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Report on activities carried out in 2015 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response

I. Introduction

1. In its resolution 61/110, the General Assembly established the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) as a programme within the United Nations to provide universal access to all countries and all relevant international and regional organizations to all types of space-based information and services relevant to disaster management to support the full disaster management cycle, and agreed that the programme should be implemented by the Office for Outer Space Affairs of the Secretariat.

2. At its fiftieth session, the Committee on the Peaceful Uses of Outer Space agreed that progress reports on UN-SPIDER and its future workplans should be considered by the Scientific and Technical Subcommittee under a regular agenda item on space-system-based disaster management support and that the agenda item should be included in the list of issues to be considered by its Working Group of the Whole.

3. The present report contains a summary of activities carried out under the UN-SPIDER programme in 2015 with regard to the workplan for the biennium 2014-2015 (A/AC.105/C.1/2013/CRP.6) and to the UN-SPIDER indicative workplan for 2015 (A/AC.105/C.1/2015/CRP.13).

4. In its resolution 70/82, the General Assembly noted with satisfaction the significant achievements made and the advisory support provided to more than 35 Member States within the framework of UN-SPIDER and welcomed its role in promoting international cooperation as a way to enhance the use of space-based technologies and related services at the national and local levels within the Sendai Framework for Disaster Risk Reduction 2015-2030.

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5. Four other reports from UN-SPIDER for 2015 cover its increasing efforts in knowledge management, outreach and collaboration:

(a) Report on the United Nations/Germany International Conference on Earth Observation: global solutions for the challenges of sustainable development in societies at risk, Bonn, Germany, 26-28 May 2015 (A/AC.105/1097);

(b) Report on the knowledge portal of UN-SPIDER: recent advances (A/AC.105/1101);

(c) Report on the United Nations International Conference on Space-based Technologies for Disaster Management: a consolidating role in the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, Beijing, 14-16 September 2015 (A/AC.105/1102);

(d) Report on joint activities carried out in 2015 by the regional support offices of UN-SPIDER (A/AC.105/1103).

6. In an effort to reduce the length of the present report and avoid duplication, reference will be made to those reports where appropriate.

II. Organizational framework

7. As part of the responsibility of the Office for Outer Space Affairs for promoting international cooperation in the peaceful uses of outer space, UN-SPIDER fosters knowledge management, builds bridges between communities of providers of space-based information and users of services in the disaster risk management and emergency response communities, and provides technical advisory support to Member States. This section presents the team and the network of regional support offices that supported the implementation of the UN-SPIDER programme of activities in 2015.

A. Staff of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response

8. The UN-SPIDER programme is implemented by the Office for Outer Space Affairs under the Director of the Office. The Chief of the Space Applications Section, assisted by a senior programme officer, is responsible for planning and coordinating the activities with the support of a programme officer who leads the activities of the UN-SPIDER office in Bonn, Germany, a programme officer who leads the activities of the UN-SPIDER office in Beijing and a programme officer in Vienna who supports outreach and capacity-building activities, as well as advisory services.

9. During 2015, 13 staff members worked in the framework of UN-SPIDER, including the 3 programme officers supported through the regular budget, distributed as follows:

(a) In Vienna: a senior programme officer, a programme officer responsible for outreach, capacity-building activities and emergency response support, and a team assistant (shared on a 50/50 basis with the Programme on Space Applications) to assist with the administrative tasks of UN-SPIDER;

(b) In Bonn: a programme officer to lead the activities of the UN-SPIDER office in Bonn, an associate expert to support the compilation and dissemination of information and the maintenance of the content of the knowledge portal, a second associate expert to support remote sensing advisory services and one expert (provided by the German Aerospace Centre (DLR) as a non-reimbursable loan) to support the implementation of knowledge management and advisory support activities. The administration and maintenance of portal services was covered on a part-time basis by a consultant. The three latter staff members are supported through funding from the Government of Germany;

(c) In Beijing: a programme officer to lead the activities of the UN-SPIDER office in Beijing and coordinate technical advisory support to Member States, two experts to support the technical advisory support activities (provided by the Government of China as non-reimbursable loans) from January to August 2015 and a team assistant to assist with the administrative tasks of the office. A United Nations Volunteer joined the office from July to December 2015.

10. In 2015 the programme also benefited from the regular support of 24 interns in its Beijing, Bonn and Vienna offices to input reference material into the portal, carry out research in preparation for advisory services and support the organization of events.

B. Network of regional support offices

11. In its resolution 61/110, the General Assembly agreed that UN-SPIDER should work closely with regional and national centres of expertise in the use of space technology in disaster management to form a network of regional support offices for implementing the activities of the programme in their respective regions. In its resolution 70/82, the Assembly noted the valuable contributions of the network of regional support offices.

12. The 17 UN-SPIDER regional support offices[1] are currently being hosted by national and regional organizations listed in paragraph 5 of the report on joint activities carried out in 2015 by the regional support offices (A/AC.105/1103). At the time of writing, negotiations with three more institutions are under way with a view to further increasing the number of members and consolidating the regional coverage by institutions that specialize in Earth observation, disaster risk reduction and emergency response.

III. Activities carried out in 2015

13. The work carried out by the UN-SPIDER programme in 2015 followed the workplan for the biennium 2014-2015 and the UN-SPIDER indicative workplan for 2015 presented by the Office for Outer Space Affairs to the Committee on the Peaceful Uses of Outer Space (A/AC.105/C.1/2015/CRP.13). The work was done within the regular-budget allocation and with voluntary and in-kind contributions from Member States or collaborating entities.

[1] See www.un-spider.org/network/regional-support-offices.

A. Outreach and networking activities

14. The activities for 2015 defined in the UN-SPIDER workplan were completed as stipulated. The proposed workshops, expert meetings and training courses were organized and conducted. A technical advisory mission to Nepal was being planned for 2015 but was cancelled following the earthquake there in April. UN-SPIDER continues working with its partners in Nepal, notably with the regional support office International Centre for Integrated Mountain Development (ICIMOD) to define the most relevant contribution that could be made regarding the use of Earth observation for resilience and reconstruction.

15. The three subsections below reflect the three general areas of work of the UN-SPIDER team: first, events organized or co-organized by the UN-SPIDER programme; second, contributions to events organized under other initiatives of the Office for Outer Space Affairs; and third, inter-agency coordination and other outreach endeavours.

1. Events organized or co-organized by the UN-SPIDER programme

United Nations/Germany International Conference on Earth Observation: global solutions for the challenges of sustainable development in societies at risk, Bonn, Germany, 26 to 28 May 2015

16. Organized by UN-SPIDER in cooperation with DLR, the conference benefited from the financial support of the German Federal Ministry for Economic Affairs and Energy, the in-kind and financial support provided by DLR and the support provided by the Secure World Foundation (SWF), the city of Bonn and DigitalGlobe. The conference showcased the most recent developments on the use of Earth observation and integrated space technology applications to address the challenges of climate change and disaster risk reduction and to contribute to efforts targeting sustainable development worldwide.

17. The report on the conference (A/AC.105/1097) provides a detailed summary. It lists solid recommendations on how Earth observation can contribute concretely to sustainable development and proposes concrete steps.

Regional expert meeting on access to information and knowledge for disaster risk reduction and emergency response, Bogota, Colombia, 12 to 14 August 2015

18. UN-SPIDER and the Agustín Codazzi Geographic Institute of Colombia (IGAC) conducted the regional expert meeting, bringing together nearly 30 experts from Bolivia (Plurinational State of), Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Honduras and Guatemala. The meeting focused on the use of space-based applications in flood and drought situations and included three training sessions on the use of step-by-step procedures developed by IGAC and by UN-SPIDER. The meeting benefited from the support provided by trainers from IGAC, the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean and the Federal University of Santa Maria of Brazil.

19. The regional expert meeting discussed ongoing efforts related to the project conducted by UN-SPIDER and several partners related to the use of space-based

information to strengthen national drought early warning systems and allowed for the identification of next steps to be taken regarding this project and potential products that could be used in drought early warning.

United Nations International Conference on Space-based Technologies for Disaster Management: a consolidating role in the implementation of the Sendai Framework on Disaster Risk Reduction 2015-2030, Beijing, 14-16 September 2015

20. The conference was co-organized with the National Disaster Reduction Centre of China (NDRCC) and the Ministry of Civil Affairs, in collaboration with the Ministry of Foreign Affairs, the China National Space Administration (CNSA), the Asia-Pacific Space Cooperation Organization (APSCO) and the Regional Centre for Space Science and Technology Education for Asia and the Pacific and with the support of DigitalGlobe.

21. The aim of the conference was to contribute to the process of producing guidelines for Member States to integrate Earth observation and geospatial technologies in implementing the Sendai Framework for Disaster Risk Reduction 2015-2030. The report on the conference (A/AC.105/1102) provides a detailed summary.

East Asia Summit workshop on the topic "Applications of space information technology in major natural disaster monitoring and assessment" and second Association of Southeast Asian Nations workshop on the topic "Development of mechanisms for acquisition and utilization of space-based information during emergency response", Hangzhou, China, 2 to 5 June 2015

22. Co-organized by UN-SPIDER, NDRCC and the Economic and Social Commission for Asia and the Pacific (ESCAP), the two workshops brought together nearly 50 government representatives, and experts from 11 countries, 7 regional and international organizations and 14 research institutes attended the workshops to share experiences on applications of space-based information in major natural disaster monitoring and assessment.

23. The East Asia Summit workshop included sessions on advanced remote sensing technologies as well as on the service of space-based information for disaster risk reduction. A special focus was placed on technologies and applications using multi-source and multi-scale imagery for disaster management, acquisition mechanisms and networks, platforms for disaster management and public-private partnerships. The guideline document on the acquisition and utilization of space-based information for emergency response, together with the document on standard operating procedures for requesting space-based information during emergency response from national disaster management authorities, were discussed and improved.

2. Contributions to events organized under other initiatives of the Office for Outer Space Affairs

Working sessions at the United Nations Third World Conference on Disaster Risk Reduction, Sendai, Japan, 14 to 18 March 2015

24. The International Strategy for Disaster Reduction and the Government of Japan conducted the Third World Conference on Disaster-Risk Reduction.

Recognizing the relevance of that global Conference in the context of the 2030 Agenda for Sustainable Development, the Office for Outer Space Affairs and UN-SPIDER had been active since February 2014 in developing and implementing a strategy to enhance the visibility of the Office in the Conference, which four UN-SPIDER staff members and the Director of the Office for Outer Space Affairs attended. The outcomes of that effort include:

(a) The incorporation of specific text on the use of Earth observation and space-based applications in the Sendai Framework for Disaster Risk Reduction 2015-2030, particularly in priority area 1, "Understanding disaster risk";

(b) A working session with other relevant actors of the space and Earth observation community, including national and regional space agencies and international organizations of the United Nations system, as well as the Group on Earth Observations (GEO) and the Committee on Earth Observation Satellites (CEOS), on the use of Earth observation in disaster risk reduction. The working session was used to launch the Global Earth Observation Partnership;

(c) The co-organization, with the World Meteorological Organization, other United Nations agencies and other partners, of a working session on multi-hazard early warning; the occasion was used to launch a global partnership on multi-hazard early warning;

(d) A side event in the public forum held with the Japan Aerospace Exploration Agency, Tohoku University and other partners;

(e) A special edition of the UN-SPIDER newsletter as a way to highlight the benefits of the use of space-based information in disaster risk reduction initiatives.

Thirty-fifth session of the Inter-Agency Meeting on Outer Space Activities, Bonn, Germany, 27 and 28 May 2015[2]

25. The session was held at the United Nations campus in Bonn, hosted by the UN-SPIDER Bonn office and the Office for Outer Space Affairs. On 28 May 2015, the twelfth open meeting was held in the format of a joint high-level panel on space-based information for development. UN-Space was integrated into meetings of the United Nations/Germany International Conference on Earth Observation (see sect. III.A.1 above).

3. Inter-agency coordination and other outreach

26. Fostering collaboration and fundraising are important areas of work of the Office for Outer Space Affairs, and staff members participated in the following events and activities to communicate the objectives of the programme, often at the invitation of the organizers and sometimes with their financial support:

(a) Coordination mission between the Director of the Office for Outer Space Affairs, UN-SPIDER and the Ministry of Interior of the United Arab Emirates, Abu Dhabi, 11 to 15 January 2015;

(b) Fifth CEOS Working Group on Capacity-building and Data Democracy meeting and CEOS digital elevation model and flood-modelling workshop, hosted

[2] See www.unoosa.org/oosa/en/ourwork/un-space/iam/35thsession.html.

by the South African National Space Agency in Pretoria and Hartebeerspoort, South Africa, 18 to 24 March 2015;

(c) Lecture on the topic “Earth observation for disaster response, recovery and preparedness” for Bhutanese officials, Dehradun, India, 13 April 2015;

(d) Panel on the topic “Extreme geohazards” and meetings on the topic “Natural disasters” at the General Assembly of the European Geosciences Union, Vienna, 13 to 17 April 2015;

(e) International Conference on Disaster Reduction and Risk Management hosted by Taiwan National University, Taipei, Taiwan, 13 to 17 April 2015;

(f) Thirty-first Space Symposium, Colorado Springs, United States of America, 15 and 16 April 2015;

(g) Panel at the DigitalGlobe “Engage” forum for the Europe, Middle East and Africa region, London, United Kingdom of Great Britain and Northern Ireland, 26 to 29 April 2015;

(h) Thirty-sixth International Symposium on Remote Sensing of the Environment, Berlin, Germany, 12 to 15 May 2015;

(i) Meeting of the International Working Group on Satellite-based Emergency Mapping, Bonn, Germany, 28 and 29 May 2015;

(j) Workshop on the topic “Bridging ICTs and the environment: making information talk and technologies work for water security”, Budapest, 6 to 10 July 2015;

(k) Expert meeting on developing indicators for disaster risk reduction, Geneva, 27 to 29 July 2015;

(l) Fifth session of the United Nations Committee of Experts on Global Geospatial Information Management, New York, United States, 3 to 7 August 2015;

(m) Plenary meeting of the United Nations Geographic Information Working Group, New York, United States, 5 to 7 August 2015;

(n) International workshop on the role of world natural heritage sites in disaster risk reduction, Dehradun, India, 24 and 25 August 2015;

(o) DigitalGlobe Customer Advisory Panel meeting, Denver, United States, 2 to 4 September 2015;

(p) International Academy of Astronautics Conference on Climate Change and Disaster Management, and panel of the Heads of Space Agencies Summit, Mexico City, 17 and 18 September 2015;

(q) Regional training workshop on the topic “Coastal hazard assessment: applications in risk assessment, management and mitigation” (conducted by the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization with the support of the University of Moratuwa), Colombo, 2 to 5 October 2015;

(r) Workshop on the applications of geospatial technologies to disaster and emergency preparedness and response, Mississippi Emergency Management Agency, Jackson, United States, 7 to 9 October 2015;

(s) Conférence internationale sur les changements climatiques: une réalité à prendre en compte dans les trajectoires de dévelopement – modélisation, outil spatial et adaptation, Algiers, 3 to 6 October 2015;

(t) "ONE step BEYOND" workshop, Frascati, Italy, 15 October 2015;

(u) Coordination meetings with UN-SPIDER Beijing office, NDRCC and CNSA, Beijing, 18 to 21 October 2015;

(v) International Conference on Intelligent Earth Observing and Applications, organized and hosted by the Vice-President of the Guilin University of Technology, Guilin, China, 23 to 25 October 2015;

(w) Nineteenth session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development in Asia and the Pacific and fourth session of the Committee on Disaster Risk Reduction, Bangkok, 26 to 29 October 2015;

(x) Board meeting of the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also called the International Charter on Space and Major Disasters) (2015 annual report of the Office for Outer Space Affairs to the Board), Sioux Falls, United States, 29 October 2015;

(y) Side meeting on Earth observation for the Sustainable Development Goals, twelfth plenary of GEO, and ministerial summit, Mexico City, 10 to 13 November 2015;

(z) Conference of the Americas, Managua, 17 to 19 November 2015.

International workshop on supporting Earth in the future with global geo-information, 9 and 10 June, Beijing

27. The workshop was organized in cooperation with the National Geomatics Centre of China, the Chinese National Committee for Future Earth, the National Administration of Surveying, Mapping and Geo-Information and LIESMARS, Wuhan University. UN-SPIDER contributed to the session "Disaster risk reduction and global geo-information", aiming at promoting integration of Earth observation and geo-information technologies in implementing the Sendai Framework for Disaster Risk Reduction 2015-2030.

B. Knowledge management

28. Knowledge management is at the core of UN-SPIDER activities. By systematically and continuously compiling the knowledge and available resources held by individuals and institutions, UN-SPIDER aims to transfer lessons learned, point out innovations and foster collaborative practices. The communities involved in the UN-SPIDER field of work include many different actors — disaster responders, disaster risk specialists, policymakers, remote sensing experts, space technology providers, academics and researchers — and their needs, prerequisites and capabilities vary considerably.

Knowledge portal[3]

29. The report on recent advances of the knowledge portal UN-SPIDER (A/AC.105/1101) contains a summary of efforts conducted by the UN-SPIDER programme regarding the development and maintenance of its portal as one of the cornerstones of the programme, as it hosts information on all activities conducted by the programme and relevant information on what the disaster risk community, the emergency response community and the space community are doing. The portal is increasingly recognized as making a significant contribution to strengthening existing networks.

30. The number of visitors has increased consistently since the portal was launched. It received 8.5 per cent more visits in 2015 than in 2014, and the number of page views increased by 18 per cent in that same period. By December 2015, the number of content items had increased to nearly 6,500.

31. The hosting of the portal is being migrated to the Information and Technology Service of the Secretariat in New York so that access to the portal can be offered seven days a week, 24 hours a day, and so that it will have a highly secure environment.

C. Technical advisory support

32. Technical advisory support is one of the prime activities of the UN-SPIDER programme at the national level and is aimed at providing Member States with support that can include technical advisory missions involving experts from space and disaster management agencies from other countries and relevant international and regional organizations and institutions; technical advice to national institutions by means of meetings, teleconferences, videoconferences, and so forth; facilitating direct cooperation between national institutions and providers of space-based information and solutions; and support in accessing space-based information to support emergency response.

33. Three technical advisory missions were conducted in 2015: in Honduras, the Lao People's Democratic Republic and Gabon. The recommendations from those missions cover various issues related to policy and coordination, data access, data availability, data-sharing, capacity-building and institutional strengthening.

Technical advisory mission to the Lao People's Democratic Republic, 6 to 10 July 2015

34. The mission was conducted upon the invitation of the Ministry of Science and Technology and worked closely with the Ministry of Natural Resources and Environment, in particular with the Department of Disaster Management and Climate Change, which is a secretariat of the National Disaster Prevention and Control Committee. The mission team comprised nine experts from UN-SPIDER, the Pacific Disaster Center, the University of Georgia, Delta State University, the United Nations Office for the Coordination of Humanitarian Affairs, the Asian

[3] www.un-spider.org.

Disaster Preparedness Centre, NDRCC and the International Water Management Institute.

35. On the fourth day of the mission, a national workshop on the topic "Improving disaster management and emergency response using space-based information" was organized and inaugurated by the Vice-Minister of Science and Technology and attended by about 60 participants.

36. The mission team provided a briefing to the high-level officials of the Ministry of Science and Technology and the ministry of Natural Resources and the Environment on the fifth day of the mission. The report of the mission was submitted to the Government in September 2015. The Ministry of Science and Technology has already disseminated the report to all stakeholder organizations in the Lao People's Democratic Republic to invite comments regarding the implementation of recommendations.

Technical advisory mission to Honduras, 13 to 18 July 2015

37. The mission, coordinated with the Permanent Contingency Commission of Honduras (COPECO), included visits to government ministries and agencies and meetings with members of the inter-agency council on drought, the inter-agency panel on drought and representatives of universities. The mission was conducted with experts from the Mexican Space Agency, IGAC and the Water Centre for the Humid Tropics of Latin America and the Caribbean, in their roles as regional support offices of UN-SPIDER, and the Federal University of Santa Maria in Brazil.

38. The mission identified various opportunities or strengths, such as the Forestry Conservation Institute of the Ministry of Environment and Natural Resources, which recently launched a national map of forests developed from satellite imagery. The mission also allowed UN-SPIDER to become aware of the efforts that the Ministry of the Presidency is conducting regarding the establishment of the Honduran spatial data infrastructure as an inter-institutional effort geared to enhance the use of geospatial information. The mission included a videoconference between the National Commission on Space Activities (CONAE) of Argentina and the staff of COPECO in charge of emergency response efforts as a way to initiate the process of establishing the National Emergency Operations Centre of COPECO as an authorized user in the context of the International Charter on Space and Major Disasters.

39. The mission concluded with the identification of several recommendations, which were delivered to COPECO, including the recommendation for COPECO and other government agencies to establish contact with space agencies in the American hemisphere and elsewhere; the establishment of an inter-institutional team that would focus its efforts on the generation of space-based information using procedures such as those developed and promoted by UN-SPIDER; the increased use of satellite imagery and other space-based products offered by the space community, in many cases free of charge; and the establishment of a specific unit or department within COPECO that focuses on the use of geographic information systems and remote sensing applications.

Technical advisory mission to Gabon, 7 to 11 December 2015

40. The mission had just been completed at the time of the drafting of the present report.

D. Follow-up activities to technical advisory missions

41. Following most technical advisory missions, countries request additional support from UN-SPIDER to implement recommendations. The support can cover needs in terms of capacity-building, institutional strengthening and developing partnerships to build the required data infrastructure or the analytical tools for the development of basic information for disaster risk reduction or emergency response. Activities in 2015 included the following.

Earth observation technologies for disaster damage and loss assessment, Dhaka, 5 to 9 April 2015

42. The training course was jointly organized by UN-SPIDER, the Department of Disaster Management and the Comprehensive Disaster Management Programme, operated by the United Nations Development Programme (UNDP) at the facilities of the Bangladesh Space Research and Remote Sensing Organization. The course objectives were to strengthen existing damage and loss assessment practices with the help of satellites in the sectors of agriculture, housing, road infrastructure and demography. Lectures and hands-on exercises were conducted by nine experts from UN-SPIDER, NDRCC, the International Water Management Institute (IWMI), ICIMOD, Nice Sophia Antipolis University, the Asian Disaster Preparedness Centre, the South Asian Association for Regional Cooperation Disaster Management Centre, DigitalGlobe and Swiss Re.

Training workshop on landslide hazard mapping, risk and vulnerability, Thimpu, Bhutan, 17 to 21 August 2015

43. The training workshop, organized in partnership with UNDP, was aimed at strengthening landslide hazard mapping. It included hands-on exercises and discussion sessions led by experts from UNDP, UN-SPIDER, ICIMOD and Salzburg University.

44. A technical working group on landslides was established following the training course. It will focus on the plans and programmes of all agencies related to landslide mitigation and offer a platform to discuss issues such as the availability of landslide hazard maps, mapping needs, procedures and methodologies, the sharing of landslide hazard/risk/vulnerability maps and coordination.

International training course on Earth observation technologies for earthquake damage assessment, Beijing 17 to 22 September 2015

45. The course was organized by UN-SPIDER, NDRCC, APSCO, the Regional Centre for Space Science and Technology for Asia and the Pacific and Beihang University. The purpose was to improve earthquake damage assessment using space-based and geospatial information by imparting hands-on training to officials from Member States supported by UN-SPIDER. The training covered such topics as

the role of Earth observation in providing critical information following earthquakes; rapid mapping using Earth observation following earthquakes; concepts of earthquake damage assessment; visual interpretation of satellite images, object-oriented segmentation and classification to facilitate change detection through object-oriented segmentation and classification of pre- and post-disaster very high resolution satellite imagery; semi-automated techniques to extract information on buildings and other infrastructure and integrating it with population and risk data to evaluate casualties; crowd-source platforms to use Earth observation to perform rapid assessment; and advance techniques to access satellite images during emergencies.

Training workshop, Jackson, United States, 7 to 10 October 2015

46. UN-SPIDER and Delta State University co-organized the workshop with support from the Geospatial Information and Technology Association, SharedGeo, SWF and the Mississippi Emergency Management Agency. Participants from Georgia, Mozambique, the United States, Viet Nam and UN-SPIDER took part in seminars on the emergency management life cycle, the incident command system, the application of open-source software to emergency management and data-gathering techniques using crowd-sourcing, and took part in a tour and exercise at the Mississippi Emergency Management Agency. Coordination is under way to repeat the activity in 2016.

Expert mission to El Salvador, 9 and 10 July 2015

47. The mission took place as a follow-up to the technical advisory mission that was conducted in April 2014. Under the coordination of the Ministry of Foreign Affairs of El Salvador, UN-SPIDER met with representatives of the Sustainability Cabinet that was recently established by the Presidency of El Salvador, with the Director of the Civil Protection Directorate, with the Director and other staff working in the Environmental Observatory of the Ministry of Environment and Natural Resources and with staff of the national office of UNDP. The opportunity was used to provide more than 350 maps that UN-SPIDER developed for El Salvador.

Drought monitoring in Central America

48. The more frequent and intense droughts that are taking place in the “dry corridor” of Central America and on some islands in the Caribbean are forcing national and local governments to implement a series of measures in order to respond to the impacts they cause. As a way to contribute to such efforts, UN-SPIDER is cooperating with several United Nations entities and regional organizations to assist selected national agencies in drought monitoring efforts through the use of space-based applications. Those efforts are geared towards strengthening national drought early warning systems through the routine use of specific drought indicators developed by the space community, such as the vegetation condition index and the standard precipitation index, and near-real-time satellite products, such as the enhanced vegetation index and the normalized difference vegetation index.

49. UN-SPIDER and several partners have developed step-by-step procedures using open-source software to enable national government agencies to continue

developing such products and have created more than 350 maps for each of the four countries targeted (Dominican Republic, El Salvador, Honduras and Guatemala), covering the period from March 2000 to June 2015.

E. Support in emergencies

50. UN-SPIDER contacted DigitalGlobe immediately after the Nepal earthquake of April 2015. The earthquake, which had a magnitude of 7.8 and was followed by several aftershocks, resulted in the death of about 9,000 people and more than 22,300 injured; the lives of some 8 million people were affected. UN-SPIDER worked closely with DigitalGlobe and ICIMOD during the early response period.

51. In July 2015, the Disaster Management Centre of Viet Nam requested support to monitor a severe drought in the provinces of Ninh Thuan, Binh Thuan and Khanh Hoa. UN-SPIDER provided assistance through NDRCC and the regional support offices of Indonesia and Iran (Islamic Republic of), which provided maps and methods for drought monitoring.

52. The cooperation between the International Charter on Space and Major Disasters and the Office for Outer Space Affairs was highlighted and detailed in statements and presentations during a number of international events and conferences during the reporting period. Every opportunity was used by staff to raise awareness about the opportunities offered by the International Charter, and particularly the universal access initiative, in accordance with the original cooperating body agreement.

53. In Vienna on 5 and 6 February 2015, UN-SPIDER held the sixth meeting of its network of regional support offices. Taking advantage of the gathering, on 4 February UN-SPIDER hosted a one-day training event for project managers relating to the International Charter on Space and Major Disasters organized and delivered by the Centre national d'études spatiales and DLR. Representatives of 11 regional support offices and 4 staff members of the Office for Outer Space Affairs attended the training event.

54. Joint efforts have been conducted by CONAE of Argentina since 2014 to promote the universal access principle in eight countries of Latin America and the Caribbean where Spanish is the official language.

55. The Office for Outer Space Affairs signed agreements in 2015 with DigitalGlobe and CNSA, aimed at developing complementarities in the various services accessible to nations, not only for emergency response but also for the preparedness, early warning and reconstruction phases of disaster management. Those collaborations are also aimed at providing data, information, products and services in the areas of, inter alia, environmental and natural resources management, security and sustainable development.

56. The Office for Outer Space Affairs also entered into agreements with the secretariat of GEO, the Government of Switzerland (represented by the Federal Department of Foreign Affairs and the Federal Department of the Environment, Transport, Energy and Communications) and the Government of Austria (represented by the Bundesministerium für Verkehr, Innovation und Technologie, in turn represented by the Österreichische Forschungsförderungsgesellschaft mbH).

The three agreements, covering the whole range of initiatives of the Office for Outer Space Affairs, will benefit the UN-SPIDER programme where outreach and collaborations in the area of Earth observation and disaster risk reduction and emergency response can be developed.

57. Global navigation satellites systems are used for various applications in disaster management and emergency response, relating to location, navigation, the setting up of communication links, early warning, and so forth. UN-SPIDER is working with the BeiDou team of NDRCC to investigate and analyse the scope and requirements for integrating the BeiDou navigation satellite system into disaster management systems in Asia and the Pacific.

F. Activities carried out by the regional support offices

58. The workplan of the network of regional support offices for 2014 and 2015 was submitted to the fifty-seventh session of the Committee on the Peaceful Uses of Outer Space in conference room paper A/AC.105/2014/CRP.11. The sixth meeting of the network was held in Vienna on 5 and 6 February 2015 (see para. 53 above). Detailed information about specific contributions of the regional support offices in the delivery of the UN-SPIDER mandate in 2015 is presented in document A/AC.105/1103.

IV. Voluntary contributions

59. In its resolution 70/82, the General Assembly encouraged Member States, on a voluntary basis, to provide UN-SPIDER with the additional resources necessary to address the increasing demand for support successfully and in a timely manner.

60. The successful implementation of activities benefited from the support and voluntary contributions received from:

(a) The Government of Germany, which contributed €150,000 for the UN-SPIDER activities generated by the Bonn office;

(b) The Government of China, which contributed 1,250,000 yuan a year to support the activities of the UN-SPIDER office in Beijing and the services of two experts from NDRCC and CNSA on a non-reimbursable loan basis from January to August 2015;

(c) DLR, which provided the services of one expert on a non-reimbursable loan basis;

(d) SWF, which contributed to the expert meetings and technical advisory missions;

(e) CNSA, APSCO and DigitalGlobe, which contributed to the annual conference held by UN-SPIDER in Beijing;

(f) ESCAP, which contributed to the Association of Southeast Asian Nations workshop;

(g) ICIMOD and IWMI, which contributed to training in Bangladesh, while ICIMOD also contributed to activities in Bangladesh;

(h) NDRCC, which contributed to the Beijing training programme.

61. The in-kind contributions of members of the network of regional support offices have been acknowledged above; the programme aims at increasing such inputs, as the demand from member States for support is increasing considerably.

62. The in-kind and sometimes financial contributions of the organizations mentioned above are recognized as central to the success of the programme in 2015, and they also demonstrate the value of UN-SPIDER in building partnerships to improve the capabilities of national and regional institutions with a role in disaster risk reduction and emergency response in developing countries.

63. The Office for Outer Space Affairs is developing its long-term strategy around the global agendas for sustainable development, climate change and disaster risk reduction. “UNISPACE+50”, in addition to the commemoration of the fiftieth anniversary of the first UNISPACE Conference in 2018, is the mechanism to redefine the priorities of the Office and of its programmes. The 2030 Agenda for Sustainable Development, defining the global framework of that strategy, will call for UN-SPIDER to become even more innovative and proactive in assisting nations in reaching their commitments. The programme will now have to be designed, implemented and evaluated within the context of UNISPACE+50. For the programme, this will also mean broadening its funding base, the number and type of its partners and their engagement.