerning an international conference. Of course there had already been a considerable interchange of information, for example, within the British Commonwealth, and in Western Europe through the European Organization for Nuclear Research. The unique value of the conference now proposed, therefore, would lie in the universal character that it would derive from the widest possible participation.

33. In addition to the material, or economic and social, benefits to be derived from the plan initiated by the United States and the other sponsors of the joint draft resolution, there could be no doubt that political benefits of almost equal magnitude would be derived from the co-operation of all the great industrial Powers in that project. Even a preliminary agreement corresponding to the happy unanimity on disarmament recorded in the General Assembly resolution of 4 November 1954 (497th plenary meeting) would be an encouraging step forward. While President Eisenhower's plan was never intended to supplant existing proposals for disarmament, it clearly represented the other side of the coin. Given genuine international co-operation for the development of the peaceful uses of atomic energy, the possibility of diverting all fissile material to peaceful ends need not be doubted. He called for faith in mankind's ability to redeem from the engines of annihilation the energy that it needed to maintain material progress.

34. Sir Percy SPENDER (Australia) said that the representatives of the United States, the United Kingdom, Canada and France had given a vivid picture of the possible uses of atomic energy, the history of scientific research and industrial development in their respective countries, and an estimate of the place which atomic energy was likely to occupy in man's struggle against the forces of nature. Those statements had marked a significant change in the approach to the fact of atomic energy. Until recently, it had been the possible misuse of atomic energy which had dominated discussions of the problem. Furthermore, it had been felt that the political problem arising out of the discovery of atomic energy was perhaps insuperable. The result had been an atmosphere of fear and suspicion. Now, uneasiness had given way to confidence, for

³ Quoted from the verbatim record; the official record of the meeting appears in summary form.

appeared that atomic energy, instead of destroying material and spiritual values, could be an important milestone in the progress of mankind. It was in that spirit that so many scientists had devoted their lives to research.

35. Since President Eisenhower's speech in December 1953, the problem had thus been approached from a new angle, and the United States plan had been completed by the subsequent statements of Mr. Dulles (475th plenary meeting) and Mr. Lodge (707th meeting).

36. The benefits to be derived from harnessing atomic energy to the service of man were almost staggering; standards of living could be raised throughout the world, under-developed areas could be opened up, more power could be produced, more food grown. In that way, the prophets of gloom who, faced with a rising population, spoke only of starvation and desolation would be confounded. Nevertheless, it was impossible to think only in terms of the peaceful application of atomic energy; the danger of atomic energy being used by unscrupulous men for destructive purposes should not be overlooked. At the same time, attempts to solve the disarmament problem should not be allowed to lead to neglect of the development of the peaceful uses of atomic energy. It was inconceivable that the world should have to wait until some complete plan of disarmament had been worked out before a constructive plan could be put into operation. By implementing the scheme which had been put before the Committee, the United Nations would be moving towards a solution of both aspects of the question.

37. The purpose of the joint draft resolution of which Australia was a co-sponsor was first of all to set up an international atomic energy agency which would become a United Nations specialized agency. Mr. Casey, the Australian Minister for External Affairs, had welcomed the United States proposals in his speech in the General Assembly on 27 September 1954 (479th meeting), and had said that Australia, as a country which was likely to become an important source of uranium, hoped to play its full part in the proposed agency. In accordance with the course followed in the past in establishing other specialized agencies, the agency had first to be created by negotiations between certain States; then, once established, it would negotiate with the United Nations an agreement by which it would be brought into relationship with the Organization.

38. If "the use by the entire world of atomic energy for peaceful purposes"—to quote from part A of the joint draft resolution—was to become a reality, the spread of atomic knowledge was of the utmost importance. Australia was already co-operating with the United States and the United Kingdom in the use of its uranium resources, the exchange of information and projects for mutual assistance in the atomic energy field. It accordingly welcomed the proposal that such exchanges, which had manifest advantages for a small nation, should be placed on an international footing under United Nations auspices.

39. When an agreement on the lines mentioned had been concluded with the United Kingdom, Mr Beale, the Australian Minister for Supply, had said that close co-operation in a programme of atomic energy research and development in the industrial field was now assured. The United Kingdom, he had explained, was

making available to Australia the knowledge it had built up by research and expenditure, and Australia would thus have access to up-to-date nuclear reactor technology. In addition, Mr. Beale had said, Australian scientists would be able to gain first-hand knowledge of reactor design and operation in the United Kingdom. As its own contribution, he had added, Australia would undertake research which, while forming a complete and self-contained programme, would be related to the work in progress in the United Kingdom in order to avoid duplication of effort.

40. The Australian Atomic Energy Commission had been authorized to construct research laboratories near Sydney, and the Government had approved the construction for research purposes of an advanced type of nuclear reactor, quite different from the small reactors which had been discussed previously. The reactor would incorporate new features and would produce some plutonium for research purposes. It would also be used to provide training facilities for engineers from Australian industry and Australian universities.

41. The Commission's research programme would involve an expenditure of approximately £A5,500,000 over the next five years, and was aimed at developing the best methods of producing atomic power from uranium and thorium for ultimate use in Australian industry. On the basis of that programme, the production of electric power from nuclear sources would probably, within the next decade, become economic in parts of Australia remote from the conventional fuels. During that time, Australia would have an opportunity of gaining the necessary knowledge and of training the scientific staff required for the construction of a power-producing reactor.

42. Australia felt that, thanks to the laudable initiative of the United States, the proposed agency would enable other countries to enjoy similar benefits. No one could reasonably object to the fact that the eight Powers which, either as producers of raw materials or as industrial Powers capable of processing those raw materials, were principally concerned, at the present time, in the atomic energy field, should have conferred on setting up the agency. Australia's claim to be included among those Powers was based principally on its raw material resources. Australia had many deposits of uranium ore which had been discovered during the preceding three years, while great stretches of territory still remained to be surveyed. In September 1954, the first uranium ore treatment plant had been opened by the Prime Minister at one end of Australia, after twenty months of struggle against a variety of difficulties. A whole new settlement had been created, and labour and supplies had had to be brought in from the other end of the country.

43. Australian interests were not restricted to raw material production. Sir Percy Spender had already spoken of the reactor to be built in New South Wales. In addition, a cyclotron had been in operation at the Australian National University, in Canberra, for several years. Recently, the United Kingdom had presented a synchrotron to the University. A Nuclear Research Foundation had been established at Sydney University, while at Melbourne, 500 nuclear physicists and technicians had recently attended a conference on the development of atomic energy for peaceful purposes.

44. Being itself so active, Australia could not fail to appreciate the advantages to be gained from an inter-

national scientific conference and would not fail to send scientists to attend it.

45. In conclusion, Sir Percy Spender expressed his delegation's admiration for the leadership shown by the United States. Together with the United Kingdom and Canada, that great Power had made an offer of

assistance which was fully in keeping with United Nations traditions. It was to be hoped that the joint draft resolution, which suggested two constructive steps which could be taken almost immediately, would receive widespread support.

The meeting rose at 12.10 p.m.