United Nations
GENERAL ASSEMBLY
TENTH SESSION
Official Records

FIRST COMMITTEE, 775th MEETING

Tuesday, 1 November 1955, at 3 p.m.

New York

CONTENTS

Chairman: Sir Leslie MUNRO (New Zealand).

AGENDA ITEM 59

Effects of atomic radiation (A/2931, A/2949 and Add.1, A/C.1/L.138) *(continued)*:

***(a)* Co-ordination of information relating to the effects of atomic radiation upon human health and safety;**

***(b)* Dissemination of information on the effects of atomic radiation and on the effects of experimental explosions of thermo-nuclear bombs**

1. The CHAIRMAN said that the representative of India wished to add a few observations to the statement he had made at the previous meeting.

2. Mr. MENON (India) said it would be desirable that the Secretary-General should, as in the case of the peaceful uses of atomic energy at the previous session, prepare a working paper indicating how the Secretariat could assist whatever technical committee might be set up to co-ordinate and disseminate information concerning the effects of atomic radiation.

3. The SECRETARY-GENERAL said that he was prepared to instruct the Secretariat to prepare such a document, provided that was likely to be useful. He would look into the matter.

4. Sir Pierson DIXON (United Kingdom) said that the realization that atomic radiation could be harmful had led to a deep-rooted, if vague, anxiety in the mind of the public that the new scientific discovery might have a disturbing effect on the biological development of the human species.

5. Mr. Lodge, speaking at the session held at San Francisco in commemoration of the tenth anniversary of the United Nations, had proposed on 21 June 1955 that the General Assembly should, at its tenth session, establish a procedure to receive and assemble radiological information collected by the various States, as well as the results of national studies of radiation effects on human health and safety. On 18 July 1955, the United Kingdom Government had announced its support of the United States proposal. Other countries also had shown great interest in the problem.

6. There appeared to be some confusion in the mind of the public between the immediate effects of direct exposure to a strong source of radiations and those effects which, some said, might be attributed in the long term to a rise in the atmospheric level of radio-activity. A great deal of information already existed concerning the immediate effects of direct exposure. The United States representative had explained (773rd meeting), for example, that the average exposure of the United States population as a whole to radio-activity since the beginning of nuclear tests amounted to only a small fraction of the exposure from natural background radiation during the same period. The International Congress of Radiology and the International Commission on Radiological Protection had done important work in that field. Studies had also been undertaken by the International Labour Organisation and the World Health Organization. It would therefore not be desirable for the United Nations to promote any detailed work concerning the immediate effects of direct exposure, for such work would inevitably involve a duplication of effort and so represent a waste of time.

7. In contrast, there was relatively little information about the long-term effects of atomic radiation. More particularly, there was insufficient information concerning the present levels of background radio-activity. Furthermore, it was not possible as yet to determine the effect on the human race of small, medium or large increases in the background level of radiation. So much was still unknown that lively speculation and sweeping generalizations were current. The problem was properly one of genetics, but the geneticists themselves had been reticent in making statements, no doubt because they realized, better than others, how sketchy the data were. Categorical assertions had come mainly from mathematicians, chemists and philosophers. In the circumstances, it was essential that the experts should agree on the facts. The United Kingdom delegation therefore fully supported the United States proposal that the General Assembly should set up machinery which would establish the facts.

8. Drawing on knowledge of the problem in the United Kingdom, he gave some illustrations of the gaps in the documentation concerning the long-term effects of radiation. For example, it was not known what the background level of radiation had been a few years earlier. Hence, it was premature to talk of increases in that level. Moreover, it was known that the background level was not uniform throughout the world, but beyond that nothing specific was known. In view of all the uncertainty, the first object should be to agree on the most acceptable means of collecting samples of the atmosphere and on a standard method of determining the radio-active level of those samples. When measurements based on those agreed standards became available, and not until then, it would be possible for the first time to assess the difference in background level

of radiation between different parts of the world, and to assess any changes that might have occurred in that level. Such measurements should be published regularly, for they would reduce the area for speculation.

9. The background level of radiation was known to vary greatly from area to area, according to height above sea level, the nature of the subsoil, the season, and other factors. From the existing data it could be inferred that, even if some increase in the radiation background had occurred during the past decade at particular places owing to the use of atomic energy, that increase, it seemed, was not as great as the variations in the level of natural radiation from area to area. That was not only an interesting, it was also a reassuring, conclusion.

10. What was most disturbing to the public mind was the biological factor; the public feared that atomic radiation might have genetic effects and produce harmful mutations. Yet, since the beginning of time, the human race had been exposed to a small amount of background radiation from cosmic rays, from radio-active elements in the ground, from drinking water, and from the human body. Genetic mutations occurred continually in the human population; some were spontaneous, others could apparently be induced by the radiation background. But there was nothing to indicate that mutations were greater in an area more exposed to radiation background than in an area less exposed to it. The results of additional doses of radiation were therefore difficult to predict.

11. Geneticists had conducted a considerable amount of experimental work with plants, insects, and mice. Such experiments did not, however, lend themselves to inferences concerning the possible effects on human beings of a rise in the level of radiation. Consequently, before conclusions applicable to human beings could be safely reached, more advanced research would be necessary. The work would be laborious and results would not materialize quickly. There would seem to be three distinct tasks which had to be tackled: first, to establish, as far as possible, the level of ionizing radiation obtaining in different parts of the world; secondly, to estimate the increases which might occur in those levels and to study the cause of the increases, if any; and, thirdly, to evaluate what effects, if any, such increases might have on man and his environment.

12. The problem of the effects of radio-activity was highly technical; since very little was known about it, it easily lent itself to speculations and popular misconceptions. Above all, more facts had to be known about it before deductions could be drawn. The United Nations could make a valuable contribution in that regard.

13. It was important that the members of the committee proposed by the United States and other countries (A/C.1/L.138) should be nominated by Governments because the members would then be able to draw upon the entire scientific resources of their countries. The first task of that committee would be to recommend uniform standards for the methods used in collecting samples and in measuring the background levels of radiation. The various reports on such levels which were compiled by States would then be assembled in a comprehensive form by the committee. The Committee itself would clearly not be in a position to do any original research. Such research would have to be pursued over a number of years and was best done by specialists of various countries working in close touch with each other.

14. In order to ensure that the various aspects of the scientific problem were properly studied, the committee should reflect in its composition the different scientific interests involved. Sometimes in a particular country the reports of different teams of scientists might be collated in a national report. In the United Kingdom, for example, the Government had invited the Medical Research Council to prepare a report on the medical aspects of nuclear radiation. The Council, though financed by public money, was independent of the Government. Other Governments had taken similar steps. National reports would presumably be issued from time to time, and the proposed scientific committee could perform a useful task in examining and collating them and, if the material warranted, preparing a summary of them. The committee could indicate where particular results required confirmation. It could also indicate the fields in which research should be undertaken by national authorities. Its activity would help to reduce materially the overlap of effort in different countries and so to secure a more rapid advance in the common task.

15. As the present state of knowledge was so limited, any summary that the committee was to prepare had inevitably to wait upon the development of observation and experiment in the laboratories of the countries concerned. It would require at least two years before the committee would be in a position to prepare an effective summary of the various national reports it would have received. In the meantime, it might well be possible for the committee to make interim annual reports on the progress of its work, but that was a question which should be left entirely to its own discretion. Moreover, no time limit should be put on the life of the committee; on the contrary, it should be invested with continuing responsibility in performing its important work. Naturally, the results of the work of the committee would have to be made available to Member States of the United Nations and members of the specialized agencies. The best way would be for the committee to transmit reports from time to time to the Secretary-General.

16. No doubt the committee would be able fairly quickly to recommend standard means for measuring the background level of radiation. As and when standardized measurements became available, arrangements could be made for their publication. In view of the valuable contribution which the specialized agencies could make, it would be necessary to ensure that their work was co-ordinated with that of the committee. He was sure that the Secretary-General would be able to assist the committee in that respect. He could, for example, call the committee together, give it invaluable advice and make suggestions concerning the organization of its work.

17. On the face of it, it might seem that the initial functions of the committee were likely to be pedestrian, but the scope for research in the unexplored paths of science was great. When even more facts were made available to mankind, it would be possible to give some reassurance to the world, to dispel the fear of the unknown, and to usher in an era of constantly growing confidence in the prospects of the atomic age.

18. Mr. MARTIN (Canada) said that he had listened with interest to the statements of the previous speakers. The United Nations, by increasingly coping with the main problems of the times, demonstrated its great effectiveness in the world of today.

19. The Canadian delegation supported the United States proposal for the establishment of a technical committee. The release of atomic energy presented incalculable possibilities for good or evil. To save itself, mankind needed discipline and intelligence. It had to be fearless in its pursuit of truth without letting national prejudice to stand in its way. Although there were differences of view on the present question, he hoped that the committee would attain the unanimity that had recently been achieved on the question of the peaceful uses of atomic energy.

20. If a concerted international effort had begun at the time of the discovery of X-rays, much loss of time would have been avoided and much valuable information would have been gathered. Ever since the discovery of X-rays in 1895, radio-activity had claimed many victims, and methods of protection had developed but slowly. At the moment, elaborate precautions were observed in establishments using radio-active elements. In Canada, the health problems associated with radiation had engaged the attention of officers of the Department of National Health and Welfare, and safety measures were taken wherever radio-active materials were handled.

21. The slight, though appreciable, increase in radiation all over the world presented a broader problem that called for sober and thorough consideration. Some conflicting views had been presented; but the consensus of scientists seemed to be that no serious effects could result from that increase in radiation.

22. Nevertheless, there remained a number of unanswered questions, particularly in relation to possible genetic effects of radiation, which underlined the need for the co-ordination of existing information by a body such as the proposed technical committee. As the United Kingdom representative had said, research in that field must be pursued over a period of years by highly qualified specialists in the different scientific fields.

23. The Canadian Government had approached the problem by establishing a national committee consisting of experts from government agencies and from Canadian universities. The committee had held its first meeting in May 1955 and had recommended three areas for special investigation. First, it had been proposed to institute a programme for the assay of some toxic radio-active substances. The work would be extended to provide for the systematic measurement of radio-active substances present in the general environment. Secondly, it had been proposed to investigate the genetic effects of radiation. It had already been established that genetic changes could be produced in bacteria, plants, insects and small mammals by exposure to radiation, and it was assumed that the same phenomenon would occur in human beings, although it would take many generations to assess the magnitude of the problem. Explaining the difficulties involved in determining genetic effects on man, he stressed the complexity of the genetic problem and said that a long-range programme was being developed by the Canadian Government.

24. In addition to the long-term genetic effects of radiation, there were the immediate effects induced in individuals exposed to heavy radiation. A plan for the study of those somatic effects had been worked out for the approval of the Canadian national committee.

25. The Canadian Government would be happy to make all the data in its possession available to a special technical committee such as that proposed by the United States and other countries. He believed that similar projects had been initiated by other Member States. It would seem desirable, if only to avoid costly and unnecessary duplication of effort, to provide machinery for the compilation of the scientific data in the possession of Member States.

26. While it supported the United States proposal, the Canadian delegation wished to make four points in order to clarify its position.

27. First, the special technical committee would consist of a limited number of qualified scientists nominated by their respective Governments. The members of the committee would, however, be free to call in alternates and consultants in certain fields, as necessary.

28. Secondly, the committee would, as a first step, undertake a survey on levels of radiation throughout the world, and the results would be communicated to the various Governments. However, the committee should do more than circulate reports. It should organize systematically the materials received, putting the various contributions in the proper perspective. Perhaps its most important work would be to recommend a research programme to answer the questions which currently beset mankind. In that undertaking, it would of course proceed on the basis of information received from national committees.

29. Thirdly, although it was important to fix a date by which the committee would be expected to provide a summary of the reports received, a report delivered by 1958 should not be regarded as final and conclusive, particularly in relation to the genetic effects of radiation, the study of which must certainly extend over several generations.

30. Lastly, the specialized agencies should act in concert with the committee concerning any work they might be doing or contemplating within that field. He did not think, however, that any specialized agency should presume to take over the duties of the committee.

31. Every scientific advance had brought with it new problems. Nuclear energy was, however, unique among scientific discoveries in that preventive action against the hazards it might create was being taken well in advance of its actual development. Because of that new source of energy, the day might not be distant when world-wide improvements in the material standards of human life might be possible. Vast areas of the globe might be enabled to overcome the time lag in their development. It was, however, essential to ensure that the atom would prove a benefit and not a bane to mankind.

32. Mr. KUZNETSOV (Union of Soviet Socialist Republics) said that the problem under discussion was of the highest importance because atomic radiation above a certain level was an obvious hazard to human health and safety. It was necessary to distinguish between two sources of radiation encountered in the use of atomic energy. Radiation occurred in the peaceful use of atomic energy, but presented no danger because it was possible to take the necessary measures to protect workers in atomic energy plants. The second source of radiation was the explosion of thermo-nuclear bombs. The latter resulted in the release of a great many radio-active substances which were carried for considerable distances by the winds and might produce extremely dangerous concentrations of radio-active dust that would contaminate the soil, water reservoirs, plants, animals and human beings.

33. Attempts have been made to allay public anxiety regarding the danger of thermo-nuclear explosions by assertions that they need not endanger human health and safety if certain precautions were taken. Attempts had even been made to calculate the so-called average level of radio-activity produced by atomic tests and to lull public anxiety by assertions that the level was insignificant and that there was therefore no cause for alarm. The weakness of that argument was obvious; it had no more weight than an argument based on the average temperature of patients in a hospital.

34. In fact nuclear explosions had produced extremely strong concentrations of radio-active substances in certain areas.

35. In the opinion of experts, although it was possible to create conditions ensuring the complete safety of persons working in nuclear research laboratories, no guarantee could be given regarding the possibilities of contamination by radiation from atomic explosions. Professor Masao Tsuzuki of Tokyo University had reported to the International Conference on the Peaceful Uses of Atomic Energy that seventeen days after the explosion radio-activity on the deck of the Japanese fishing vessel exposed to radio-active dust produced by the experimental explosion at Bikini in March 1954 had been fifty times higher than the internationally accepted level for inhabited areas; and he had stated that contamination by radio-active dust had caused a specific disease which had reduced the number of leucocytes in the blood by two-thirds.

36. Scientists in various countries were studying the effects of various types of atomic radiation on the human body. Soviet Union representatives at the Geneva Conference had submitted a number of papers on the question. It was already established that radiations directly affected the nervous system, the cardio-vascular system, the composition of the blood and the intestines; by weakening the body, they also lowered resistance to infection, causing many complications. Experiments on animals by Soviet scientists had shown that an organism weakened by atomic radiation was vulnerable to diphtheria, dysentery and typhoid; radiation could also result in changes in metabolism. The greater the degree of radio-biological contamination, the more rapidly the biological changes in the contaminated organism became apparent.

37. In studying the biological effects of atomic radiation, it was important to work out preventive measures and methods of treatment of contamination cases. Consequently, it was necessary to determine the effects of the various types of radiation on the human body and the degree of radiation to which it could be exposed without danger; standards of tolerance must be established for persons exposed to radiation in their daily work. Soviet scientists had worked out prophylactic measures which were already being successfully applied.

38. The health of workers exposed to atomic radiation was protected in the Soviet Union by legislation which fixed limits of permissible atmospheric concentration of radio-isotopes and provided for shorter hours, longer paid leave, systematic medical examination and special health rules.

39. But there was no means of safeguarding human health against the effects of radiation from atomic explosions and the studies of that problem had not yet succeeded in reducing the danger. The only reliable way of eliminating the danger of harmful radiation from explosions was to prohibit atomic explosions altogether.

40. In order to deliver mankind from that danger, the USSR Government had repeatedly proposed the conclusion of an international agreement on the prohibition of nuclear weapons and, as a first step, the renunciation of all tests of that type of weapon. The Soviet Union was still trying to obtain the agreement of other States to that proposal, particularly of those States which possessed atomic weapons. A number of countries had already demanded that atomic explosions should be stopped. Not only had India, Sweden, Japan and Indonesia done so, but also the Prime Ministers of India, Indonesia, Burma, Pakistan and Ceylon at their conference at Bogar in December 1954, as well as twenty-nine countries at the Asian-African Conference at Bandung. Eminent scientists like Einstein, Russell, Joliot-Curie, Schweitzer, De Broglie, Infeld and Hideki Yukawa and many others have drawn the attention of peoples and Governments to the danger from radio-active substances disseminated by atomic explosions, and have demanded the prohibition of such explosions. On 31 March 1954, 130 Labour members of the United Kingdom Parliament had urged their prohibition.

41. The General Assembly, when it came to take a decision on the question of atomic radiation, would be failing in its duty if it did not call upon the States to continue their efforts with a view to immediate abolition of the source of dangerous radiation, namely nuclear explosions. Although the questions of the reduction of armaments and of the prohibition of atomic weapons had to be considered separately, the Soviet Union delegation nonetheless felt, in view of the direct connexion between radiation and nuclear weapons tests, that the General Assembly must pronounce in favour of the immediate conclusion of an agreement between States on the prohibition of nuclear weapons and, as a first step, the conclusion of an arrangement for the discontinuation of atomic tests.

42. The Soviet Union delegation supported the United States proposal for the establishment of a scientific committee which would recommend and promote the adoption of uniform standards for radiation counting and sample collection procedures. The Soviet Union delegation considered that all interested States should take part in that task, whether Members of the United Nations or its specialized agencies or not. The membership of the scientific committee, which under the United States proposal would comprise only ten members, should also be expanded on the basis of an equitable geographical distribution.

43. Moreover, the problem of atomic radiation could not be limited to data on the levels of radiation and the effects of radiation on man and his environment. Questions of protection from the effects of radiation and of the treatment of diseases caused by radiation were also highly important. It would therefore be advisable to extend the scientific committee's terms of reference by entrusting it with the compilation, co-ordination and dissemination of the results of experiments for the development of methods of protection and treatment.

44. The committee should co-operate with the national and international organizations directly or indirectly connected with its field of activity and in view of the importance of international co-operation in the study of problems connected with the effects of atomic radia-

tion, it would be normal for the committee to be established within the framework of the United Nations.

45. The Soviet Union delegation suggested that the committee should prepare and submit its first report, not, as suggested in the draft resolution (A/C.1/L.138), on 1 July 1958, but by October 1956. The Soviet Union delegation would do its best to promote in co-operation with other delegations, proposals commensurate with the importance of developing international co-operation in that field.

46. Mr. NUÑEZ PORTUONDO (Cuba) felt that no one should oppose a study of the effects produced by atomic radiation: that problem was the concern of all humanity. All Member States would be prepared to support the establishment of an international scientific body to carry out scientific studies and distribute the data obtained provided they had the necessary assurance that such data would be given world-wide distribution. It was well-known that certain Governments did not allow any publicity within their borders. Accordingly, if information on the dreadful effects of atomic radiation were communicated only to the peoples of the West, and not to the peoples behind the "Iron Curtain," the latter would remain unaware of the dangers of atomic warfare and could therefore be more easily led into a war of aggression.

47. While the intentions of the Governments of India and the United States might be most praiseworthy, caution was required in order to prevent well-meaning proposals from being turned into a propaganda weapon by certain Governments. Before giving its support to the draft resolutions, the Cuban delegation considered it essential first to be clear on how the information transmitted to the scientific committee would be distributed to all the peoples of the world without exception.

48. The Cuban delegation would need more details before deciding whether to vote for or against any draft resolutions that might be submitted.

49. Mr. RYCKMANS (Belgium) said his delegation was pleased to note that previous speakers had seen the all-important problem before them in its true light, as an objective and scientific study of the facts. It was not a question of deciding for or against experimental explosions of atomic weapons, but of collating, disseminating, and assessing the importance of all the data on the effects of radiation, whether from military or peaceful uses of nuclear energy. That was a scientific problem which had to be handled without any political considerations. No doubt statesmen would later have to examine the measures to be adopted in order to keep the risks involved in the utilization of atomic energy within permissible bounds; but for the time being, all that was proposed was the scientific ascertainment of the facts.

50. The Belgian delegation took a special interest in the question of ionizing radiation, due to the fact that for many years nearly all the radium in the world had been produced at Oolen from Congo uranium. Belgian scientists had therefore been obliged to study the effects of radiation on the human body as a problem of immediate practical importance for the protection of those whose work exposed them to radiation and it was accordingly not surprising that they had acquired considerable skill in the matter.

51. With regard to the nature of the bodies to be entrusted with the study of the problem, the Belgian delegation reserved its right to revert to that issue when the draft resolutions came to be discussed, but felt obliged to insist straight away on the non-political and scientific aspect of the question. In the selection of experts, the determining factor must be individual ability rather than ethnic or national qualifications. The United States, supported by the United Kingdom, had proposed to set up a committee of States on a geographical basis in order to profit more readily from the work of the various countries; that proposal was certainly an interesting one. If it was really desired, however, to mobilize the help of the greatest scientists of the various countries, the safest course seemed to be to name the scientists themselves, rather than a certain number of countries, in the hope that the scientists in question would turn out to be citizens of those particular countries. Several formulas had been suggested, such as those put forward by the Swedish representative (773rd meeting), for example. A special committee of experts could be appointed on individual merit and not as government nominees; or again a committee could be set up immediately of experts in the various aspects of the radiation problem, as suggested by the Swedish representative, and that committee—rather than the Advisory Committee established by General Assembly resolution 810 B (IX), paragraph 5—could be asked to direct the work of the Secretariat on which it would later have to base its conclusions.

The meeting rose at 4.55 p.m.

Printed in U.S.A. S—77101—December 1955—1,950