



# General Assembly

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**Committee on the Peaceful  
Uses of Outer Space  
Scientific and Technical Subcommittee  
Fifty-ninth session  
Vienna, 7–18 February 2022**

## Draft report

### II. United Nations Programme on Space Applications

1. In accordance with General Assembly resolution [76/76](#), the Subcommittee considered agenda item 5, entitled “United Nations Programme on Space Applications”.
2. The representatives of China, India, Indonesia, Japan and the Russian Federation made statements under agenda item 5. 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) “Capacity-building activities in geospatial technologies in India”, by the representative of India;
  - (b) “Global school student small satellites”, by the observer for CANEUS International.
4. The Subcommittee had before it the following:
  - (a) Report on the United Nations/Austria Symposium on Space Applications for Food Systems, held online from 7 to 9 September 2021 ([A/AC.105/1254](#));
  - (b) Report on the United Nations/United Arab Emirates/International Astronautical Federation Workshop on Space Technology for Socioeconomic Benefits, on the theme “Space exploration: a source of inspiration, innovation and discovery”, held in Dubai, United Arab Emirates, from 22 to 24 October 2021 ([A/AC.105/1256](#));
  - (c) Conference room paper entitled “The Space4Water project: community-building” ([A/AC.105/C.1/2022/CRP.15](#)).

#### A. Activities of the United Nations Programme on Space Applications

5. The Subcommittee recalled that the General Assembly, in its resolution [76/76](#), had recognized the capacity-building activities under the United Nations Programme on Space Applications, which provided unique benefits for Member States, in particular developing countries, participating in those activities.



6. At the 955th meeting, on 7 February, the Director of the Office for Outer Space Affairs apprised the Subcommittee of the status of the Office's activities under the United Nations Programme on Space Applications.
7. The Subcommittee noted with appreciation that, since its previous session, cash and in-kind contributions, including the provision of staff on a non-reimbursable loan basis, had been offered for the activities of the Office by the following donors: Airbus Defence and Space; Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology and Federal Ministry for European and International Affairs of Austria; Avio S.p.A; Brazilian Air Force; Centre for Applied Space Technology and Microgravity; China Manned Space Agency; China National Space Administration; ESA; Government of France; City of Graz, Austria; Graz University of Technology, Austria; Institute of Astrophysics of the Canary Islands, Spain; IAU; Japan Aerospace Exploration Agency (JAXA); Joanneum Research; Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences; Kyushu Institute of Technology, Japan; PSIPW; Sierra Nevada Corporation; and Government of the United States.
8. The Subcommittee noted that the capacity-building activities under the United Nations Programme on Space Applications provided unique benefits to Member States participating in those activities, in particular developing countries. The Subcommittee also noted that the availability of webinars and videos of activities that were accessible through online platforms delivered under the Programme increased the capabilities of developing countries to access and use space technologies and to strengthen long-term fellowships in space science and technology education.
9. The Subcommittee noted that the United Nations Programme on Space Applications had enabled national programmes on space applications to disseminate information and knowledge to a wider audience and achieve greater national development. The Subcommittee also noted that national institutional mechanisms driven by user requirements could facilitate the development of programmes to ensure socioeconomic security, promote sustainable development and the responsible use of natural resources, improve governance and support disaster risk reduction.
10. The Subcommittee noted that under the Basic Space Technology Initiative, and in cooperation with the Office for Outer Space Affairs, the Kyushu Institute of Technology continued to offer students from developing countries opportunities to participate in the "Post-Graduate Study on Nanosatellite Technology" fellowship programme.
11. The Subcommittee noted the Drop Tower Experiment Series, a fellowship programme of the Office for Outer Space Affairs undertaken in collaboration with the Centre for Applied Space Technology and Microgravity and the German Aerospace Center (DLR), in which students could study microgravity by performing experiments in a drop tower. In the seventh cycle of the fellowship programme, a team from Universidad Católica Boliviana, Plurinational State of Bolivia, had been awarded the fellowship through a competitive selection process and was expected to conduct its experiment in 2022.
12. The Subcommittee noted that CubeSats developed by teams from Kenya, Guatemala and Mauritius, winners in the first, second and third rounds, respectively, had been deployed from the International Space Station through the United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station Japanese Experiment Module, known as "KiboCUBE". Teams from Indonesia, the Republic of Moldova and the Central American Integration System (SICA), winners in the third, fourth and fifth rounds, respectively, were currently developing their CubeSats under the programme. The Subcommittee further noted that the KiboCUBE programme had become an essential tool for capacity-building in space science and technology and that, in that regard, the Office for Outer Space Affairs and JAXA had announced the extension of the KiboCUBE programme until the end of December 2024 and had added a new educational opportunity called "KiboCUBE Academy".

13. The Subcommittee noted the continued cooperation between the Office for Outer Space Affairs and the Government of China, through the China Manned Space Agency, in implementing United Nations/China cooperation on the utilization of the China Space Station initiative, as part of the Access to Space for All initiative. That innovative and forward-looking cooperation was aimed at providing scientists around the world with an opportunity to conduct their own experiments on board the China Space Station, thus opening space exploration activities to all countries and creating a new paradigm for building capabilities in space science and technology. The first opportunity to conduct scientific experiments on board the China Space Station had been open to all Member States, in particular developing countries. As an outcome of the application and selection process, nine projects had been selected for implementation on board the China Space Station in the first cycle. The nine projects involved 23 institutions from 17 Member States in the Asia-Pacific region, Europe, Africa, North America and South America. The first experiments would be sent to the China Space Station in early 2023.
14. The Subcommittee noted the Hypergravity Experiment Series (HyperGES), a fellowship programme of the Office for Outer Space Affairs undertaken in collaboration with ESA. Under the programme, students could better understand and describe the influence of gravity on systems by performing experiments in the Large Diameter Centrifuge facility located at the European Space Research and Technology Centre of ESA in Noordwijk, the Netherlands. The winner of the first fellowship under HyperGES was announced in June 2020, and a team from Mahidol University, Thailand, was selected on the basis of its proposal to study the effects of hypergravity on watermeal, an aquatic plant. The team was currently developing its experiment and is expected to conduct the experiment in 2022. A new announcement of opportunity was also published in 2021, with the winner also to implement an experiment in 2022.
15. The Subcommittee noted the joint United Nations/Airbus Defence and Space technical assistance programme on the Bartolomeo external platform on board the International Space Station. The programme offered Member States, through a competitive selection process, the opportunity to have a payload hosted on the Bartolomeo platform, and the selected awardee would receive a comprehensive range of mission services provided by Airbus Defence and Space. The first awardees were the Egyptian Space Agency, the Kenya Space Agency and the Ministry of Science, Technology and Innovation of Uganda.
16. The Subcommittee noted the cooperation programme on the utilization of the Vega-C launcher, implemented in collaboration with Avio S.p.A. The programme was aimed at providing educational and research institutions in developing countries that had developed a CubeSat of 3U size or smaller with the opportunity, through a competitive process, to put their CubeSat into orbit. The first announcement of opportunity had been issued in October 2020 and closed on 4 April 2021, and a pre-selection process was under way.
17. The Subcommittee noted the “ISONscope” telescope provision cooperation programme, carried out by the Office for Outer Space Affairs in collaboration with the Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences. The programme was aimed at offering academic and research institutions the opportunity to receive, through a competitive selection process, small telescopes and associated capacity-building in astronomy. The first announcement of opportunity had been issued in January 2021, and the selected winners were the Kenya Space Agency and the Centre for Basic Space Science of Nigeria.
18. The Subcommittee noted that the Programme continued to implement the Access to Space for All initiative, which was focused on developing the capacity of Member States to access the benefits of space and which offered to its partners research opportunities to develop the technologies needed to send hardware into space, access to unique ground and orbital facilities for experiments in microgravity and access to space data and training on their use, including the use of astronomical data.

19. The Subcommittee also noted that the Programme was aimed at promoting, through international cooperation, the use of space technologies and space-related data for sustainable economic and social development in developing countries by establishing or strengthening the capacity in those countries to use space technology; raising the awareness of decision makers about the cost-effectiveness and additional benefits to be obtained from such technologies and data; and strengthening outreach activities to increase awareness of those benefits.

20. The Subcommittee further noted the following activities under the United Nations Programme on Space Applications conducted by the Office in 2021, together with Member States and international organizations:

(a) United Nations/Austria Symposium on Space Applications for Food Systems;

(b) United Nations/United Arab Emirates/International Astronautical Federation Workshop on Space Technology for Socioeconomic Benefits, on the theme “Space exploration: a source of inspiration, innovation and discovery”.

21. The Subcommittee was informed that the Office for Outer Space Affairs had organized, or continued to organize, capacity-building events, including within the United Nations Programme on Space Applications, with the Governments of Austria, Brazil, Ghana, Mongolia, Spain and the United Arab Emirates, as well as with IAF. The events planned to be held in the near future would cover the following topics: space-based solutions for water resources management; global navigation satellite systems; space weather; space for climate action; and capacity-building in space technology and applications. The Subcommittee noted that the Office would present reports and further information on the events at the sixtieth session, to be held in 2023.

22. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops, seminars and symposiums conducted in 2021 and planned for 2022, the Office for Outer Space Affairs had conducted or was planning to conduct other activities under the United Nations Programme on Space Applications, with emphasis on:

(a) Providing support for capacity-building efforts in developing countries through the regional centres for space science and technology education, affiliated to the United Nations;

(b) Strengthening its long-term fellowship programme, to include support for the implementation of pilot projects;

(c) Ensuring the mainstreaming of a gender perspective into all of its activities;

(d) Promoting the participation of young people in space activities;

(e) Promoting access to space for people with disabilities;

(f) Supporting or initiating pilot projects as a follow-up to activities of the Programme in areas of priority interest to Member States;

(g) Providing technical advice, upon request, to Member States, bodies and specialized agencies of the United Nations system and relevant national and international organizations;

(h) Enhancing access to space-related data and other information;

(i) Applying an integrated and cross-sectoral approach to activities, as appropriate.

23. The Subcommittee also noted the highlights of the activities of the regional centres for space science and technology education, affiliated to the United Nations, namely, the African Regional Centre for Space Science and Technology Education – in English Language, the African Regional Centre for Space Science and Technology

– in French Language, the Centre for Space Science and Technology Education in Asia and the Pacific, the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, the Regional Centre for Space Science and Technology Education for Western Asia and the Regional Centre for Space Science and Technology Education in Asia and the Pacific (China).

24. The Subcommittee noted that in 2021, the Regional Centre for Space Science and Technology Education in Asia and the Pacific (China), affiliated to the United Nations, had recruited 35 students in three fields of study, namely, satellite communications and global navigation satellite systems, remote sensing and geographic information systems, and small satellite technology, including 25 students in master's programmes and 10 students in doctoral programmes. In addition, 24 master's students and 4 doctoral students had successfully defended their dissertations and theses and graduated.

25. The Subcommittee was reminded that the General Assembly, in its resolution [76/76](#), had noted with satisfaction the positive conclusion of the evaluation mission for the establishment of a new regional centre for space science and technology education in the Eurasian region. The delegation bringing that to the attention of the Subcommittee also expressed the view that, upon the completion of all domestic procedures by the Russian Federation, which would be in the near future, the secretariat of the regional centre would be ready to sign an agreement on affiliation with the United Nations.

## **B. Regional and interregional cooperation**

26. The Subcommittee recalled that the General Assembly, in its resolution [74/82](#), had emphasized that regional and interregional cooperation in the field of space activities was essential to strengthen the peaceful uses of outer space, assist Member States in the development of their space capabilities and contribute to the implementation of the 2030 Agenda for Sustainable Development. To that end, the Assembly had requested relevant regional organizations and their groups of experts to offer any assistance necessary so that countries could carry out the recommendations of regional conferences. In that regard, the Assembly had noted the importance of the equal participation of women in all fields of science and technology.

27. The Subcommittee noted that Africa Space Week would be held in Nairobi in September 2022 and would provide an innovative platform for African space industry stakeholders to deliberate on expanding Africa's space industry and strengthen efforts to promote and enable intra-Africa and international cooperation on space activities.

28. The Subcommittee also noted that the twenty-seventh session of the Asia-Pacific Regional Space Agency Forum, on the theme "Expand space innovation through diverse partnerships", had been held online from 30 November to 3 December 2021.

29. The Subcommittee noted that the fifteenth meeting of the Council of APSCO had been held online from 9 to 11 November 2021. The Council had approved the APSCO project implementation plan for 2021–2025 and the amendment of the rules on cooperative activities of APSCO.

## **III. Space technology for sustainable socioeconomic development**

30. In accordance with General Assembly resolution [76/76](#), the Subcommittee considered agenda item 6, entitled "Space technology for sustainable socioeconomic development".

31. The representatives of Algeria, China, Colombia, Cuba, France, India, Iran (Islamic Republic of), Israel, Mexico, Pakistan, the Russian Federation, Thailand and Venezuela (Bolivarian Republic of) made statements under agenda item 6. During the

general exchange of views, statements relating to the item were made by representatives of other member States.

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

(a) “The new Copernicus Sentinel-1 global flood monitoring service”, by the representative of Austria;

(b) “SDGSAT-1: a frontier technology of the Technology Facilitation Mechanism for the Sustainable Development Goals”, by the representative of China;

(c) “Space development of Paraguay”, by the representative of Paraguay;

(d) “Development of human potential in space science and technology for sustainable development”, by the representative of the Russian Federation;

(e) “Student small satellite project and future initiatives for young generation capacity-building”, by the observer for APSCO.

33. The Subcommittee had before it a conference room paper containing the report on the United Nations/Brazil/United Arab Emirates Space for Women expert meeting, on the theme “Initiatives, challenges and opportunities for women in space”, held on 21 and 22 October 2021 in Dubai, United Arab Emirates (A/AC.105/C.1/2022/CRP.19).

34. 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.

35. 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.

36. 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.

37. Some delegations expressed the view that it was crucial to promote international cooperation between countries with advanced space capabilities and emerging countries in the space sector in order to support them in their efforts to access space, space-derived data and research and facilitate the transfer of knowledge and technology, as well as the sharing of experience in the use of space-based technology for sustainable development.

38. In accordance with paragraph 11 of General Assembly resolution [76/76](#), the Working Group of the Whole was reconvened, with Prakash Chauhan (India) as Chair.

39. At its [...] meeting, on [...] February 2022, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.