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

III. Space technology for sustainable socioeconomic development

1. In accordance with General Assembly resolution 75/92, the Subcommittee considered agenda item 5, entitled "Space technology for sustainable socioeconomic development".

2. The representatives of Algeria, China, Cuba, France, India, Indonesia, Italy, Japan, Mexico, Pakistan, Peru, the Russian Federation, Thailand and Venezuela (Bolivarian Republic of) made statements under agenda item 5. The observer for CANEUS International also made a statement under the item. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Educational platform for space science and technology", by the representative of Egypt;

(b) "WildTrackCube-SIMBA, an experimental university-class CubeSat for efficient wildlife tracking in Kenya", by the representative of Italy;

(c) "Advancing Philippine space technology and applications for sustainable socioeconomic development", by the representative of the Philippines;

(d) The commercial space industry in Africa and its readiness for innovation-driven investment: the space generation's view", by the observer for SGAC.

4. The Subcommittee had before it the following:

(a) Conference room paper on the status and outlook of the Space4Water project of the Office for Outer Space Affairs: three years of Space4Water (A/AC.105/C.1/2021/CRP.5);

(b) Conference room paper entitled "Access to Space for All initiative: opportunities, achievements and the way forward beyond 2020" (A/AC.105/C.1/2021/CRP.15).

5. The Subcommittee noted that the World Space Forum held in December 2020, on the theme “Space for our future”, had been organized jointly by the Office for Outer Space Affairs and the United Arab Emirates Space Agency and that the Forum had been instrumental in bringing together stakeholders from the broader space community, including from governmental institutions, international intergovernmental organizations and non-governmental organizations, as well as industry, the private sector and academia.

6. The Subcommittee noted the value of space technology and applications, as well as of space-derived data and information, to sustainable development, including in terms of improving the formulation and subsequent implementation of policies and programmes of action relating to environmental protection, land and water management, the development of degraded land and wastelands, urban and rural development, marine and coastal ecosystems, health care, climate change, disaster risk reduction and emergency response, energy, infrastructure, navigation, transport and logistics, rural connectivity, seismic monitoring, natural resources management, snow and glaciers, biodiversity, agriculture and food security.

7. The Subcommittee also noted, in that context, the information provided by States on their use of space-based platforms and satellite systems in support of sustainable socioeconomic development, as well as actions and programmes aimed at increasing society’s awareness and understanding of the applications of space science and technology for meeting development needs, and on cooperation activities aimed at building capacity through education and training on the use of space science and technology applications for sustainable development.

8. The Subcommittee noted that the Committee, and its subcommittees, with the support of the Office for Outer Space Affairs, had a fundamental role to play in promoting international cooperation and capacity-building in support of socioeconomic development.

9. The view was expressed that developed countries should share the benefits of space technology with developing countries at a faster pace to ensure the optimum utilization of such technology for the benefit of all humankind.

10. The Working Group of the Whole was reconvened with Raman Umamaheswaran (India) as Chair, in accordance with paragraph 5 of General Assembly resolution 75/92. At its […] meeting, on [,,,] April 2021, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

IX. Near-Earth objects

11. In accordance with General Assembly resolution 75/92, the Scientific and Technical Subcommittee considered agenda item 11, entitled “Near-Earth objects”.

12. The representatives of Canada, China, Iran (Islamic Republic of), Israel, Italy, Japan, Mexico and the United States made statements under agenda item 11. Statements were also made by the observers for IAWN and SMPAG. During the general exchange of views, statements relating to the item were made by representatives of other member States.

13. The following presentations were made under the item:

(a) “Achievements of Hayabusa2: unveiling the world of asteroids through interplanetary round-trip technology”, by the representative of Japan;

(b) “Near-Earth space observation activity of Ukraine in 2020”, by the representative of Ukraine.

14. The Subcommittee had before it a conference room paper containing a summary by SMPAG of the report of its Ad-Hoc Working Group on Legal Issues on the topic “Planetary defence: legal overview and assessment” (A/AC.105/C.1/2021/CRP.10).

15. The Subcommittee heard status reports by IAWN and SMPAG and noted with appreciation the efforts being made by those entities to share information with regard to discovering, monitoring and physically characterizing potentially hazardous near-Earth objects and with regard to potential mitigation efforts by space missions, in order to ensure that all nations, in particular developing countries with limited capacity to predict and mitigate the impacts of near-Earth objects, were aware of potential threats.

16. The Subcommittee noted that nearly 39.5 million observations of asteroids and comets had been collected in 2020 by the worldwide network of astronomical observatories, based in more than 40 countries. It also noted that the number of known near-Earth objects had exceeded 25,647 as at 17 April 2021, of which a record number of 2,959 such objects had been discovered in 2021, with 2,180 asteroids currently catalogued, whose orbits had brought them within 8 million kilometres of Earth's orbit. In that regard, the Subcommittee also noted that, despite those numbers, it was estimated that only about 40 per cent of the near-Earth objects of significant size had been identified.

17. The Subcommittee noted the further progress and milestones achieved in asteroid observation missions. For example, the samples from the JAXA sample return mission Hayabusa2 had been brought back to Earth successfully in December 2020 in an amount greatly exceeding the target yield, and the Hayabusa2 mission had extended its mission to explore asteroid 1998 KY26.

18. The Subcommittee noted that the sample return mission OSIRIS-REx of the National Aeronautics and Space Administration (NASA) of the United States, an international mission carried out in cooperation with Canada, France and Japan, had successfully completed its sample collection from the surface of the asteroid Bennu in October 2020 and would deliver the sample to Earth in 2023.

19. The Subcommittee noted that the comet NEOWISE had been discovered by the NEOWISE mission of NASA on 27 March 2020 and had become visible to the naked eye in the summer of 2020, putting on a dazzling display for both astronomers and the public worldwide.

20. The Subcommittee noted a number of national efforts and activities aimed at developing capabilities in the discovery, observation, early warning and mitigation of potentially hazardous near-Earth objects, and also noted that it was important to strengthen international collaboration and share information in that regard so that all countries, in particular those with limited capacity for predicting and mitigating the impacts of near-Earth objects, were aware of potential threats. In that regard, the Subcommittee noted the importance of contributing to the work of IAWN and SMPAG.

21. The Subcommittee noted that the IAWN steering committee had held its twelfth meeting on 30 and 31 March 2021. There were currently 30 signatories to the IAWN Statement of Intent, representing observatories and space institutions in Brazil, Canada, China, Colombia, Croatia, France, Italy, Israel, Latvia, Mexico, the Republic of Korea, the Russian Federation, Spain, the United Kingdom and the United States, as well as European international organizations.

22. The Subcommittee noted that, from late 2020 until the first quarter of 2021, IAWN had conducted a coordinated campaign to observe the potentially hazardous asteroid 99942 Apophis, as a last opportunity before 2029, when 99942 Apophis would come to within 40,000 km of Earth, representing the first observed approach of such a large asteroid (approximately 340 meters in diameter) at such a close distance. In that regard, the Subcommittee noted that the campaign had been intended to test global observation and modelling capabilities, with contributions by the signatories to the IAWN Statement of Intent and others, and that, in addition, radar observations during the campaign had helped to determine that 99942 Apophis posed no threat of impacting Earth in the next century and that it could therefore be removed from the ESA and NASA risk lists.

23. The Subcommittee also noted that, should a credible threat of impact be identified by the worldwide network of astronomical observatories, the best information available on that threat would be provided by IAWN and disseminated to all Member States through the Office for Outer Space Affairs.

24. The Subcommittee noted that, since the previous session of the Subcommittee, SMPAG had held two meetings, its fifteenth meeting, on 24 September 2020, and its sixteenth meeting, on 24 and 25 March 2021, which had been chaired by ESA and supported by the Office for Outer Space Affairs, as the secretariat to SMPAG, pursuant to General Assembly resolution 71/90. The Subcommittee was informed of the progress made in the work of SMPAG, as contained in the summary reports of the meetings (available at www.smpag.net).

25. The Subcommittee noted that SMPAG currently had 19 members and six permanent observers, and invited others who wished to contribute to the work of SMPAG to express their interest in becoming SMPAG members by addressing a letter to the Chair of SMPAG, also providing a copy to the SMPAG secretariat.

26. The Subcommittee noted that SMPAG, at its fifteenth and sixteenth meetings, had exchanged information on the ongoing and planned activities of its members related to planetary defence, at both the technical and the policy level, and had been briefed on, inter alia, the ongoing sample return missions Hayabusa2 and OSIRIS-REx, as well as on the Double Asteroid Redirection Test (DART) mission of NASA and the Hera mission of ESA, the first missions ever undertaken to test the viability and efficiency of the use of a kinetic impactor as a technique for deflecting near-Earth objects. In addition, SMPAG had agreed on a statement in support of small-class, high-velocity flyby missions to small bodies for planetary defence purposes.

27. The Subcommittee noted that SMPAG had proposed the idea of performing an exercise aimed at testing its real-world capabilities to support planetary defence in the case of an actual threat, and that the Italian Space Agency would organize a splinter meeting to evaluate the proposal, define timelines for the exercise and identify contributing agencies.

28. The Subcommittee noted that the seventh International Academy of Astronautics (IAA) Planetary Defence Conference would be held in a virtual format from 26 to 30 April 2021, in conjunction with the current session of the Subcommittee, and would be hosted by the Office for Outer Space Affairs, in cooperation with ESA, and that the eighth IAA Planetary Defence Conference was planned to be hosted by the Office for Outer Space Affairs at the Vienna International Centre in 2023, in cooperation with its partners and the host country, Austria.

29. The Subcommittee noted that the next meeting of the IAWN steering committee was planned to be held in October 2021 in a virtual format, and that the next meeting of SMPAG was planned to be held on 13 and 14 October 2021 in a virtual format.