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**Committee on the Peaceful  
Uses of Outer Space****Report on the United Nations/China Forum on Space Solutions  
on the theme “Realizing the Sustainable Development Goals”****(Changsha, China, 24–27 April 2019)****I. Introduction****A. Background and objectives**

1. The 2030 Agenda for Sustainable Development, adopted in 2015, is the boldest agenda for humanity and the most ambitious anti-poverty, pro-planet agenda ever adopted by the United Nations. Countries, especially developing countries, are in great need of innovative approaches and partnerships to facilitate their progress towards achieving the Sustainable Development Goals.
2. In Goal 17, which reads “Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development”, multi-stakeholder partnerships are recognized as important vehicles for mobilizing and sharing knowledge, expertise, technologies and financial resources to support the achievement of the Goals in all countries, in particular developing countries. A further aim of Goal 17 is to encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.
3. It is generally accepted that space science and technology and their applications and services, as innovative approaches, can help countries to achieve the Goals. However, the importance of outer space has not been fully recognized by the international community and the potential of it has not been fully unlocked for sustainable development.
4. In 2017, at its sixtieth session, the Committee on the Peaceful Uses of Outer Space, acknowledged the significant role of space science and technology applications in the implementation of the three global development frameworks adopted in 2015: the 2030 Agenda, in particular the Sustainable Development Goals; the Sendai Framework for Disaster Risk Reduction 2015–2030; and the Paris Agreement on climate change (see [A/72/20](#)). The Committee further agreed that the Office for Outer Space Affairs of the Secretariat should explore various means to raise awareness of the benefits of space-based solutions, and encouraged the building of stronger partnerships, cooperation and coordination, including with industry and the private sector.
5. In its resolution [73/6](#) of 26 October 2018 on the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space



(UNISPACE+50): space as a driver of sustainable development, the text of which had been endorsed by the high-level segment of UNISPACE+50, the General Assembly emphasized the need to build stronger partnerships at all levels in order to enhance the contribution of space activities for the realization of the 2030 Agenda, invited the Committee on the Peaceful Uses of Outer Space to develop a “Space2030” agenda and implementation plan, and acknowledged the importance of global partnership and strengthened cooperation among Member States, intergovernmental and non-governmental organizations, industry and private sector entities in fulfilling the “Space2030” agenda and its implementation plan. The Committee, at its sixty-first session, in 2019, agreed to the establishment of a working group under a new agenda item on the “Space2030” agenda.

6. The Office for Outer Space Affairs, in its capacity as the secretariat of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies, strives to bring the benefits of outer space to humankind. It is determined to help countries, in particular developing countries, to achieve the Goals, and is readying itself for the implementation of the “Space2030” agenda by forging partnerships with and among multiple stakeholders.

7. User needs and space solutions run parallel and are intertwined. Partnerships are created where space solutions can meet user needs. The Office for Outer Space Affairs has initiated the space solutions compendium, the Access to Space for All initiative and a study of space user needs to identify and then bridge gaps between user needs and space solutions.

8. The United Nations/China Forum on Space Solutions on the theme “Realizing the Sustainable Development Goals” was held in Changsha, China, from 24 to 27 April 2019. It was co-organized by the Office for Outer Space Affairs and the China National Space Administration (CNSA), in cooperation with the Industry and Information Technology Department of Hunan Province, and was supported by the Asia-Pacific Space Cooperation Organization (APSCO), the Regional Centre for Space Science and Technology Education in Asia and the Pacific (China), affiliated to the United Nations, the municipal government of Changsha and Hunan University.

9. The main objective of the Forum was to bring together space solution providers and users to forge new partnerships, enhance international space cooperation and thus contribute to the attainment of the Sustainable Development Goals. The specific objectives were:

(a) To review the current status and future trends relating to outer space that contribute to the achievement of the Goals;

(b) To contribute to identifying Member States’ needs for outer space, space solutions in support of the Goals, and gaps between user needs and space solutions;

(c) To enhance existing partnerships and build new partnerships among multiple stakeholders and contribute directly to the attainment of Goal 17;

(d) To contribute to the building of the Belt and Road Initiative Space Information Corridor;

(e) To promote the important role that outer space plays in efforts to achieve the Goals.

10. The conclusions, observations and recommendations contained in section II of the present report reflect concrete elements covered in the discussions held at the Forum.

11. The present report was prepared for submission to the sixty-second session of the Committee on the Peaceful Uses of Outer Space, to be held in June 2019.

## B. Attendance

12. The Forum brought together participants from national, regional and international public and private organizations and institutions, including decision makers from governmental agencies, officials from regional and international agencies, experts from the space community, experts from industry, business and academic communities, policymakers, representatives of the private sector in the space and non-space fields, and civil society. Participants from the following 46 Member States attended the Forum: Algeria, Armenia, Australia, Austria, Bangladesh, Bolivia (Plurinational State of), Brazil, Cameroon, China, Costa Rica, Ethiopia, France, Germany, Ghana, India, Indonesia, Iran, Italy, Japan, Jordan, Kazakhstan, Malaysia, Mexico, Myanmar, Netherlands, Niger, Nigeria, Pakistan, Peru, Philippines, Qatar, Russian Federation, Rwanda, Serbia, Singapore, Slovenia, Spain, Sudan, Sweden, Thailand, Tunisia, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and Venezuela (Bolivarian Republic of). Representatives of the following United Nations entities were present at the Forum: Economic and Social Commission for Asia and the Pacific, World Meteorological Organization and Office for Outer Space Affairs. The following intergovernmental organizations were also represented at the Forum: African Union Commission, APSCO and European Space Agency.

13. Funds provided by the Office for Outer Space Affairs and CNSA were used to defray the costs of air travel and accommodation for 28 participants, 39 per cent of whom were women. A total of 527 participants attended the Forum.

## C. Programme

14. On 24 April, the Director of the Office for Outer Space Affairs, the Administrator of CNSA and the Governor of Hunan Province opened the Forum.

15. During the opening session, an agreement between the United Nations and the China National Space Administration concerning cooperation on China's lunar and deep space exploration was signed by the Director of the Office for Outer Space Affairs and the Administrator of CNSA.

16. Representatives of the Office and CNSA introduced the rationale and set-up of the Forum.

17. The Director of the Office gave a keynote speech on outer space in support of the Sustainable Development Goals. The Deputy Director-General of the International Cooperation Department of CNSA gave another keynote speech on space solutions developed by China for the realization of the Goals.

18. A high-level panel was held under the title "Enhancing the role of space for the Sustainable Development Goals". It consisted of eight representatives of space and user agencies and was chaired by the Director of the Office. While the panel was being held, participants filled in an online questionnaire on outer space and the Goals. The answers were used as a basis for the panel's discussion.

19. From 25 to 26 April 2019, five regular sessions, a poster session and a special session were held to discuss the following topics:

- (a) Space user needs in relation to the Sustainable Development Goals;
- (b) Space solutions in support of the Sustainable Development Goals;
- (c) Enhancing international space cooperation in support of the Sustainable Development Goals;
- (d) Space law and policy in relation to the Sustainable Development Goals;
- (e) The broader space community and the Sustainable Development Goals;

(f) Special session: win-win cooperation on the Belt and Road Initiative Space Information Corridor.

20. A matchmaking event was held on 25 April 2019 with the aim of forging new partnerships between users and providers. A total of 28 letters in which various parties expressed their potential interest in cooperation regarding the Sustainable Development Goals were signed on the spot. The matchmaking event was the first of its kind in the history of the Office for Outer Space Affairs and was very well received by participants.

21. On 26 April, a round table event was held on the topic “Bridging gaps between user needs and space solutions: working towards 2030”.

22. During the closing session, participants adopted a declaration (see annex) in which they emphasized the role of outer space in the attainment of the Sustainable Development Goals and the importance of partnerships and ways to bridge the gaps between user needs and space solutions were included.

23. On 23 April, one day before the start of the Forum, a side event entitled “Youth night” was held by the Space Generation Advisory Council.

24. The introductory note and the presentations made at the Forum were made available on the website of the Office, together with the programme of the Forum.

## II. Observations and recommendations

### General observations and recommendations

25. Participants in the Forum noted that the 2030 Agenda called for partnerships at all levels, recognized multi-stakeholder partnerships as important vehicles for attaining the Sustainable Development Goals, and encouraged and promoted public, public-private and civil society partnerships.

26. Participants highlighted the gap that existed between users and solution providers. Users were not fully aware of the available solutions, and more attention should be paid to users’ needs in the development of solutions. Participants also underlined that means should be explored to bridge the gap.

27. Participants also noted that the Office for Outer Space Affairs was developing a study of space user needs. A study of needs of users in Pacific island countries was under way with the support of the Government of New Zealand. The study was a rolling process aimed at creating and periodically updating a global space user needs database, to raise awareness of global user needs, in particular those from developing countries, to contribute to the formation of global agendas and to facilitate communication among users and providers.

28. Participants further noted that the Office for Outer Space Affairs was developing the space solutions compendium and the Access to Space for All initiative with a view to making space solutions available to countries.

### High-level panel on the theme “Enhancing the role of space for the Sustainable Development Goals”

29. Participants in the high-level panel emphasized the role of national space agencies in achieving the Sustainable Development Goals and agreed that more cooperation and coordination were needed.

30. Participants noted that CNSA had recently released a statement on the contribution of the space activities of China to the achievement of the Goals, which included 10 action plans.

31. Participants agreed that space technology could contribute to the attainment of all 17 Sustainable Development Goals and that more awareness-raising efforts should be made to inform people of the benefits that outer space could bring.

32. Participants acknowledged that more work was to be done by the United Nations and Governments in raising awareness of the Goals, in particular the targets and indicators associated with each Goal.

33. It was suggested that sectoral and organizational barriers should be lowered in order to unlock the potential of outer space.

#### **Session on the theme “Space user needs in relation to the Sustainable Development Goals”**

34. Participants noted that it was important to raise awareness of global user needs, in particular those of developing countries, in order to support the achievement of the Goals.

35. Participants noted that outer space may represent a suitable and sustainable tool for economic diversification, that many areas, such as agriculture and disaster management, had urgent needs for outer space, that the potential of space technology for socioeconomic development should be further explored, and that more stakeholders should be involved.

36. Participants noted that space technology represented an innovative way to tackle societal challenges.

37. Participants noted that satellite communications had made it possible to provide sustainable solutions for telecommunication services in developing countries, in particular in terms of coverage, and that fifth-generation telecommunications, which integrated various technologies, would naturally facilitate partnerships between various actors.

38. Participants noted that outer space was an important tool that could be used in the study of polar climate change and a three-pole satellite system (TPSat) was under development to facilitate that study.

39. It was suggested that it was necessary to build capacity among local technicians and researchers around the world to utilize space technology.

40. It was suggested that space-based Earth observations should be integrated with ground-based Earth observations and other sources, in order to maximize their potential to help countries.

41. It was suggested that, in order to bridge gaps between countries, two complementary approaches should be taken: technology transfer and capacity-building.

#### **Session on the theme “Space solutions in support of the Sustainable Development Goals”**

42. Participants noted that accessibility was fundamental to data-sharing. They showed interest in understanding how Earth observation data collected by China could be accessed, including data from meteorological satellites. There was a possibility to be granted access to small volumes of non-commercial data for research purposes upon successfully completing an application process, while for larger volumes, bilateral agreements with CNSA were needed.

43. Participants noted that jointly developing space projects is a way to enhance partnerships and also to improve space capabilities of developing countries.

44. It was suggested that in order to expand the current scale of space education programmes it is important to find good educators, and help them to utilize space activities as an educational resource.

45. Participants noted that space applications in various fields, such as health and pollution, could be beneficial and helpful to many people and there is increasing need in these fields that require the assistance of space.

46. Participants noted that, despite the increasing availability of space-based data resources for researchers and decision makers, efforts on that front needed to be continued, and that data availability was still an issue around the world.

47. It was recommended that coordination be enhanced to streamline different data resources and thereby maximize their potential.

**Session on the theme “Enhancing international space cooperation in support of the Sustainable Development Goals”**

48. Participants noted that the Group on Earth Observations had launched the Asia-Oceania GEO initiative in 2016 with the aim of enhancing cooperation in the region, investigating user needs, advancing data-sharing and supporting decision-making, that a pilot study in the Mekong river basin was under way and that pilot projects in the Himalayas and Indian Ocean and Pacific regions would follow.

49. Participants noted the role of the regional centres for space science and technology education, affiliated to the United Nations, in providing high-quality capacity-building at the regional level.

50. Participants noted the regional coordination on improved water resource management and capacity-building in the Middle East and North Africa, which was based on the use of remote sensing technology. They also noted the experience of Mexico in space cooperation with a view to creating new capabilities in space.

51. Participants noted that space cooperation in the Balkan region was needed to promote the benefits derived from outer space.

52. Participants noted that APSCO was providing data-sharing platforms and was building both space- and ground-based systems to meet the needs of its member States.

53. The view was expressed that, to find the right partner, it was better to start searching at the governmental level and stating one’s needs clearly.

**Session on the theme “Space law and policy in relation to the Sustainable Development Goals”**

54. Participants acknowledged that, in addition to space science and technology, space law and policy were an important part of supporting countries in achieving the Goals.

55. A development-oriented approach was proposed so as to develop outer space for the benefit of all peoples and in the interests of all countries, and to do so by balancing safety concerns and development needs, harnessing the rising trend of space commercialization to promote common development and strengthening the role of the Committee on the Peaceful Uses of Outer Space and its Subcommittees as a prime coordination platform at the global level.

56. Participants noted that the African Union was developing an African space policy and strategy in support of Agenda 2063. The thematic focuses would be Earth observation, satellite communication, astronomy and space science, and navigation and positioning. The goal was to develop space-derived products and services to be used in decision-making, in addressing economic, political, social and environmental challenges, and in developing an indigenous space capability, both in the private and public sectors, that would define coordinated, effective and innovative African-led space programmes.

57. In that respect, participants also noted that the statute of the African Space Agency had been adopted and that Egypt had been selected to host the Agency.

58. Participants recommended that the “Space2030” agenda include stimulating entrepreneurship, facilitating the creation of manufacturing infrastructure, encouraging the development of a market for small and microsatellites, and promoting

international cooperation and data-sharing so as to contribute to the development of a space economy in the economic South.

59. Participants noted that support for the attainment of the Goals by means of space applications required a stable legal regime for outer space, adequate global governance and a safe, secure and sustainable space environment relying on the comprehensive regime of space law. The implementation of UNISPACE+50 thematic priorities 2 (Legal regime of outer space and global space governance: current and future perspectives) and 3 (Enhanced information exchange on space objects and events) would be a concrete contribution to the attainment of the Goals.

#### **Session on the theme “Win-win cooperation on the Space Information Corridor”**

60. It was observed that the Belt and Road Initiative Space Information Corridor was a comprehensive project aimed at providing information services in participating countries. Communication, remote sensing and navigation satellites made up the central part of the project, and that space-based information resources and ground information-sharing networks were also included. The Corridor was aimed at realizing co-construction and sharing space information in the region.

61. Participants took note of the comprehensive programmes under the project and the many opportunities for international cooperation it offered.

62. It was suggested that, in addition to various space science, technology and application projects, the cultivation of space talent would be an important part of the Corridor, including cooperation through an aerospace innovation alliance under the Belt and Road Initiative. It was noted that several countries had started to benefit from the Corridor.

#### **Session on the theme “The broader space community and the Sustainable Development Goals”**

63. Participants noted that non-governmental organizations, industry and the private sector in general were important to the promotion of the benefits of space to all humankind.

64. Participants recommended that the international community devote more attention to the popularization of space science and technology and its applications, and thus make more people interested in space so that more is invested in the space industry to really help to promote the role of outer space in achieving the Goals.

65. The view was expressed that the risks created by space debris should not be neglected when developing commercial space activities, and that there was a need to reconsider space debris mitigation at the international level to better solve the problem of space debris.

#### **Round table on the theme “Bridging gaps between user needs and space solutions: working towards 2030”**

66. Participants noted that increased collaboration among a wider range of stakeholders was needed to make the user community aware of the links between the Sustainable Development Goals and outer space.

67. It was suggested that, in the course of the next decade, the private sector would become the dominant player in space and that it was therefore important to set norms and behaviours to facilitate that momentum.

68. Participants noted that the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030), adopted in 2018 at the third Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific, would contribute to the “Space2030” agenda and benefit the region at large.

69. Some participants proposed that the term “new space” be used to mean non-traditional space players in non-traditional space markets, e.g., commercial space

transportation, space applications, fashion and entertainment, and that a sustainable environment and start-up accelerators were needed for the development of this emerging sector.

70. It was recommended that a global network of partners should be created to advance the development of the United Nations Programme on Space Applications and facilitate the bridging of gaps between user needs and space solutions.

### **III. Concluding remarks**

71. Participants once again recognized and emphasized the importance of partnerships as vehicles to support countries in achieving the Goals.

72. The United Nations/China Forum on Space Solutions on the theme “Realizing the Sustainable Development Goals” provided a unique opportunity to forge partnerships between users and space solution providers.

73. The declaration adopted at the Forum highlighted that both the space community and the user community had important roles to play in bridging the gaps between user needs and space solutions, and thus contributed to the achievement of the Sustainable Development Goals.

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## Annex

### **Declaration adopted at the United Nations/China Forum on Space Solutions on the theme “Realizing the Sustainable Development Goals”**

#### **Changsha Declaration**

Adopted at the United Nations/China Forum on Space Solutions on the theme “Realizing the Sustainable Development Goals” in Changsha, China, on 26 April 2019

*Expressing* their appreciation to the Office for Outer Space Affairs of the Secretariat and the China National Space Administration for having organized the Forum, in cooperation with the Industry and Information Technology Department of Hunan Province, and with the support of the Asia-Pacific Space Cooperation Organization, the Regional Centre for Space Science and Technology Education for Asia and the Pacific (China), affiliated to the United Nations, the Municipal People’s Government of Changsha and Hunan University,

*Noting with appreciation* the invitation to all participants in the Forum to attend the Space Day of China 2019 event on 24 April,

*Noting with satisfaction* the youth night as a side event of the Forum, organized by the Space Generation Advisory Council,

*Recalling* the 2030 Agenda for Sustainable Development as the most ambitious anti-poverty, pro-planet agenda ever adopted by the United Nations, and recalling also that countries, especially developing countries, are in great need of innovative approaches and partnerships to facilitate their progress towards achieving the Sustainable Development Goals,

*Reaffirming* that space science and technology and their applications and services, as innovative approaches, can help countries in achieving the Sustainable Development Goals, where space solutions, such as remote sensing technology, satellite telecommunications and global navigation satellite systems and their synergies have strong potential to offer,

*Noting with interest* the contribution of the China National Space Administration, together with the China Meteorological Administration, to the achievement of the Sustainable Development Goals, where the use of space science and technology has much to offer in future space development and cooperation,

*Noting with interest* the importance of the regional centres for space science and technology education, affiliated to the United Nations, as major players in building capacity for the realization of the Sustainable Development Goals,

*Recognizing* that partnerships in space activities, at the national, regional and international levels, and capacity-building and the transfer of technology, are indispensable for the achievement of the Sustainable Development Goals, and the importance of contributions of all relevant actors, including non-governmental organizations and the private sector,

*Acknowledging* that the Forum has represented an important opportunity to forge partnerships and has thus connected user needs with space solutions, building upon long-standing activities of the Office for Outer Space Affairs in advancing international cooperation in the exploration and peaceful uses of outer space,

*The participants in the Forum:*

1. *Are convinced* that space science and technology and their applications offer indispensable tools for comprehensive efforts at the national, regional and

international levels to implement the 2030 Agenda for Sustainable Development and achieve the 17 Sustainable Development Goals contained therein, and that additional efforts are needed to promote the use of space-related solutions to that end;

2. *Emphasize* that, in order to strengthen socioeconomic development, an integrated approach is required between the space sector and other sectors, including in environment and climate monitoring, disaster risk reduction and management, food security, health, water management, information and communication, and management of resources, to better understand and meet the needs of end users and society at large;

3. *Note*, in that regard, that the Access to Space for All initiative, the space solutions compendium and the user needs study of the Office for Outer Space Affairs can offer ways to promote space solutions for the achievement of the Sustainable Development Goals;

4. *Also note* the cooperation opportunities provided by the Space Information Corridor initiated by the China National Space Administration as a means to bridge the gaps between user needs and space solutions;

5. *Note* that the long-term sustainability of outer space activities represents a call for safe and responsible space operations and also constitutes an important overall prerequisite for the protection of the space environment and the future use of space assets for sustainable development on Earth;

6. *Recognize*, in that context, the importance of States' developing space policies and regulatory frameworks at the national level in accordance with their needs and conforming to international space law, and that capacity-building and technical legal assistance are essential to that effect;

7. *Assert* that the broader space community can facilitate the communication between users and space solution providers, and also communication between the space community and the general public, and thus can help to enhance the role of space in achieving the Sustainable Development Goals in a wider context;

8. *Emphasize* the need for cooperation at the national, regional and international levels to establish wider and stronger interlinkages between the space community and end user stakeholders for the benefit of economic, social and cultural development, leveraging all relevant actors through constructive and knowledge-based partnerships;

9. *Encourage* further work to connect users with space solutions on the basis of an adequate assessment of user needs and open access to space-derived data and information, and note in that regard that States, supported by the Office of Outer Space Affairs, could be assisted in finding adequate solutions matching their national priorities through triangular cooperation mechanisms and forging partnerships with solution providers;

10. *Recognize*, in that context, the crucial role of the Committee on the Peaceful Uses of Outer Space as a unique inter-governmental platform for international cooperation in the peaceful uses of outer space, including by providing opportunities for enhanced South-South, North-South and triangular cooperation, as appropriate.