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**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-sixth session
Vienna, 11–22 February 2019**

Draft report

II. United Nations Programme on Space Applications

1. In accordance with General Assembly resolution [73/91](#), the Subcommittee considered agenda item 4, entitled “United Nations Programme on Space Applications”.
2. The representatives of Brazil, China, Germany, Japan, India, Indonesia and the Republic of Korea made statements under agenda item 4. A statement was also made under the item by the representative of Costa Rica on behalf of the Group of Latin American and Caribbean States. 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) “Project of the United Nations-affiliated regional capacity-building centre”, by the representative of the Russian Federation;
 - (b) “Progress on the technical development and on the establishment of the Open Universe initiative”, by the representative of Italy.

A. Activities of the United Nations Programme on Space Applications

4. The Subcommittee recalled that the General Assembly, in its resolution [73/91](#), 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.
5. The Subcommittee also recalled that the United Nations Programme on Space Applications was one of the achievements of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE), and that both UNISPACE II (1982) and UNISPACE III (1999) had contributed to the development of the Programme’s mandates. The Subcommittee noted with satisfaction that the Programme had played an instrumental role in assisting developing countries in acquiring knowledge, skills and practical experience for the application of space technology for the purpose of economic, social and cultural development.
6. At the 895th meeting, on 11 February, the Director of the Office for Outer Space Affairs, following the request made by the General Assembly in its resolution [73/91](#),



apprised the Subcommittee of the status of the Office's activities under the United Nations Programme on Space Applications. Through the Programme, the Office had continued to deliver capacity-building that was focused on the needs of developing countries and global problems of humanity while involving more cross-cutting and topical issues and a wider circle of qualified experts, thereby enabling the delivery of capacity-building efforts at levels corresponding to the highest current standards and in accordance with the expectations of Member States.

7. The Subcommittee noted with appreciation that, since its previous session, in-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, including the United Nations Programme on Space Applications, by the following: Airbus, Asia Pacific Space Cooperation Organization (APSCO); Austrospace; Beihang University, China; Brazilian Space Agency (AEB); CANEUS International; Centre for Remote Sensing of Land Surfaces (ZFL) of the University of Bonn, Germany; Centre for Space Science and Technology Education in Asia and the Pacific, India; China Manned Space Agency (CMSA); China National Space Administration (CNSA); China Satellite Navigation Office; City of Graz; City of Vienna; National Commission on Space Activities (CONAE), Argentina; Delta State University, United States; DigitalGlobe; European Commission; European Space Agency; Federal University of Rio Grande do Norte, Brazil; German Aerospace Center (DLR); Government of Austria (Office of the President, Ministry for Europe, Integration and Foreign Affairs, Ministry for Transport, Innovation and Technology and Austrian Research Promotion Agency (FFG)); Government of China (Ministry of Emergency Management); Government of Germany (Federal Ministry for Economic Affairs and Energy and Federal Ministry for Economic Cooperation and Development); Government of Israel; Government of New Zealand; Government of the United States (Bureau of Oceans and International Environmental and Scientific Affairs of the Department of State, and National Oceanic and Atmospheric Administration of the Department of Commerce (NOAA)); Graz University of Technology, Austria; Holy See; Instituto Federal do Rio Grande do Norte (IFRN), Brazil; Inter-Islamic Network on Space Sciences and Technology (ISNET); International Astronautical Federation (IAF); Abdus Salam International Centre for Theoretical Physics (ICTP); International Water Management Institute; Japan Aerospace Exploration Agency (JAXA); Joanneum Research Forschungsgesellschaft mbH, Austria; Kyushu Institute of Technology, Japan; National Disaster Reduction Centre of China (NDRCC); National Institute for Space Research (INPE), Brazil; National Point of Contact for Space Law, Austria; National Space Agency of Pakistan (SUPARCO); Prince Sultan bin Abdulaziz International Prize for Water (PSIPW); Sierra Nevada Corporation, United States; South Asian Association for Regional Cooperation (SAARC) Disaster Management Centre (Interim Unit), India; Space Trust; Federal Province of Styria, Austria; State Space Corporation "Roscosmos"; University of Bonn, Germany; Women in Aerospace; World Vision International and ZARM-Fallturm-Betriebsgesellschaft mbH, Germany.

8. The Subcommittee noted that, since its last session, in 2018, the Office had concluded memorandums of understanding, funding agreements and framework agreements in relation to its capacity-building activities, including the implementation of the United Nations Programme on Space Applications. The Office had also extended agreements with the Ministry of Science, Technology and Higher Education of Portugal, the Government of New Zealand, CMSA, CNSA, the Geo-Informatics and Space Technology Development Agency (GISTDA), DLR, ASI, NOAA, the Committee on Space Research, Università Bocconi, Italy, the World Space Week Association (WSWA), the Atlantic International Research Centre, Airbus Defence and Space GmbH, CANEUS International and the Space Trust.

9. The Subcommittee also noted that the Government of Japan, through the Kyushu Institute of Technology, and the Government of Italy, through the Politecnico di Torino and Istituto Superiore Mario Boella, in collaboration with the Istituto Nazionale di Ricerca Metrologica, had continued to provide long-term fellowship

programme opportunities for students from developing countries under the United Nations/Japan Long-term Fellowship Programme on Nanosatellite Technologies, and the United Nations/Italy Long-term Fellowship Programme on Global Navigation Satellite Systems and Related Applications, respectively.

10. The Subcommittee further noted the Drop Tower Experiment Series, which was a fellowship programme of the Office for Outer Space Affairs undertaken in collaboration with the Centre of Applied Space Technology and Microgravity and DLR, in which students could study microgravity by performing experiments in a drop tower. In the fifth cycle of the fellowship programme, a team from the University of Bucharest had been awarded the fellowship through competitive selection.

11. The Subcommittee noted the continued collaboration between the Office for Outer Space Affairs and the Government of Japan, in collaboration with JAXA, in implementing the United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station Japanese Experiment Module (Kibo), known as “KiboCube”. The programme had been launched in September 2015. A team from the University of Nairobi had been selected to be the first to benefit from the programme. The team’s CubeSat named 1KUNS-PF had been deployed from the Japanese Experiment Module (Kibo) of the International Space Station in May 2018 as the first satellite of Kenya. CubeSats developed by teams from Guatemala, Indonesia and Mauritius, which had been selected for the second and third rounds of KiboCube, would come after the mission of Kenya. The objective of the cooperation programme was to promote international cooperation and capacity-building in space technology and its applications under the Human Space Technology Initiative by providing opportunities for educational and research institutions in developing countries to deploy CubeSats from Kibo.

12. The Subcommittee noted that the Government of China and the Office for Outer Space Affairs had continued to implement the United Nations/China cooperation on the utilization of the China space station under the United Nations Programme on Space Applications and the Human Space Technology Initiative. This innovative and forward-looking cooperation was aimed at providing scientists from around the world with an opportunity to conduct their own experiments on board the China space station and thus to open space exploration activities to all countries and create a new paradigm for building capabilities in space science and technology. The first opportunity to conduct scientific experiments on board the China space station, which had been open to all Member States, in particular, developing countries, had been announced in 2018; 42 applications had been received from organizations in 27 countries. The project evaluation and selection committee had shortlisted 18 applications; the final selection would be made in early June 2019.

13. The Subcommittee continued to express its concern over the still-limited financial resources available for carrying out the capacity-building activities of the Office, including the United Nations Programme on Space Applications, and appealed to Member States to provide support through voluntary contributions.

14. The Subcommittee noted that the priority areas of the Programme were environmental monitoring, natural resource management, satellite communications for tele-education and telemedicine applications, disaster risk reduction, the use of global navigation satellite systems (GNSS), the Basic Space Science Initiative, climate change, the Basic Space Technology Initiative and the Human Space Technology Initiative, and biodiversity and ecosystems.

15. 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 capacity in developing countries to use space technology; raising the awareness of decision makers of the cost-effectiveness and additional benefits to be obtained from such technologies and data; and strengthening outreach activities to disseminate awareness of those benefits.

16. The Subcommittee further noted the following activities under the United Nations Programme on Space Applications, conducted by the Office in 2018, together with Member States and international organizations:

(a) United Nations/Pakistan/PSIPW Fourth International Conference on the Use of Space Technology for Water Management, held in Islamabad from 26 February to 3 March 2018 ([A/AC.105/1206](#));

(b) United Nations/Argentina workshop on the applications of global navigation satellite systems, held in Falda del Carmen, Argentina, from 19 to 23 March 2018 ([A/AC.105/1205](#));

(c) United Nations/Brazil Symposium on Basic Space Technology: Creating Novel Opportunities with Small-Satellite Space Missions, held in Natal, Brazil, from 11 to 14 September 2018 ([A/AC.105/1194](#));

(d) United Nations/Austria Symposium on Space for Sustainable Development Goals, Stronger Partnerships and Strengthened Collaboration, held in Graz, Austria, from 17 to 19 September 2018 ([A/AC.105/1196](#));

(e) Workshop on Space Technology for Socioeconomic Benefits, organized by the International Astronautical Federation (IAF) with the support of the Office for Outer Space Affairs and held in Bremen, Germany, from 28 to 30 September 2018 ([A/AC.105/1197](#));

(f) United Nations International Conference on Space-based Technologies for Disaster Risk Reduction: Enhancing Disaster Preparedness for Effective Emergency Response, held in Beijing from 24 to 26 October 2018 ([A/AC.105/1198](#));

(g) United Nations Expert Meeting on Human Space Technology on the theme “Providing access to space”, held in Vienna from 4 to 6 December 2018 ([A/AC.105/1199](#)).

17. The Subcommittee noted that in addition to the activities under the United Nations Programme on Space Applications referred to above, the Office for Outer Space Affairs supported summer programmes organized by the Central European University (Hungary) and Samara University (Russian Federation).

18. The Subcommittee was informed that the Office for Outer Space Affairs had organized, and was continuing to organize, capacity-building events, including within the United Nations Programme on Space Applications, with the Governments of Austria, China, Fiji, Jordan and Romania, as well as with ICTP and IAF. The Subcommittee was also informed that those events were to cover the following topics: GNSS, space applications for water management, space weather, basic space technology, human space technology, capacity-building in space technology and applications, disaster risk reduction and emergency response. The Subcommittee noted that the Office would provide reports and information on the events at its fifty-seventh session, in 2020.

19. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops, seminars and symposiums conducted in 2018 and planned for 2019, the Office for Outer Space Affairs had conducted, and planned to conduct, other activities under the Programme, placing emphasis on the following:

(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 the gender perspective into all of its activities;

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

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

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

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

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

20. 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).

21. The Subcommittee noted the request made by the Group of Latin American and Caribbean States that the Committee and its Subcommittees strengthen cooperation with regional organizations and institutions, such as the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, the Space Conference of the Americas and the Society of Latin American Experts in Remote Sensing and Space Information Systems (SELPER), and that the Office for Outer Space Affairs should support cooperation with such organizations through its activities and events.

22. Some delegations stressed the importance of the contribution made by space activities and the benefits that the use of space technology brought to sustainable development, in particular in such areas as the management of natural disasters, protection of the environment, meteorology, tele-education and telemedicine. In that connection, it was important to promote the development and capacity-building related to the use of space technology applications, together with related development and capacity-building.

23. Some delegations expressed the view that the United Nations Programme on Space Applications should focus on addressing inequalities, including the vast space technology divide between countries, and that by doing so, the Programme would create the conditions for the inclusive development of space activities, including in support of the Sustainable Development Goals.

24. Some delegations expressed the view that the United Nations had to continue to actively promote its role in the cooperation between developing and developed countries, as well as among developing countries, in order to strengthen the infrastructure and technology of the space sector, especially through capacity-building, information-sharing and the transfer of technology, which could accelerate development in various aspects of life. The delegations expressing that view were also of the view that it was important to promote collaboration between developing and developed countries in order to ensure equitable access to space science and technology.

B. Regional and interregional cooperation

25. The Subcommittee recalled that the General Assembly, in its resolution [73/91](#), 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 the 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.

26. The Subcommittee noted that the Government of Nigeria had hosted the seventh African Leadership Conference on Space Science and Technology for Sustainable Development on the theme “Implementation of African space policy and strategy”, held in Abuja from 5 to 9 November 2018.

27. The Subcommittee also noted that, on the margins of the 2018 International Air and Space Fair, held in Santiago from 3 to 8 April 2018, the fourth Space Conference had been held, as well as the Latin American Week of Remote Sensing, a technical and scientific conference organized by the air force of Chile. The Week of Remote Sensing had been aimed at promoting the use of space information with respect to phenomena in the biosphere, and had focused on the development of space applications for the civil and defence sectors.

28. The Subcommittee further noted that the twenty-fifth session of the Asia-Pacific Regional Space Agency Forum, on the theme “Innovative space technology for evolving needs” had been held in Singapore from 6 to 9 November 2018. The twenty-sixth session would be held in Japan in November 2019.

29. The Subcommittee noted that, on the occasion of its tenth anniversary, APSCO had organized a high-level forum on the theme “Community of shared future through space cooperation”, which had been held in Beijing on 14 November 2018.

VI. Space-system-based disaster management support

30. In accordance with General Assembly resolution [73/91](#), the Subcommittee considered agenda item 8, entitled “Space-system-based disaster management support”.

31. The representatives of Canada, China, Germany, India, Indonesia, Israel, Japan, Mexico, the Russian Federation and the United States made statements under agenda item 8. A statement was also made under the item by the representative of Chile on behalf of the Group of Latin American and Caribbean States. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) “RaioSAT Project: detecting lightning discharges from space based on nanosatellite technologies”, by a representative of Brazil;

(b) “Disaster management support at INPE: Brumadinho Dam Collapse”, by a representative of Brazil;

(c) “Space-based technology application on disaster reduction in China in 2018”, by a representative of China;

(d) “International Charter on Space and Major Disasters: space satellite data for relief organizations in the event of disasters”, by a representative of France;

(e) “Recent progress of Sentinel Asia: Japan’s contribution to disaster management in the Asia-Pacific region”, by a representative of Japan.

33. The Subcommittee had before it the following:

(a) Report on the United Nations International Conference on Space-based Technologies for Disaster Risk Reduction: Enhancing Disaster Preparedness for Effective Emergency Response, held in Beijing from 24 to 26 October 2018 ([A/AC.105/1198](#));

(b) Report on activities carried out in 2018 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/1190).

34. The Subcommittee noted with satisfaction the progress achieved through activities held in 2018 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), including the continuing advisory and other support provided through UN-SPIDER to emergency response efforts.

35. The Subcommittee noted that, with the continued support of its network of partners, representatives of UN-SPIDER had carried out the following activities: (a) a technical advisory mission to Zimbabwe; (b) follow-up activities in Ghana, Guatemala, Nepal, Sri Lanka and Viet Nam; and (c) an advisory support activity in Cambodia. During those activities, specific requirements had been addressed and follow-up had been provided to the UN-SPIDER technical advisory missions carried out in previous years.

36. The Subcommittee noted with satisfaction the capacity-building efforts that had been made in generating tailor-made space-based information for three countries facing floods (Ghana, Nigeria and Viet Nam) and countries experiencing droughts (Bolivia (Plurinational State of), Ecuador, El Salvador, Guatemala, Nigeria and Peru).

37. The Subcommittee noted that the international capacity-building programme on space-based technologies for emergency response had been conducted back-to-back with the United Nations International Conference on Space-based Technologies for Disaster Risk Reduction held in Beijing from 24 to 26 October 2018. It also noted the regional workshop and capacity-building programme for the utilization of space-based and geospatial information for achieving the targets of the Sendai Framework for Disaster Risk Reduction that had been conducted at the South Asian Association for Regional Cooperation Disaster Management Centre in New Delhi.

38. The Subcommittee also noted the planned outreach activities of the Office for Outer Space Affairs, represented by UN-SPIDER, and its developing partnerships with United Nations entities, international organizations and Member States to continue promoting the use of space-based tools and information in global and regional initiatives, such as under the Sendai Framework for Disaster Risk Reduction 2015–2030, the 2030 Agenda for Sustainable Development and the Paris Agreement.

39. The Subcommittee noted with satisfaction the ongoing activities of States members of the Committee to increase the availability and use of space-based solutions in support of disaster risk reduction. Those activities included promoting emergency observation and cartography during natural or technological disasters under the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also called the International Charter on Space and Major Disasters), and under the Sentinel Asia programme and the Copernicus Emergency Management Service.

40. The view was expressed that the efforts conducted by Member States under the Charter and Sentinel Asia to support disaster response efforts had been substantial and it was noted that the Charter had adopted the principle of universal access, meaning that disaster management authorities from all countries could use the Charter. In that regard, it was also noted that Madagascar, Paraguay and Peru had become members of the Charter, while Eswatini, Ghana, South Africa, the Sudan, Tunisia and Zimbabwe had submitted applications.

41. The view was expressed that the activities conducted by several Member States, directly or through the Charter or Sentinel Asia, to facilitate access to satellite imagery and space-based information had been successful in supporting disaster response efforts following a volcanic eruption in Guatemala, the floods in the Lao People's Democratic Republic, the typhoon, floods and landslides in Viet Nam, the floods in Nigeria and the floods in Ghana. The delegation expressing that view also was of the

view that efforts to raise awareness of the Charter and of the Copernicus Emergency Management Service were important to encourage States to utilize such services.

42. The view was expressed that the activities of Sentinel Asia, in which more than 100 organizations in the Asia-Pacific region participated and which had conducted approximately 300 emergency observations since its launch in 2006, continued to be highly useful.

43. The view was expressed that space-based emergency mapping could be achieved more effectively with the help of international collaboration, and that a multilateral approach to disaster and climate change management should be encouraged.

44. Some delegations commended the efforts of signatories to the Charter to provide satellite images during major disasters.

45. The Subcommittee noted with satisfaction other activities of Member States in the same area, such as the promotion, with the support of UN-SPIDER, of the universal access initiative of the Charter and the provision of national and regional data portals for the dissemination of information in near-real time.

46. Some delegations expressed the view that the Office for Outer Space Affairs, through UN-SPIDER, should intensify capacity-building, coordination and international cooperation through training programmes in disaster management, in particular in Latin America and the Caribbean.

47. Some delegations expressed the view that the efforts of Member States to develop mobile applications to provide early warnings to communities were good examples of tailoring disaster management information to the needs of those who would be most affected by natural disasters.

48. Some delegations expressed the view that the practice of national space agencies working closely with their national disaster management agencies had proved to be effective in responding to emergency situations following natural disasters.

49. The view was expressed that search and rescue missions were a useful part of disaster management, as was the commitment of providers of search and rescue data for disaster management through the International Charter on Space and Major Disasters. It was highlighted that the activities of the International Satellite System for Search and Rescue (COSPAS-SARSAT) in the search and rescue field saved thousands of lives every year.

50. The view was expressed that space systems were essential to support the management of disasters caused by natural or anthropogenic phenomena, and that only through international cooperation could such systems be leveraged to greatest effect.

51. The view was expressed that, with regard to the development of disaster management tools, advances in data analytics and communication capabilities, especially those integrating Earth observation science and socioeconomic information, contributed to understanding the specific vulnerabilities of those affected and made it possible to provide better support to communities and infrastructure.

52. The Subcommittee noted the international expert meeting on the theme "Towards big (space) data in support of disaster risk reduction and emergency response in Africa" that had been organized by UN-SPIDER and held prior to the United Nations/Germany High-level Forum on the way forward after UNISPACE+50 and on "Space2030" that had been held in Bonn, Germany, from 13 to 16 November 2018.

53. The Subcommittee also noted the in-kind contributions, including the provision of experts, made by States members of the Committee and regional support offices in 2018 to the technical advisory missions and related activities conducted by the Office for Outer Space Affairs through UN-SPIDER, and their efforts to share experiences with other interested countries.

54. The Subcommittee noted with appreciation the voluntary contributions made to the Office for Outer Space Affairs and its UN-SPIDER programme by member States, including the cash contributions from China and Germany, and again encouraged other member States to provide the Office's activities and programmes, including UN-SPIDER, with all necessary support, including increased financial support, to enable it to better respond to Member States' requests for assistance and to fully carry out its workplan for the next biennium.
