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Coordination of space-related activities within the United Nations system: directions and anticipated results for the period 2014-2015 — addressing the post-2015 development agenda

Report of the Secretary-General**

I. Introduction

1. The post-2015 development agenda, unified in its content and universal in form, will require effective, enhanced and innovative tools to support its implementation. Among those tools are the ones offered by space science and technology, which could act as both an enabler and a catalyst for the efforts of countries with regard to progressing towards internationally agreed development goals and for sustainable development. Advancing international cooperation in the peaceful uses of space science and technology and increasing the use of space-derived data and information are at the core of international efforts for harnessing the benefits of outer space for development in the post-2015 framework.

2. The General Assembly, in its resolution 68/75, reiterated that the use of space technology should be promoted in efforts towards achieving the objectives of the major United Nations conferences and summits for economic, social and cultural development and related fields, including implementing the Millennium Declaration and contributing to the post-2015 development agenda process.

3. Also in that resolution, the General Assembly emphasized the need to increase the benefits of space technology and its applications and to contribute to an orderly

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growth of space activities favourable to sustained economic growth and sustainable development in all countries, including building resilience to reduce the consequences of disasters, in particular in developing countries.

4. In that resolution, the General Assembly welcomed the increased efforts to strengthen further the Inter-Agency Meeting on Outer Space Activities and recommended that the abbreviation "UN-Space" be used to refer to the Inter-Agency Meeting to increase its visibility. UN-Space is the central United Nations coordination mechanism for space-related activities, under the leadership of the Office for Outer Space Affairs of the Secretariat, with the aim of promoting synergies and preventing duplication of effort related to the use of space technology and applications in the work of United Nations entities.

5. At its thirty-third session, held in Geneva from 12 to 14 March 2013, the Inter-Agency Meeting agreed that the report of the Secretary-General on the coordination of space-related activities within the United Nations system for the period 2014-2015 should address the post-2015 development agenda, giving attention to the issue of resilience and building on the previous reports of the Secretary-General (see A/AC.105/1043, para. 25).

6. At that session, the Inter-Agency Meeting also recommended that the future reports of the Secretary-General and special reports on specific topics should be presented to the respective intergovernmental bodies governing the work of participating United Nations entities, as appropriate (see A/AC.105/1043, para. 29).

7. The present report, which is the thirty-sixth report of the Secretary-General on the coordination of space-related activities within the United Nations system, is organized along four main themes: environmental sustainability, inclusive social development, inclusive economic development and promotion of international cooperation in the peaceful uses of outer space. This approach stems from the recommendations of the first report of the United Nations System Task Team on the Post-2015 United Nations Development Agenda, which was established by the Secretary-General in 2011 to support United Nations system-wide preparations for the formulation of the United Nations development agenda beyond 2015, in consultation with all stakeholders.

8. In that report, entitled "Realizing the future we want for all", which serves as a first reference for the broader consultations on the post-2015 development agenda, the Task Team recommended, inter alia, that an agenda format based on concrete end goals and targets, one of the key strengths of the Millennium Development Goals framework, should be retained but reorganized along four key dimensions of a more holistic approach: (a) inclusive social development; (b) inclusive economic development; (c) environmental sustainability; and (d) peace and security. This focused approach is consistent with the principles of the Millennium Declaration, which set out a vision of freedom from want and fear for present and future generations, and builds on the three pillars of sustainable development.

9. The present report was prepared by the Office for Outer Space Affairs in its capacity as secretariat to the Inter-Agency Meeting, and compiled on the basis of submissions from the following United Nations entities: Department of Field Support, Department of Safety and Security, Statistics Division of the Department of Economic and Social Affairs, Department of Political Affairs, Economic Commission for Africa (ECA), Economic and Social Commission for Asia and

the Pacific (ESCAP), Economic and Social Commission for Western Asia (ESCWA), International Atomic Energy Agency, International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), International Telecommunication Union (ITU), Office for Disarmament Affairs of the Secretariat, Office for Outer Space Affairs of the Secretariat, secretariat of the United Nations Framework Convention on Climate Change and World Health Organization (WHO).

10. The present report adds to the description of activities contained in the reports of the Secretary-General on the coordination of space-related activities within the United Nations system for the period 2010-2011 (A/AC.105/961) and for the period 2012-2013 (A/AC.105/1014), and reflects activities planned for the period 2014-2015.

II. Use of space-derived information in addressing the post-2015 development agenda

A. Environmental sustainability

11. The effects of climate change and environmental degradation threaten the achievement of the Millennium Development Goals. To ensure environmental sustainability, United Nations entities employ space-derived data to monitor processes and trends on a global scale for informed decision-making within their respective mandates, and jointly coordinate Earth observation through global climate, ocean and terrestrial observing systems. Furthermore, geospatial data and information is used for monitoring the implementation of eventual mitigation measures, supporting analysis of the impact of such measures and establishing scientifically justified strategies for future actions.

12. Remote sensing is essential for improving the understanding of terrestrial, oceanic and climate-related parameters on a global scale, and constitutes, in combination with in situ sources, the basis for long-term observations used by the global observing systems, namely the Global Climate Observing System, the Global Terrestrial Observing System and the Global Ocean Observing System. (For more information on those observing systems, co-sponsored by the Food and Agriculture Organization of the United Nations, the United Nations Environment Programme, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Intergovernmental Oceanographic Commission, the World Meteorological Organization (WMO) and the International Council for Science, see A/AC.105/1014, paras. 10-17.)

13. The United Nations Framework Convention on Climate Change, under its Subsidiary Body for Scientific and Technological Advice, regularly considers matters related to the systematic observation of climate, including from space. The cooperation and contributions from organizations of the United Nations system and their co-sponsored global observing systems play an important role in supporting the Convention's observational needs for addressing climate change under many areas of work.

14. At its thirty-seventh session, held in Doha in December 2012, the Subsidiary Body received from the Committee on Earth Observation Satellites an updated

report on progress made by space agencies providing global observations in their coordinated response to relevant needs under the Convention. Consideration was given to the importance of continuing and sustaining satellite observations on a long-term basis, as well as to matters related to full and open data sharing, in order to support work under the Convention.

15. The thirty-ninth session of the Subsidiary Body, held in November 2013 in Warsaw, emphasized the importance of systematic observation for the Framework Convention process at large, including for advancing climate modelling and adaptation, as well as the continued need to secure funding to meet the essential needs relating to global climate observations on a long-term basis. It noted that there were still gaps in critical observational data, inter alia for the oceans, and in the networks in some parts of the world, especially in developing countries. The Conference of the Parties to the United Nations Framework Convention on Climate Change, at its nineteenth session, held in Warsaw in November 2013, decided that the relevance of the Nairobi work programme on impacts, vulnerability and adaptation to climate change should be enhanced, inter alia, through developing linkages to research and systematic observation. The Subsidiary Body will again address matters related to space-based observations in support of addressing climate change at its forty-first session, to be held in December 2014 in Lima.

16. At the regional level, efforts aimed at addressing climate change and promoting environmental sustainability are led by the United Nations regional commissions. Through its newly established African Climate Policy Centre, ECA has continued to champion the generation and sharing of knowledge on environmental stresses and food crises, which affect citizens, businesses and the community at large. The Commission addresses the need for greatly improved climate, water, energy and disaster risk information for Africa, and for strengthening the use of such information for decision-making, by improving analytical capacity, knowledge management and information dissemination.

17. In 2014 and beyond, ECA will continue to assist the African Union, member States and regional economic communities in implementing the continent-wide programme on Monitoring for Environment and Security in Africa, as well as in providing a regional focus to the Global Framework for Climate Services, which is aimed at valuing global space-based fundamental and thematic climate data for monitoring and downstream applications.

18. In Asia and the Pacific, ESCAP has taken many steps to address the challenges of building resilience in multidimensional ways. Through its long-standing Regional Space Applications Programme for Sustainable Development, ESCAP has made concerted efforts to promote the applications of space technology for supporting disaster risk reduction and inclusive and sustainable development. For example, in addressing the urgent needs of member States relating to information generated from space-derived technology for disaster management, ESCAP mobilized regional resources to support disaster-affected countries with respect to early warning, preparedness, response, relief and damage assessment, avoiding loss of life and minimizing economic loss.

19. In particular, when tropical cyclones, earthquakes, serious floods and typhoon Haiyan hit Bangladesh, China, Pakistan, the Philippines and other countries in the region, ESCAP immediately mobilized near-real-time satellite imagery through the

network of space agencies within the Regional Space Applications Programme for Sustainable Development, at the onset of each disaster, upon receiving requests for support from the affected countries. Since 2013, these efforts have resulted in the timely provision of more than 150 near-real-time and archived satellite imagery scenes, as well as damage maps, which were provided by members of the Programme and by the United Nations Institute for Training and Research (UNITAR) Operational Satellite Applications Programme (UNOSAT), a strategic partner of ESCAP.

20. Since late 2013, as part of its efforts towards the operationalization of the regional cooperative mechanism for drought monitoring and early warning, ESCAP has conducted technical advisory services and a series of thematic and specialized training sessions in Mongolia and Sri Lanka. It will continue to enhance its efforts in other pilot countries, such as Cambodia, Mongolia, Myanmar and Nepal, as well as in other drought-prone countries, upon request. China, India, Japan and the Republic of Korea have provided technical and financial support to the pilot projects. The regional service nodes in China and India have contributed with regard to space-based data, knowledge and capacity-building. A regional information portal for drought data dissemination will be established by ESCAP in 2014.

21. ESCWA is coordinating the implementation of the Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and socioeconomic vulnerability in the Arab region. This initiative generates geospatial information and analysis based on regional climate downscaling, hydrological modelling and an integrated vulnerability assessment, which draw upon geospatial databases, satellite images, remote sensing and local observations. Composite geospatial analysis and disaggregated layers, focusing on thematic clusters such as water, biodiversity, ecosystems, agriculture, infrastructure, human settlements, health and employment, will be made available through a regional knowledge hub covering the Arab region by 2015. The initiative is being implemented through a collaborative partnership among ESCWA, the League of Arab States and other strategic partners.

22. ESCWA, particularly its Information and Communication Technology Division (which will soon be renamed the Technology for Development Division), participated in the United Nations/United Arab Emirates Symposium on Basic Space Technology: Small Satellite Missions for Developing Space Nations, held in Dubai, the United Arab Emirates, from 20 to 23 October 2013 and organized under the framework of the Basic Space Technology Initiative of the Office for Outer Space Affairs. The Commission led the session on space technology development activities in Western Asia and moderated the panel on prospects for space technology development activities and regional and international cooperation in Western Asia.

23. The panel considered past efforts relating to space technology development in Western Asia, in particular in the Arabic-speaking countries; the present status, plans and visions for the future; opportunities and challenges; and the role of regional cooperation. The panel participants agreed that, while Arab countries had been users of space technology and its applications for several decades, there was a need to catch up and move from being users and operators to becoming developers. There was also a need to enhance regional cooperation, as the capabilities of the countries in the region would complement each other through competitive

advantages and specialization. Such cooperation could also build on the definition of a regional road map for space activities. It was noted that a stable legal and regulatory environment, including through the promulgation of space laws and policies, first at the national level and possibly later at the regional level, would provide the necessary confidence and guidance for sustaining space activities, including those of the private sector. It is suggested that the 2015 symposium on basic space technology should focus on space technology development activities in Africa, and be held in one of the ESCWA member countries in Africa, in cooperation with ESCWA.

24. The focus of activities organized by the United Nations Programme on Space Applications of the Office for Outer Space Affairs extends beyond just a regional perspective. Through workshops and expert meetings, the Programme provides opportunities for bringing together experts, decision makers and practitioners to share experience and knowledge among regions with the aim of defining the actions and follow-up activities that are required to improve the use of space technology for natural resources management and environmental monitoring. In 2014, the Programme will conduct its capacity-building activities in Morocco (water management) and Ecuador (environmental monitoring/climate change); in 2015, it will possibly do so in India (disaster management).

25. Combining regional and global approaches, the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) will continue to organize conferences, workshops and thematic expert meetings that serve as platforms for the exchange of knowledge and experience. These events allow member States to learn about innovative new methods, best practices and possibilities for accessing satellite-derived resources. In 2014, a regional workshop will be held in El Salvador on drought early warning and drought monitoring, and training sessions will be organized in China, Thailand and Viet Nam. International conferences will be held in China and Germany, and will be aimed at promoting and fostering the use of Earth observation in the full cycle of disaster management.

B. Inclusive social development

26. United Nations entities are increasingly using information generated from space-derived technology for a vast range of activities related to social development, from public health to human security and welfare, disaster management and humanitarian assistance. As these activities require the active contribution and involvement of competent entities in member States, efforts are being made to promote the use of the space-derived data and information by Member States, on both a regional and an international scale.

27. ECA, in the context of its new paradigm of transformative development in a renascent Africa, has realigned its geoinformation activities with statistics so as to strengthen the statistical capacities of member States to support economic and social management for inclusive growth, economic transformation and sustainable development. The modalities of implementation include a combination of policy research to generate knowledge, advocacy and consensus building, and advisory services and technical cooperation for generating robust statistics and original data,

using innovative techniques such as spatially enabled mobile data technology. This new strategic direction is aimed at putting Africa first in the work of the Commission, ensuring that the continent is empowered to tell its own story by itself.

28. In 2014 and beyond, ECA will continue to foster the development of geospatial data sets, applications and spatially enabled services relevant to the African development agenda, and to enhance the capabilities of African countries to effectively use geospatial information for spatially enabled decision-making.

29. Through its flagship publication, *Building Resilience to Natural Disasters and Major Economic Crises*,[1] ESCAP outlined the overlapping and interlinked nature of multiple shocks and highlighted the adverse socioeconomic impacts of disasters. In order to ensure that social development remains inclusive, ESCAP calls for a more comprehensive and systemic approach to building resilience to multiple shocks. ESCAP presented a regional road map on how to address challenges relating to disasters and promote socioeconomic development in the Asia-Pacific region to the ESCAP Commission at its sixty-ninth session, in May 2013.

30. ESCAP gives high priority to capacity-building programmes. The secretariat has conducted a series of workshops and training sessions on space technology and applications of geographic information systems (GIS) for effective disaster risk reduction, which benefitted approximately 400 governmental policymakers, administrative officials, planners, professional staff, researchers and project managers from more than 30 developing countries in the region. Some of these capacity-building activities were conducted through training nodes of the Regional Space Applications Programme for Sustainable Development at the Centre for Space Science and Technology Education in Asia and the Pacific in Dehradun, India, and through training partners at the Chinese University of Hong Kong, China.

31. In streamlining the use of space-derived data within the United Nations system, the programmes within the Asia-Pacific plan of action are delivered within the framework of the Regional Space Applications Programme for Sustainable Development, and in close collaboration with UNITAR/UNOSAT, UN-SPIDER, the Asia-Pacific Space Cooperation Organization, the Sentinel Asia project and the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia.

32. Amplifying regional efforts that are instrumental for undertaking a nuanced approach to addressing regional specificities, UN-SPIDER promotes, on a global scale, the application of space-based information to disaster risk reduction and emergency response in order to bridge a gap between the potential of such data and information and their actual use. In this context, UN-SPIDER raises awareness of the benefits of space technologies for disaster management and is aimed at building the capacities of Member States to effectively make use of these resources. Through its tailored advisory support and its knowledge portal, UN-SPIDER serves as a unique gateway to accessing and using the necessary data, tools and software. In the biennium 2014-2015, UN-SPIDER will continue to provide this support to countries in Africa, the Asia and Pacific region and Latin America and to further improve the content of its knowledge portal in several official languages of the United Nations. In 2014, technical advisory missions to Bhutan, El Salvador, Gabon, Kenya and Mongolia have been scheduled; requests for support have been received for 2015.

[1] Available from www.unescap.org/commission/69/theme-study.

33. Space technology has also proven its usefulness in a sectoral context, with public health a prime example of a sector in which the use of satellite communications and remote sensing is both a reality and a need. This technology offers appropriate and affordable tools that are needed for achieving universal health coverage, one of the six leadership priorities of the WHO twelfth general programme of work for the period 2014-2019,[2] especially in remote and rural areas. Satellite communications are an integral part of an overall health information infrastructure and need to be used intelligently and in partnership between the public and private sector. One of the key applications of satellite technology with regard to health is health mapping (e.g. of the environment, diseases, movement of people, health facilities), which is used by decision makers to identify populations at risk, assess health-care coverage, guide strengthening of the health sector, highlight the geographic spread of diseases, stratify risk factors, assess resource allocation, plan and target interventions, support the monitoring and analysis of trends and support advocacy and fundraising.

34. Satellite communications are used as infrastructure for telemedicine and tele-health services to improve access to such services and to develop the capacity of health-care professionals and workers through e-learning and access to knowledge. Effective disease surveillance systems for timely responses to disease are a core activity of WHO and its member States. Satellite communications are used in response to the exponential increase in international travel and trade, and the emergence and re-emergence of international disease threats and other health risks. In 2005, 194 countries agreed to implement the International Health Regulations.

35. Global satellite monitoring data have been instrumental in estimating urban and rural exposure to air pollution, one of the leading risks to global health. The most recent WHO and external scientific assessments have estimated that as many as 7 million premature deaths could be attributed to exposure to air pollution.[3,4] The health benefits of policies to reduce emissions of particulate matter could manifest themselves relatively quickly (in a matter of years), resulting in economic gains that would far exceed the costs of pollution reduction and yielding concurrent benefits in the reduction of near-term climate change.

36. To advance the use of air pollution disease burden estimates, WHO has embarked on the development of a global platform on air quality and health, building on its existing urban air pollution database, as well as available satellite remote sensing and atmospheric transport model data from leading national and scientific institutions around the world. Combining data from satellite remote sensing with surface monitoring data and atmospheric transport models allows an increase in the availability of global information on key air pollutants, especially for the most highly polluted and data-poor regions, and in particular for many parts of the developing world, including cities and rural areas, that lack coverage by ground-level monitoring stations.

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[2] See http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_6-en.pdf.

[3] See www.who.int/phe/health_topics/outdoorair.

[4] Stephen S. Lim and others, “A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010” in *The Lancet*, vol. 380, No. 9859 (15 December 2012), pp. 2224-2260.

37. The first expert consultation on the new global platform took place in January 2014 at WHO headquarters in Geneva. The participants concluded that the progress in methods of air pollution assessment, and in particular methods based on satellite remote sensing, could facilitate significant improvements in global estimates of population exposure to air pollution and its resulting health burden.

38. Regular updates of improved estimates, involving data from satellite remote sensing, will be provided by WHO beginning in 2014. Further refinements in remote sensing methodologies, allowing for more precise retrieval of high-resolution data, can contribute to even more precise assessment of pollution sources, as well as of pollution hot spots and health impacts among particularly vulnerable populations. This creates an opportunity for better global, regional and local assessment of the burden of disease resulting from pollution, as well as the identification of key pollution sources, and can further support global, regional and local policies by providing reliable information.

C. Inclusive economic development

39. The agricultural and industrial sectors are proven engines of economic growth. United Nations entities make full use of space-derived data and information in their efforts to promote sustainable agriculture and advance technological development. Understanding the complex relationships within agricultural and industrial systems, which are proven engines of economic growth, United Nations entities make efforts not only to promote the use of geospatial information resources, but also to develop capacities and tools for the active and sustainable participation of Member States in this process.

40. In order to maximize the benefits of the use and application of global navigation satellite systems (GNSS) to support sustainable development, the Office for Outer Space Affairs, consistent with its role as the executive secretariat for the International Committee on GNSS, will continue to promote cooperation on issues related to GNSS compatibility, interoperability, performance and other space-based positioning, navigation and timing matters. The ninth meeting of the Committee will be organized by the European Union and hosted by the European GNSS Agency in Prague from 10 to 14 November 2014. The United States of America has expressed interest in hosting the tenth meeting of the Committee, in 2015.

41. The working groups of the Committee focused on issues such as compatibility and interoperability; enhancement of the performance of GNSS services; information dissemination and capacity-building; and reference frames, timing and applications. They made substantive progress in furthering the workplans of the Committee and its Providers' Forum, in particular with regard to the detection and mitigation of interference.

42. Furthermore, the International GNSS Monitoring and Assessment Task Force was established by the Committee in order to focus on identifying service parameters that should be monitored and to define the level of monitoring and methods needed to carry out that task. Consensus was reached on the fact that achieving a fully interoperable GNSS space service volume would provide significant performance benefits that no single system could provide on its own.

43. The Office will continue to foster cooperation between the Committee and the regional centres for space science and technology education, affiliated to the United Nations, which also serve as information centres for the Committee, and will focus on capacity-building, in particular on GNSS education.

44. The IMO global maritime distress and safety system, long-range identification and tracking of ships system and ship security alert system contain vital satellite components. Global navigation satellite systems provide vital information for the safe and efficient movement of ships as well as vital position information in distress situations. Certain services provided by these systems are recognized as safety-of-life services. Satellite systems recognized by IMO include Inmarsat, the International Satellite System for Search and Rescue, the Global Positioning System (GPS) and the Global Navigation Satellite System (GLONASS). Presently, IMO is undertaking a review and modernization of the global maritime distress and safety system. This review is expected to be completed in March 2015, and the modernization plan is expected to be completed in 2017.

45. In civil aviation, the rise of the commercial space transportation industry, including the increased frequency of suborbital launches, in which a payload or a vehicle is launched on a trajectory that briefly enters space but returns to Earth without entering orbit, has brought civil aviation regulatory bodies to the forefront of commercial space launch licensing and safety certification. Thus, although ICAO does not currently promulgate international standards or recommended practices for such space-oriented activities, the possibility of an emerging suborbital Earth-to-Earth transportation market in the near future has led to growing interest in an integrated regulatory regime for aviation and space.

46. Accordingly, in 2013 the ICAO Council received a briefing from industry and regulators on developments in this sector. ICAO is actively participating in efforts of the Office for Outer Space Affairs and others to identify and address the legal and technical issues associated with the integration of commercial aerospace transportation and traditional aviation operations and their respective regulatory schemes. This work will continue in 2014 and 2015, with the formation of a study group and the holding of a symposium on that subject in the first quarter of 2015.

47. ECA continued to engage with partners to implement the African Geodetic Reference Frame programme, a unified geodetic reference frame for Africa, so that maps and other geo-information products can be represented seamlessly. The activities undertaken during the period under review included: (a) identifying international GNSS service analysis centres and setting the stage for the processing of data from the Reference Frame; (b) developing methodologies for the computing of transformation parameters; and (c) finalizing the logistical details of rolling out 30 new GNSS reference stations in order to increase the density and fill in the gaps of the Reference Frame network of receiving stations.

48. Since 2012, ESCAP has been promoting the use of online geo-referenced information systems for disaster risk management, particularly for countries with special needs. Establishing such portals has been identified as a need by national authorities and agencies surveyed in each of the ESCAP countries. The portals have been positioned within the appropriate national authorities, so that they can provide a centralized, credible and inclusive space for collecting, analysing and disseminating disaster-related data, coupled with satellite imagery and

socioeconomic information. As part of these activities, ESCAP further connected ministries and agencies working within similar fields and coordinated with ongoing national efforts through existing United Nations and inter-agency initiatives already in place.

49. The portals provide for evidence-based policymaking and effective disaster management. Countries such as Afghanistan, Bangladesh, Bhutan, Cambodia, the Cook Islands, Fiji, Kiribati, Kyrgyzstan, the Lao People's Democratic Republic, Maldives, Mongolia and Nepal have requested the secretariat to provide technical support to establish, customize and enhance their geo-referenced information systems for disaster risk management. Furthermore, prototype systems provided to Afghanistan, the Cook Islands, Kyrgyzstan, Mongolia and Nepal have been enriched with disaster data and are being shared with other government agencies in disaster risk reduction, relief and response.

50. The work of the Radiocommunication Sector of ITU (ITU-R) creates regulatory and technical bases for the development and effective operation of satellite climate monitoring and data dissemination systems by allocating the necessary radio frequency spectrum/satellite orbit resources, carrying out studies and developing international standards on treaty status (Radio Regulations) and voluntary international standards (ITU-R Recommendations) for space-based and other telecommunication systems and networks. The World Radiocommunication Conference 2015 is scheduled to be held in Geneva from 2 to 27 November 2015.

D. Promoting international cooperation in the peaceful uses of outer space: the case of space-derived information and general coordination efforts on space activities

51. The Committee on the Peaceful Uses of Outer Space, the primary United Nations body for coordinating and achieving international cooperation in space activities, in its contribution to the United Nations Conference on Sustainable Development, highlighted the value and the importance of space-derived information and recognized that space-derived geospatial data constituted a resource that could be used to support sustainable development policies at the local, national, regional and global levels, notably through the establishment of dedicated spatial data infrastructure.

52. The Committee has therefore provided a set of recommendations on strengthening the use of space-derived geospatial data for the purpose of supporting sustainable development policies (see A/AC.105/993, para. 49). Among those recommendations, the Committee pointed to the need for establishing sustainable national spatial data infrastructure; enhancing autonomous national capabilities in the area of space-derived geospatial data, including the development of associated infrastructure and institutional arrangements; engaging in or expanding international cooperation in the area of space-derived geospatial data and increasing awareness of existing initiatives and data sources; and supporting the United Nations in its efforts to access and use geospatial information in its mandated programmes to assist all Member States.

53. At its fifty-fifth session, in 2012, the Committee recommended the inclusion on the agenda for its fifty-sixth session of an item on space and sustainable

development. The Scientific and Technical Subcommittee of the Committee, at its fiftieth session, in 2013, recommended the inclusion on the agenda for its fifty-first session of an item on space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda. At its fifty-first session, in 2014, the Subcommittee noted the effective role of space science and technology and their applications and geospatial information in areas such as tele-health, tele-epidemiology, tele-education, disaster management, environmental protection, urban and rural development and Earth monitoring, as well as their contribution to economic, social and cultural development.

54. The decisions of the Committee and its subsidiary bodies will continue to be implemented by the Office for Outer Space Affairs. In the biennium 2014-2015, the Office, within the framework of the United Nations Programme on Space Applications, will continue to organize, in close cooperation and coordination with other relevant United Nations entities, a series of conferences, workshops, symposiums and training courses addressing a wide range of topics related to capacity-building in space science, technology and education, including within the frameworks provided by the United Nations Basic Space Technology Initiative and the Human Space Technology Initiative, aimed at supporting relevant indigenous capabilities with regard to small satellites for sustainable development and human space technology spin-offs, respectively. Additionally, the UN-SPIDER programme will contribute to capacity-building in the use of space-derived data and information in disaster-related situations.

55. The Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities, established in 2012 pursuant to General Assembly resolution 65/68 with the purpose of conducting a study on outer space transparency and confidence-building measures, held three week-long sessions between July 2012 to July 2013. The Group took stock of numerous proposals from States, as well as changes in the political and technological environment since the previous such effort in 1993. It adopted, by consensus, a report listing a series of voluntary transparency and confidence-building measures, as well as conclusions and recommendations on their further consideration and implementation by Member States.

56. The transparency and confidence-building measures for outer space activities set out in the report include, in particular, the exchange of different types of information relating to the space policy and activities of States, risk reduction notifications and expert visits to national space facilities. The Group of Governmental Experts agreed to reflect in the study existing commitments related to non-proliferation. It also recognized the growing role of international cooperation in outer space activities in building confidence and trust among States. In order to facilitate the implementation of the measures and promote their further development, the Group of Governmental Experts recommended establishing coordination between the Office for Disarmament Affairs, the Office for Outer Space Affairs and other appropriate United Nations entities.

57. The Secretary-General transmitted the report to the General Assembly at its sixty-eighth session in document A/68/189. The Assembly, in its resolution 68/50, welcomed the note by the Secretary-General transmitting the report. It encouraged relevant entities and organizations of the United Nations system to coordinate, as

appropriate, on matters related to the recommendations, decided to refer the recommendations to the Committee on the Peaceful Uses of Outer Space, the Disarmament Commission and the Conference on Disarmament for consideration, and requested the Secretary-General to circulate the report to all other relevant entities and organizations of the United Nations system in order that they might assist in effectively implementing the conclusions and recommendations contained therein.

58. The study of the Group of Governmental Experts noted that there were many regional and multilateral capacity-building programmes on space science and technology, such as the United Nations Programme on Space Applications and the capacity-building programmes of UNESCO, WMO and ITU.

59. Geospatial information services and platforms, including those which are space derived, have become critical technologies to supporting national development, economic growth, improved decision-making and enhanced policy formulation, and to contributing to addressing global challenges, such as the monitoring of goals and targets relating to sustainable development. In recognition of the growing importance of geospatial information globally, in July 2011 the Economic and Social Council established the Committee of Experts on Global Geospatial Information Management as the leading intergovernmental mechanism for making joint decisions and setting directions with regard to the production and use of geospatial information within national and global policy frameworks.[5]

60. The secretariat of the Committee of Experts is shared by the Statistics Division of the Department of Economic and Social Affairs and the Cartographic Section of the Department of Field Support. Represented by the heads of national geospatial information agencies in member States, international and non-governmental organizations, the private sector and other stakeholders, the Committee addresses global challenges regarding the use of geospatial information in the development agenda and serves as a guide for global policymaking in the field of geospatial information. In this regard, the Committee has the mandate and responsibility to foster a geographical approach to the goals of the post-2015 development agenda, and has been active in this area.

61. The work programme of the Committee includes the development of a global map for sustainable development. At its second session, held in August 2012, the Committee noted the importance of reliable geospatial information for national disaster risk reduction strategies and plans and for sustainable development, policymaking, programming and project operations, as set out in the outcome document of the United Nations Conference on Sustainable Development. In recognizing the need to provide the information base to inform the sustainable development agenda, a working group was established to consider how reliable geospatial information could contribute more holistically to measuring and monitoring change and progress. At its third session, held in July 2013, the Committee also recognized that there would be a need to create a network of global data and information supported by the tools and technology to create maps and detect and monitor change over time in a consistent and standardized manner, and that the sustainable development user community should be more engaged.

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[5] See http://ggim.un.org.

62. A side event convened by the Committee during the seventh meeting of the open working group on sustainable development goals demonstrated the role of geospatial information in measuring and monitoring goals relating to sustainable development. In addition, the Third High Level Forum on Global Geospatial Information Management, on the theme of the contribution of geospatial information to the post-2015 development agenda, will be convened from 22 to 24 October 2014 in Beijing. The Forum will pay particular attention to the critical role of geospatial information science, technology and innovation as tools that can integrate the three pillars of sustainable development and as important geographic elements of the post-2015 development agenda.

63. ESCWA contributed to bringing the global geospatial information management initiative to the Arab region. After successful regional cooperation with the Department of Economic and Social Affairs, member countries agreed to set up a regional governance structure for the initiative, and to establish its foundations in the form of a regional committee. The inaugural meeting of the regional committee took place in Amman on 5 and 6 February 2014. From the beginning, the regional implementation of the initiative has brought together cartographic authorities with national statistical agencies in recognition of an acute need for geo-referenced evidence for policy setting and monitoring for the post-2015 development agenda.

64. A particular challenge in Arab countries is that the socioeconomic situation varies greatly between one place and another, so analysis of statistical data should be performed with respect to small geographical areas. Therefore, in 2014 and beyond ESCWA will prioritize its work on methodological issues related to collection of information that is geo-referenced, whether it is statistics or any other information (e.g. on road safety, the environment, business activity, housing). ESCWA also attaches a high priority to supporting the development, acquisition and implementation of technologies supporting geospatial information management, as a precondition for effective use of geospatial information. This cluster will also be included in the work programme of the regional committee for the initiative in the Arab region.

65. In Africa, with the aim of coordinating the focus areas and activities of institutions related to space technology that are in synergy, the African Union has recently launched an initiative to develop an African space policy. ECA is providing expert advice to outline the policy principles for space in Africa in order to enable the continent to harness its space resources in a more systematic and coordinated manner. The Commission prepared a long-term vision document on how Africa must leverage space partnership and international cooperation to plan, coordinate and monitor the varied activities related to space exploration and space applications on the continent.

66. In Asia and the Pacific, ESCAP has amalgamated climate change adaptation, food security and natural resource management in the implementation of the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017, in particular, through the operationalization of a drought mechanism. The drought mechanism, a flagship project under the Regional Space Applications Programme for Sustainable Development of ESCAP, is supported by space agencies in the region and brings together public, private and scientific entities working on activities related to space technology applications, disaster management and

agricultural drought mitigation. The mechanism is aimed at strengthening the capacity of drought-prone developing countries in using science and technology tools and techniques for effective agricultural drought monitoring and early warning at the national and local levels, through specialized training and the provision of advice and solutions to the agricultural community, to better prepare for and reduce the negative impacts of drought on socioeconomic development. The mechanism will contribute to fostering South-South cooperation and knowledge transfer among countries in the region.

III. Building resilience through the streamlined use of space-derived information within the United Nations system

67. Geospatial data is a key decision-making tool for the efficient management of assets, environments and communities, but bottlenecks and gaps exist with respect to access to, as well as interpretation, analysis and usage of, such data, as they are at present provided mainly by the private sector, Governments and specialized agencies. Nevertheless, within the United Nations system efforts are being made to increase and streamline the use of geospatial data.

68. The Cartographic Section of the Department of Field Support, together with GIS offices in the field missions of the Department of Peacekeeping Operations, the Department of Field Support and the Department of Political Affairs have been active users of space-derived geospatial data and have been involved in establishing contracts with the private sector since 2004. The current system contracts of the United Nations have been established with the private sector for the provision of a wide range of medium and high resolution optical and radar satellite imagery.

69. During the contract period between 2008 and 2013, the Department of Field Support, the Department of Peacekeeping Operations, the Department of Political Affairs and their field missions collectively spent $12 million on system contracts, while other entities of the United Nations system spent approximately $3 million. A solicitation process to establish a new generation of system contracts with the private sector was initiated in 2013, and is expected to be finalized in 2014. The use of such commercial long-term agreements is expected to continue to increase.

70. The field missions of the Department of Peacekeeping Operations, based on space-derived geospatial data purchased against the system contracts, have produced maps relating to vegetation, floods and topography using medium-resolution images. Large-scale city maps (e.g. on a scale of 1:2,500) of the area of operation, using high resolution space-based imagery and space-derived geospatial data, have also been produced. One application that is increasingly being developed in the peacekeeping context is for ground and surface water assessment aimed at guiding efficient and targeted field geophysical surveys.

71. In the context of partnerships, the Department of Field Support, the Department of Peacekeeping Operations and the Department of Political Affairs have also taken advantage of space-derived geospatial data provided by certain Member States and the European Union Satellite Centre. These partnerships allowed for the timely exchange of information and data in specific areas of common interest to support crisis management in such places as the Central African Republic, Mali, Somalia, South Sudan and the Syrian Arab Republic. The United Nations Secretariat

is also benefitting from the sharing of space-derived geospatial data in the context of international boundary issues.

72. The Cartographic Section of the Department of Field Support, together with GIS offices in the field missions of the Department of Peacekeeping Operations, the Department of Political Affairs and the Department of Field Support, have been leveraging space-derived geospatial data through partnerships with the European Union and the European Commission in the context of Copernicus, the European Earth Observation Programme. The Cartographic Section has been engaged with the European Union as the coordinator, while the Department of Peacekeeping Operations, the Department of Political Affairs, the Department of Field Support and its field missions have been the beneficiaries of selected products and services of Copernicus projects to support the management of operations, situational awareness and geospatial intelligence for crisis response. To date, such support was provided after the Haiti earthquake in 2010, for election support in the Democratic Republic of the Congo and during the referendum in South Sudan, the post-election crisis in Côte d'Ivoire and the Libya crisis in 2011, as well as situational awareness and monitoring in Somalia and Syria in 2013.

73. ECA continued to develop numerous information and knowledge resources, applications and services to improve the availability and use of information for development at the national, regional and subregional levels. The regional geospatial databases that form the core African Regional Spatial Data Infrastructure are incrementally updated and populated to support the following regional initiatives: (a) producing a seamless mosaic of digital elevation model data at 30 m resolution that covers the entire continent; (b) launching a study to develop guidelines of best practices for the acquisition, storage, maintenance and dissemination of fundamental geospatial data sets, with the guidelines intended to support knowledge-sharing through a community of practices; and (c) sourcing, collecting, processing, validating and building the African infrastructure geospatial data sets. In the biennium 2014-2015 and beyond, ECA will continue to carry out the collection, editing and updating of the information and data, as well as follow up on the validation process of the Second Administrative Level Boundaries data set project in Africa, in collaboration with the Department of Economic and Social Affairs at the strategic level and the Department of Field Support at the operational level.

74. The United Nations Geographic Information Working Group, a network of United Nations professionals working in the fields of cartography and geospatial information management science to address issues of common concern, has been laying the foundations for a United Nations spatial data infrastructure since its inception in 2000. The proposed infrastructure would contribute substantively to the mission of the United Nations by engaging Member States, regional organizations and partners in building consensus, policy and governance mechanisms to ensure that geospatial data and information-sharing practices are used widely in advancing social, economic development, environmental and humanitarian agendas.

75. The fourteenth meeting of the United Nations Geographic Information Working Group, to be co-chaired by the Department of Safety and Security and the United Nations Office for Outer Space Affairs, is scheduled to be held from 14 to 16 May 2014 in New York. The meeting will look at the linkages between the Committee of Experts on Global Geospatial Information Management and the

Working Group; consider the status of the United Nations spatial data infrastructure; review developments within the task groups of the Working Group related to the licensing and sharing of satellite imagery, membership in the geospatial consortium and the development of core data sets; and engage in a dialogue with the private sector.

76. Processed data and information are shared among United Nations entities and made available through websites such as ReliefWeb, a global hub for time-critical humanitarian information on complex emergencies and natural disasters (www.reliefweb.int), the Global Disaster Alert and Coordination System (www.gdacs.org), UNITAR/UNOSAT (www.unitar.org/unosat), the Inter-Agency Standing Committee's Common and Fundamental Operational Data sets Registry (cod.humanitarianresponse.info) and the UN-SPIDER knowledge portal (www.un-spider.org). The UN-SPIDER knowledge portal also provides databases on freely available satellite data, derived products and software, as well as compilations of all relevant maps and resources for selected major disasters. UN-SPIDER is also strengthening its network of 16 regional support offices for a better sharing of recommended practices and other references, tools and services.

77. The ITU, in collaboration with UNITAR/UNOSAT and Esri, co-organized and hosted the third GIS for the United Nations and the International Community Conference, held from 7 to 9 April 2014 at ITU headquarters in Geneva. The conference focused on promoting an understanding of how secure and stable information sharing may help organizations be more effective in managing, analysing and displaying all forms of geographically referenced information for tackling global issues relating to climate, conflict, development, the environment, crises and disasters, economic and social conditions, and health. The conference provided an environment for attendees to focus on the tools, standards and technologies needed to evaluate aid and development risk and better mitigate their impacts.

IV. Way forward: harnessing space technology for the attainment of objectives of the post-2015 development agenda

78. To ensure that the potential benefits of space technology are harnessed to the fullest extent possible for the implementation of the global development agenda in the post-2015 framework, the following could be considered by Member States and United Nations entities as goals to be pursued at the national, regional and international levels:

(a) Enhancing awareness of the potential contribution of space-derived data and information for development;

(b) Developing capacities in terms of discovery of, access to and processing and use of space-derived data and information;

(c) Strengthening institutional frameworks to facilitate the use of remote sensing data and information;

(d) Supporting standardization and updating of geospatial information, with a view to eliminating duplication and overlap, and enabling its use for multisectoral use in a harmonized manner;

(e) Promoting international cooperation for increased use of space-derived data and information for planning and decision-making processes.