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Sixty-fifth session
(11-14 June 2018)

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Report of the United Nations Scientific Committee on the Effects of Atomic Radiation

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Note

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Chapter I

Introduction

1. Since the establishment of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) by the General Assembly in its resolution 913 (X) of 3 December 1955, the mandate of the Committee has been to undertake broad assessments of the sources of ionizing radiation and its effects on human health and the environment.[1] In pursuit of its mandate, the Committee thoroughly reviews and evaluates global and regional exposures to radiation. The Committee also evaluates evidence of radiation-induced health effects in exposed groups and advances in the understanding of the biological mechanisms by which radiation-induced effects on human health or on non-human biota can occur. Those assessments provide the scientific foundation used, inter alia, by the relevant agencies of the United Nations system in formulating international standards for the protection of the general public, workers and patients against ionizing radiation;[2] those standards, in turn, are linked to important legal and regulatory instruments.

2. Exposure to ionizing radiation arises from naturally occurring sources (such as radiation from outer space and radon gas emanating from rocks in the Earth) and from sources with an artificial origin (such as medical diagnostic and therapeutic procedures; radioactive material resulting from nuclear weapons testing; energy generation, including by means of nuclear power; unplanned events such as the nuclear power plant accidents at Chernobyl in 1986 and that following the great east-Japan earthquake and tsunami of March 2011; and workplaces where there may be increased exposure to artificial or naturally occurring sources of radiation).

[1] The United Nations Scientific Committee on the Effects of Atomic Radiation was established by the General Assembly at its tenth session, in 1955. Its terms of reference are set out in resolution 913 (X). The Committee was originally composed of the following Member States: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia (later succeeded by Slovakia), Egypt, France, India, Japan, Mexico, Sweden, Union of Soviet Socialist Republics (later succeeded by the Russian Federation), United Kingdom of Great Britain and Northern Ireland and United States of America. The membership of the Committee was subsequently enlarged by the Assembly in its resolution 3154 C (XXVIII) of 14 December 1973 to include the Federal Republic of Germany (later succeeded by Germany), Indonesia, Peru, Poland and the Sudan. By its resolution 41/62 B of 3 December 1986, the Assembly increased the membership of the Committee to 21 members and invited China to become a member. In its resolution 66/70, the Assembly further enlarged the membership of the Committee to 27 and invited Belarus, Finland, Pakistan, the Republic of Korea, Spain and Ukraine to become members.

[2] For example, the international basic safety standards for radiation protection and safety of radiation sources, currently co-sponsored by the European Commission, the Food and Agriculture Organization of the United Nations, the International Atomic Energy Agency, the International Labour Organization, the Nuclear Energy Agency of the Organization for Economic Cooperation and Development, the Pan American Health Organization, the United Nations Environment Programme and the World Health Organization.

Chapter II

Deliberations of the United Nations Scientific Committee on the Effects of Atomic Radiation at its sixty-fifth session

3. The Committee held its sixty-fifth session in Vienna from 11 to 14 June 2018.[3] The following have been elected as officers of the Committee for its sixty-fourth and sixty-fifth sessions: Hans Vanmarcke (Belgium) as Chair; Patsy Thompson (Canada), Peter Jacob (Germany) and Michael Waligórski (Poland) as Vice-Chairs; and Gillian Hirth (Australia) as Rapporteur.

4. The Committee took note of and discussed General Assembly resolution 72/76 on the effects of atomic radiation, in which the Assembly, inter alia: (a) requested the Committee to report on its important activities to increase knowledge of the levels, effects and risks of ionizing radiation from all sources to the General Assembly at its seventy-third session; (b) requested the United Nations Environment Programme to ensure that administrative measures in place are appropriate, including clear roles and responsibilities of the various actors, so that the secretariat is able to adequately and efficiently service the Committee; (c) requested the Environment Programme, in view of the resignation of the Secretary, to take proactive steps to ensure continuity in the Committee secretariat through the timely appointment of the next Secretary; (d) invited Algeria, Iran (Islamic Republic of), Norway and the United Arab Emirates to designate one scientist each to attend the sixty-fifth session as observers; and (e) decided to review the possible increase in the membership of the Committee with a view to establishing a procedure for possible further increases in membership of the Committee, and to apply this procedure to the countries listed in (d) above.

5. In regard to points (b) and (c), Argentina, Australia, Belgium, Germany, Pakistan, Poland, the Sudan, Sweden, Ukraine and the United States of America made statements about the significant delay in the appointment of a suitably qualified Scientific Secretary. These statements were unanimously supported by the other members of the Committee. The issues raised are reported in chapter II, section D, paragraphs 47 to 56 of the present report, under the heading “Administrative issues”.

6. The International Atomic Energy Agency and the World Health Organization also made statements expressing support and appreciation for the Committee and its work. They noted that the Committee produced the most reliable and comprehensive sources of scientific information about the levels and effects of ionizing radiation, and that without it, safety guidance and safety standards could not be developed and maintained, and priorities for research in the areas of sources and effects of ionizing radiation could not be determined.

7. In regard to point (d), the Committee heard presentations from the scientific representatives of the observer countries on their research programmes that supported the Committee’s work. The Committee took note of these presentations and observed in particular that the contributions would enhance the United Nations regional networks in Africa and Asia; support the collection, analysis and dissemination of data on radiation exposures of the public, patients and workers, and the compilation and analysis of data on people exposed to high levels of background radiation; and assist with mapping radionuclide concentrations in the environment to support the

[3] The sixty-fifth session of the Committee was also attended by observers for Algeria, Iran (Islamic Republic), Norway and the United Arab Emirates, in accordance with General Assembly resolution 72/76, para. 19, and observers for the United Nations Environment Programme, the International Atomic Energy Agency, the International Agency for Research on Cancer, the International Labour Organization, the World Health Organization, the European Commission, the International Commission on Radiological Protection, the International Commission on Radiation Units and Measurements, and the Nuclear Energy Agency.

Committee's project on public dose assessment identified as a priority in its long-term strategic directions.[4]

A. Present programme of work

1. Selected evaluations of health effects and of risk inference due to radiation exposure

8. The UNSCEAR 2012 report, annex B entitled "Uncertainties in risk estimates for radiation-induced cancer", summarized the current methodologies to estimate health risks from exposure to ionizing radiation including their uncertainties.[5] A key finding was that it was necessary to go beyond purely statistical uncertainties and take into account other sources of uncertainty, for example those due to dose estimates or the model chosen for analysing epidemiological data.

9. At its sixty-second session, the Committee agreed to start work on evaluations of selected health effects and the inference of risk. Five scenarios had been developed for risk evaluation, based on literature reviews: leukaemia after medical computed tomography scans during childhood or adolescence; leukaemia after occupational exposure; solid cancer after occupational exposure; thyroid cancer after exposure during childhood or adolescence; and circulatory diseases after acute exposure. The reviews were carried out in line with the principles and criteria for ensuring the quality of the Committee's reviews of epidemiological studies of radiation exposure contained in the UNSCEAR 2017 report, annex A.[6] The expert group, in the draft presented to the Committee, considered uncertainties involved in the estimation of health effects and of risk inference. Quantitative risk estimates were based on major recent epidemiological studies of the effects of radiation on Western populations and on the effects per unit dose found among survivors of atomic bombings. Although much progress had been made since the previous session, the Committee noted that it needed more time to analyse the results for each scenario to complete the report. More in particular, the conclusions for the report would require additional discussions among members of the expert group. The Committee expected that the technical document would be submitted to the Committee at its sixty-sixth session with a view to approval and subsequent publication.

2. Lung cancer from exposure to radon and to penetrating radiation

10. The Committee assessed the effects of exposure to radon in homes and workplaces in UNSCEAR 2006 report, annex E,[7] in which it reiterated its assessment that inhalation of radon and its decay products was carcinogenic for the lungs. Since that last comprehensive evaluation, there have been many new scientific publications concerning this issue. Therefore, at its sixty-third session, the Committee agreed to thoroughly re-assess the literature with a view to clarifying and assessing recent developments in risk estimates for lung cancer from exposure to radon, and to convey an up-to-date picture of radon dosimetry.

11. The Committee discussed the draft progress report prepared by the expert group, which has received nearly 300 comments before the session. The Committee concluded that the report had evolved considerably since the previous session and decided to focus its attention on radon rather than on penetrating radiation. The

[4] See A/71/46, chap. II, sect. C.

[5] *Sources, Effects and Risks of Ionizing Radiation: United Nations Scientific Committee on the Effects of Atomic Radiation 2012 Report to the General Assembly*, annex B (United Nations publication, Sales No. E.16.IX.1).

[6] *Sources, Effects and Risks of Ionizing Radiation: United Nations Scientific Committee on the Effects of Atomic Radiation 2017 Report to the General Assembly*, annex A (United Nations publication, Sales No. E.18.IX.1).

[7] *Effects of Ionizing Radiation: United Nations Scientific Committee on the Effects of Atomic Radiation 2006 Report to the General Assembly*, vol. II, annex E (United Nations publication, Sales No. E.09.IX.5).

Committee then decided to reflect this change in the scope of the report and to change the title to “Lung cancer from exposure to radon”. The Committee proposed to invite epidemiological experts from additional countries to join the expert group to ensure direct access to recent epidemiological data. The Committee requested that further efforts be made to understand the combined effect of smoking and radon exposure on the risk of lung cancer from radon, as this was considered to be a very important question.

12. The Committee took note of the expert group’s preliminary summary, which indicated, inter alia, that the range of dose conversion factors found for radon in the dosimetry assessment was similar to that found by the Committee in the past. Preliminary estimates from epidemiological studies indicated that the excess relative risk was also in a similar range to that previously found by the Committee. However, additional epidemiological studies were still to be reviewed and considered as part of the ongoing work.

13. The Committee recognized that the results of the progress report were of general interest and were awaited by other United Nations organizations and many Member States. Therefore, an advanced version would be circulated to the relevant international organizations and the technical document would be presented to the Committee with a view to approval at its sixty-sixth session.

3. Biological mechanisms influencing health effects from low-dose radiation exposure

14. At its sixty-third session, the Committee decided to compile an up-to-date overview of current knowledge about the biological mechanisms by which radiation influences the development of disease, in particular at low incremental doses and dose rates; the implications for the dose-response relationships for health effects at low doses, and thus the relevance for estimating associated risks to health. An expert group was established that submitted two progress reports to the Committee, one at its sixty-fourth session and one at its sixty-fifth session.

15. The expert group is currently conducting scientific literature searches based on the UNSCEAR 2017 report, annex A,[6] and has developed an evaluation system. Although the technical document was still in its early stages, the Committee discussed it in detail and concluded that (a) the title should be changed to *Biological mechanisms relevant for the inference of low-dose radiation cancer risk* to reflect its purpose more accurately; (b) where relevant for the inference of cancer risk after low-dose and low-dose-rate exposure, the expert group should consider studies into higher and moderate doses in addition to those on low doses; (c) the sections should be re-ordered to reflect levels of biological organization, and each section should summarize current judgments of the Committee on each topic followed by a description of new evidence and an evaluation; (d) in the technical document, the expert group should also consider the repair of radiation damage to DNA, epigenetics and chromatin remodelling, effects on stem cells such as stem cell competition, epithelial-mesenchymal transformation, the potential cancer-promoting effects of radiation and signal transduction and cytokine responses; and (e) the phenomena of adaptive response, bystander effects, transmissible genomic instability and hyper-radiosensitivity should be covered in a single stand-alone section.

16. The Committee expected that, by its sixty-sixth session, the scientific literature searches would continue for publications relevant to each objective and each subsidiary issue that had been identified. Moreover, it expected to review, at its sixty-sixth session, a more mature draft technical document that focused, as decided previously, on significant changes since 2006 that might be relevant for the inference of cancer risk after low-dose exposure.

4. Assessments of human exposure to ionizing radiation

17. The Committee took note of the progress report by the secretariat on the collection, analysis and dissemination of data on radiation exposures of the public,

patients and workers, in particular the work presented on the scientific literature reviews and the increased number of data submissions from Member States. The Committee recognized the efforts of the secretariat in conducting outreach about this global effort, which had helped to increase the number of national contact persons nominated, and in fostering the production of a simplified questionnaire, which has had a positive impact on the number of data submissions. As of June 2018, 74 countries had nominated national contact persons, 45 countries had submitted data for the UNSCEAR Global Survey on Medical Exposure and 39 countries for the UNSCEAR Global Survey of Occupational Radiation Exposures. This was a significant increase in participation from 2017. However, significant gaps remained and the Committee requested the secretariat to approach Member States of the United Nations once again, and more in particular States members of the Committee that had not yet provided their data. The Committee also extended its deadline for data submission until September 2018.

18. The Committee supported the creation of a network of national contact persons, using the UNSCEAR online platform as a communication tool to exchange experiences gathered during the data collection process.

(a) Medical exposure to ionizing radiation

19. Given that radiation exposures of patients worldwide are the main artificial source of human exposure to ionizing radiation, that there is a continuing upward trend in population doses, and that the pace of technological development in this field continues to accelerate, the Committee's regular evaluations of population doses and trends continue to be a priority.

20. As of June 2018, 45 countries had submitted data about medical exposures. The Committee noted that 20 States members of the Committee had already submitted data. The Committee urged those states that had not yet done so to submit their data in the near future, and emphasized that if complete sets of data were not available, partial submissions could still be helpful.

21. The Committee recognized the work of the expert group on medical exposure in completing the systematic review of more than 500 publications, about 300 of which were identified as relevant to the Committee's evaluation of medical exposures. The Committee provided guidance to the expert group on a number of technical and editorial issues and encouraged its members to identify and provide relevant scientific literature in languages other than English.

22. Because the quality of the submitted data remained variable and the data were currently insufficient to allow any robust assessment of global practice, the Committee extended the collection of data until September 2018. The Committee also asked the secretariat to continue to approach national contact persons, in particular those of States members of the Committee and of countries with lower health-care levels, as such submissions were needed for a valid assessment of global practices.

(b) Occupational exposure to ionizing radiation

23. The Committee conducts evaluations of worldwide occupational exposure to provide information relevant for policy and decisions regarding the use and management of radiation, in particular: (a) to provide a reliable and comprehensive estimate of worldwide dose distributions and trends; (b) to provide insight into the main sources of exposure, the most significant exposure situations and the main factors influencing dose distributions and trends; (c) to facilitate the evaluation of the impact of new techniques or technologies and of regulatory changes; (d) to identify emerging issues and opportunities for improvement that may warrant more attention and scrutiny; (e) to provide authoritative information that can be used for communicating, formulating or underpinning policy and decisions; and (f) to provide insight into the reliability of the evaluations and identify areas for future research.

24. The Committee has conducted its evaluations of worldwide occupational exposure and trends based on two sources: data from the UNSCEAR Global Survey of Occupational Radiation Exposures; and reviews of analyses conducted and published by others. With respect to the first source, the secretariat has developed an online platform for data submission and in August 2016 launched a survey.[8] As of June 2018, 39 countries had submitted data for occupational exposures. At the time of writing the present report, the Committee anticipated that additional member States would do so in the course of 2018, which would improve the basis for and the quality of the analysis. The Committee decided to extend data collection until September 2018.

25. The Committee recognized the work performed by the expert group on occupational exposure. In a literature review of more than 500 articles, about 260 were identified as relevant for the evaluation. The expert group drafted a review based primarily on the data found in those 260 articles. Furthermore, the expert group described a model for assessing worldwide occupational exposures to ionizing radiation based on the data collected in the UNSCEAR survey and also described the uncertainties linked to that model.

26. The Committee reiterated its earlier recommendation, encouraging Member States of the United Nations to submit relevant national reports on or evaluations of occupational exposures to ionizing radiation to the secretariat, ideally including a short summary of the publication in English or another official language of the United Nations. Furthermore, the Committee asked to identify additional experts to help with the work of the expert group.

27. The Committee provided guidance to the expert group on the structure and the technical and editorial content of the technical document. For the sixty-sixth session, a more advanced technical document was expected that would include an analysis of the global survey data with appropriate projections based on those data.

(c) Public exposure to ionizing radiation

28. The Committee recalled that the proposal to evaluate public exposure to ionizing radiation was discussed at its sixty-fourth session. The Committee decided at that time to postpone the project until its evaluation on lung cancer from exposure to radon was completed and more extensive data on human exposures from natural sources in various parts of the world became available.

29. Exposures of the public from artificial sources in the environment are usually the smallest component (excluding accidents), and yet they are of considerable interest to Governments and civil society. The most significant database in this regard is the Database on Discharges of Radionuclides to the Atmosphere and the Aquatic Environment (DIRATA), developed by the International Atomic Energy Agency. As the name suggests, it contains information on atmospheric and aquatic discharges of radionuclides from nuclear and non-nuclear facilities where available. It has interfaces for reporting, editing and searching data. With regard to any future assessment of public exposure from such discharges, the Committee noted that the secretariat had held preliminary discussions with the International Atomic Energy Agency about finding the best methods to update and use the datasets.

5. Implementation of the public information and outreach strategy (2014–2019)

30. The Committee took note of a progress report by the secretariat on outreach activities, and acknowledged in particular the work done in Japan to disseminate the UNSCEAR 2013 report, annex A,[9] on the levels and effects of radiation exposure due to the accident at the Fukushima Daiichi nuclear power station, and the launch of the 2017 white paper on the developments and events since that report, such as outreach

[8] Available at www.survey.unscear.org.

[9] *Sources, Effects and Risks of Ionizing Radiation: United Nations Scientific Committee on the Effects of Atomic Radiation 2013 Report to the General Assembly,* annex A (United Nations publication, Sales No. E.14.IX.1).

events in Fukushima Prefecture and preparation and dissemination of material in Japanese.

31. The Committee welcomed the online publication of the United Nations Environment Programme updated booklet entitled “Radiation: effects and sources”, which was intended as a guide for the public. The booklet had appeared in the official languages of the United Nations and in five more languages. The Committee noted with appreciation the timely launch of the UNSCEAR 2017 report[6] and the white paper on the evaluation of data on thyroid cancer in regions affected by the Chernobyl accident, the secretariat’s outreach efforts to engage with wider audiences and the use of other media, such as United Nations Radio and social media, to further raise awareness of the Committee and its work.

32. The Committee also noted that while the General Assembly had encouraged the secretariat to continue to disseminate the findings to the public, and that activities conducted by the secretariat had demonstrable impact in this regard, this and other outreach activities would henceforth have to be curtailed because of lack of personnel in the secretariat and associated financial resources. The essential elements of the current strategy (2014–2019) are to further enhance the public website of UNSCEAR, to further develop appropriate printed media/outreach products, and to further enhance engagement with news media and other stakeholders. The strategy for public information and outreach activities over the next five years (2020–2024) will depend on the financial and human resources made available to the secretariat, in particular to improve awareness of the Committee’s findings with regard to the levels and effects of radiation exposure due to the accident at the Fukushima Daiichi nuclear power station.

B. Implementation of the Committee’s long-term strategic directions

33. The Committee recalled that at its sixty-third session it had considered its long-term strategic directions beyond the period covered by its present strategic plan (2014–2019), and had envisaged to direct its future work in specific scientific areas. It also recalled the possible need to implement a range of strategies that would support its efforts to serve the scientific community as well as wider audiences. These strategies were foreseen to include:

(a) Establishing standing working groups focused on areas such as sources and exposure, or health and environmental effects;

(b) Inviting, on an ad hoc basis, scientists from other States Members of the United Nations to participate in evaluations regarding the above areas;

(c) Increasing the Committee’s efforts to present its evaluations, and summaries thereof, in a manner that attracts readers without compromising scientific rigour and integrity;

(d) While maintaining its lead in providing authoritative scientific evaluations to the General Assembly, liaising closely with other relevant international bodies to avoid duplication of efforts to the extent possible.

34. The Committee also recalled that, in its resolution 72/76, the General Assembly had taken note of the report on the implementation of its long-term strategic directions, and encouraged the Committee, over its coming sessions, to continue to work towards implementing strategies to support its long-term efforts to serve the scientific community, as well as wider audiences.

(a) Establishing standing working groups focused on areas such as sources and exposure, or health and environmental effects

35. The Bureau, at the request of the Committee, had continued to develop the concept of operations, assessing the associated roles, responsibilities and resource

implications, for discussion at the sixty-fifth session (see conference room paper UNSCEAR/65/10).

36. The Committee endorsed the establishment, as a trial, of an ad hoc working group to assist the Bureau in developing a future programme of work on the effects of radiation exposure and the biological mechanisms by which they occur (2020–2024). The working group, to be known as the UNSCEAR ad hoc working group on mechanisms and effects, was to make recommendations in the Committee's priority areas based on the scientific insights of its members. Its mandate was to be in effect until the sixty-sixth session of the Committee, at which time the Committee would review the working group's functioning.

37. The ad hoc working group was expected to consist of individual expert scientists selected on the basis of their competence, commitment and objectivity. Each member would be screened by the Bureau, with support from the secretariat, to ensure that the working group had the breadth and depth of scientific expertise at its disposal to carry out its mandate. Furthermore, a Bureau member was to be appointed as chair. The task of the chair was to lead the working group and report to the Bureau.

38. The Committee emphasized that the ad hoc working group should hold intersessional meetings, principally by electronic means, and that the working group was to function at no cost to the United Nations, with the exception of the administrative support provided by the secretariat.

(b) Inviting, on an ad hoc basis, scientists from other States Members of the United Nations to participate in evaluations regarding the above areas

39. The Committee noted that the secretariat and the Bureau had already taken steps to involve scientists from other States Members of the United Nations in supporting the secretariat in conducting ongoing evaluations.

(c) Increasing the Committee's efforts to present its evaluations, and summaries thereof, in a manner that attracts readers without compromising scientific rigour and integrity

40. The Committee referred to the outreach activities reported in chapter II, section A, subsection 5, paragraphs 30 to 32 of the present report.

(d) While maintaining its lead in providing authoritative scientific evaluations to the General Assembly, liaising closely with other relevant international bodies to avoid duplication of efforts to the extent possible

41. The Committee also noted that the secretariat continued to liaise with other relevant organizations, in particular the International Atomic Energy Agency, the International Labour Organization, and the World Health Organization, for matters directly related to its programme of work. Through the Inter-Agency Committee on Radiation Safety, the Committee liaised with the same organizations as well as with other relevant international governmental and non-governmental organizations collectively to avoid duplication of efforts to the extent possible.

42. The Committee's findings are important, as they provide the scientific evidence on which the international community can base its decisions and develop safety standards. In the period following the Committee's sixty-fourth session, this was demonstrated in various ways, for example:

(a) The UNSCEAR 2013 report, annex A,[9] on the levels and effects of radiation exposure due to the accident at the Fukushima Daiichi nuclear power station, and the white papers of 2015, 2016 and 2017 on developments since that report, had a significant impact on the report of the panel established by the World Trade Organization to seek resolution of the dispute between Japan and the Republic of

Korea with regard to import bans, and testing and certification requirements for radionuclides;[10]

(b) The Commission on Safety Standards of the International Atomic Energy Agency considered what implications the UNSCEAR 2012 report, annex A, entitled "Attributing health effects to ionizing radiation exposure and inferring risks",[11] had for the development of the Agency's safety standards. The Commission acknowledged the importance of the report, which had informed new guidance on the retrospective attribution of radiation health effects, the prospective inference of health risks from radiation exposures, and the prediction of notional health effects for comparative purposes (such as use of collective effective dose), and ways to communicate about those;

(c) The report of the Secretary-General on optimizing the international effort to study, mitigate and minimize the consequences of the Chernobyl disaster (A/65/341) highlighted the importance of the Committee's scientific evaluation for the United Nations Inter-Agency Task Force on Chernobyl, in that it had optimized the international effort to study, mitigate and minimize the consequences of the Chernobyl disaster. Achim Steiner, Chair of the Task Force, highlighted at a Task Force meeting on 11 April 2018 the Committee's recent white paper on the evaluation of data on thyroid cancer in regions affected by the Chernobyl accident as an important update to better understand new knowledge.

C. Future programme of work

43. In discussing the future programme of work, the Committee recalled the decisions taken at its sixty-fourth session. On that occasion, the Committee requested the Bureau to foster the development and implementation of project plans on second primary cancers after radiotherapy and on epidemiological studies of radiation and cancer, in line with the guiding principles of the Committee and the processes in place to ensure quality evaluations, giving due consideration to the capacity of both the Committee and its secretariat and the foreseeable voluntary contributions to the general trust fund established by the Executive Director of the United Nations Environment Programme. Also at its sixty-fourth session, the Committee requested that a project plan be developed for consideration at its sixty-fifth session to update the UNSCEAR 2013 report, annex A,[9] on the levels and effects of exposure due to the accident at the Fukushima Daiichi nuclear power plant.

44. The project plan for a revision of the UNSCEAR 2013 report, annex A,[9] had been developed, and contributions to the general trust fund had been made to support this work based on a plan to produce a report by the tenth anniversary of the accident, in 2021. The Committee decided to better focus the project proposal and to sum up the findings made since the accident. A part of the trust fund will be used for hiring staff at the secretariat to perform the outreach, administrative, managing and editing tasks related to this project.

45. As a consequence of the delays in the appointment of a new Scientific Secretary and its compromised staffing situation, the secretariat was unable to make progress with the project plans on second primary cancers after radiotherapy and on epidemiological studies of radiation and cancer. Bearing in mind the secretariat's limited capacity, the Committee requested the Bureau to fulfil the following tasks with the support of the ad hoc working group on developing the 2020–2024 programme of work on mechanisms and effects associated with radiation exposure: (a) further development of the project proposals; (b) drafting of job profiles for experts; and (c) identification of experts. The Committee emphasized that the project on second primary cancer after radiation therapy was a priority. However, the

[10] See World Trade Organization, "DS495: Korea — Import bans, and testing and certification requirements for radionuclides", 27 June 2018.

[11] UNSCEAR 2012 report, annex A (see footnote 5).

preliminary work could not be started until a Scientific Secretary had been appointed. A group of experts would then be tasked with drafting an extended structure of the planned technical document for consideration by the Committee at its sixty-sixth session.

46. The UNSCEAR ad hoc working group on mechanisms and effects was tasked with evaluating candidate topics for new projects, such as radiation-induced diseases of the circulatory, immune and respiratory systems, and cataracts against the five criteria listed in conference room paper UNSCEAR/65/10. A systematic analysis would be carried out of possible gaps in the programme of work.

D. Administrative issues

47. The Committee took note of General Assembly resolution 72/76 on the effects of atomic radiation, in which the Assembly:

(a) Requested the United Nations Environment Programme to continue, within existing resources, to service the Committee and to disseminate its findings to Member States, the scientific community and the public and to ensure that the administrative measures in place were appropriate, including clear roles and responsibilities of the various actors, so that the secretariat was able to adequately and efficiently service the Committee in a predictable and sustainable manner and effectively facilitate the use of the invaluable expertise offered to the Committee by its members in order that the Committee may discharge the responsibilities and mandate entrusted to it by the General Assembly;

(b) Requested the United Nations Environment Programme, in view of the resignation of the current Secretary of the Committee, to take proactive steps to ensure continuity in the Committee secretariat through the timely appointment of the next Secretary.

48. The Committee noted that the United Nations Environment Programme had not complied with these requests.

49. In the resolution, the General Assembly encouraged the Secretary-General to ensure that support for the Committee was appropriate, sufficient and, where necessary, strengthened, within existing resources, particularly with regard to the deputization of the Secretary and the avoidance of disruptions in staffing, and to report to the General Assembly at its seventy-third session on these issues.

50. In considering the requests of the General Assembly to the United Nations Environment Programme, the Committee recalled that its previous Scientific Secretary had, in January 2017, tendered his resignation with effect from November 2017. The United Nations Environment Programme did not launch the recruitment process until 25 July 2017. Even though the recruitment process had gone through two rounds, it had still not been concluded at the time of the sixty-fifth session of the Committee, in June 2018. The Committee stated that the appointment forthwith of a Scientific Secretary with the highest standard of scientific qualifications and experience had now become critical to its operation and to the implementation of the future programme of work (in particular as it related to second primary cancers, the report to be issued on the occasion of the tenth anniversary of the accident at the Fukushima Daiichi nuclear power plant and epidemiological studies of radiation and cancer).

51. The Committee agreed to request an internal audit and investigation by the Office of Internal Oversight Services at United Nations Headquarters in New York to ensure that the appointment of the Scientific Secretary (a) was based on the governing principles for the Committee's work that were, by extension, applicable to the Secretary of the Committee; [12] and (b) in line with paragraph 3 of article 101 of the

[12] The governing principles state: "The value to the international community of the Committee's scientific evaluations is dependent on the scientific rigour by which they are undertaken, but also

United Nations Charter.[13] The Secretary was frequently called upon by the Bureau to represent the Committee at international meetings and conferences to ensure that the value, credibility and scientific integrity of the Committee was maintained, and it was reasonable to expect the Secretary to have the scientific qualifications and experience expected from the members of the Committee.

52. The Committee expressed its serious concern about the consequences of the delays in appointing a new Scientific Secretary and of the staffing problems at the secretariat. Furthermore, the delays in recruiting a new Scientific Secretary had already forced the Committee to postpone its sixty-fifth session from April to June 2018. Not having a Scientific Secretary in place by the opening of the session severely hampered the discussion of the Committee's future programme of work.

53. The Committee recalled that the General Assembly, in its resolution 72/76, had requested the United Nations Environment Programme to strengthen the support and service to the Committee and to ensure that appropriate administrative measures were in place, including clear roles and responsibilities for United Nations Headquarters, the United Nations Office Nairobi and the United Nations Office at Vienna. In its resolution, the General Assembly had also encouraged the Secretary-General to ensure that support for the Committee was appropriate, sufficient and, where necessary, strengthened, particularly with regard to the deputization of the Secretary to avoid disruptions in staffing at the secretariat and to report to the General Assembly at its seventy-third session on these issues.

54. The General Assembly had frequently noted the deep concerns of the Committee with regard to the staffing at the secretariat, namely in its resolutions 62/100, 63/89, 65/96 and 66/70, and had emphasized the vital need for sufficient, assured and predictable funding, and efficient management of the work of the secretariat of the Committee to arrange the annual sessions and coordinate the development of technical documents based on scientific reviews of the sources of ionizing radiation and its effects on human health and the environment. The Secretary-General in his report on the financial and administrative implications of increased membership of UNSCEAR, staffing of the professional secretariat of UNSCEAR and methods to ensure sufficient, assured and predictable funding (A/63/478) also noted that staffing was one of the points that had to be addressed in anticipation of possible increases in membership, and noted that such resources were necessary to support the work of the Committee.

55. Given the need to maintain the quality of its work at the required level, in particular its work to develop exposure databases and to improve the dissemination of its findings to the public, and given the inadequacy of the United Nations budget for conducting its full programme of work, the Committee recognized that regular pledges of voluntary contributions to the general trust fund established by the Executive Director of the United Nations Environment Programme were pivotal. The Committee suggested that the General Assembly urge Member States to consider making such regular pledges of voluntary contributions or to make contributions in kind.

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on the credibility and scientific integrity of the membership of the Committee. Representatives to the Committee, their alternates and their advisers do not bear any bias or conflict of interest. It is acknowledged that such bias or conflict of interest would greatly undermine the credibility of the Committee's scientific evaluations and reduce their value to the international community. Representatives to the Committee, their alternates and their advisers … are nominated by Governments on the basis of their scientific qualifications and experience, and are to perform scientific evaluations in accordance with established scientific procedures and values. They are to have sustainable in-depth knowledge on a broad range of relevant scientific and technical issues, stay abreast of scientific developments, foster effective support nationally, apply sound judgment, and to communicate the implications of their reviews."

[13] Paragraph 3 of Article 101 of the Charter states: "The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence and integrity. Due regard shall be paid to the importance of recruiting staff on as wide a geographical basis as possible."

56. The Committee agreed to hold its sixty-sixth session in Vienna from 10 to 14 June 2019. It decided to postpone the election of new officers to guide the Committee at its sixty-sixth and sixty-seventh sessions until the beginning of the sixty-sixth session.

Appendix

Communication dated 13 July 2018 from the Chair of the United Nations Scientific Committee on the Effects of Atomic Radiation to the Under-Secretary-General for Internal Oversight Services

I am approaching you in my capacity as Chair of the United Nations Scientific Committee on the Effects of Atomic Radiation to inform you of recent developments and ask you to take action with regard to (a) the recruitment of the new Scientific Secretary (D1) of the Committee; and (b) the administrative arrangements in place to operate the secretariat of the Committee under the auspices of the United Nations Environment Programme.

As you know, the Committee is a subsidiary body of the General Assembly that collects and evaluates information on the levels and effects of ionizing radiation on human health and on the environment. Its members are the authorized representatives of States Members of the United Nations. In its resolution 35/12, the General Assembly commended the Committee for its scientific authority and independence of judgment. The Committee's findings are published as scientific annexes to its reports to the General Assembly. The scientific annexes are essential to maintaining a globally harmonized radiation protection system, as they are used in formulating recommendations for radiation protection. They constitute the source material for Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards,[1] issued by the International Atomic Energy Agency and co-sponsored by eight international organizations, including the International Labour Organization, the United Nations Environment Programme and the World Health Organization. Furthermore, the Committee has conducted key assessments of the consequences of the nuclear accidents in Chernobyl (1986) and in Fukushima (2011) in several scientific annexes and white papers.[2] The Committee currently consists of scientists from 27 States Members and might expand its membership in the near future. However, a major portion of its work is done on a voluntary and in-kind basis by hundreds of scientists all over the world. Its small secretariat, based in Vienna and consisting of its Secretary, its Scientific Officer and two assistants, coordinates the work and submits it to scientific scrutiny so that the Committee can examine quality-assured scientific reports at its annual sessions.

Although the previous Scientific Secretary tendered his resignation in January 2017 with effect from November 2017, the United Nations Environment Programme did not start the procedure to recruit a successor until 25 July 2017.[3] After facing difficulties in finding suitable female candidates, a second recruitment procedure was launched on 22 November 2017.[4] The two selection procedures took six months each to complete and resulted in the same two male candidates being selected (both of them well-qualified), with the addition of a female candidate for the second procedure. However, after additional vetting, the female candidate could no longer be considered for the post. The United Nations Environment Programme then disregarded the results of the two selection procedures because of concerns about the gender balance. Meanwhile, the Committee was informed that some very well-qualified female candidates had applied and had been ignored in the two selection rounds. At its sixty-fifth session, which had to be postponed by two months and was eventually held from 11 to 14 June 2018, the Committee noted that the present situation was severely hampering its programme of work and that work on major reports was being affected

[1] Available at http://www-ns.iaea.org.

[2] Available at http://www.unscear.org under "Publications".

[3] 17-Programme Management-UNEP-81892-R-Vienna (R) opened on 25 July 2017 and cancelled on 16 November 2017.

[4] 17-Programme Management-UNEP-88909-R-Vienna (R) opened on 22 November 2017 and still under consideration.

or could not even be started. The Committee requested the United Nations Environment Programme to appoint one of the male candidates, as they both fulfilled the selection criteria and had successfully passed the written tests and interviews twice. The United Nations Environment Programme reacted to the Committee's criticism, documented in conference room papers[5] at the plenary and closing meetings of the session and in the Committee's report to the General Assembly (to be published as A/73/46) by launching a third recruitment procedure on 11 June 2018.[6] However, that procedure was cancelled immediately due to the strong protest the Committee uttered during its session, which was attended by a representative of the United Nations Environment Programme. Nonetheless, the management of the United Nations Environment Programme, disregarding the Committee's request, opened a fourth recruitment procedure on 18 June 2018, almost as soon as the Committee's session had closed.[7]

The ongoing third/fourth recruitment procedure is expected to take another six months and will not guarantee an impartial selection process. Striving for gender balance is an important principle at the United Nations, one that the Committee supports strongly. The past two selection rounds have taken due account of this by having a female candidate in the final short list and by interviewing six female candidates during the two selection rounds. At the same time, the recruitment of United Nations staff must be carried out in accordance with the Staff Regulations and Rules of the United Nations and Article 101, paragraph 3, of the Charter of the United Nations, which merely states: "the paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence, and integrity".

I strongly suspect that management at the United Nations Environment Programme has conflicts of interest resulting in manipulation of the selection process, which makes trusting in its procedure difficult. The results of the second recruitment procedure ought to be investigated, while the ongoing third/fourth recruitment procedure raises serious questions about the process and should, therefore, be annulled immediately to allow an investigation or inspection with a view to stopping possible misconduct that would certainly undermine the effectiveness of the Committee and its secretariat and that might undermine the effectiveness, credibility and integrity of the United Nations as a whole.

I am not surprised that the United Nations Environment Programme is not complying with paragraphs 15 and 16 of General Assembly resolution 72/76, in which the Assembly requested "in view of the resignation of the current Secretary of the Scientific Committee, to take proactive steps to ensure continuity in the Committee secretariat through the timely appointment of the next Secretary" and "to ensure that the administrative measures in place are appropriate, including clear roles and responsibilities of the various actors [in Vienna, Nairobi and New York], so that the secretariat is able to adequately and efficiently service the Committee in a predictable and sustainable manner". The reason I am not surprised is that the Committee and its secretariat have suffered for many years from passive neglect, regrettable ignorance, continued inattention and fundamental lack of continuity in support on the part of the United Nations Environment Programme. These words were used by the two former Scientific Secretaries, who both resigned to state their disagreement and disappointment with the United Nations Environment Programme, which has been entrusted with the administration of the Committee's secretariat. In fact, it is difficult to believe how inefficiently and negligently the United Nations Environment Programme has handled the recruiting of the Scientific Secretaries in the past. In 1999, after the departure of the Scientific Secretary of the time, it took more than 20 months to fill the position. The delay resulted in the secretariat having inadequate financial resources and in the postponement of the fifty-first session of the Committee

[5] CRP/UNSCEAR/65/5, CRP/UNSCEAR/65/20 and CRP/UNSCEAR/65/22.

[6] 18-Programme Management-UNEP-99020-R-VIENNA (R) opened on 11 June and cancelled on 12 June 2018.

[7] 18-Programme Management-UNEP-99312-R-VIENNA (R) opened on 18 June 2018 and still open.

for more than a year, to January 2003.[8] In 2005, the fifty-third session of the Committee was postponed from May to September because of the late appointment of the new Scientific Secretary.[9] And in 2018, the sixty-fifth session was postponed from April to June for the same reason. This shows that the current dereliction of duty by the United Nations Environment Programme is no exception and that the inexcusable lack of attention for the needs of the Committee seems to be chronic. It was for that reason that, in its resolution 72/76, paragraph 17, the General Assembly encouraged the Secretary-General to report to the Assembly at its seventy-third session, in 2018, on the support provided for the Scientific Committee, particularly with regard to the avoidance of disruptions in staffing at the secretariat.

In conclusion, the Committee, at its sixty-fifth session, unanimously agreed to request the Office of Internal Oversight Services (a) an investigation or inspection into the process to recruit the Scientific Secretary to ensure that the successful candidate is selected on the basis of scientific qualifications and credibility, and that the process is aligned with Article 101, paragraph 3, of the United Nations Charter; and (b) an internal audit or evaluation to clarify whether the United Nations Environment Programme is the most appropriate body to serve the Committee in the future.

Your timely consideration of this request will be much appreciated, as the issues raised here will be discussed at the Fourth Committee in October 2018 when it considers our 2018 report (A/73/46).

Yours sincerely,

Hans Vanmarcke

Chair, United Nations Scientific Committee

on the Effects of Atomic Radiation

[8] See A/56/46 and A/57/46.

[9] See A/60/46.