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Committee on the Peaceful Uses of Outer Space

Report on activities carried out in 2009 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response

Summary

In its resolution 61/110, the General Assembly decided to establish 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. In its resolution 62/217, the Assembly agreed that the acronym of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response should be UN-SPIDER. Pursuant to Assembly resolution 61/110, the mission of UN-SPIDER is to ensure that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle (A/AC.105/937, annex II).

The present report contains a summary of the implementation of activities carried out in 2009 in the framework of UN-SPIDER with regard to the workplan for the biennium 2008-2009 (A/AC.105/894, annex II).

Major accomplishments achieved in 2009 include the provision of technical advisory support to 13 Member States, the formalization of cooperation agreements with regional support offices, the establishment of SpaceAid (a framework for, inter alia, facilitating fast and efficient access to space-based information to support emergency response and early recovery), the launch of the beta version of the UN-SPIDER knowledge portal and the organization of international and regional workshops and expert meetings.



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I. Introduction

1. In its resolution 61/110, the General Assembly decided to establish 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. In its resolution 62/217, the Assembly agreed that the acronym of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response should be UN-SPIDER. Pursuant to Assembly resolution 61/110, the mission of UN-SPIDER is to ensure that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle (A/AC.105/937, annex II).

2. In its resolution 62/217, the General Assembly endorsed the UN-SPIDER programme for the period 2007-2009 and the workplan for the biennium 2008-2009 (A/AC.105/894, annex II). In its resolution 64/86, the Assembly noted with satisfaction the progress made within the framework of UN-SPIDER in the implementation of the platform programme for the period 2007-2009.

3. 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.¹ The present report presents a summary of the implementation of activities carried out in 2009 in the framework of UN-SPIDER with regard to the workplan for the biennium 2008-2009.

II. Organizational framework

4. 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

5. 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 the head of the UN-SPIDER office in Bonn, Germany, the head of the future UN-SPIDER office in Beijing and the programme officer leading outreach and capacity-building activities.

¹ *Official Records of the General Assembly, Sixty-second Session, Supplement No. 20 (A/62/20)*, para. 155.

6. By the end of 2009, the following staff members, experts and consultants had been mobilized to implement activities in the framework of UN-SPIDER:

(a) In Vienna: the programme coordinator, a programme officer responsible for outreach and capacity-building activities, a programme officer responsible for coordinating technical advisory assistance to Member States, an associate expert (provided by the Government of the Republic of Korea) to support programme management, finance, fundraising and coordination of the network of regional support offices, an associate expert (provided by the Government of Austria) to support outreach activities, the implementation of SpaceAid (a framework for, inter alia, facilitating fast and efficient access to space-based information to support emergency response and early recovery) and the administration of UN-SPIDER, and a team assistant to help with administrative tasks;

(b) In Bonn: a programme officer who heads 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 knowledge portal content. Two consultants were also contracted, on a part-time basis, to provide programming and technical support for the knowledge portal and contact database.

B. Network of regional support offices

7. 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 UN-SPIDER in their respective regions in a coordinated manner.

8. At its fifty-first session, the Committee on the Peaceful Uses of Outer Space agreed on a set of guidelines for selecting and setting up such regional support offices.² In its resolution 63/90, the General Assembly agreed with the guidelines proposed by the Committee.

9. In 2009, the Office for Outer Space Affairs signed cooperation agreements with Algeria, Iran (Islamic Republic of), Nigeria and Romania, as well as with the Asian Disaster Reduction Center, thus formalizing the establishment of regional support offices. Pakistan, the Philippines, South Africa and Ukraine offered to host regional support offices and it is expected that cooperation agreements will be signed with each of those countries in 2010.

² Ibid., *Sixty-third Session, Supplement No. 20 (A/63/20)*, para. 129.

C. National focal points

10. A national focal point is a national institution nominated by the Government of the respective country, representing 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 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.

11. 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 of Action 2005-2015: Building the Resilience of Nations and Communities to Disasters,³ adopted at the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan, from 18 to 22 January 2005. By the end of 2009, each of the following 40 Member States had nominated a national focal point: Algeria, Austria, Belarus, Belize, Bolivia (Plurinational State of), Bosnia and Herzegovina, Burkina Faso, Burundi, China, Côte d'Ivoire, Croatia, Egypt, El Salvador, Ethiopia, India, Iraq, Jordan, Kenya, Malawi, Malta, Mauritania, Mauritius, Morocco, Myanmar, New Zealand, Philippines, Qatar, Republic of Korea, Senegal, Singapore, Spain, Syrian Arab Republic, Tajikistan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Arab Emirates and United Republic of Tanzania.

12. The national focal points represent a wide variety of entities, including disaster management authorities, civil protection units, disaster risk reduction platforms, space agencies and mapping organizations. Through UN-SPIDER, the Office for Outer Space Affairs communicates regularly with the national focal points, keeping them informed on the activities of the UN-SPIDER programme, raising awareness about existing and potential future opportunities and fostering a working relationship that will increase the possibility of supporting each country.

III. Activities carried out in 2009

13. The work carried out in the framework of UN-SPIDER in 2009 followed the workplan for the biennium 2008-2009 (A/AC.105/894, annex II), in which 11 specific activities were identified. In the present report, the work done with regard to those activities has been grouped according to the following three themes: outreach and capacity-building activities, horizontal cooperation, and technical advisory support. The work done by the regional support offices in 2009 contributed significantly to the implementation of planned activities.

³ A/CONF.206/6 and Corr.1, chap. I, resolution 2.

A. Outreach and capacity-building activities

14. Activities identified in the workplan for the biennium 2008-2009 that fall under outreach and capacity-building include awareness-raising (activity 3), outreach activities (activity 4) and support to capacity-building (activity 11).

Awareness-raising

15. Awareness-raising is a process by which understanding about a certain matter is increased among the persons targeted, fostering change in attitudes and behaviour. In the framework of UN-SPIDER, awareness-raising is an ongoing process that accompanies, facilitates and prepares activities, as new audiences are addressed, new partnerships are formed and new technological solutions are developed, thereby offering new opportunities to existing and new target groups.

16. In 2009, the awareness-raising strategy of UN-SPIDER was revised and updated. As a result, specific publications, displays and educational material were produced and disseminated widely. Among the awareness-raising material produced were leaflets (in English and Spanish), regular e-newsletters and monthly updates, as well as other promotional material that was distributed at workshops and conferences and was made available via the knowledge portal and by e-mail, through a mailing list, to over 13,000 professionals. An informational video on the programme and mission of UN-SPIDER was also produced and made available to a wide audience on the Internet (<http://www.youtube.com/watch?v=pAnEZU5BIXM>).

17. As part of the awareness-raising activities, UN-SPIDER staff participated in the main regional disaster risk reduction platform meetings organized within the framework of the International Strategy for Disaster Reduction (ISDR). Those meetings, which took place in Africa, Asia and the Pacific, Europe and Latin America and the Caribbean, were used to generate awareness among disaster risk reduction communities about the SPIDER Global Thematic Partnership, which had been launched by UN-SPIDER to foster the establishment of communities of practice on the use of space-based information for disaster management.

18. On 14 October 2009, the Office for Outer Space Affairs observed the International Day for Natural Disaster Reduction, designated by the General Assembly in its resolution 44/236, by holding an awareness-raising event at the Vienna International Centre, where the Office is headquartered. At the event, information was provided on the role of UN-SPIDER and on how space-based information was used to respond to the tropical storms and cyclones that hit the Philippines in September and October 2009.

19. The Office organized, together with the Space Generation Advisory Council, a poster competition on the theme "Case study on the use of space-based information for disaster management in the Caribbean".

Outreach activities

20. The targets set for outreach activities to be carried out in 2009 in the framework of UN-SPIDER were met, as several workshops, expert meetings and training courses were organized and supported, as detailed in the report on outreach

activities (A/AC.105/952). Further information, including the meeting notes of each workshop, is available on the UN-SPIDER website (<http://www.unspider.org>).

Support to capacity-building

21. It is important to build capacity and strengthen institutions at all levels in order to increase the ability of organizations and individuals to effectively use space-based services for disaster reduction, preparedness, response and recovery. Capacity-building efforts, as defined in the capacity-building strategy of UN-SPIDER (A/AC.105/947), are being carried out by doing three things: training individuals; institutionalizing the use of space-based and disaster information in agencies and organizations responsible for carrying out such tasks; and supporting access to hardware, software and related infrastructure to make use of such information.

22. Training is being facilitated through a variety of activities conducted by partners of UN-SPIDER. Policy-relevant advice is being provided and institutions are being twinned to institutionalize access to and use of space-based information. 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.

23. During 2009, several capacity-building activities were carried out in line with the workplan for the biennium 2008-2009, including the following:

(a) Discussion sessions were organized during the United Nations international UN-SPIDER workshop on building capacities to reduce disasters, held in Vienna from 2 to 4 June. The sessions allowed UN-SPIDER staff to gather feedback from experts that could be used to develop the capacity-building strategy. In addition, an expert group on capacity-building was established at the workshop to assist in the design and implementation of capacity-building activities as defined in the UN-SPIDER workplan for the biennium 2008-2009;

(b) Support was given to the National Commission on Space Activities (CONAE) of Argentina and the Organization of American States for a training event on the use of remote sensing for flood management, held in Córdoba, Argentina;

(c) Support was given to the Regional Centre for Space Science and Technology Education for Latin American and the Caribbean, affiliated to the United Nations, and CONAE in the planning of the second spring school, on natural disasters and spatial solutions for disaster management: drought and desertification, to be conducted in La Rioja, Argentina, early in 2010;

(d) Participation in the executive seminar entitled “Capacity-building in Disaster Geo-information Management in Developing Countries”, held in Enschede, the Netherlands, from 23 to 25 September;

(e) Support was provided for several training workshops organized by ISDR. In November 2009, UN-SPIDER staff participated in the West Africa subregional training workshop on risk assessment, also organized by ISDR;

(f) A database of training opportunities was developed.

B. Horizontal cooperation

24. In horizontal cooperation, emphasis is placed on the importance of providing information to communities, improving communication among communities and strengthening coordination for the benefit of affected communities. In accordance with the UN-SPIDER workplan for the biennium 2008-2009, horizontal cooperation activities in 2009 included: the systematic compilation of relevant information (activity 1); ensuring that information is easily accessible and disseminated to all interested end-users (through the knowledge portal) (activity 2); the establishment of communities of practice (activity 6); the management and transfer of knowledge (activity 7); and the platform for fostering alliances (activity 8).

Knowledge portal

25. The knowledge portal is central to all the other activities of the UN-SPIDER programme, as it provides the means for all those activities and the resulting outputs and products to be collected, archived and disseminated. The portal aims at integrating all useful information, knowledge and resources identified and available to support the programme's mandate, including those contributed by relevant user communities, and serves as a platform for sharing space-based information in the disaster management cycle in general.

26. The beta version of the knowledge portal (<http://www.un-spider.org>) was officially launched at the fifty-second session of the Committee on the Peaceful Uses of Outer Space. In the first five months of being online, the site was accessed by nearly 4,000 unique visitors from 134 States and territories. In implementing the knowledge portal, the Office for Outer Space Affairs is taking full advantage of cutting-edge web-based solutions to support the UN-SPIDER network in all its operational domains.

27. The portal provides services and tools for facilitating communication, supporting processes and disseminating information. It includes a news section, a table containing information on disasters and a calendar of events. Two elements of the portal (a space application matrix and a visual globe tool) are still under development. From the homepage, links take users to pages on SpaceAid, advisory support, knowledge base and the UN-SPIDER network. The SpaceAid section contains information for using space technologies during emergency response operations. The knowledge base section contains information on technology, procedures, organizations and experts. The network section includes links to UN-SPIDER regional support offices, national focal points, communities of practice and a discussion board.

Knowledge management and transfer

28. The acquisition, processing and transfer of knowledge should be seen as central to the success of UN-SPIDER. That includes managing the kind of knowledge that is held in an individual's brain 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 the knowledge portal and be used to support capacity-building.

29. In 2009, UN-SPIDER staff, in coordination with the regional support offices, continued compiling and making available through the knowledge portal relevant information and knowledge. The development of a knowledge base also meant refining user requirements and identifying best practices. In addition, together with the Joint Board of Geospatial Information Societies, a publication on case studies and best practices has been prepared, to be launched in 2010.

Communities of practice

30. Communities of practice are part of a recent approach to support knowledge management and transfer that is based on the theory of social learning. Communities of practice are dynamic groups, associated by communication and learning processes, dedicated to issues of joint interest. The sharing of knowledge is the essential process that characterizes a community of practice.

31. Through UN-SPIDER, the Office for Outer Space Affairs aims at fostering and supporting communities of practice that focus on issues related to disaster management and space-based information and solutions. A framework concept on communities of practice in the context of UN-SPIDER has already been developed. Workshops, technical advisory missions and related international conferences have been used as seedbeds for establishing and fostering communities of practice. Furthermore, the knowledge portal is being developed to facilitate communication among these communities by providing a web-based platform that allows for spontaneous communication, the generation and transfer of good quality content and the possibility of maintaining a directory of members, a shared workspace and document repository.

32. The workshops and technical advisory missions that have been carried out in the framework of UN-SPIDER have proved to be ideal for enabling disaster management practitioners to meet space experts as well as each other and for offering a platform on which communities of practice can be established and developed further by way of personal contact.

33. UN-SPIDER has provided support to existing communities of practice. In 2009, it contributed to the establishment of two new communities of practice: an expert group focusing on capacity-building and the SPIDER Global Thematic Partnership.

Platform for ensuring cooperation

34. The harmonization of various initiatives and cooperation among various partners are central elements for ensuring that States and international and regional organizations are able to access and use space-based information in support of disaster management activities. Through UN-SPIDER, the Office for Outer Space Affairs is contributing to such efforts by ensuring the harmonization of initiatives that are contributing or are potentially able to contribute to helping developing countries access and use space-based technologies for disaster management and risk reduction. The Office continues to work with and contribute to the full implementation of existing and planned international and regional initiatives of relevance to the UN-SPIDER programme of work, contributing to enhancing

coordination among all United Nations initiatives related to humanitarian and emergency response, as well as to those focusing on risk reduction and disaster management.

35. Relevant activities have included close interaction with the Group on Earth Observations (GEO) and continued leadership by UN-SPIDER staff in relevant GEO tasks, as well as participation in the Committee on Earth Observation Satellites (CEOS), where the Office for Outer Space Affairs currently leads the disaster response interest group. In that context, UN-SPIDER staff attended the meeting of the CEOS working group on information systems and services held in May 2009 and the CEOS and the GEO plenary meetings held in November 2009.

36. Significant efforts were made in 2009 to improve interaction with other United Nations departments and agencies and to increase awareness of the mandate of UN-SPIDER. The fact that the Office for Outer Space Affairs and the Economic Commission for Africa have been accepted as co-chairs of the United Nations Geographic Information Working Group (UNGIWG) has further contributed to strengthening the work of UN-SPIDER within the United Nations system.

37. UNGIWG is a United Nations inter-agency coordination body. It is estimated that well over 500 experts are currently in the system. The UN-SPIDER office in Bonn hosted the tenth UNGIWG meeting, held from 19 to 21 October 2009, in which experts from both United Nations and non-United Nations partners participated.

38. The UN-SPIDER office in Bonn also hosted an information workshop of the Global Monitoring for Environment and Security (GMES) that was organized by the City of Bonn and the Bridge2Geo European initiative. At the workshop, UN-SPIDER staff explored the possibility of forging better links with various United Nations entities in Bonn (including the United Nations University, the Secretariat of the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, and the Secretariat of the United Nations Framework Convention on Climate Change) and the European Union GMES process, while raising awareness about the UN-SPIDER mandate and mission.

39. Other horizontal cooperation activities included: hosting meetings on the Namibian SensorWeb Pilot Project on integrated flood management and the Caribbean flood management project; coordinating efforts for the Namibian project and its development into a support project throughout the year; participating in GEO health-related activities by covering space-based information aspects; and providing support to the African climate policy centre of the Economic Commission for Africa through the development of the ClimDev-Africa database.

40. In 2009, UN-SPIDER consolidated and implemented SpaceAid, a framework that aims to enable States and international and regional organizations to quickly and efficiently access space-based information to support emergency response and early recovery activities. Such information includes all types of data provided by Earth observation satellites, communication satellites and global navigation satellites. SpaceAid can be accessed by UN-SPIDER national focal points, UN-SPIDER regional support offices and United Nations entities. Users can request the service through a hotline that can be accessed by telephone, e-mail or fax 24 hours a day, seven days a week. For every disaster, a SpaceAid Web page is created on the

UN-SPIDER knowledge portal where relevant space-based information is collected and made widely available to the emergency response community.

41. Through UN-SPIDER, the Office for Outer Space Affairs continues to work closely with Executive Secretariat 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) since the Office became a Cooperating Body of the Charter in March 2003. Through a mechanism provided through the Charter, any entity of the United Nations system can request satellite imagery to support its response to a disaster.

42. In 2009, UN-SPIDER provided support in response to the following major disasters, among others: floods in Morocco (February 2009), floods in Namibia (February and March 2009), a landslide in Tajikistan (May 2009), floods in Afghanistan (May 2009), floods in Bangladesh (May 2009), floods in Senegal (September 2009), floods in Burkina Faso (September 2009), a tsunami in Samoa (September 2009), a tropical storm and cyclones in the Philippines (October 2009), an ocean storm in the Lao People's Democratic Republic (October 2009) and a cyclone in Fiji (December 2009).

43. Taking into consideration the framework of thematic partnerships envisioned by ISDR in the context of the Hyogo Framework for Action, UN-SPIDER took advantage of the regional platform sessions to develop a thematic partnership focusing on the use of space-based information for disaster risk management.

44. Subsequently, during the second session of the Global Platform for Disaster Risk Reduction, held in Geneva from 16 to 19 June, a special event was organized to launch the SPIDER Global Thematic Partnership on the use of space-based information to support the full disaster management cycle. The Partnership is envisioned to be a forum for the space and the disaster-risk management communities to meet and work together to ensure the availability of space-based information for disaster risk reduction.

45. The Partnership is also expected to provide guidance regarding space-based information for disaster management to the ISDR system in the context of the Strategy's global, regional and national platforms.

46. In addition, as foreseen by ISDR, the SPIDER Global Thematic Partnership will interact with other thematic partnerships and platforms and other segments of the ISDR system, thus contributing to the ISDR system's joint work programme of activities.

C. Technical advisory support

47. The main expected accomplishment of the UN-SPIDER programme is the achievement of a greater understanding, acceptance and commitment by countries and relevant international and regional organizations of ways to access and develop the capacity to use all types of space-based information to support the full disaster management cycle. Specific activities that directly contribute to the realization of this goal include: regional and country profiles (activity 5), support to national activities (activity 9) and support to the establishment of national disaster management planning and policies (activity 10).

48. The process of compiling country profiles fulfils several functions:

(a) It helps bring together the disaster management and space technology communities;

(b) It can be used by the national authorities to learn about the extent to which space-based technology is already being used to deal with disasters;

(c) It can provide valuable information to UN-SPIDER staff on the specific features of a country, the needs of its users and relevant stakeholders;

(d) It provides information that can be used in the development of appropriate technical advisory support activities at the national level;

(e) It provides information, through the country profiles, that can be fed into the knowledge portal and the database of contacts of end-users and practitioners.

49. A template for the country profiles is currently available in English, French and Spanish. The country profile documents are updated periodically and in particular when initiating any kind of support activity in the country. As at the end of 2009, the following 29 States and territories had prepared country profiles, together with UN-SPIDER (the target for the biennium 2008-2009 was 30): Anguilla, Bangladesh, Burkina Faso, Chile, China, Colombia, Costa Rica, Dominican Republic, Fiji, Ghana, Guatemala, Lao People's Democratic Republic, Lesotho, Micronesia (Federated States of), Netherlands Antilles, Peru, Republic of Korea, Samoa, Solomon Islands, South Africa, Sudan, Togo, Tonga, Turkey, Tuvalu, Uganda, Vanuatu, Venezuela (Bolivarian Republic of) and Viet Nam.

50. Through UN-SPIDER, the Office for Outer Space Affairs continued working with States requesting support from the UN-SPIDER programme through their nominated national focal points and, in cases in which the focal points had not been nominated, through other relevant Government authorities. By carrying out one or more of the following activities, the Office has tried to ensure access to and use of space-based solutions for disaster-risk management and emergency response:

(a) Assessing national capacity and evaluating disaster and risk reduction activities, policies and plans with regard to the use of space-based technologies;

(b) Assisting in the design of risk reduction and disaster management plans and policies with regard to the use of space-based technologies;

(c) Developing and customizing guidelines and templates for including space-based technologies into disaster risk reduction and emergency response;

(d) Facilitating access of national institutions to space-based information to support disaster risk reduction and emergency response activities;

(e) Identifying training needs and facilitating the implementation of capacity-building activities;

(f) Supporting the implementation of risk reduction and emergency response activities using space-based technologies.

51. In 2009, UN-SPIDER provided technical advisory support to the following States: Afghanistan, Burkina Faso, Ecuador, Fiji, Ghana, Guatemala, Jamaica, Kenya, Maldives, Namibia, Philippines, Samoa and Togo. In addition, it started working with Cameroon, Colombia, the Dominican Republic, Sri Lanka and Tonga

with a view to begin providing technical advisory support to those countries in 2010.

52. A summary of the technical advisory support provided to States during 2009 is contained in paragraphs 53-63 below.

Afghanistan

53. On 22 June in Kabul, UN-SPIDER staff co-chaired an inter-agency briefing on the use of remote sensing for disaster risk reduction and emergency response in Afghanistan. The briefing contributed to determining how to make the best use of spatial data and mapping tools to support disaster risk reduction and emergency response activities in Afghanistan. Participating experts discussed new ways of providing access to remote sensing data. The important role of remote sensing in humanitarian response and planning was underlined through various examples given by participants. The Afghanistan National Disaster Management Authority was encouraged to establish a Government working group to promote information sharing for disaster risk reduction.

Burkina Faso

54. In 2009, UN-SPIDER staff built upon the support already provided to Burkina Faso in 2008, specifically by assisting that State in its response to the flooding caused by intense rainfall on 1 September 2009 in and around Ouagadougou. Part of the support included training a local expert in the use of Web conference tools to help model high-risk areas. In part as a result of that training, Burkina Faso was able to quickly produce situation assessment maps.

Ecuador

55. Upon request by the Government of Ecuador, UN-SPIDER staff conducted a technical advisory mission in Ecuador from 5 to 9 October. One of the purposes of the mission was to identify the strengths and weaknesses of Ecuadorian agencies concerning the use of space-based information to support the full disaster management cycle so that steps could be taken to strengthen institutional capacities. The mission was conducted with the support of experts from the National Institute for Space Research of Brazil, CONAE and the Office for Outer Space Affairs, through UN-SPIDER. From the Ecuadorian side, the mission was coordinated by the Technical Secretariat for Risk Management and benefited from the support of the Ministry of Foreign Affairs, Trade and Integration. Technical meetings were held with staff from the Technical Secretariat for Risk Management of Ecuador and visits were made to 12 Government agencies. Presentations were made by staff from those agencies and by others during the UN-SPIDER regional workshop on space applications for disaster-risk management and emergency response in Latin America, held in Quito, from 29 September to 2 October. As a result of the mission, recommendations were made in four areas: access to space-based information, the use of such information, spatial database infrastructures and capacity-building.

Fiji

56. Upon request by the Government of Fiji, UN-SPIDER conducted a technical advisory mission in Fiji from 1 to 4 December. Meetings were held with

representatives of the Government (the Permanent Secretary for Provincial Development, Indigenous and Multi-ethnic Affairs, officials of the National Disaster Management Office and experts from the Department of Lands and Surveys, the Mineral Resources Department (seismology section) and the Public Works Department (hydrology section)), the South Pacific Applied Geoscience Commission (SOPAC), the United Nations Development Programme (UNDP), the Office for the Coordination of Humanitarian Affairs of the Secretariat (OCHA) and the Pacific Disaster Center. The meetings provided insight into the capacity of the Government of Fiji to use space-based information for disaster management and understanding of the gaps that needed to be strengthened. The links developed as a result of this UN-SPIDER mission helped Fiji to access satellite images of areas affected by tropical cyclone Mick, which hit Fiji on 13 December.

Guatemala

57. The National Council of Science and Technology of Guatemala invited UN-SPIDER staff to participate in a week-long mission in Guatemala to promote the use of science and technology at the academic and institutional levels. During the mission, potential projects targeting the use of space-based information to support all phases of the disaster management cycle and the planning of a technical advisory mission in 2010 were explored. Visits were made to the Secretariat for Planning and Programming, the Ministry of Environment and the department of Escuintla, where a special meeting was held with the governor of the department and with the mayors of municipal districts to discuss potential solutions to floods and lahars using space-based information. Communication has taken place with the National Council of Science and Technology to identify avenues of cooperation in areas related to the use of space-based information for disaster-risk management.

Jamaica

58. Upon request by the Planning Institute of Jamaica, UN-SPIDER staff conducted a technical advisory mission in Jamaica from 2 to 4 December. The mission was coordinated by the Office for Disaster Preparedness and Emergency Management (ODPEM). Experts from the University of the West Indies, the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC) in Panama and UN-SPIDER participated in the mission, during which a workshop was organized and meetings were held with more than 15 government agencies that use information for a variety of purposes. The mission enjoyed the support of ODPEM and the Spatial Data Management Division of the Office of the Prime Minister. Strengths in the ability of staff in many government institutions to make use of geographical information systems were identified and it was noted that an inter-institutional mechanism existed in the form of the Land Information Council of Jamaica, which congregates representatives from government agencies, academia and the private sector. Outcomes of the mission will be presented in the form of policy-relevant advice on how to institutionalize the use of space-based information to support all phases of the disaster management cycle, strategies to promote better inter-institutional coordination and specific tasks related to capacity-building and networking.

Kenya and Uganda

59. UN-SPIDER staff conducted missions to Kenya and Uganda from 21 to 30 October. In Kenya, the aim was to establish a working relationship between representatives of UN-SPIDER, local United Nations agencies and Government offices in Kenya. UN-SPIDER staff presented information on UN-SPIDER activities in Africa to the Kenya Humanitarian Forum. The meeting was organized by the OCHA country office in Kenya and attended by over 45 officials. A meeting was held with the national focal point and the Rift Valley Province disaster risk reduction platform to improve cooperation. In Uganda, UN-SPIDER staff held meetings with the focal point for the disaster risk reduction platform in Kampala, who worked within the Department of Disaster Preparedness and Refugees of the Office of the Prime Minister, to introduce the UN-SPIDER programme and defining follow-up actions, including a technical advisory mission in 2010.

Namibia

60. The Government of Namibia requested a technical advisory mission to help identify potential areas where space-based technology and information could play a greater role, and to propose recommendations on how to improve Namibia's access to and use of space-based technology and information. After initial meetings were held with the Department of Water Affairs in the Ministry of Agriculture, Water and Forestry, which took place in Bonn, Germany, in 2008, a team of three experts went to Namibia on a technical advisory mission from 27 January to 2 February. In February and March, severe flooding affected northern Namibia, triggering collaboration between entities that had been working to strengthen cost-effective and rapid access capability for international satellite assets. Those entities agreed to support Namibia not only in its relief operations but also in implementing a pilot project aimed at supporting recovery in the aftermath of floods. To do so, it was agreed that high resolution imagery should be collected from satellites such as the Earth Observing-1, the Formosat and the Radarsat on a weekly basis and to validate the satellite data against ground measurements, thus allowing local emergency workers to better forecast floods and improve their situational awareness. A first technical expert meeting of the project's team members was held at the UN-SPIDER office in Bonn from 24 to 26 August. During the third international UN-SPIDER workshop on disaster management and space technology: from concept to application, held in Bonn from 21 to 23 October, a series of presentations were given providing information on the background of the project. Also at that workshop, a side event was organized, bringing together 25 experts to discuss the project. A follow-up regional meeting is planned to be held in Namibia in early 2010.

Philippines

61. In 2009, the Philippines was battered by four tropical cyclones (Ketsana, Parma, Lupit and Mirinae). UN-SPIDER staff worked closely with the emergency response teams, satellite operators and other key players to ensure the wide availability of both space-based information and airborne imagery. Key players included: OCHA, the World Food Programme, the World Bank, Google, MapAction, the Philippine Atmospheric, Geophysical and Astronomical Services Administration and the National Disaster Coordinating Council (which acts as the national focal

point for UN-SPIDER in the Philippines). In 2010, UN-SPIDER will follow-up with the Government of Philippines to strengthen national capacities and existing networks.

Samoa

62. A technical advisory mission was carried out in Samoa from 7 to 11 December. The mission team, which included an expert from SOPAC, evaluated the availability of space-based information and international support during the response efforts to the tsunami that had hit the country on 30 September. Necessary information was gathered via discussions with officials from the Ministry of Natural Resources and Environment (including the National Disaster Management Office and the Meteorology Department), United Nations entities (United Nations Environment Programme, UNDP, OCHA, the World Health Organization (WHO), Food and Agricultural Organization of the Secretariat and United Nations Educational, Scientific and Cultural Organization) and regional organizations (Conservation International and the Secretariat of the South Pacific Regional Environment Programme). Mission reports containing an evaluation of international support aimed at providing space-based information to respond to the tsunami and recommendations on spatial data infrastructure, capacity-building and opportunities for accessing space-based information will be made available to the relevant organization in Samoa.

Togo

63. Upon request by the Government of Togo, UN-SPIDER conducted a technical advisory mission in Togo from 13 to 16 July. The Mission team consisted of experts from UN-SPIDER, OCHA, WHO, the National Space Research and Development Agency of Nigeria, the Regional Centre for Training in Aerospace Surveys in Nigeria and the African Centre for Space Science and Technology—in French Language (CRASTE-LF). During an initial stakeholders workshop, the mission team worked for three days with the entire group of participants. Subsequently, the team also visited United Nations entities and Government institutions with primary functions in disaster management. The observations of the mission team and preliminary results were presented during a debriefing meeting with the Minister of Environment of Togo. A technical mission report with recommendations on capacity-building, institutional strengthening and the inclusion of space-based technology in national plans was submitted to the Government.

D. Activities carried out by the regional support offices

64. The UN-SPIDER regional support office in the Islamic Republic of Iran reported having done the following in 2009: published and distributed informational books; broadcast a series of radio programmes; produced an animated film; held public exhibitions; organized workshops and seminars in Tehran, including a training workshop for university students; prepared e-learning courses; maintained and upgraded a regional website; developed web access to a satellite imagery archive; executed a dust storm monitoring project; and presented information on UN-SPIDER at relevant conferences.

65. The UN-SPIDER regional support office in Nigeria reported having done the following in 2009: developed a web portal; presented information on UN-SPIDER at relevant conferences; participated in UN-SPIDER workshops; participated in an authorized user training course on the International Charter on Space and Major Disasters; distributed awareness-raising material; advocated space-based technology approaches in regional disaster risk reduction policies; compiled information on capacity-building resources; advocated the appointment of UN-SPIDER national focal points in States in the region; and facilitated and participated in a UN-SPIDER technical advisory mission to Togo.

66. The UN-SPIDER regional support office at the Asian Disaster Reduction Center reported having done the following in 2009: completed a survey on user needs in several countries for activities to be conducted during forthcoming seminars and training courses of the Cooperation Project on Utilization of Space-based Technologies for Disaster Risk Management of the Association of Southeast Asian Nations; acted as focal point for emergency observation requests for the Sentinel Asia project; organized a meeting in Sri Lanka to promote Sentinel Asia; and shared experiences in the application of satellite data for disaster reduction at an international meeting in Indonesia.

IV. Voluntary contributions

67. The successful implementation of the activities benefited from the support and voluntary contributions (cash and in-kind) received from Governments and private sector entities, including:

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

(b) The Federal Ministry for European and International Affairs of Austria, which contributed 49,980 euros and the services of an associate expert;

(c) The Government of Germany, which contributed 150,000 euros to support the activities of the UN-SPIDER office in Bonn and the services of two associate experts;

(d) The Government of Spain, which contributed 50,000 euros to defray the costs of the UN-SPIDER regional workshop held in Quito;

(e) The German Aerospace Center (DLR), which provided the services of two senior experts (on a non-reimbursable loan basis) and 20,000 euros for the UN-SPIDER workshop held in Bonn, Germany;

(f) The Government of the Republic of Korea, which provided the services of an associate expert;

(g) The Government of Croatia, which contributed 3,000 euros in support of the activities of the UN-SPIDER programme;

(h) Google, Inc., which contributed US\$ 5,000 for the UN-SPIDER workshop held in Bonn, Germany;

(i) The Association of Austrian Space Industries, which provided support for the UN-SPIDER workshop held in Vienna;

(j) The Environmental Systems Research Institute, Inc., which provided software and services in support of the UN-SPIDER knowledge portal.

V. Implementation of the workplan for the biennium 2008-2009

68. The workplan for the biennium 2008-2009 (A/AC.105/894, annex II) defines in detail the tasks to be carried out under each of the 11 activities for 2008 and 2009. Major accomplishments achieved in 2009 include the provision of technical advisory support to 13 Member States, the formalization of cooperation agreements with regional support offices, the establishment of SpaceAid to facilitate fast and efficient access to space-based information in support of emergency response and early recovery, the launching of the beta version of the knowledge portal and the organization of international and regional workshops and expert meetings.

69. Satisfactory progress was achieved with regard to almost all of the activities planned for 2008 and 2009, the only exception being the provision of technical advisory support to 13 instead of 15 countries. That was due to the ongoing delay in the opening of the UN-SPIDER office in Beijing.

70. The Office for Outer Space Affairs is working closely with the Government of China to ensure the earliest possible inauguration of the UN-SPIDER office in Beijing, thus ensuring that the programme is in a position to provide the necessary technical advisory support to Member States in 2010 and 2011. With regard to the specific activities planned for the UN-SPIDER liaison office in Geneva, these are being carried out by UN-SPIDER staff based in Bonn and Vienna as resources still have not been made available for the opening of that liaison office.