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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
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Draft report

Addendum

XI. Use of nuclear power sources in outer space

1. In accordance with General Assembly resolution 78/72, the Subcommittee considered agenda item 14, entitled "Use of nuclear power sources in outer space".

2. The representatives of China, France, Indonesia, Mexico, the Russian Federation, the United Kingdom and the United States made statements under agenda item 14. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

3. The Subcommittee had before it the following documents:

(a) Draft implementation plan to achieve the objectives of the Working Group on the Use of Nuclear Power Sources in Outer Space under its five-year workplan for the period 2024–2028, prepared by the Chair of the Working Group on the Use of Nuclear Power Sources in Outer Space (A/AC.105/C.1/L.413);

(b) Conference room paper submitted by the United States entitled "Evolution of NASA's Nuclear Flight Safety program to infuse risk leadership and assurance framework concepts" (A/AC.105/C.1/2024/CRP.22);

(c) Conference room paper submitted by ESA entitled "Implementation of the guidelines from the international Safety Framework for Nuclear Power Source Applications in Outer Space for ESA space missions – preliminary Nuclear Launch Safety Authorisation Process (NLSAP)" (A/AC.105/C.1/2024/CRP.24);

(d) Conference room paper submitted by the Chair of the Working Group on the Use of Nuclear Power Sources in Outer Space entitled "Draft questionnaire containing a preliminary set of questions to collect information under the objectives of the workplan of the Working Group on the Use of Nuclear Power Sources in Outer Space" (A/AC.105/C.1/2024/CRP.31).

4. The Subcommittee welcomed the fact that the content and requirements of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and of the Safety Framework for Nuclear Power Source Applications in Outer Space jointly developed by the Subcommittee and IAEA, represented a comprehensive foundation to ensure the safe and responsible use of nuclear power sources in outer space and

were being taken into account by States and international intergovernmental organizations in developing legal and regulatory instruments for the safe use of nuclear power sources in outer space.

5. The view was expressed that the joint application of the Principles and the Safety Framework remained a sufficient and valuable tool for States and international intergovernmental organizations in their efforts to develop and use space nuclear power sources while fully respecting safety measures. The delegation expressing that view was also of the view that at the moment there was no need to revise either the Principles or the Safety Framework.

6. Some delegations expressed the view that space nuclear power source applications had been used in the exploration of space since the dawn of the space age, enabling missions of scientific discovery to destinations across the solar system, opening up the solar system to exploration and allowing the observation and understanding of dark, distant planetary bodies that would otherwise be unreachable. Similarly, embarking on a new era for space exploration depended on mass-efficient, high-energy solutions to power deep-space vehicles, operate in harsh environments and increase mission flexibility. As such, the use of nuclear power sources for the in-space propulsion of spacecraft offered potential with regard to crew and cargo missions to the Moon, Mars and beyond, and scientific missions to the outer solar system, enabling faster and more robust human and robotic missions.

7. The view was expressed that, at a time when deep-space exploration had become an increasingly topical issue, as evidenced by a number of space missions and projects, commitment to promoting the highest safety and security standards for the use of nuclear power source applications in outer space should remain the key priority. The delegation expressing that view recalled that in the preamble of General Assembly resolution 47/68, in which the Assembly adopted the Principles, it is stated that nuclear power sources were particularly suited to and even indispensable for certain deep-space exploration missions but must be used responsibly and in strict compliance with the highest standards of safety and security.

8. The Subcommittee noted that international cooperation was essential for sharing knowledge, understanding and best practices, acquired by States and international intergovernmental organizations using nuclear power source applications, on the implementation of the Principles and the Safety Framework. In that regard, the Subcommittee welcomed the work of the Working Group on the Use of Nuclear Power Sources in Outer Space under its new five-year workplan for 2024–2028 and under the able chairmanship of Leopold Summerer (Austria).

9. The Subcommittee further noted that the Working Group provided an important mechanism for the sharing of information in order to promote the further understanding and awareness of effective processes to ensure the safe use of nuclear power in space by conducting its work under the three core objectives of the five-year workplan, namely: (a) promote and facilitate the implementation of the Safety Framework for Nuclear Power Source Applications in Outer Space (objective 1); (b) collect and analyse relevant technical information about potential future uses of nuclear power sources in outer space, in particular those involving nuclear reactors (objective 2); and (c) discuss the implications of the analysis described in objective 2 with respect to further work of the Working Group and recommend suitable actions to the Subcommittee (objective 3).

10. The Subcommittee further noted that it was important for the Working Group, with a view to advancing its objectives under the five-year workplan, to invite more member States and international intergovernmental organizations, in particular IAEA, to join the Working Group and share their views, plans and experiences, and for the Working Group to agree on appropriate activities to collect information on potential future uses of nuclear power sources in outer space. Those efforts should also involve States wishing to acquire nuclear power source capabilities in the near future.

11. The view was expressed that there was a need for further work on the safety aspects of space systems using nuclear power sources, in particular nuclear fission reactors and new types and uses of radioisotope power systems. The delegation expressing that view was also of the view that the Working Group, under its new workplan, should consider those areas of work and explore viable options for gathering information and for the exchange of knowledge, including with private commercial entities.

12. The view was expressed that the safety of humans and the environment should remain the highest priority when nuclear power source applications were used in outer space.

13. The view was expressed that research on the development and use of nuclear power sources in outer space should remain closely aligned with the current objectives of the Working Group. The delegation expressing that view recalled the provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967, and reiterated the importance of carrying out space activities exclusively for peaceful uses.

14. The Working Group on the Use of Nuclear Power Sources in Outer Space held four meetings. At its […] meeting, on 9 February, the Subcommittee endorsed the report of the Working Group, which is contained in annex III to the present report.