



**CONTENTS**

Page

Agenda item 59:

Effects of atomic radiation (*continued*):

- (a) Co-ordination of information relating to the effects of atomic radiation on 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..... 115

**Chairman:** Sir Leslie MUNRO (New Zealand).

**AGENDA ITEM 59**

**Effects of atomic radiation (A/2931, A/2949 and Add.1, A/2NF/67, A/C.1/L.138, A/C.1/L.139, A/C.1/L.140) (*continued*):**

- (a) Co-ordination of information relating to the effects of atomic radiation on 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. Miss AMMUNDSEN (Denmark) desired to deal with the important question of the effect of ionizing radiation upon man and his environment from the point of view of public health. The recent developments in nuclear research would no doubt radically change the present views on many health problems and would compel every country to make rules and regulations suitable to its special circumstances.

2. Referring to the many sources of radiation, Miss Ammundsen stressed that there had been an increase in the number of people who were exposed to radiation. In countries like Denmark, with highly developed and extensively utilized medical and preventive care, the number of medical personnel and patients subject to such radiation was already far from negligible. That part of the population would have to be particularly remembered when the general and widespread effects of the more powerful sources of radiation were measured and discussed. Those sources were the experimental reactor units and, possibly, actual power stations. Those institutions might not only subject the working personnel to radiation but also affect the surroundings by contaminating the air, the waterways and the soil if sufficient control were not exercised. Contamination of the air and, perhaps, of the soil by radio-active fall-out might also come about as a result of atomic explosions, possibly affecting large groups of the population, even at great distances.

3. Denmark, as a highly industrialized country which would in due time make wide-spread use of atomic

power, and as a small and densely populated country, was vitally interested in the best possible solution of the problem of international exchange of experience and research. It therefore whole-heartedly welcomed the initiative taken by the United States and by India in placing the present item on the agenda of the General Assembly.

4. The health and safety problems connected with the peaceful uses of atomic energy and with experiments with atomic weapons were of such a scale that they could not be dealt with by the different countries separately. In 1952 the European Organization for Nuclear Research had been founded; but it was not until the initiative of the ninth session of the General Assembly (resolution 810 (IX)) had made possible the International Conference on the Peaceful Uses of Atomic Energy that a real world-wide exchange of views and experience had taken place. The extremely encouraging results of that Conference had related not only to nuclear power problems, but also to the problems of a medical and biological nature. It might therefore seem natural, and even inevitable, that international co-operation in that field should be continued. In the opinion of the Danish delegation, the most suitable place for such co-operation would be the United Nations.

5. A body closely connected with the United Nations would be the most suitable one to correlate not only the efforts of the different countries, but also the efforts and activities of the different international organizations.

6. The contributions of different countries to the knowledge of the subject would, of course, vary. For example, Denmark could contribute substantially in the very complicated and difficult field of human genetic research on the problem of the effects of small doses of radiation. The uniformity and stability of its population, its well-developed system of public health and industrial hygiene, and its comprehensive public registration would make it possible to carry on for generations the study of persons exposed to controlled amounts of radiation, and of their issue.

7. That problem and other similar ones might be studied with advantage in Denmark; but many studies could not possibly be carried out there. That was why the delegation of Denmark joined in sponsoring the draft resolution (A/C.1/L.138) originally presented by Australia, Canada, the United Kingdom and the United States. The scientific committee proposed in that draft resolution was so composed as to enable it to be efficient and competent.

8. Commenting on the draft resolution, Miss Ammundsen stated that, after the clarification given by the representative of Canada (775th meeting), operative paragraph 1 would enable each of the Governments of which the committee would consist to designate one scientist to represent it on the committee. Since the consultants would not necessarily have to come from the

same countries as the scientific representatives and their alternates, it would be possible to have all aspects of the problem covered, without enlarging the committee to a size which would hamper its effectiveness. Referring to operative paragraph 3, Miss Ammundsen said that the Danish delegation attached great importance to the fact that the scientific committee should carry on its work in close connexion with the United Nations. While it was impossible at the present time to define the exact scope of the work of the committee, her delegation hoped that, in the future, the committee would be sufficiently flexible to fulfil its task as its members, the scientific world and the United Nations would deem appropriate.

9. In the history of public health it had never been possible to anticipate a problem to such an extent before it had really come into existence and before great calamities had taken place. If today the world was better prepared than at any time before to meet the coming dangers, that was exclusively due to co-operation among nations. Such co-operation through the United Nations could contribute vitally to the enormous advantage which mankind might derive from the peaceful uses of atomic energy. Through it, too, Governments and health authorities might acquire the knowledge that would enable them to enact the necessary regulations, which, without unnecessarily hampering research and production, would ensure that general exposure to the ionizing radiation would never reach the levels from which there was no return.

10. The SECRETARY-GENERAL, introducing a paper (A/INF/67) which had been prepared in response to a request made by the representative of India, pointed out that, because of the short time available and the lack of previous studies on the subject, the paper was necessarily of a limited scope. He felt, however, that it was better to present a modest information document now than to go into the matter more in detail with the risk of undesirable delay.

11. The paper was in the main limited to the questions of how best to organize the collaboration between the proposed committee and United Nations organizations with a view to making the committee as efficient an organ for its purposes as circumstances permitted. The observations presented in the paper were of a strictly administrative character, although there could be no sharp distinction between questions of administration and questions of policy.

12. The paper contained indications as to the manner in which the administrative problem could best be solved. The observations made should not, however, be read as proposals on which the First Committee might have to pronounce itself. Very much would necessarily have to be left to practice, and the development which seemed desirable could well take place on the basis of any of the formulae suggested in the course of the discussion in the Committee.

13. Mr. WADSWORTH (United States of America) wished to make certain remarks on the draft resolution (A/C.1/L.138) under consideration and to touch on several points raised in the course of the discussion.

14. In the opinion of his delegation, the purpose of the debate was to propose and to discuss a procedure whereby the facts about the possible effects of ionizing radiation on man and his environment could be ascertained. The purpose was also to propose a procedure whereby the actual amounts of natural and artificially produced

radio-activity could be determined. Only by ascertaining the facts could the confusion be dispelled.

15. Since the subject under consideration did not concern disarmament, the delegation of the United States did not wish to comment on the first two of the amendments (A/C.1/L.140) submitted by the Union of Soviet Socialist Republics, except to say that it would be forced to oppose them if they were pressed to a vote.

16. The item before the Committee did involve certain political issues. That was why it was being considered in the First Committee. However, the item was political only in a very special and limited sense. It was political because the question of the effects of atomic radiation on man and his environment was of concern to Governments and peoples. The subject was being dealt with in response to that just concern, but other political issues which were extraneous to the subject should not be allowed to intrude.

17. His Government strongly believed that the fifth amendment proposed by the Soviet Union should not be taken up at present. Similar amendments, or amendments having the same general effect, had been proposed by the representative of India (A/C.1/L.139). The United States delegation did not consider the present occasion appropriate to raise a political issue of that nature, and would therefore oppose those amendments.

18. The draft resolution submitted by the United States and the other co-sponsors was designed to emphasize that the main task was to get at the facts of the problem of the effects of atomic radiation on man and his environment. That activity was an indispensable precondition to any others. In some areas it might be a simple matter to get the facts and put them into a meaningful and intelligible order. In other areas it might prove difficult. All that was necessary at present was to ensure that the problem received the priority attention it deserved. Under the proposed draft resolution the scientific committee was empowered to evaluate the reports it received, but it should not be asked to make summary statements in the absence of adequate and definite information.

19. The United States delegation believed that a committee composed only of individual scientists representing various disciplines could not possibly perform the task envisaged. The scientists must be able to command and receive assistance from their respective Governments to the extent that such assistance would be necessary. Left to themselves, such individual specialists could not speak with authority on anything but their own specialized disciplines. The scientists would have to draw upon the services of a group of advisers and consultants as they passed from one problem to another. The committee would be made up of eleven scientists. A committee of any greater number would be unwieldy. The eleven countries to be represented on the proposed committee provided adequate geographical representation, and they could also be expected to provide the eminent scientists required for the task. When the committee convened, it was to be expected that there would be present not only the eleven members, but also their alternates and their advisers. There might be occasions when an alternate would sit for the representative.

20. The draft resolution provided that the Secretary-General would have an appropriate role in the activities of the committee. He should not be expected to participate in the more technical functions of the committee. On the other hand, the scientists on the committee could

not be expected to deal unaided with the complexities of the United Nations system and procedures. Paragraph 3 of the draft resolution therefore requested the Secretary-General to provide the necessary assistance. The Secretary-General and his staff would assist the committee in carrying out its deliberations and in developing orderly procedures, and would offer advice and guidance as needed. The Secretary-General must be in a position to clarify the mission of the proposed committee. It would be through the Secretary-General that the committee would concert, in the language of the draft resolution, with the specialized agencies.

21. If the proposed scientific committee was to succeed in its tasks, it must be composed of eminent scientists who would be free to consider the facts presented to them; it must be independent; it must receive the co-operation of all the Governments in the United Nations and in the specialized agencies. It must receive the type of assistance that could only be forthcoming from the Secretary-General.

22. The United States attached great importance to the activities of the scientific committee. If in the first stage it did no more than define precisely the present exposure of the population of the world to ionizing radiation, it would have performed a task which would take many years to accomplish through national or independent scientific bodies working separately. Only by the concerted action of that committee to establish universally acceptable and standardized methods for the collection and reporting of the relevant scientific information could any true assessment be made of man's exposure to radiation. The tasks would require that the committee be composed of scientists of such stature as to command the co-operation and indeed the services of the best scientific specialists in the countries represented on the committee, as well as those of other countries. It would be the function of the committee to direct the attention of the world scientific community to the need for further research in the areas concerned.

23. The United States delegation believed that the responsibilities of the committee should not be further increased by such other special assignments as assembling, collating and evaluating reports for the purpose of defining methods for protection against and treatment of radiation injury. That would only divert the attention of the committee from its main purpose, which was to determine the effects of ionizing radiation produced in the atomic age. Those other matters required special competence of a practical nature which properly fell within the province of such specialized agencies as the World Health Organization and the International Labour Organisation.

24. In concluding, Mr. Wadsworth emphasized that the eight-Power draft resolution was the product of numerous and detailed consultations with a considerable number of delegations. In its present form, it incorporated numerous suggestions made in the course of those consultations. That was particularly true with regard to suggestions made by the Indian delegation. The United States delegation had hoped that substantial agreement had been reached on a mutually acceptable text. The amendments now submitted by the Indian delegation (A/C.1/L.139) included, however, a number of new points which had not arisen in the earlier consultations. Some of those amendments were largely drafting changes. With regard to the new suggestions of substance, the United States delegation hoped that,

after the lengthy and sympathetic consideration it had given to the previous Indian suggestions, those new amendments would not be pressed.

25. With the agreement of its co-sponsors, the United States delegation would be prepared to delete the words "if appropriate" in paragraph 2, sub-paragraph (e), of the joint draft resolution. It would also be willing to add, as a final paragraph 7, the last Indian amendment in an altered form: "*Decides* to transmit to the scientific committee the proceedings of the General Assembly on the present item."

26. Other drafting changes could be made in the language of the draft resolution, but they would convey substantially the same meaning. The United States delegation believed that the draft resolution in its present form expressed the consensus of the First Committee and was deserving of unanimous support.

27. Mr. PLATE (Argentina) expressed agreement in principle with the terms of the joint draft resolution. As to the competence of the proposed scientific committee, he suggested that account should be taken of the relationship that must exist between the International Atomic Energy Agency and that committee.

28. Turning to the composition of the scientific committee, he praised the efforts of the sponsors of the draft resolution to satisfy the requirement of geographical representation. In that respect an important fact seemed to have been overlooked. The proposed scientific committee contained no Spanish-speaking nation. Spanish had assumed a very important role in the culture of the West and had been recognized as one of the official working languages of the United Nations. In setting up a technical or specialized body like the proposed scientific committee, the importance of countries speaking Spanish should be taken into account.

29. With regard to the terms of reference of the scientific committee, the committee should not be left entirely free to present reports and to submit documents and evaluations to the Secretary-General. That information should be fully transmitted to all States on a periodic and obligatory basis. In the opinion of the Argentine delegation, that would enable the committee to fulfil the very generous aims for which it was being set up.

30. Mr. NOSEK (Czechoslovakia) pointed out that the problem of the effects of ionizing radiation on human health and safety had for a long time held the attention of scientists. It was only after mankind had learned of the fatal effects of atomic radiation produced by explosions of atomic and hydrogen bombs that the attention of world public opinion had been drawn to the problem.

31. In the field of protection against the harmful effects of radiation, considerable experience had been acquired in Czechoslovakia in the areas where uranium ores had been mined for more than sixty years. After the Second World War, when artificial radio-active elements had been put into use much more extensively, the existing regulations and legislation on the protection of workers against the effects of radiation had been revised and complemented. In that field many other countries had already acquired considerable experience. An international exchange of information and the dissemination of data on the effects of radiation on human health and safety, as well as on the results of research and the methods of solving those problems in various countries, would undoubtedly be of immediate benefit. Of particular importance for all countries in that sphere would be the establishment and introduction of uniform standards

for sample collection and of radiation counting procedures for sample analyses.

32. The dangers of radiation had been known for a long time. That was why the strictest safety measures had been introduced in the nuclear industry and in work with radio-isotopes and why serious attention was being given to the problem of the disposal of radio-active waste in such a manner as to avoid hazards to health and the contamination of the atmosphere, supplies of drinking water and foodstuffs.

33. Mankind was faced by a peculiar situation. Everything was being done to protect it against the effects of radiation, but it was exposed to radiation from the explosion of nuclear bombs, against which there was no effective guarantee of human safety. Thus, the extent of the area affected by the hydrogen bomb explosions at Bikini in 1954 had been miscalculated, human lives had been endangered and lost, and large areas had been contaminated for a long period to come. Moreover, such explosions did not only result in a considerable increase in local radiation; the radio-isotopes produced by the explosion could easily be carried great distances and contaminate large areas with a high intensity of radiation. A certain time after the detonation, the radio-active particles dispersed and increased the level of radiation over the entire globe.

34. It had been claimed that the increase in the radio-active level was in no way dangerous to mankind since it represented only a negligible change in the average intensity of radiation. But it was unreal to speak in such terms, since present knowledge did not permit the assertion that even an insignificant increase of radio-activity could not leave traces in live organisms and did not cause changes or mutations which would become manifest at a later time. A number of scientists and scientific institutions, including the Federation of American Scientists, some of whose members had taken part in the production of atomic and hydrogen weapons and were thus eminently competent to speak of the effects of radiation, had drawn attention to that danger. The International Union of Biological Sciences, at its conference in Rome in March 1955, had unanimously noted the deleterious effects of radiation resulting from nuclear explosions and had recommended that the United Nations give serious consideration to the matter.

35. There could not be the slightest doubt that experiments with atomic and hydrogen weapons involved a powerful concentration of ionizing radiation which endangered human health in large areas. Experience had shown that there were no effective safeguards against such radiation, and his delegation agreed with the Soviet Union delegation that the only reliable method of eliminating the danger was the elimination of test explosions. It would undoubtedly allay the apprehensions of world public opinion if the General Assembly were to call for continuation of efforts to reach an early solution of the question of the prohibition of nuclear weapons and, as a first step, to seek agreement on the discontinuation of experimental explosions of all such weapons. The endeavours of the nations of the entire world centred around that objective.

36. There was general agreement that only the most extensive international co-operation could lead to the best results in the peaceful uses of atomic energy for the benefit of mankind. A similar general demand existed for development of the widest co-operation in the study of the harmful effects of radiation in the interests

of the protection of human health and safety. His delegation, consequently, supported the proposal to further such co-operation.

37. The joint draft resolution (A/C.1/L.138), Mr. Nosek noted, restricted the scope of the information to be compiled by the scientific committee to the Member States of the Organization and of its specialized agencies. Such a course of action would be ill-advised, for the nature and extent of ionizing radiation required the most extensive compilation of information and the co-operation of all countries without exception if international co-operation on research in that field was to be fully effective. To exclude data from so extensive an area and to deny participation in the work of the scientific committee to a State occupying so large a territory as the People's Republic of China, for instance, could not but condemn the work of the committee to incompleteness.

38. His delegation agreed that the activity of the committee should be extended to cover information on protection against the effects of radiation and methods on treatment of diseases caused by it. The amendments of the Soviet Union (A/C.1/L.140) and India (A/C.1/L.139) were designed to eliminate those shortcomings in the joint draft resolution.

39. In conclusion, he declared that the Czechoslovakian Government was ready to take part in international co-operation in the study of atomic radiation, which, if based on sound foundations, could contribute significantly to the development of the peaceful uses of atomic energy, and his Government would make every effort to ensure the best results from such co-operation.

40. Mr. BELAUNDE (Peru), referring to the composition of the proposed scientific committee, endorsed the suggestion of the representative of Argentina to the effect that it might be appropriate to add a member of one of the Spanish-speaking countries. While the Latin-American group was very well represented by Brazil, it was not unreasonable, in view of the number of Latin-American countries in the United Nations, to ask that it be represented by two countries. As for the view that an increase in the membership of the committee would make it unwieldy, the difference between eleven members and twelve was not too great. Moreover, experience in the United Nations demonstrated that large committees could work adequately.

41. Dealing with the amendments to the joint draft resolution, he expressed the hope that as a result of the continuation of the conversations between the sponsors and the delegation of India, it would be possible to reach an agreement on inclusion of those Indian amendments which were not incompatible with the joint draft resolution and which did not depart radically from its text. If some of the Indian amendments presented difficulties and did not serve to clarify the text, it might be preferable not to press for their inclusion.

42. As for the Soviet Union amendments, he saw no reason why the question of disarmament and of practical measures to ensure the prohibition of the use of nuclear weapons should be included in a draft resolution on the subject under discussion. His delegation had long supported the principle of the effective prohibition of all weapons of mass destruction, including weapons of chemical and bacterial warfare, but it had also maintained that mere declarations were not sufficient and, indeed, would tend to detract attention from the real task of establishing a treaty containing specific guar-

antees concerning the prohibition of the use of such weapons. So far as disarmament was concerned, the United Nations should try to draw up an international treaty which would include provisions for effective control through inspection. But in the subject under discussion its efforts should be concentrated on the scientific aspects and on allowing the proposed committee the flexibility necessary to decide on what research should be done and the way in which the information should be disseminated. He would therefore be unable to vote in favour of the USSR amendments. The Committee's main goal, which should be the unanimous adoption of a resolution on that item, required avoidance of controversial issues.

43. Mr. Hsioh-Ren WEI (China) said that atomic energy had been one of the greatest challenges to the United Nations since the birth of the Organization. In contrast to the destructive use of atomic energy, its peaceful use had brought much confidence and satisfaction to the United Nations. Following the unanimous decision to promote world-wide development of atomic energy for human welfare, it was fitting to turn to the radiation hazards present in all uses of such energy. There were two broad classes of such hazards to man; the first, the physiological or somatic effects; and the other, the genetic effects. Atomic radiations themselves were of different types. All were hazardous, although their biological effects were different in degree. Fortunately, for all practical purposes, there were effective ways of controlling them, and a maximum permissible dose for each type of radiation had been worked out. Indeed, in terms of over-all safety, the atomic industry had twice as good a safety record as industry as a whole in the United States, and eight times as good as the chemical industry. It was important to realize that any country interested in starting an atomic programme could go ahead with confidence so far as protection against radiation hazards was concerned.

44. Of course, not all the problems of such hazards had been solved; even the countries most advanced in atomic development were working on better methods of protection. The World Health Organization, the International Labour Organisation, the International Commission on Radiological Protection and many others were working on the problems of radiation hazards. One of the primary functions of the International Atomic Energy Agency, according to the draft statute, would be to assist in the development and enforcement of high standards and practices of public health and safety in relation to fissionable and radio-active materials. The problem would undoubtedly be on the agenda of the coming United Nations international atomic energy conference, as it had been on that of the International Conference on the Peaceful Uses of Atomic Energy, held at Geneva in August 1955.

45. Further duplication should be avoided. Since the *ad hoc* committee under consideration had important functions to perform, it was not advisable to burden it further with problems of radiation protection or treatment of radiation sickness.

46. The genetic effect of atomic radiation had caused much anxiety and controversy. Very little was known about it, although geneticists did know that ionizing radiation produced mutations and that the frequency of gene mutation depended proportionately on the total dose of radiation. The problem was complicated by the long life-span of man, the small number of his offspring,

and the difficulty of controlling long-term experiments. The only two cases in which large numbers of human beings had been subjected to intense radiation—Hiroshima and Nagasaki—had so far, according to the Atomic Bomb Casualty Commission, produced no indication of genetic effects or changes in the normal structure of those born after the blasts. But ten years was a very short time in human genetics. It was gratifying to note that various national authorities or bodies had initiated long-term programmes on radiation genetics which should throw light on the problem. Another anxiety, about the hazards of radio-active fall-out, had been discussed so far only in connexion with nuclear tests. However, there could be fall-out from atomic factories as well, which, unless stringent precautions were taken, could be most hazardous to the entire community. In that connexion, he referred to the report at the Geneva Conference on fall-out around the Hanford installations in the United States.

47. As for radio-activity due to nuclear weapon tests, he was satisfied with the assurances of the representative of the United States (773rd meeting) that the average radiation exposure of the population as a whole since the beginning of the atomic energy programme in the United States amounted to only a small fraction of the exposure from natural background radiation during that period, and that fraction had been estimated at about 25 per cent. That was certainly no cause for alarm, for people had lived safely for centuries under much higher levels of cosmic radiation, particularly at high places such as Denver, in the United States, where the level was about 50 per cent higher than normal, and Quito, in Ecuador, where it was 200 per cent above normal.

48. In many parts of the world, however, there was a sort of "atomic neurosis," as the representative of India had put it. Moreover, the question of fall-out had been made a propaganda weapon by the Communists to justify their unreasonable demands for the unconditional prohibition of nuclear weapons. The General Assembly knew too well who had refused to accept the necessary control and inspection for the guaranteed prohibition of those weapons and was thus responsible for their continued existence.

49. His delegation therefore supported the joint draft resolution to establish an *ad hoc* committee. It was essential that that committee should insist on adoption by the participating countries of uniform standards of instrumentation and procedure; otherwise, the data submitted could not be analysed or co-ordinated. In fact, it would be much simpler and more effective if the committee was authorized to set up a monitoring system with stations at key points throughout the world. In any event, the reports of the committee would be sufficient to show objectively and scientifically any increase in the level of radiation. With the prestige of the United Nations, it would be the guardian of human health against radiation hazards and would put a stop to unnecessary apprehension and speculation.

50. Mr. SHAWARBI (Yemen) noted that all agreed on the usefulness of establishing a special committee as proposed in the joint draft resolution, which his delegation would support. It believed, however, that the activities of the proposed committee must be expedited and must be co-ordinated with those of the International Atomic Energy Agency.

The meeting rose at 12.25 p.m.