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## Committee on the Peaceful Uses of Outer Space

### **Report on the United Nations/World Health Organization/Switzerland Conference on Strengthening Space Cooperation for Global Health**

**(Geneva, 23-25 August 2017)**

#### **I. Introduction**

1. The year 2018 will mark the fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50), a milestone that provides a unique opportunity to highlight the key societal benefits of space and to define stronger international collaboration in the peaceful uses of outer space for the benefit of all humankind.
2. The seven thematic priorities of UNISPACE+50 endorsed by the Committee on the Peaceful Uses of Outer Space in 2016 (A/71/20, para. 296) include strengthened space cooperation for global health (thematic priority five). Within that framework, the Expert Group on Space and Global Health of the Scientific and Technical Subcommittee of the Committee is working together with the Office for Outer Space Affairs of the Secretariat to address the various agreed objectives under that domain. The target is to develop new, improved international coordination mechanisms as well as information and recommendations on the thematic priorities for UNISPACE+50 by the time of its high-level segment in June 2018.
3. The United Nations Programme on Space Applications, implemented by the Office for Outer Space Affairs, was established in 1971 to assist Member States with capacity-building in the use of space science, space technology and space applications in support of sustainable development, as well as to promote international space cooperation. Since its inception, the Programme has organized several hundred training courses, conferences, seminars and meetings for the benefit of Member States, promoting collaborative participation among Member States at the regional and international levels in a variety of space science and technology activities. Emphasis was always put on the development and transfer of knowledge and skills to developing countries and countries with economies in transition.
4. Given that general context, a flagship Conference was organized jointly by the United Nations, the World Health Organization (WHO) and the Government of Switzerland, with support from the European Space Agency (ESA), and hosted by WHO at its headquarters in Geneva.



5. The outcomes and recommendations identified at the Conference will provide input for the report being prepared by the Secretariat to address the UNISPACE+50 thematic priority on strengthened space cooperation for global health.
6. The present report describes the background, objectives and programme of the Conference, and provides a summary of the observations and recommendations made by the participants.

## **A. Background and objectives**

7. In order to strengthen the ongoing processes in the lead-up to UNISPACE+50 and address the thematic priority on space and global health with a view to identifying any gaps, needs, opportunities and recommendations, it was decided that a dedicated flagship event would be convened in order to review and consider space cooperation for global health-related activities, and to bring together the space and the global health communities to also explore potential future projects and collaborations.

8. The focuses of the Conference included fostering dialogue on creating and reinforcing relevant partnerships for the better utilization of space-based assets, data and technologies in addressing global health. The Conference covered essential aspects, including data access, data provision services and information-sharing. The Conference also aimed to showcase select global health initiatives that use such space technologies, with a focus on two cross-cutting areas, namely: (a) the resiliency of space technologies to provide services despite a breakdown in ground-based infrastructure, notably in emergency situations and in humanitarian crises; and (b) interoperability, relating to the challenge of coordinating services and data sources to foster synergies and strengthen global health. Those cross-cutting areas are two of the five identified by the Committee, together with governance, capacity-building and sustainable development.

9. The Conference took into consideration past expert meetings, workshops and reports of the Committee addressing the space and global health domain.

10. Applications of space-based technologies in global health can be grouped into three main areas, all of which were thoroughly considered in the discussions:

(a) Earth observation and remote sensing: collecting valuable local, regional and global scale data, and information that can support national and subnational public health decision-making, including for disease surveillance, outbreak containment and resource planning for the well-being of the population, and studying and monitoring vector-borne diseases (tele-epidemiology);

(b) Telecommunication, and positioning and tracking: supporting tele-health and telemedicine applications for appropriate health interventions to and from rural or isolated areas with limited access to adequate medical support;

(c) Space-based research (for example, on board the International Space Station) and technology transfer: studying human physiology and identifying potential interventions and treatments in case of major disease outbreaks, and for water purification, ultrasound applications and vaccine development.

11. The main objectives guiding the Conference, addressed through a series of presentations, panel discussions and interactive dialogues to strengthen international cooperation among relevant institutions, were the following:

- To improve the use of space technologies and space-based information and systems in the global health domain
- To promote enhanced cooperation and sharing of information to strengthen and manage health systems, health emergencies, public health epidemics and pandemics, early warning signals and environmental parameters
- To enhance capability of institutions and Governments in integrating health data into disaster management plans

- To strengthen capacity-building in order to advance the role of space technologies in global health efforts
- To identify governance and cooperation mechanisms in support of strengthened international cooperation

12. Through its other mandated activities and through the implementation of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response, the Office for Outer Space Affairs has already identified a strong interdependency and linkages between disaster management and the public health sector. That reality requires space-based support, better space technology and the availability of geospatial data at different levels in order to improve information or solutions to address problems.

13. In addition, the report on the meeting on the applications of space science and technology for public health organized by WHO and the Office for Outer Space Affairs (A/AC.105/1099) identified the importance of global health priorities and the use of space science and technology in advancing the health goals of Member States, as well as the States members of WHO.

14. In order to also enhance existing partnerships and forge new ones in the area bridging space and global health, the Conference served as a platform to engage with other international actors and specific intergovernmental entities to provide a broader perspective on the notion of “one health” in the context of space applications for global health. Among those actors and entities, the Group on Earth Observations (GEO), given its efforts as an intergovernmental organization to promote Earth observations under an agreed societal benefit area on public health surveillance, was invited to contribute to the Conference.

15. The Conference was seen as a starting point for building an active community of practice interested in pursuing collaborations and capacity-building activities, and also interested in facilitating the work of a growing network of experts engaged in the use of space sciences and technologies for global health applications, closely linked to the 2030 Agenda for Sustainable Development, in particular to the relevant targets under Sustainable Development Goal 3 (“Good health and well-being”), as well as other Sustainable Development Goals addressing water, sanitation or aspects related to resilience.

## **B. Attendance**

16. The Conference brought together staff and officials of the Office for Outer Space Affairs and WHO, other United Nations entities and international organizations based in Geneva, experts from space agencies, representatives of the permanent missions to the United Nations in Geneva, as well as other Member State representatives and experts and policymakers from relevant organizations active in the field of space and/or health.

17. Participants were selected on the basis of their scientific and educational backgrounds, with consideration given to their professional experience related to the topics addressed. The selection process and the preparations for the Conference were carried out jointly by the organizers in cooperation with an international expert programme committee.

18. Funds provided by the United Nations, the Government of Switzerland and ESA covered the travel, accommodation and other costs of 22 participants from 16 countries. WHO provided facilities and other in-kind contributions.

19. The Conference was attended by a total of 109 participants, including some 25 staff members of United Nations entities and WHO. The following 33 Member States were represented: Argentina, Austria, Bahrain, Belgium, Brazil, Canada, Democratic Republic of the Congo, Ecuador, France, Germany, Ghana, Hungary, India, Italy, Japan, Kenya, Mexico, Netherlands, Nigeria, Norway, Pakistan,

Philippines, Republic of Moldova, Russian Federation, Sri Lanka, Switzerland, Turkey, Uganda, Ukraine, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America and Zimbabwe. The Conference was also attended by representatives of the Office for the Coordination of Humanitarian Affairs of the Secretariat, the Office for Disarmament Affairs of the Secretariat, the Office for Outer Space Affairs and the United Nations Institute for Training and Research, as well as the European Commission Joint Research Centre, ESA, the European Space Policy Institute, GEO, the International Committee of the Red Cross, the International Federation of Red Cross and Red Crescent Societies, the International Space University, the International Telecommunication Union, WHO and the World Meteorological Organization (WMO).

20. The Conference was broadcast and recorded using WebEx in order to allow for the greater participation of field staff of WHO and other interested parties. There were between 10 and 20 individuals participating online for the duration of the sessions.

### **C. Development and content of the programme**

21. The programme of the Conference was developed by an international programme committee consisting of representatives of the Office for Outer Space Affairs, WHO and the Government of Switzerland; the co-chairs, from Canada and Switzerland, of the Expert Group on Space and Global Health; and representatives of ESA and GEO.

22. A high-level segment of the Conference was held on 25 August, chaired by the Director of the Office for Outer Space Affairs and comprising a panel followed by a discussion with participants. The panel addressed issues including advancing space cooperation for global health at the national level, raising awareness, advancing the implementation of initiatives aimed at achieving the targets of Sustainable Development Goal 3, and galvanizing support for the use of space science and technologies for advancing public health. In addition to the Director of the Office, participants in the high-level segment included the Director of the GEO secretariat and a senior representative of WHO.

23. An open session of the Inter-Agency Meeting on Outer Space Activities (UN-Space) was held as an integral part of the Conference on 24 August, with a view to raising awareness and building a common understanding of the use of space technologies in achieving the Sustainable Development Goals. Participants in the session comprised a panel of high-level representatives from the Office for Disarmament Affairs, the Office for Outer Space Affairs, WHO and WMO. The session provided another opportunity to strengthen the dialogue between participants of the Conference, representatives of the United Nations and other international organizations, and staff of the permanent missions in Geneva.

24. The programme of the Conference was structured around the following five thematic sessions and a closing session on the following topics:

- (a) Space science and technology for Sustainable Development Goal 3;
- (b) Health system resiliency;
- (c) Capacity-building in the use of space science, technology and applications for global health: identifying needs and best practices;
- (d) Systems and organizational interoperability, and technical cooperation;
- (e) Looking ahead;
- (f) Closing session, including the finalizing of the proposed recommendations.

A presentation session was also scheduled for various presenters whose proposed contributions could not be accommodated in the thematic sessions listed above.

25. The Conference was advertised and promoted on various websites and on social media sites, including Facebook and Twitter, highlighting its importance and the interest shown in the topics addressed. The final programme and presentations, as well as select recordings, will be made available on the Conference web page.

## **II. Summary of the programme**

### **A. Opening session**

26. The Conference was opened with welcome remarks by the representatives of WHO, the Office for Outer Space Affairs and the Government of Switzerland, as well as by the co-chairs of the Expert Group on Space and Global Health of the Scientific and Technical Subcommittee of the Committee.

27. A presentation by the representative of the Office familiarized participants with the UNISPACE+50 process, establishing the necessary linkages with the objectives of the Conference. A presentation was also made by the host, setting the stage for and describing the objectives and expectations of the Conference.

28. Key issues highlighted by all speakers during the opening session included development requirements of national health systems, interoperability and the need for stronger cooperation and coordination. The co-chairs of the Expert Group introduced participants to the background of the Group, including its formation and work and the progress made in the years since its establishment.

### **B. Space science and technology for Sustainable Development Goal 3 (thematic session 1)**

29. In the first thematic session, presentations were made by representatives of the Public Health Agency of Canada, WHO, the Japan Aerospace Exploration Agency, the African Regional Centre for Space Science and Technology Education — in English Language (Nigeria), the University of Geneva (Switzerland) and Zimbabwe. The presentations focused on ongoing efforts and challenges in improving links among health, sustainable development, and space science and technology for the benefit of society.

30. Issues addressed in discussions included the following:

(a) The need for specific tools and support for data analysis related to Sustainable Development Goal 3 that can be delivered through space technology and its applications, and engaging users, researchers, decision makers and other stakeholders in global health to identify such needs;

(b) Technological limitations in the use of all types of space-derived technologies (for example, GNSS and remote sensing);

(c) References to high-level actions that should be taken to strengthen the use of space-derived data and tools to support the achievement of the Goals of relevance to the global health domain.

### **C. Health system resiliency (thematic session 2)**

31. In the second thematic session, presentations were made by representatives of WHO, the WMO/WHO joint office for climate and health, the University of Geneva and India. The presentations focused on the following topics:

(a) Use of Earth observation data in the water, sanitation and hygiene sector;

(b) Role of remotely sensed climate and environmental information in improving health-care services;

- (c) Gaps and opportunities in space technology contributions to global health;
- (d) Emergency medical services supported by space technologies in isolated areas of developing countries.

32. It was noted that targeted capacity-building for the use of Earth observation data needed to take into account the limitations on the ground in developing countries and ensure that data access and related platforms were less complex to use and well documented.

33. Issues addressed in discussions included the following:

- (a) Technical and organizational cooperation needs required to improve the use of space-derived data and information in the mitigation of impacts of emergencies, epidemics and humanitarian crises;

- (b) Potential space-derived tools and solutions for strengthening health systems in isolated or confined settings;

- (c) Actions that should be recommended in order to strengthen the use of space-derived data and tools for improving health system resiliency.

#### **D. Capacity-building in the use of space science, technology and applications for global health: identifying needs and best practices (thematic session 3)**

34. In the third thematic session, presentations were made by the representatives of Ghana, the Russian Federation, Uganda, the University of Geneva and the International Committee of the Red Cross. The presentations focused on the following topics:

- (a) Past United Nations efforts in promoting space applications for addressing global health;

- (b) Various space- and health-related capacity-building issues and case studies that relate to geospatial data and space technology utilization in Africa;

- (c) Tools for modelling access to health and for developing common health-facility location information globally.

35. Issues raised in discussions included the following:

- (a) Specific needs for capacity-building in terms of using space-derived data and information for the development of tools and information systems for global health;

- (b) Barriers to accessing and processing data and how those issues can be resolved;

- (c) Solutions available to strengthen capacity-building related to the use of space-derived data and tools for global health.

36. Participants considered that initiatives were often externally driven, and that interoperability of the data and systems were lacking, given the fragmented approaches in developing those. Such problems could be addressed with clear policies, donor cooperation and regular training and retraining of staff in relevant institutions. The importance of open data and of opening up access to key data were also stressed.

#### **E. Systems and organizational interoperability, and technical cooperation (thematic session 4)**

37. In the fourth thematic session, presentations were made by the representatives of GEO, the Operational Satellite Applications Programme of the United Nations

Institute for Training and Research (UNOSAT), the Asia e-Health Information Network (AeHIN) GIS Laboratory (Philippines), and the International Space University (France).

38. The presentations focused on the following topics:

(a) Use of Earth observation data for healthy and sustainable communities, and in support of WHO field deployments;

(b) Building up and enabling of in-country health information systems as a means of increasing transparency in space-related international cooperation in support of global health and capacity-building aspects in Asia and the Pacific.

39. Issues raised in discussions included the following:

(a) With regard to mechanisms, the need to both optimize the sharing of space-derived data and information, and improve their integration into the decision-making processes concerning global health;

(b) Harmonization of the use of space technology in global health through the standardization and updating of space-derived information;

(c) Intersectoral cooperation in the use of space-derived data and information;

(d) Strengthening interoperability and technical cooperation for the use of space-derived data and tools;

(e) Need for clear custodianship of data at all levels.

40. Participants considered that a large number of needs from ministries of health were already well documented and concrete support could be better reflected in development assistance and with donors, and that the user feedback at the local level and among government users was key to improving trust and cooperation.

## **F. Looking ahead (thematic session 5)**

41. In the fifth thematic session, presentations were made by the representatives of the National Aeronautical and Space Administration of the United States, the European Space Policy Institute, the European Commission Joint Research Centre and ESA.

42. The presentations focused on the following topics:

(a) Overview of space technologies and applications for health, as well as those related to the Sustainable Development Goals;

(b) Revolutionary application of specific technologies developed for space flight in the health domain;

(c) Review of innovative ways of using over 30 years of open satellite-imagery data to study and monitor changes in surface water as a result of the development of the Global Surface Water Explorer.

43. The subsequent discussions focused on the relevance of the intersectoral collaborations in space and global health at the country level, and on mechanisms to be implemented to champion and finance efforts to better combine the space and global health sectors.

44. Participants considered that the current fragmentation of initiatives related to global health in space research was counterproductive. It was noted that combined approaches between the health and space sectors might yield better results, even if additional efforts — involving the United Nations if possible — were deemed necessary. Examples of such an approach included an academic consortium in India, which links doctors, engineers and biomedical experts by means of a national networking programme for science and technology. That consortium might be a good model to consider.

45. The need for an international coordinating body to undertake such an intersectoral initiative was seen as important, as demonstrated from practical experience highlighted by the secretariat of GEO. Upon examination, it was clear that in any domain, silos were already embedded at the regional and national levels, and solutions to improve communication and align interests were needed. It was noted that the high-level political forum on sustainable development could also provide an opportunity to better link health to a number of Sustainable Development Goals related to natural resources.

## **G. Presentation session**

46. The presentation session included eight additional presentations, which were of relevance to the topics addressed in the Conference and contributed to the outcomes and the identification of specific recommendations.

47. The presentations were made by speakers from Germany, India, the Philippines and Turkey, as well as from the Mexican Space Agency (AEM), the National Commission of Space Activities of Argentina (CONAE) and the Romanian Space Agency (ROSA). Those speakers addressed issues related to the following topics:

- (a) Vulnerability assessment in the context of urbanization;
- (b) Use of powerful lasers in the testing of space components;
- (c) Applied landscape epidemiology and warning systems;
- (d) Satellite data support for the fight against vector-borne diseases;
- (e) Space medicine as a new domain;
- (f) Reducing the virulent effect of bacteria, and the utility of gamification applications for human spaceflight;
- (g) Emergence of drug-resistant pathogens as a result of poor sanitation, and approaches to monitoring them;
- (h) Application of disease surveillance and accurate three-dimensional city modelling to create vulnerability profiles of urban built environments and people.

## **III. Observations and recommendations**

### **A. Observations**

48. Observations and recommendations made by participants during the Conference were noted and summarized for review and agreement on the last day of the Conference.

49. Conference participants, by means of presentations and interventions during the discussions, highlighted important considerations directly relevant to strengthening space cooperation for global health in the context of preparing the UNISPACE+50 agenda. Those considerations are summarized below.

50. According to WHO, the term “global health” refers to the transnational impact of globalization upon health determinants and health problems — an impact that is beyond the control of individual nations. A vision to address common global issues, including global health and other related dimensions, was articulated in the Sustainable Development Goals. Participants in the Conference noted the importance of a focused and sustained commitment to support Goal 3 as well as those related to health, in particular Goal 4 (Quality education), Goal 6 (Clean water and sanitation) and Goal 13 (Climate action), by means of the strengthening of space cooperation for global health.

51. WHO is the coordinating authority for health within the United Nations system and is responsible for providing leadership on global health issues. Its goal is to build a better, healthier future for people all over the world. With offices in more than 150 countries, WHO staff work side by side with Governments and other partners to ensure the highest attainable level of health for all people.

52. The Office for Outer Space Affairs is the United Nations office responsible for promoting international cooperation in the peaceful uses of outer space. It provides technical advisory services on space applications and organizes international workshops to build capacity in remote sensing, satellite navigation, satellite meteorology, tele-education and basic space sciences for the benefit of developing nations. The Office also serves as the secretariat for the Committee on the Peaceful Uses of Outer Space.

53. Since 1999, sustained efforts to articulate the improvement of public health by leveraging space-based assets were accomplished under the framework of the Scientific and Technical Subcommittee of the Committee. One milestone in that domain is the report of the Action Team on Public Health, established by the Committee in 2001, which provided recommendations applicable to national, regional and international levels (A/AC.105/C.1/L.305). Those recommendations were further examined by participants in the context of the Conference.

54. There is widespread recognition among experts of the application and potential of space-based assets, data and technologies to support global health. The importance of dealing with pressing issues related to water, climate change, major epidemics, the location of health facilities and access to health services, pollution-related diseases and non-communicable diseases were highlighted during the various discussions and presentations. Those exchanges served to illustrate the relevance of space-based activities in supporting the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction and the Paris Agreement under the United Nations Framework Convention on Climate Change.

55. Global environmental changes directly and indirectly affect the health of all populations. There is therefore a strong connection and interdependence between the state of the environment and the health of humans, animals and the planet, a concept often referred to as one health. Participants recognized the importance of interconnected actions, cooperation and collaboration in reaching out to all relevant actors in that regard.

56. Participants recognized the need to better connect health-information systems with remotely sensed, Earth observation data and information in order to increase operational use and maximize impact. Participants also highlighted the importance of continued effective engagement at the international, national and subnational levels with multiple stakeholders in order to enhance existing cooperation mechanisms to optimize public investment in space-based assets. In that context, participants acknowledged the importance of GEO as one such effective mechanism and discussed avenues for leveraging the capacity and experience of that organization in further strengthening space cooperation for global health, including advocating for the inclusion of health-sector representatives in national GEO delegations.

57. Space technology can play a significant role in supporting logistical and operational needs specific to key functions of public health, including surveillance, emergency preparedness and field response. Therefore, linking space technology to country-specific health objectives and needs is a necessary component of a global and sustainable strategy to explore and support social and economic benefits for humankind.

58. At the national level, space-based data and products may require advanced technical abilities and specialized tools to be integrated into decision-making processes relevant to the health sector. Participants recognized the important value of a whole array of space-oriented learning activities and approaches targeting young people, young professionals and adult learners. Providing special guidance and

support to young professionals interested in the cross-cutting area of space technologies and global health should be considered as a long-term and effective approach in enhancing the understanding of space technology benefits to our societies, and in developing effective and lifelong, interdisciplinary skills relevant to global health solutions.

59. There seems to be a significant need to further promote the added-value and socioeconomic benefits of leveraging space-based data and technology in global health, in particular to public health actors, policymakers and the general public. Although a number of United Nations entities and international organizations are already undertaking initiatives and establishing programmes in those areas, participants noted a continued and important need to enable knowledge transfer, and outreach and communication strategies. Participants also acknowledged a need for value-added analyses, in order to demonstrate the benefits in economic terms and indicate the ability of those benefits to improve health outcomes. Those activities may include a more active role for the media and communication experts in articulating the benefits and establishing mechanisms to facilitate knowledge transfer from the space to health sector.

60. At the national level, it was noted that intersectoral agreements were needed to engage in strong partnerships with the health community (for example, the Ministry of Health), the telecommunications community (for example, the Ministry of Information and Technology) and the space community (for example, the national space agency) as well as other relevant stakeholders.

61. At all levels, in the context of intersectoral engagements, the crucial and growing role of academia, industry and the private sector in creating synergy with other public and non-governmental sectors for the development of innovative space solutions pertinent to global health would have to be recognized.

62. There was broad agreement on the need to address interoperability of data, information and organizational processes through intersectoral collaborations, using standard-setting mechanisms as well as collaborative approaches that foster technical interoperability.

63. The contribution and significant potential of citizens, communities and open approaches was recognized in developing and applying space-based tangible solutions to health needs.

64. There are numerous health and medical benefits that are directly arising from technology and knowledge transfer of space solutions ranging from innovative devices to medical products. There is a need to better explain, promote and raise awareness of those benefits to the general public and to health experts, in particular.

65. United Nations bodies and international organizations undertaking work with, or interested in promoting, space-based assets, data and technology for global health should be linked in a horizontal effort to disseminate information and promote initiatives in those areas.

## **B. Recommendations**

66. The recommendations contained in the final report of the Action Team on Public Health on the use of space technology to improve public health ([A/AC.105/C.1/L.305](#)) should be pursued and built upon with particular attention to:

(a) Encouraging formal cooperative agreements among health and space authorities at the national level;

(b) Establishing a dedicated platform for effective coordination among United Nations entities, other international organizations and relevant actors on space and global health issues;

(c) Encouraging United Nations entities, intergovernmental organizations and national Governments to pursue effective coordination in all key space activities relevant to global health (tele-communications, global navigation space systems and geographic information systems, remote sensing, space life science and technology development).

67. Institutional arrangements should be strengthened between the Office for Outer Space Affairs and WHO, with a view to improving the effectiveness of collaborations.

68. WHO should consider establishing a dedicated high-level focal point for space-related affairs to advance the use of space science and technology in global health.

69. The key role of the Office for Outer Space Affairs in providing technical support to United Nations entities and intergovernmental organizations on interdisciplinary and cross-sectoral space-related matters should be built upon and strengthened.

70. WHO should engage in some activities of the Office for Outer Space Affairs that are relevant to global health, including technical advisory missions of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response.

71. The United Nations system is encouraged to establish a global financing mechanism to support wider application of space solutions for global health. That mechanism could be realized as part of a voluntary trust fund for the implementation of a broader range of space solutions for sustainable development, and could include public-private partnerships.

72. United Nations entities and intergovernmental organizations should develop appropriate tools to enable Member States to address public health needs related to space technology.

73. While giving due consideration to legal and ethical issues, Member States are encouraged to establish policy-enabled environmental and governance mechanisms, with a view to removing barriers in the effective use of space-based technologies, including telemedicine solutions.

74. Member States are strongly encouraged to promote open data-sharing policies and participatory approaches in developing and improving access to all geospatial information relevant to global health, whenever possible.

75. Member States and participating entities are encouraged to advance efforts related to geo-tagging of all assets relevant to the strengthening of health systems, including health information systems, and make them available for the advancement of health goals.

76. Intersectoral coordination and cooperation should be enhanced for effective international, regional, national and subnational capacity-building activities relevant to the application of space science and technology for global health. Actors engaging in those activities should consider follow-up mechanisms aimed at strengthening the sustainability of the activities.

77. Member States are encouraged to engage learning institutions and other capacity-building mechanisms in order to motivate young professionals, at an early stage, towards space-related skills and abilities, with particular attention given to experts in health.

78. Member States are also encouraged to enable organizational and technical interoperability to facilitate the development and implementation of space-based science and technology in the health sector.

79. Member States are further encouraged to conduct appropriate drills and exercises to benchmark their operational preparedness and response capacities and

capabilities for the appropriate use of space technologies when responding to global health events.

#### **IV. Conclusion**

80. The Conference was a good example of inter-agency cooperation. The Office for Outer Space Affairs and WHO worked closely with one another and with other international organizations in ensuring the successful outcome of the Conference. It brought together numerous stakeholders working on the application of space technologies for global health. Their contributions were key to developing a set of recommendations to support the preparations for UNISPACE+50.

81. There was general agreement that engaging space-based tools and technologies would strongly enhance the capacities of the global public health sector and that such a benefit should be better communicated to decision makers and the wider public. The Conference and the present report on its outcomes aim to play an important role in raising awareness of Member States and relevant organizations.

82. Making full use of the framework provided by UNISPACE+50 and the opportunity it offers, the Office for Outer Space Affairs stands ready to assist Member States and other United Nations entities in addressing the agreed recommendations. The Office is also ready to assist with the development and implementation of capacity-building initiatives necessary to address the global challenges that characterize our rapidly changing world in the twenty-first century.

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