United Nations A/AC.105/1010

General Assembly

Distr.: General
19 December 2011

Original: English

Committee on the Peaceful Uses of Outer Space

Report on activities carried out in 2011 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response

Summary

The present report contains a summary of the implementation of activities carried out in 2011 in the framework of UN-SPIDER with regard to the workplan for the biennium 2010-2011 (A/AC.105/937, annex).

Over the biennium 2010-2011 the UN-SPIDER Programme reached the established target of providing technical advisory support to 23 countries, worked on the further improvement of the UN-SPIDER Knowledge Portal and organized or provided support to a number of international and regional workshops as well as expert meetings.

V.11-88178 (E) 190112 200112

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I. Introduction

1. In its resolution 61/110, the General Assembly decided to establish 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 2011 with regard to the workplan for the biennium 2010-2011 (A/AC.105/937, annex).

4. The General Assembly, in its resolution 64/251, entitled "International cooperation on humanitarian assistance in the field of natural disasters, from relief to development", encouraged the further use of space-based and ground-based remote-sensing technologies, including as provided by UN-SPIDER. In its resolutions 65/97 and 66/71, the Assembly noted with satisfaction the progress made within the framework of UN-SPIDER in the implementation of the workplan of the UN-SPIDER programme for the biennium 2010-2011.

5. During the biennium 2010-2011, UN-SPIDER staff reached the established target of providing technical advisory support to 23 countries, worked on further improving the UN-SPIDER knowledge portal and organized or provided support to a number of international and regional workshops and expert meetings, including the International Conference on Space-based Technologies for Disaster Risk Management "Best practices for risk reduction and rapid response mapping", held in Beijing from 22 to 25 November 2011.

II. Organizational framework

6. The organizational framework of UN-SPIDER has three cornerstones: UN-SPIDER staff, the network of regional support offices and the national focal points.

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

7. The Director of the Office for Outer Space Affairs supervises the UN-SPIDER programme and is responsible for its overall implementation. The Director is assisted by a programme coordinator, who is responsible for planning, coordinating

and implementing all UN-SPIDER 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 who leads outreach and capacity-building activities.

8. At the beginning of 2011, with the arrival of the programme officer responsible for leading its activities and the subsequent recruitment of support staff, as well as the arrival of two senior experts provided by the Government of China, the UN-SPIDER Beijing office became fully operational.

9. During 2011, 16 staff members, senior experts and consultants worked in the framework of UN-SPIDER, distributed as follows:

(a) In Vienna: the programme coordinator, a programme officer responsible for outreach and capacity-building activities, an associate expert (provided by the Government of Austria) to support outreach activities, emergency response support and the administration of the programme, and a team assistant to assist with the administrative tasks of the programme;

(b) In Bonn: a programme officer to lead the activities of the UN-SPIDER office in Bonn, two senior experts (provided by the German Aerospace Center (DLR) as non-reimbursable loans) to support the implementation of the knowledge portal, among other activities, an associate expert (provided by the Government of Germany) to support the development and implementation of the knowledge portal and an associate expert (also provided by the Government of Germany) to support the compilation and dissemination of information and the maintenance of the content of the knowledge portal. In addition, two senior experts (provided by Turksat as non-reimbursable loans) support programme activities with regard to satellite communications, technical advisory support to Member States and outreach activities. A consultant has also been contracted, on a part-time basis, to provide programming and technical support to the development of the knowledge portal;

(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 senior experts to support the technical advisory support activities (provided by the Government of China as non-reimbursable loans) and a team assistant to assist with the administrative tasks of the office.

B. Network of regional support offices

10. 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 a coordinated manner.

11. UN-SPIDER regional support offices are currently being hosted by the following national organizations: the Algerian Space Agency, the Iranian Space Agency, the National Space Research and Development Agency of Nigeria, the Pakistan Space and Upper Atmosphere Research Commission, the Romanian Space Agency and the State Space Agency of Ukraine. They are also hosted by the following regional organizations: the Asian Disaster Reduction Center (ADRC),

based in Kobe, Japan; the Regional Center for Mapping of Resources for Development, based in Nairobi; the University of the West Indies, based in St. Augustine, Trinidad and Tobago; and the Water Center for the Humid Tropics of Latin America and the Caribbean, based in Panama City.

C. National focal points

12. A national focal point is a national institution nominated by the Government of the respective country that represents the disaster management and space application communities. The role of national focal points is to work with UN-SPIDER staff to strengthen national disaster management planning and policies and to implement specific national activities that incorporate space-based technology solutions in support of disaster management. National focal points are the main institutions with which UN-SPIDER staff work at the national level with the aim of promoting access to and the use of space-based solutions for disaster management in the country.

13. In calling for the nomination of national focal points, the Office for Outer Space Affairs specifically requested Governments to consider the possibility of nominating the same focal point that had been appointed for the implementation of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. By the end of 2011, 43 Member States had nominated a national focal point.

III. Activities carried out in 2011

14. The work carried out in the framework of the UN-SPIDER programme in 2011 followed the workplan for the biennium 2010-2011. In carrying out the activities, UN-SPIDER staff worked closely with the regional support offices, building upon the offices' resources and expertise.

A. Outreach and capacity-building activities

15. The targets for 2011 in the framework of the UN-SPIDER programme were met: the proposed workshops, expert meetings and training courses were organized and conducted. In addition, UN-SPIDER staff participated in a number of relevant international conferences and ensured the provision of expert speakers. Furthermore, experts were mobilized to take part in activities organized by partner institutions.

16. Major outreach activities conducted by UN-SPIDER staff included the organization of international and regional workshops and expert meetings. A summary of the activities carried out in 2011 is contained below. Further information, including detailed reports on the activities, is available on the UN-SPIDER knowledge portal (www.un-spider.org).

United Nations International Conference on Space-based Technologies for Disaster Risk Management "Best practices for risk reduction and rapid response mapping"

17. Staff from UN-SPIDER and the Ministry of Civil Affairs of China successfully conducted the Conference in Beijing from 22 to 25 November, in collaboration with the Ministry of Foreign Affairs of China, the China National Space Administration, the National Disaster Reduction Centre of China, the Institute of Remote Sensing Applications, the Chinese Academy of Sciences and the Asia-Pacific Space Cooperation Organization (APSCO).

18. The Conference brought together 120 experts from 45 Member States from all continents representing national, regional and international organizations, non-governmental organizations, the private sector and academia. Participants represented civil protection agencies, emergency management organizations, space agencies, remote-sensing agencies, research institutions, ministries of environment and natural resources, science and technology bureaux, and Government agencies.

19. Through the Conference, UN-SPIDER staff gathered elements to tailor the activities of the programme, especially in Asia and the Pacific and Africa, in order to identify strategies for bridging gaps between the space and the disaster management communities, and improved the communication and coordination among existing initiatives in Member States regarding access to and use of space-based technologies for disaster-risk management, emergency response, portals and platforms contributing to disaster risk management and emergency response, rapid response mapping, capacity-building opportunities and regional networks.

International meeting of experts on crowdsource mapping for preparedness and emergency response

20. The two-day meeting of experts, held in Vienna on 5 and 6 July, brought together 64 experts and practitioners from the following 29 countries: Austria, Belgium, Canada, China, Denmark, Ethiopia, France, Germany, Greece, Guatemala, Haiti, Hungary, Iceland, Italy, Kenya, Malaysia, Netherlands, Nigeria, Norway, Pakistan, Poland, Romania, Samoa, Spain, Switzerland, Thailand, United Kingdom of Great Britain and Northern Ireland, United States of America and Zambia.

21. The meeting was attended by representatives from several United Nations entities, space and remote-sensing agencies, and national, regional and international disaster management and civil protection agencies, as well as various actors from the crowdsource communities representing voluntary and technical communities, non-governmental organizations, expert groups, universities, research institutions and the private sector.

22. The meeting consisted of four plenary sessions and parallel breakout group sessions. In the plenary sessions, introductory presentations were used to provide an overview of the various topics to be discussed and an opportunity for the three communities (crowdsource mapping, disaster management and space technology) to brief participants about their fields of expertise. Two "ignite" talk sessions were arranged to allow for a maximum number of experts to present their ideas.

23. The breakout sessions focused on the following discussion points:

(a) How does the crowdsource mapping community take advantage of existing opportunities and sources of space-based information to support its efforts in helping the emergency and humanitarian response communities?

(b) How can all three communities work together to achieve the long-term involvement of the work of the crowdsource mapping community to support the emergency and humanitarian response community?

(c) What is the role of the UN-SPIDER programme in helping all three communities?

24. The meeting notes, with all the considerations and discussion points, as well as the final programme and the final list of participants, are available from www.un-spider.org/node/5118.

Second international meeting of experts crowdsource mapping for preparedness and emergency response

25. The one-day meeting of experts, held in Geneva on 16 November, brought together 72 experts and practitioners from the following 21 countries: Argentina, Australia, Austria, Belgium, Canada, France, Germany, Iceland, Ireland, Italy, Liberia, Luxembourg, Pakistan, Samoa, South Africa, Spain, Sudan, Switzerland, Thailand, United Kingdom and United States.

26. The meeting was attended by representatives from several United Nations entities, space and remote-sensing agencies, and national, regional and international disaster management and civil protection agencies, but mostly by representatives from the crowdsource communities coming from voluntary networks, non-governmental organizations, expert groups, universities, research institutions and the private sector.

27. The second meeting was purposely organized back-to-back with the International Conference on Crisis Mapping (see www.crisismappers.net). This ensured the participation of the crisis-mapping community, which had converged on Geneva to attend its annual meeting, as well as the humanitarian community based in Geneva. The agenda of the second meeting built upon the recommendations and conclusions of the first meeting and focused on exploring possible ways of contributing to better coordination between the crowdsource communities and the space technology community and on improving its involvement in order to facilitate the preparation and processing of space-based products used by the disaster risk reduction and emergency response community. The discussions focused on opportunities for making space-based information available, accessible and usable for disaster risk reduction and emergency response and on the further involvement of existing mechanisms to ensure increased coordination and cooperation between all three communities. The Samoa simulation exercise, proposed during the first meeting, was also discussed and fine-tuned during the second meeting.

28. The presentations, as well as the final programme and the final list of participants, can be accessed at www.un-spider.org/node/5321. A summary and the main considerations of both meetings can be found in document A/AC.105/1007.

UN-SPIDER expert meeting on space-based technologies and emergency response

29. The expert meeting took place in the Vienna International Centre, Austria, on 9 February, with the support of the Government of Austria. It was held during the forty-eighth session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, and brought together representatives from a variety of mechanisms, including 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), Sentinel Asia, the Mesoamerican Regional Visualization and Monitoring System, the Services and Applications for Emergency Response (SAFER) project being implemented in the framework of the Global Monitoring for Environment and Security (GMES) initiative, the Regional Service of Image Treatment and Remote Sensing, service providers, a variety of space agencies and UN-SPIDER regional support offices. The meeting examined several issues, including the possibility of establishing a working group, facilitated by the Office for Outer Space Affairs, which would support discussions regarding ways to optimize collaboration in the generation of space-based information to support all phases of the disaster management cycle, cooperation and related communications during major disasters.

30. Experts representing the mechanisms and service providers indicated that raising awareness was considered essential to ensure that end-users were made aware of the opportunities that such mechanisms and service providers offered and to take advantage of the space-based information being generated and made available by those mechanisms and service providers. In addition, experts noted that end-user feedback were essential for ensuring that products and information delivered to them was used to its fullest potential. To that end, several mechanisms had introduced procedures to request such end-user feedback after activations.

31. It is essential to ensure that sufficient capacity exists to use the space-based information provided by those mechanisms and service providers in an efficient and timely fashion to support emergency response activities. Hence, mechanisms recognize that there is a need to strengthen capacities at the national level.

32. A general recommendation on creating a working group to look into those and other issues was also raised. Such a working group would identify and propose more structured procedures to ensure that all mechanisms kept each other informed. Activities to be conducted by the working group could include the discussion of rules of engagement and guidelines on how to operate and cooperate; qualification and certification of capacities of operators in mechanisms and service providers; the elaboration of a handbook on best practices; discussions of global coordination schemes; and the design of common training activities and exercises regarding procedures to enhance collaboration.

Special session of the UN-SPIDER Thematic Partnership for Latin America and the Caribbean on space-based applications for managing risk reduction and emergency response in Latin America and the Caribbean

33. The Government of Mexico and the regional office for the Americas of the International Strategy for Disaster Reduction organized the second session of the

Regional Platform for Disaster Risk Reduction in the Americas in Nuevo Vallarta, Mexico, from 14 to 17 March.

34. UN-SPIDER staff organized a side event on 16 March that was aimed at establishing connections between the National Commission on Space Activities of Argentina (CONAE) and the wider community working in disaster risk management. It was attended by 17 participants from a variety of agencies working at the national, regional and international levels.

35. Experts from CONAE presented examples of activities conducted on the topics of disaster risk management and emergency response, while representatives from Thermopylae Sciences and Technology presented the 3D-UDOP geo-viewer as an example of state-of-the-art technology focusing on the display of information to improve situational awareness and support decision-making in disasters. UN-SPIDER staff presented the programme and the SPIDER Thematic Partnership for Latin America and the Caribbean and the National Centre for Disaster Prevention of Mexico presented its efforts regarding the development of a geo-viewer. In addition, the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean presented information on its academic activities in the Americas.

36. The side event also allowed UN-SPIDER staff to advance the coordination of training activities targeting the Dominican Republic, Mexico and Central America where, under the UN-SPIDER programme, technical advisory missions have already been conducted; network with representatives from various institutions participating in the event; and continue the process of engaging national platforms for disaster reduction and other agencies as a way of promoting the use of space-based information, in cooperation with other partners.

Special session of the SPIDER Thematic Partnership for the Pacific Region

37. UN-SPIDER took advantage of the third session of the Pacific Platform for Disaster Risk Management, which took place in Auckland, New Zealand, from 1 to 5 August 2011, to organize a special session of the SPIDER Thematic Partnership for the Pacific Region. The UN-SPIDER programme facilitated the participation of three experts from Samoa and Tonga at the event and the special session.

38. The special session allowed leaders of disaster management organizations to discuss ways of ensuring closer cooperation, the Samoa simulation exercise and the proposed technical advisory mission to Tonga. The session was conducted with the financial support of the Government of Austria and targeted small island developing States.

Special session of the SPIDER Global Thematic Partnership at the third session of the Global Platform for Disaster Risk Reduction

39. From 8 to 13 May 2011, the International Strategy for Disaster Reduction organized the Global Platform event, which brought together more than 2,600 participants representing governmental organizations, intergovernmental and international organizations, academic institutions, non-governmental organizations, civil society and the private sector.

40. UN-SPIDER staff organized a side event on 12 May with DLR, ADRC, the International Society for Photogrammetry and Remote Sensing, and the Environmental Systems Research Institute, Inc. The side event promoted the SPIDER Global Thematic Partnership and attracted more than 50 participants, allowing them to become aware of the most recent examples of applications of space-based information, and of ongoing efforts conducted by those agencies.

41. The side event also allowed UN-SPIDER staff to make contact with representatives of national disaster risk reduction platforms and make them aware of the opportunities that the space community is providing to facilitate access to and use of space-based and geospatial information.

42. Participants learned about recent examples regarding the application of space-based information to support emergency relief efforts in Japan and other countries that have experienced disasters and regarding a wide range of geospatial applications in a variety of sectors of development and in applications related to environmental management. In addition, the session allowed participants to be made aware of ongoing efforts by regional and international agencies, including DLR, ADRC, the International Society for Photogrammetry and Remote Sensing, and the Environmental Systems Research Institute, Inc., to promote the use of such information.

Second National Institute of Disaster Management/UN-SPIDER workshop on space technology application in disaster management and emergency response

43. The workshop was organized in the framework of UN-SPIDER and by the National Institute of Disaster Management of India and was conducted in New Delhi from 28 to 30 March 2011. It was carried out as a follow-up to the first workshop, which was organized in 2010 at the National Institute. The aim of the workshop was to provide disaster managers with knowledge on the applications of space technology for disaster management and to bridge the gap between the geospatial and disaster management managers at various levels.

44. The workshop was attended by 25 participants representing Bangladesh, India, Maldives, Nepal and Sri Lanka. The Indian delegation included representatives from state disaster management authorities, middle-level administrators of the National Disaster Management Division and faculty members of administrative training institutes and state remote-sensing application centres. The workshop included two participants from the Disaster Management Bureau of Bangladesh, one from the Disaster Management Center of Sri Lanka and one from the National Disaster Management Centre of Maldives.

Ministry for Civil Defence, Emergency Situations and Natural Disaster Management of the Russian Federation international seminar on space-based information for disaster management in Central Asia

45. With support from the UN-SPIDER programme, the Ministry for Civil Defence, Emergency Situations and Natural Disaster Management of the Russian Federation organized the international seminar at the Space University of Krasnoyarsk on 7 and 8 September 2011. The seminar brought together representatives of emergency management and civil protection agencies from various regions of the Russian Federation, as well as from Kazakhstan, Kyrgyzstan,

Mongolia and Uzbekistan. The space community, represented by the Russian Federal Space Agency, the private sector company ScanEx and the Space University of Krasnoyarsk, actively took part as well. Several technical visits to leading institutions in emergency management and space technology in the Krasnoyarsk region complemented the successful event.

46. The seminar was instrumental in exchanging information and best practices on the use and possible applications of space-based information for disaster risk management and emergency response in the Central Asian region. It was also useful for strengthening the cooperation between emergency services of the Russian Federation and neighbouring countries, as well as providers of space-based information and the United Nations.

47. In addition, UN-SPIDER took advantage of the seminar to further strengthen its ties with disaster management agencies in the Central Asian region. Discussions on follow-up activities to improve access to and use of space-based information for disaster risk management and emergency response were held with representatives from all participating countries. Recognizing this ongoing cooperation, representatives of Member States attending the seminar were requested to nominate UN-SPIDER national focal points; having such focal points will allow the programme to provide immediate support based on individual countries' requirements. It was proposed that a technical advisory mission by UN-SPIDER, in cooperation with the Ministry, and another regional meeting to identify tangible follow-up activities should be held in Kazakhstan in 2012.

Support for capacity-building

48. Capacity-building efforts, as defined in the capacity-building strategy of the UN-SPIDER programme (A/AC.105/947), are being carried out through efforts including institutionalizing the use of space-based and disaster information in agencies and organizations responsible for carrying out such tasks; facilitating the training of individuals; and supporting access to hardware, software and related infrastructure to make use of such information.

49. The information below describes several capacity-building activities that were carried out in 2011 in line with the workplan for the biennium 2010-2011.

Regional training activity on the use of remote sensing and geographic information systems for disaster management

50. The training activity took place in Ouagadougou from 26 to 30 September 2011 and focused on the use of remote sensing and geographic information systems for disaster management. It was conducted following an official invitation from the Government of Burkina Faso, as a follow-up activity to the technical advisory mission that was carried out by UN-SPIDER in November 2008. The activity was organized by UN-SPIDER and the Ministry of the Environment and Sustainable Development and the Directorate for Environmental Monitoring and Statistics. The Regional Centre for Training in Aerospace Surveys, located in Ile-Ife, Nigeria, provided the instructors for the course.

51. The main goals were to train a network of professionals from different institutions and countries and to establish an inter-institutional technical group as a way of further institutionalizing the use of space-based information for disaster

management. The training started with a half-day high-level awareness-raising event in Ouagadougou, which was attended by nearly 60 participants from national and international organizations and institutions. Twenty participants from Burkina Faso, Cameroon and Togo took part in the second segment, which lasted for four days. In addition, the group of trainees visited the National Meteorological Service, where the Director provided a detailed introduction to the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) receiving station that had been installed in the framework of the European Union-funded African Monitoring of Environment for Sustainable Development (AMESD) project.

Regional training course on the use of radar images for floods at the Mexican campus of the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean

52. The course was held in Tonantzintla, Mexico, between 24 and 28 October 2011 and was organized by UN-SPIDER staff and the Mexican campus of the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, which is hosted by the National Institute for Astrophysics, Optics and Electronics of Mexico. The course benefited from the support of the National Institute and the Governments of Austria and Spain. It was aimed at Government staff from Belize, El Salvador, Guatemala and Mexico who support disaster response and risk management efforts using remote-sensing techniques. In the particular case of Mexico and Guatemala, the course brought together representatives from inter-institutional groups already working on the use of space-based information to support emergency response activities. The course was conducted at the request of representatives of civil protection agencies from these countries, and can be seen as an outcome of the Sixth Space Conference of the Americas, which was held in Pachuca, Mexico, in November 2010. Participants represented civil protection agencies, ministries of the environment, ministries of land resources, ministries of natural resources, national commissions on forestry and water resources, geographic institutes and national planning agencies.

53. The course provided participants with knowledge on the theoretical background of radar imagery and was complemented by practical exercises on the use of specific software packages to pre-process and process radar imagery to detect floods in various types of environments.

54. The course had a special relevance as El Salvador, Guatemala and Mexico had been affected by severe flooding in September and October 2011, which had caused fatalities, injuries and losses of various kinds.

55. As a follow-up to the course, participants will carry out a variety of activities in their countries, including field trips to characterize ground roughness in areas prone to flooding and to determine how common crops such as corn and sugar cane are reflected in radar imagery, with particular emphasis on orbital trajectory, band and polarization for improving flood impact assessments.

Other activities

56. The UN-SPIDER programme facilitated the attendance of a participant from Afghanistan in the training course on environment and disaster monitoring through

space technology, which was organized by APSCO in Dhaka from 22 November to 1 December 2011.

57. In addition to supporting training courses, the UN-SPIDER programme has also maintained a database of other training opportunities. The database continued to be regularly updated in 2011 and is publicly available through the UN-SPIDER knowledge portal. The database contains more than 50 entries on training opportunities in all regions of the world and is divided into three segments: web-based or e-learning courses, standard courses and educational programmes leading to academic degrees.

58. UN-SPIDER also completed the first of its curricula targeting the use of remote-sensing applications for disaster response. The draft curriculum was circulated among the members of the Expert Group on Capacity-Building and staff of the regional support offices to gather their feedback.

59. Other training activities are being facilitated through a variety of efforts conducted by UN-SPIDER partners. Policy-relevant advice is being provided and institutions are being twinned to institutionalize access to and use of space-based information. In addition, assistance is being provided in the framework of UN-SPIDER to help agencies obtain the infrastructure required to access and make use of such information.

B. Knowledge management

60. The acquisition, processing and transfer of knowledge should be seen as central to the success of the mission of the UN-SPIDER programme. This includes managing the kind of knowledge held by individuals in the form of know-how and experience and the kind of knowledge that is recorded in a variety of media. By building a knowledge base on how space-based information and solutions can support risk and disaster management and emergency response, knowledge can be made available through a portal and can be used to support capacity-building.

61. The knowledge portal continues to be a core element of the UN-SPIDER programme, as it is aimed at providing the hosting environment and dissemination tool for all activities, including the resulting outputs. The portal is increasingly recognized as making a significant contribution to strengthening existing networks; this is clearly visible through the popularity and use of the resource pages set up to cover major natural disasters such as the earthquake in Japan or the ongoing drought in the Horn of Africa.

62. Following the success of the booklet *Geoinformation for Disaster and Risk Management: Examples and Best Practices* (available from www.un-spider.org/about/portfolio/publications/jbgis-unoosa-booklet), published by the Joint Board of Geospatial Information Societies and the Office for Outer Space Affairs in 2010, UN-SPIDER staff contributed to the development of a new publication in the context of the Value of Geo-Information for Disaster and Risk Management (VALID) project, together with the same partners, addressing the operational and economic value of geospatial information in the context of disaster management.

Knowledge portal

63. The formal launch of the knowledge portal, including a new space applications matrix module, in February 2011 coincided with the forty-eighth session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space in Vienna. Smaller software upgrades and module improvements, as well as customizations and design reviews based on usability, continued after the launch.

64. The portal continued to attract interest from the end-user community, with the number of regular visitors increasing steadily and reaching record levels during major disasters, a clear indication that users find relevant information on the portal for their work and needs. This is also supported by the web access statistics that are collected on a monthly basis. A significant number of visitors are based in developing countries, often from disaster-affected areas, validating the conclusion that the information provided on the portal is relevant to such areas. Among the most-visited pages were those on the workshops and other events organized in the framework of the UN-SPIDER programme.

65. Efforts continued to build a knowledge base on how space-based information and solutions can support risk and disaster management and emergency response, with the available knowledge being made available systematically through the knowledge portal. The work is based on the ongoing collection and categorization of articles, publications and papers that are relevant to the space application matrix, the thematic search function on the knowledge portal. At the same time, efforts are being made to obtain source agreements for papers and materials that are already published, so that they can be fully included as well.

66. The knowledge portal is also increasingly used for the dissemination of more comprehensive publications. The proceedings of the fourth international UN-SPIDER workshop, held in Bonn, Germany, in October 2010, were converted to an appropriate format by the editorial team and subsequently published on the portal in 2011. The publication was very well received, indicating that the proceedings of future workshops should also be made available online.

C. Technical advisory support

67. 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: (a) technical advisory missions involving experts from space and disaster management agencies from other countries and relevant international and regional organizations and institutions; (b) technical advice to national institutions by means of meetings, teleconferences, videoconferences, etc.; (c) facilitating direct cooperation between national institutions and providers of space-based information and solutions; and (d) support in accessing space-based information to support emergency response. Detailed information on technical advisory support activities carried out in 2011 in the framework of UN-SPIDER is contained in A/AC.105/1009.

D. Activities carried out by the regional support offices

68. The UN-SPIDER regional support office in the Islamic Republic of Iran, which is hosted by the Iranian Space Agency, reported the following activities in 2011:

(a) Capacity-building efforts at two events at the national level on the occasion of World Space Week 2011. Those events were the Space and Environment Conference, held in Tehran on 8 October 2011, and the workshop on space technology and its applications, held in Tehran on 9 October 2011, for highschool teachers;

(b) A presentation on UN-SPIDER initiatives, services and activities during the APSCO training course on environment and disaster monitoring through space technology, held in Dhaka in November 2011;

(c) Broadcasting a series of radio programmes, organizing a public exhibition and publishing books and CDs during World Space Week 2011;

(d) Supporting UN-SPIDER staff in designing the syllabus and course materials of six training courses;

(e) Participation in the Beijing Conference;

(f) Outreach efforts through the production of a geo-portal for data archiving as the first phase of an early warning and monitoring system and the development of a system for drought monitoring and early warning based on satellite imagery and neural network analysis;

(g) Providing support to the technical advisory mission to Sri Lanka.

69. The UN-SPIDER regional support office in Nigeria, hosted by the National Space Research and Development Agency, reported that, during 2011, it had carried out a series of programmes and participated in meetings and workshops organized for space-based disaster management. It provided support to technical advisory missions in Cameroon and Nigeria and activated the International Charter on Space and Major Disasters in response to a flood disaster in Ibadan, Nigeria, and also participated in events in the framework of the UN-SPIDER programme in Vienna and Beijing. The regional support office used these opportunities to present its activities and plan of work and to coordinate with other regional support office and UN-SPIDER staff. During the Charter activation for the Ibadan floods, the regional support office staff acted as the project manager, provided archived Landsat data and ensured the smooth download of the space-based imagery provided by members of the Charter.

70. The UN-SPIDER regional support office in Ukraine, hosted by the Space Research Institute of the National Academy of Sciences of Ukraine and by the National Space Agency of Ukraine, reported undertaking various activities in 2011. It developed two approaches to flood-hazard mapping from satellite imagery. The corresponding maps were generated for Ukraine (Tisza river region) and Namibia (Katima Mulilo region). They are intended for use in the Namibian SensorWeb Pilot project, which is also supported by the UN-SPIDER programme. Following a request by local authorities, the office provided rapid mapping of regions of potential deforestation in Lugansk Oblast (Ukraine). The potential deforestation

area is estimated at 2,300 ha. An international Ukrainian-Iranian workshop was also held in Kiev in 2011, which was aimed at demonstrating the capacities of the Ukrainian regional support office and establishing collaboration efforts with the Iranian regional support office in training activities. In 2011, a regional support office website was launched (http://un-spider.ikd.kiev.ua).

71. The UN-SPIDER regional support office in Colombia, hosted by the Agustín Codazzi Geographic Institute, reported undertaking several activities in 2011. It was involved in the organization of the fourth Geomatics Week, on the theme "geospatial technologies for territorial development", held in Bogota between 8 and 12 August, where, at the request of the regional support office, UN-SPIDER staff held a workshop and gave a lecture about risk management. The office also assisted the Risk Management Division of the Ministry of the Interior of Colombia in a search operation. In addition, it supported the technical advisory follow-up mission to the Dominican Republic to support the National Emergency Commission in the institutionalization of an inter-agency technical group on issues related to remote sensing to support the prevention, preparedness and response to disasters caused by natural phenomena, with the assistance of an expert who introduced geographic products generated for winter emergency management in Colombia, based on satellite images provided by members of the International Charter on Space and Major Disasters.

72. The UN-SPIDER regional support office hosted by the Water Center for the Humid Tropics of Latin America and the Caribbean reported the following activities in 2011: providing an expert to support UN-SPIDER staff during the training course on the use of radar imagery for floods that was conducted in Tonantzintla, Mexico; providing an expert to participate in the mission conducted by UN-SPIDER to the Dominican Republic from 7 to 11 November 2011; and providing an expert to represent UN-SPIDER during Geomatics Week, which was organized by the Agustín Codazzi Geographic Institute of Colombia. Several activities were performed in follow-up to technical advisory missions carried out in 2010, and the Water Center also contributed feedback to the innovative training curriculum being developed by UN-SPIDER staff.

73. During 2011, the UN-SPIDER regional support office hosted by the Asian Disaster Reduction Center participated in the UN-SPIDER technical advisory mission to Bangladesh to assess national capacity and evaluate disaster and risk reduction activities, policies and plans with regard to the use of space-based technologies, and to facilitate access by national institutions to space-based information to support the full cycle of disaster management. It also supported a one-day workshop held during the mission for the relevant organizations in Bangladesh. The Asian Disaster Reduction Center participated in the International Conference on Space-based Technologies for Disaster Risk Management "Best practices for risk reduction and rapid response mapping", which was held in Beijing in the framework of UN-SPIDER (see paragraphs 17-19 above), and made presentations on its activities in the context of Sentinel Asia and on the effective use of satellite images after the powerful earthquake that struck Japan in 2011.

IV. Voluntary contributions

74. The successful implementation of activities benefited from the support and voluntary contributions (financial and in kind) received from Governments and private sector entities, the main ones being:

(a) The Federal Ministry for Transport, Innovation and Technology of Austria, which contributed 150,000 euros in support of capacity-building, outreach activities and technical advisory support for the programme in 2011;

(b) The Federal Ministry for European and International Affairs of Austria, which contributed 50,000 euros to support the work carried out in support of small island developing States and the services of an associate expert;

(c) The Government of Germany, which provided the last contribution of 150,000 euros of the planned four-year support for the activities of the UN-SPIDER office in Bonn and the services of two associate experts;

(d) The Government of China, which is contributing RMB 1,250,000 a year to support the activities of the UN-SPIDER office in Beijing and the services of two senior experts (on a non-reimbursable loan basis);

(e) DLR, which provided the services of two senior experts (on a non-reimbursable loan basis);

(f) Turksat, which provided the services of two senior experts (on a non-reimbursable loan basis);

(g) The Secure World Foundation, which contributed to two events organized by UN-SPIDER.

75. Several institutions supported the UN-SPIDER programme by providing the services of experts to join technical advisory missions and special events organized by the programme, or by making training facilities available for capacity-building efforts. These include: the Water Center for the Humid Tropics of Latin America and the Caribbean, CONAE, the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, the National Institute for Astrophysics, Optics and Electronics of Mexico, the National Centre for Disaster Prevention of Mexico, the National Space Agency of Ukraine, the Organization of American States, the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, the South Asian Association for Regional Cooperation, Thermopylae Sciences and Technology and the Ministry for Civil Defence, Emergency Situations and Natural Disaster Management of the Russian Federation.