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## Committee on the Peaceful Uses of Outer Space

### **Report on activities carried out in 2008 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response**

#### *Summary*

In the workplan for the biennium 2008-2009, the following 11 activities, to be carried out in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), were identified: systematic compilation of relevant information (activity 1); ensuring that relevant information is easily accessible and disseminated to all interested end-users (activity 2); awareness-raising (activity 3); outreach activities (activity 4); regional and country profiles (activity 5); establishment of communities of practice (activity 6); management and transfer of knowledge (activity 7); platform for fostering alliances (activity 8); support to national activities (activity 9); support to the establishment of national disaster management planning and policies (activity 10); and support to capacity-building (activity 11).

Major accomplishments in the implementation of activities for 2008 include the four UN-SPIDER workshops held in Austria, Barbados, Fiji and Germany. In addition to those four workshops, four regional meetings were supported through UN-SPIDER by the provision of both financial and advisory support. Those regional meetings, which were organized by national and regional partners, covered topics relevant to UN-SPIDER objectives. The meetings were held in Brazil, Iran (Islamic Republic of), Morocco and Nigeria. In total, over 700 participants from nearly 100 countries attended those eight events.



Significant progress was made in the development of a concept model for the UN-SPIDER knowledge portal. In addition, relevant information to be made available through the portal has already been collected, stored and prepared by the UN-SPIDER team. In cooperation with the German institutional partners, a model of the portal was developed and reviewed by the relevant user community, with suggestions made on how to improve the model. A prototype portal website has also been developed for testing.

Furthermore, monthly updates and regular e-newsletters were sent out through the UN-SPIDER mailing list (there were over 12,000 subscribers at the end of 2008). In the course of 2008, the readership increased significantly, with many readers expressing the opinion that distributing such regular updates was useful.

In 2008, 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) was activated 12 times by the Office for Outer Space Affairs of the Secretariat at the request of United Nations entities. In addition, UN-SPIDER staff continuously monitored the activation and subsequent delivery of value-added products. Where needed, additional contacts with relevant providers were established and advisory support from UN-SPIDER experts was made available to each requesting entity. Finally, based on a strategy regarding the compilation of space-based information and risk and disaster management, country profiles were compiled, technical advisory support was provided to some countries and the first full-fledged UN-SPIDER technical advisory mission was carried out.

The workplan for the biennium 2008-2009 should be considered as a whole, even though specific targets are defined for each year. Satisfactory progress was achieved in almost all of the activities planned for 2008, with the only exception being the provision of technical advisory support to developing countries, which was behind target as a result of the ongoing delay in the opening of the UN-SPIDER Beijing office.

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## I. Introduction

1. In its resolution 61/110 of 14 December 2006, 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 by being a gateway to space information for disaster management support, serving as a bridge to connect the disaster management and space communities and being a facilitator of capacity-building and institutional strengthening, in particular for developing countries.

2. In its resolution 62/217 of 21 December 2007, the General Assembly agreed that the acronym of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response should be UN-SPIDER and endorsed the UN-SPIDER programme for the period 2007-2009 and the workplan for the biennium 2008-2009 (A/AC.105/894, annexes I and II). In its resolution 63/90 of 5 December 2008, the General Assembly noted with satisfaction the progress made within the framework of UN-SPIDER in the implementation of the 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.<sup>1</sup> The present report includes an update on the implementation of activities carried out in 2008 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 UN-SPIDER and is responsible for its overall implementation. The Director is assisted by a programme coordinator, who helps plan and coordinate all activities, including in close coordination with the regional support offices. The programme coordinator also works closely with the heads of the UN-SPIDER office in Bonn, Germany, and will work closely with the head of the UN-SPIDER office in Beijing, once that office has been opened. The programme coordinator cooperates with the programme

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<sup>1</sup> *Official Records of the General Assembly, Sixty-second Session, Supplement No. 20 (A/62/20)*, paras. 140-160.

officer who leads the outreach and capacity-building activities, in the implementation of all programme activities.

6. By the end of 2008, a total of nine full-time staff members and one part-time staff member had been mobilized to implement activities in the framework of UN-SPIDER. Staff included:

(a) In Vienna: a programme coordinator, a part-time programme assistant, a programme officer responsible for outreach and capacity-building activities, a programme officer responsible for coordinating technical advisory assistance to Member States and an associate expert to support outreach activities and the administration of UN-SPIDER;

(b) In Bonn: a programme officer who heads the UN-SPIDER office in Bonn, two senior experts (provided by the German Aerospace Center (DLR)) to support the implementation of the knowledge portal, among other activities, an associate expert (provided by the Government of the Republic of Korea) to support the compilation and dissemination of information, the development of the knowledge portal and the establishment of communities of practice and an associate expert (provided by the Government of Germany) to support the development and implementation of the knowledge portal.

## **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.<sup>2</sup> In its resolution 63/90, the General Assembly agreed with the guidelines proposed by the Committee.

9. In the guidelines, it is indicated, inter alia, that a UN-SPIDER regional support office will be set up within an existing entity by a Member State or group of Member States that has put forward an offer to set up and fund the proposed regional support office, with the agreement of the Office for Outer Space Affairs and in consultation with the respective regional group. It is also indicated that the entity should provide office space, infrastructure and at least one expert, to be the Coordinator of the regional support office.

10. The Office for Outer Space Affairs has received an offer to host a regional support office from the Governments of each of the following countries: Algeria, Iran (Islamic Republic of) and Nigeria. The respective regional groups have already been informed of those offers and the Office is currently defining the workplans to be carried out in 2009, in accordance with the approved UN-SPIDER workplan for the biennium 2008-2009. Throughout 2008, the Governments of Algeria, Iran (Islamic Republic of) and Nigeria have actively supported UN-SPIDER

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

activities in their respective regions, for example by organizing regional workshops (in Iran (Islamic Republic of) and Nigeria) and providing support to UN-SPIDER activities at the national level (in Algeria and Nigeria).

### **C. National focal points**

11. 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.

12. 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,<sup>3</sup> adopted at the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan, from 18 to 22 January 2005. As at the end of 2008, each of the following Member States had nominated a national focal point: Algeria, Burundi, Egypt, Morocco, Philippines, Republic of Korea, Singapore, Syrian Arab Republic and United Republic of Tanzania.

13. UN-SPIDER staff are working closely with the secretariat of the International Strategy for Disaster Reduction (ISDR). A letter was sent in January 2009 to all Member States that had not yet nominated a national focal point, encouraging them to do so and to consider nominating either the same focal point nominated to implement the Hyogo Framework of Action or a member of the relevant national platform for disaster risk reduction, thereby ensuring coordination when working with the United Nations in the field of disaster management. The letter was signed by both the Director of the Office for Outer Space Affairs and the Director of the ISDR secretariat.

## **III. Activities carried out in 2008**

14. The activities carried out in 2008 in the framework of UN-SPIDER focused on making the UN-SPIDER office in Bonn fully operational, working towards setting up the UN-SPIDER office in Beijing, establishing the network of regional support offices and ensuring that all the activities included in the UN-SPIDER programme for the period 2007-2009 were initiated and carried out as defined in the workplan for the biennium 2008-2009, including the activities aimed at directly benefiting the disaster reduction and humanitarian response communities in Geneva.

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

## A. Outreach and capacity-building activities

15. UN-SPIDER successfully met the targets set for its outreach activities (activity 4 of the programme for the period 2007-2009) as defined for the year 2008 in the workplan for the biennium 2008-2009. In 2008, several workshops, expert meetings and training courses were either organized or supported in 2008 (A/AC.105/927). Further information is also available on the UN-SPIDER website (<http://www.unspider.org>).

16. In 2008, UN-SPIDER staff organized and carried out the following four international or regional workshops:

(a) The United Nations international UN-SPIDER expert meeting on building upon the network of regional support offices, held in Salzburg, Austria, from 7 to 9 February;

(b) The United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Caribbean, held in Hastings, Barbados, from 8 to 11 July;

(c) The United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Pacific, held in Suva from 16 to 19 September;

(d) The second United Nations international UN-SPIDER Bonn workshop on disaster management and space technology: bridging the gap, held in Bonn, Germany, from 13 to 15 October.

17. A total of 281 participants from 71 countries attended the above meetings. As the regional workshops were carried out in the Caribbean and the Pacific, participants from almost all island States in those areas had the opportunity to learn about UN-SPIDER and how to access and take advantage of current opportunities.

18. In addition to those four workshops, four regional meetings were provided with financial and advisory assistance through UN-SPIDER. The four regional meetings were organized by national and regional partners and covered topics relevant to UN-SPIDER objectives. The regional meetings were held in Brazil, Iran (Islamic Republic of), Morocco and Nigeria. The grants provided by UN-SPIDER were used mainly to defray the air travel and daily subsistence allowance of participants from developing countries from the respective region. A total of 425 participants attended those four regional meetings. Thus, over 700 persons from nearly 100 countries participated in the four regional meetings and four regional or international workshops mentioned above.

19. The Office for Outer Space Affairs, together with the Group on Earth Observations (GEO), organized a one-day working meeting on United Nations initiatives in the area of risk and disaster management and space-based solutions in Geneva on 27 March 2008, for the benefit of members of the end-user community based in Geneva. Representatives from agencies of the United Nations system and relevant partner organizations and institutions participated in the working meeting.

20. UN-SPIDER experts participated in a number of relevant international and regional meetings to provide information about space-based solutions for disaster management and emergency response and about the UN-SPIDER programme for the

period 2007-2009. Furthermore, UN-SPIDER funds enabled 11 professionals from developing countries to participate in relevant meetings.

21. With regard to awareness-raising (activity 3 in the programme for the period 2007-2009), a strategy was developed that included the proposal to focus initially on three awareness-raising campaigns: one at the national level, one for the Geneva-based community and one for news media and the general public. A plan for awareness-raising products for each of the campaigns and the specific target groups is being developed. The content of an awareness-raising booklet has been developed, and guidelines for the preparation of case studies to be included in that booklet have been finalized in English and Spanish. The booklet, including the case studies, will be published jointly by the Office for Outer Space Affairs and the ISDR secretariat, which is already cooperating with UN-SPIDER in the collection of the case studies and has agreed to help identify key recipients and assist in the distribution of the booklet.

22. With regard to support to capacity-building (activity 11), a draft capacity-building framework was developed based on the deliberations of a working group that met during the United Nations international UN-SPIDER workshop on space-based information and solutions for disaster management and emergency response, held in Bonn from 29 to 31 October 2007. The draft framework was then submitted for discussion at the United Nations international UN-SPIDER expert meeting on building upon the network of regional support offices, held in Salzburg, Austria, from 7 to 9 February 2008. The results of the discussions that took place at the expert meeting were subsequently included in the UN-SPIDER framework and implementation plan for capacity-building for 2008-2009.

23. That framework includes plans for the development of a database of training opportunities that use space-based solutions in disaster management, the identification of possible partners who could contribute to the development of training curricula that promote the use of space-based solutions for disaster management and emergency response and the need to develop e-learning opportunities that take into consideration the kind of facilities that exist at the United Nations and elsewhere.

24. The work that has been done in support of capacity-building has contributed directly towards Global Earth Observation System of Systems (GEOSS) task CB-07-02 (on knowledge sharing for improved disaster management and emergency response), which aims at establishing and supporting regional training and capacity-building programmes related to disaster management and emergency response and which staff from the Office for Outer Space Affairs co-chaired. GEOSS task CB-07-02 was successfully concluded in 2008. The Office for Outer Space Affairs proposed that a follow-up task be implemented for the period 2009-2011; the proposal was accepted and GEOSS task CB-09-02c (on UN-SPIDER/GEO summer schools on space-based solutions for disaster management and emergency response) was initiated.

25. One important aspect of capacity-building is the support given to interested end-users to help them attend training courses such as the second regional course on using geographic information systems and remote sensing in disaster risk management, which was held in Bangkok from 5 to 16 May 2008, and the Workshop on Establishing a University Network in Latin America for Disaster



Reduction (which included a workshop and training course on landslides), held in Antigua, Guatemala, from 2 to 10 June 2008.

## **B. Horizontal coordination**

26. Horizontal coordination is to be understood as a process that emphasizes information to and communication between communities, and coordination among existing opportunities for the benefit of affected communities. In accordance with the UN-SPIDER workplan for the biennium 2008-2009, horizontal coordination activities in 2008 included: the systematic compilation of relevant information (activity 1); ensuring that information is easily accessible and disseminated to all interested end-users (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). The activities carried out in 2008 covered strategic as well as organizational and technical actions.

27. Information and knowledge about space-based information for disaster management and emergency response were compiled from the results of research conducted by staff, workshops and conferences, and third-party contributions, and stored in an internal knowledge base. That knowledge base includes conference papers, technical notes, presentation material, case studies and country profiles, and will provide essential content for the knowledge portal and expert knowledge in support of technical advisory services to Member States.

28. Based on the recommendations put forward at the United Nations international UN-SPIDER workshop on space-based information and solutions for disaster management and emergency response, held in Bonn from 29 to 31 October 2007, a concept model for the UN-SPIDER knowledge portal was developed. Potential users confirmed that the knowledge portal was an indispensable element of UN-SPIDER, an opinion reiterated at the United Nations international UN-SPIDER expert meeting on building upon the network of regional support offices, held in Salzburg from 7 to 9 February 2008.

29. The functional architecture and design of the knowledge portal were elaborated in more detail in close cooperation with staff at the Department of Interface Design at the University of Applied Sciences in Potsdam, Germany, resulting in a prototype demonstration which was presented at the second United Nations international UN-SPIDER Bonn workshop on disaster management and space technology: bridging the gap, held in Bonn from 13 to 15 October 2008. At the workshop, an "iteration core group" of 64 members from 29 countries volunteered to give detailed comments on the prototype through a survey, the results of which were evaluated in December 2008 and led to the proposed architecture being confirmed. Through the survey, valuable recommendations were made on which specific functions should be highlighted and prioritized.

30. In 2008, the UN-SPIDER website (<http://www.unspider.org>) was overhauled. As part of that process, regular updates were introduced to ensure that information on major UN-SPIDER activities would become immediately available. The number of visits to the website increased in the course of 2008, reaching well over 3,000 visitors per month since the website was redesigned.

31. Information is also being disseminated through monthly UN-SPIDER updates and periodic e-newsletters. Both publications are available online on the UN-SPIDER website, in addition to being distributed directly to over 12,000 end-users and experts around the world. Articles from the UN-SPIDER updates, e-newsletters and website have been cited and reproduced in the news publications of other organizations, thereby multiplying the effect of the outreach effort.

32. Communities of practice are part of a recent approach to knowledge management and transfer that is based on the theory of social learning. Current literature on the communities-of-practice approach was reviewed and a theoretical concept was developed. In line with that concept, the communities-of-practice approach is conceived as a process focused on communication and learning, borne by a dynamic community of motivated stakeholders and supported by a Web-based communication module as part of the knowledge portal. Requirements concerning the functionality and design of the knowledge portal communication module was a specific issue addressed by the “iteration core group” mentioned in paragraph 29 above. Outstanding communication objectives are to coordinate actions with other parties and issue regular updates on recent developments through e-newsletters, discussion boards and Wiki.

33. During 2008, more and more international and regional UN-SPIDER stakeholder communities were established. Through UN-SPIDER, existing communities of practice have received support and contributed to the establishment of new ones, bringing together the space-based technology and disaster management communities. A community of disaster management and geospatial practitioners was formed in the Caribbean region, with UN-SPIDER support, during the United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Caribbean, held in Hastings, Barbados, from 8 to 11 July 2008.

34. UN-SPIDER also facilitated the convening of a community of disaster management and geospatial practitioners in countries in the Pacific during the United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Pacific, held in Suva from 16 to 19 September 2008. UN-SPIDER staff will continue to work closely with that community, including by providing support to the organizers of the “2009 Pacific Islands GIS&RS User Conference” and by promoting and contributing to the Pacific Disaster Net, a Web-based portal for the disaster risk management community in the Pacific (<http://www.pacificdisaster.net/>).

35. The issue of knowledge management and transfer is key to bridging the gap between space and disaster management communities. In that context, knowledge has to encompass application aspects on the users’ side and requirements aspects on the providers’ side. In the course of implementing past UN-SPIDER activities, it has become increasingly clear that knowledge transfer is a cross-cutting issue that is supported by the synergy of workshops and conferences, technical advisory activities and newsletter services. The knowledge portal is a central element of knowledge management and transfer activities.

36. In its efforts to foster alliances, in 2008 the UN-SPIDER team contributed significantly to ensuring that available opportunities, including those provided through the International Charter on Space and Major Disasters, Sentinel Asia and the Mesoamerican Regional Visualization and Monitoring System (SERVIR), were more readily accessible and used by interested end-users. UN-SPIDER staff have also been working with representatives of leading regional organizations, such as the Asian Disaster Preparedness Center in Bangkok, the Caribbean Disaster Emergency Response Agency in Barbados and the South Pacific Applied Geoscience Commission in Fiji, to identify possible activities to be carried out jointly.

37. UN-SPIDER staff are also leading efforts on GEOSS task DI-06-09 (on the use of satellites for risk management) together with the Canadian Space Agency. Activities under that task include: (a) reviewing the concept for the operational implementation of a virtual constellation of satellites for risk management; (b) defining the reference set of users' requirements; (c) defining virtual constellation configuration, operational scenario and utilization approach, in coordination with end-users and operators/providers; (d) providing recommendations concerning the actual measures to be taken to make the constellation operational.

38. The Office for Outer Space Affairs has been working closely with Executive Secretariat of the International Charter on Space and Major Disasters since the Office was accepted as a cooperating body in March 2003. Through the mechanism provided through the Charter, any entity of the United Nations system can access the Charter and request satellite imagery in support of its response to a disaster. The United Nations has become the single largest beneficiary and user of the Charter, having activated the Charter a total of 55 times by the end of 2008, 12 times in 2008 alone.

39. In order to discuss the activities of United Nations entities when it comes to space-based information for disaster management, the Office for Outer Space Affairs organized the fifth United Nations-wide meeting on the use of space technologies for emergency response and humanitarian assistance in Bonn in October 2008. Thirty-one representatives from 25 United Nations entities and partner institutions attended the two-day meeting, which focused on increasing understanding of the current evolving operational environment and the need for closer coordination among members of the United Nations community and on updating the "Common Vision for 2009" on the United Nations and the use of space technologies for emergency response and humanitarian assistance. At the meeting, United Nations representatives confirmed the role of the Office for Outer Space Affairs as cooperating body and agreed that all requests for Charter activations should be sent by the Office for Outer Space Affairs only.

40. UN-SPIDER has maintained the SpaceAid mailing list, which contains the e-mail addresses of over 200 people working for entities in the United Nations system and partner institutions. Through SpaceAid, those people are informed of events such as activations of the International Charter on Space and Major Disasters as quickly as possible so as to enable coordination and the provision of additional support, and to avoid the duplication of efforts. In 2009, SpaceAid will evolve into a service capable of providing information and support on the entire disaster management cycle from UN-SPIDER staff, the network of regional support offices,

the national focal points and, to a great extent, the knowledge portal (currently under development).

41. The United Nations Geographic Information Working Group (UNGIWG) is a United Nations inter-agency coordination body. Established in 2000, it currently has some 220 staff members with expertise in geospatial matters from over 30 United Nations entities. In 2008, the Office for Outer Space Affairs co-hosted, together with the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, the ninth plenary meeting of UNGIWG, held in Vienna from 4 to 7 November. The meeting, which was attended by representatives from 17 United Nations entities, numerous partner organizations and private companies, included discussions on the progress and future of UNGIWG, and the way forward for the UNGIWG United Nations Spatial Data Infrastructure.

42. The Office for Outer Space Affairs and the Economic Commission for Africa have been elected to co-chair UNGIWG for the next two years (2009-2010). As co-chairs, the Office and the Commission intend to develop further the collaborative information exchange established so far and extend the reach of UNGIWG by identifying and inviting all potential partners among experts in geographic information systems and remote sensing working in the United Nations system. It is estimated that well over 500 such experts are currently in the system.

43. The UN-SPIDER office in Bonn will provide secretarial support to the UNGIWG co-chairs, thus contributing to involving the entire United Nations geospatial expert community in that system-wide effort and helping widen the cooperative reach of the UNGIWG through all participating United Nations entities and governmental and non-governmental organizations.

### **C. Technical advisory support**

44. The first activity carried out within the overall strategy for providing technical advisory support to Member States, as well as to international and regional organizations, is that of compiling regional and country profiles (activity 5). Compiling such profiles entails collating information on the current and planned status of access to and use of space-based solutions and information to support risk and disaster management. Each profile is developed with the support of focal points identified through outreach activities and in collaboration with the ISDR secretariat. A template for developing profiles has been finalized, taking into consideration feedback received from participants in UN-SPIDER workshops.

45. The country profile template is currently available in English, French and Spanish, and has already been sent to over 30 Member States. Twenty States and territories have already submitted UN-SPIDER profiles, of which 10 have been finalized (for Burkina Faso, China, Dominican Republic, Ghana, Lao People's Democratic Republic, Solomon Islands, Togo, Tonga, Turkey and Viet Nam). The remaining 10 are being finalized in close cooperation with the respective Government institutions (for Anguilla, Bangladesh, Fiji, Micronesia (Federated States of), Netherlands Antilles, Republic of Korea, Samoa, Sudan, Tuvalu and Vanuatu).

46. The country profiles received from Burkina Faso and Ghana were instrumental in preparing the provision of technical assistance to those countries. Based on that positive experience, it has been decided to use country profiles as starting points for the provision of support in the framework of UN-SPIDER, as defined in activities 9 and 10.

47. Upon request by the Government, a technical advisory mission was conducted in Burkina Faso from 17 to 21 November 2008 by UN-SPIDER staff in close cooperation with the ISDR secretariat, the United Nations Development Programme (UNDP) and the Office for the Coordination of Humanitarian Affairs of the Secretariat (OCHA). The mission team consisted of experts from Algeria (from the Algerian Space Agency (ASAL)), France (from the Centre national d'études spatiales (CNES)), OCHA and UN-SPIDER. The mission team assessed the current use of space-based information and technology in the country and the existing capacity of institutions to further exploit such technology. A technical mission report with recommendations on capacity-building, institutional strengthening and the inclusion of space-based technology in national plans is being finalized (for a summary of the main findings of the mission, see annex I).

48. A technical meeting was organized in Accra in October 2008 to support the efforts of the national disaster management office of Ghana to use space-based technology. Experts from Ghana, Nigeria, the OCHA Regional Office for West Africa and UN-SPIDER participated in the meeting. At the meeting, experts presented information on the technical capacity available in the region in general and in Ghana in particular, and expressed their willingness to cooperate both at the national and international levels. Follow-up activities are being discussed in the context of the establishment of a UN-SPIDER regional support office in Nigeria.

49. Efforts to assist countries have not only been limited to the carrying out of technical advisory missions but have also included the provision of direct support to disaster-stricken countries during the response phase. In particular, the UN-SPIDER team was instrumental in ensuring access to the mechanism provided through the International Charter on Space and Major Disasters and to other existing opportunities to support response efforts in a number of disasters, including the earthquake that took place in China in May 2008, the flooding of the Mekong River in August 2008, the earthquake that took place in Pakistan in October 2008 and the floods that took place in Brazil in November 2008.

50. Support was also provided through UN-SPIDER following the severe floods that took place in Namibia from January to mid-March 2008. The Government of Namibia declared a state of emergency on 5 March. According to the National Oceanic and Atmospheric Administration of the United States, southern Angola and northern Namibia were expected to receive heavy rains over the following days. The hydrological service of Namibia asked for international support and the involvement of an emergency mechanism to receive high-resolution satellite images of the affected area, not obscured by cloud cover and on a priority basis. On 7 March, the responsible officer in Namibia was contacted by a UN-SPIDER expert by telephone and was informed about the possibilities of activating the International Charter on Space and Major Disasters, with the support of a United Nations agency located in Namibia. The officer from the hydrological service was also informed about further potential data sources such as the Advanced Land Observation Satellite of the Japan Aerospace Exploration Agency, the Dartmouth Flood Observatory in the

United States (capable of providing global flood assessments), the Satellite Applications Centre in South Africa (with its receiving station) and the Center for Satellite-based Crisis Information (ZKI) of DLR in Germany (providing access to radar images from the TerraSAR-X satellite sensor).

51. During the subsequent discussions, it became clear that in that particular case of flooding, in which the specific vegetation cover, soil and weather conditions were further influencing parameters, high-resolution radar images were needed. A request to provide satellite imagery of northern and north-eastern areas of Namibia was made to the Office for Outer Space Affairs from the UNDP Country Office in Namibia. On 14 March 2008, the Office for Outer Space Affairs activated the International Charter on Space and Major Disasters to help Namibia respond to the flood and its consequences, including an outbreak of cholera.

52. UN-SPIDER provided support and followed up closely with both UNDP and the hydrological service of Namibia, helping the Government of Namibia take full advantage of what the international community was providing. The officer from the hydrological service of Namibia also had the opportunity to participate in the second United Nations international UN-SPIDER workshop on disaster management and space technology: bridging the gap, held in Bonn, Germany, from 13 to 15 October 2008, at which he provided feedback on lessons learned. A technical advisory mission to Namibia is planned for 2009, to help strengthen national capacity and those national plans and policies that will ensure that Namibia will be able to build upon all existing opportunities in the future.

#### **IV. Voluntary contributions**

53. 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 Ministry for European and International Affairs of Austria, which contributed US\$ 180,000 to defray the full costs of the workshops held in Hastings, Barbados, and Suva and the services of an associate expert;

(b) The Ministry for Transport, Innovation and Technology of Austria, which contributed 150,000 euros in support of capacity-building and outreach activities and for the services of a senior expert to assist UN-SPIDER staff in such activities;

(c) The Government of Germany, which is contributing 150,000 euros a year for four years in support of the activities of the UN-SPIDER Bonn office and an additional 60,000 euros towards the initial information technology infrastructure and set up of the Bonn office; it is also providing for the services of an associate expert;

(d) DLR, which is providing for the services of two senior experts (on a non-reimbursable loan basis) and contributed to defraying the costs of the UN-SPIDER workshop held in Bonn, Germany;

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

(f) The Government of Indonesia, which contributed US\$ 20,000 to UN-SPIDER activities;

(g) The Government of the Czech Republic, which contributed 7,700 euros to UN-SPIDER activities;

(h) The Government of Spain, which contributed 50,000 euros to support a regional workshop in 2009;

(i) GeoOrbis Inc. and Globecomm Systems Inc., which provided in-kind support for the workshop held in Hastings, Barbados.

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

54. 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. The workplan should be considered as a whole, even though specific targets are defined for each year. Satisfactory progress was achieved in almost all of the activities planned for 2008, the only exception being the provision of technical advisory support to developing countries, which is behind target as a result of the ongoing delay in the opening of the UN-SPIDER Beijing office. Although significant advisory support was provided to countries in 2008, an increasing number of missions will have to be undertaken in 2009 in order to reach target goals.

55. 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 there is no further delay in the provision of technical advisory support to Member States. With regard to the specific activities planned for the UN-SPIDER liaison office in Geneva, they will be carried out by UN-SPIDER staff based in Bonn and Vienna until sufficient resources become available to enable the opening of that liaison office. In 2008, several missions were carried out to Geneva, leading to a number of collaborative initiatives with several United Nations entities and GEO.

## Annex I

### Summary of the technical advisory mission to Burkina Faso

1. Disaster management agencies in West Africa have to adapt to an increasing number of natural disasters, including floods and drought. The effects of global climate change will most probably aggravate the current situation. Disasters, such as locust plagues, triggered by certain environmental conditions also contribute to threatening the food security of local populations. In addition, vector-borne diseases and epidemics, including malaria, meningitis and cholera, affected by specific weather conditions cause massive disruption to societies and put a heavy burden on national health systems.
2. In June 2008, the Government of Burkina Faso requested staff of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) to carry out a technical advisory mission to assess the use currently being made of space-based technology and information for disaster management and emergency response in Burkina Faso. Specifically, the UN-SPIDER staff were requested to identify potential areas where space-based technology and information could play a greater role and make recommendations for improving access to and use of space-based technology and information in the country.
3. Representatives of the Permanent Secretariat of the National Council for Environment and Sustainable Development of Burkina Faso (SP/CONEDD), the governmental focal point for the mission, and other relevant institutions attended a preparatory meeting in Ouagadougou at the end of August 2008 to discuss the mission objective and programme. A team of five experts from Algeria, France, the Office for the Coordination of Humanitarian Assistance and UN-SPIDER travelled to Burkina Faso, where they remained from 17 to 21 November 2008. Representatives of 10 governmental institutions (including the Famine Early Warning Systems Network of the United States of America) and 4 United Nations entities (Office for the Coordination of Humanitarian Assistance of the Secretariat, United Nations Development Programme, World Food Programme and World Health Organization) were interviewed by the mission team. The observations of the mission team and preliminary results were presented during a meeting with the institutions visited at the end of the mission.
4. The team that participated in the mission found that capacity to work with space-based information and technology such as global navigation satellite system (GNSS) and satellite imagery existed at the National Geographic Institute of Burkina Faso and that geographical information systems (GIS) capabilities existed at several other institutions. However, it also found that the flow of disaster-relevant information between different Government institutions was insufficient to ensure the efficient use of existing geospatial and space-based information, especially as disaster-relevant applications typically require information from different sectors of administration. It noted that the National Committee for Emergency and Rehabilitation Assistance (CONASUR), the institution tasked with coordinating disaster prevention and management efforts in Burkina Faso, lacked sufficient technical geospatial skills and did not dispose of a consolidated strategy for cross-sectoral information management and analysis or for the use of geospatial



information for emergency services. Many decision makers were not fully aware of the usefulness of space-based technology for disaster management.

5. The information exchange network of institutions that was established under the National Programme on Environmental Information Management (PNGIM) and coordinated by SP/CONEDD and the national environmental information system (a geospatial database hosted by SP/CONEDD), were found to be promising initiatives that could play a more important role in disaster management in the future. Another promising example was identified in the health sector, where a fast and efficient information flow on potential epidemics exists, linking villages to the Ministry of Health in Ouagadougou via health posts and regional offices.

6. The mission team identified a number of activities that could lead to better use of space-based information and technology and improve disaster management in the country. Those activities, which require further discussion, include:

(a) Policymaking: integration of space-based information and technology elements into the national multi-risk contingency plan currently being developed;

(b) Capacity-building: customization of capacity-building activities in the fields of remote sensing, GNSS and GIS for different institutions, depending on their role and level;

(c) information management: collection of disaster-relevant information in paper form and integration of currently de-linked information sources, such as geophysical data and hydro-meteorological modelling approaches and results, to enable disaster-relevant analyses and risk assessments;

(d) Cooperation: identification of a national focal point charged with requesting the activation 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) through United Nations channels and with receiving and distributing products such as satellite maps produced with imagery provided through the relevant Charter mechanism.

7. It was noted that the proposed capacity-building activities should be implemented in parallel with institutional strengthening efforts fostering the flow of information, including through networks.

8. A report of the technical advisory mission is being prepared and will be made available once it has been finalized.

## **Annex II**

### **Outreach activities carried out in 2008 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response**

#### **A. Workshops, meetings and courses relevant to the United Nations Platform for Space-based Information for Disaster Management and Emergency Response attended by professionals from developing countries who received support from the programme**

1. Second regional course on the use of geographical information systems and remote sensing in disaster risk management, held in Bangkok from 5 to 16 May
2. West African regional workshop on UN-SPIDER and the role 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), held in Abuja on 21 and 22 May
3. Workshop on Establishing a University Network in Latin America for Disaster Reduction (which included a training course and workshop on landslides), held in Antigua, Guatemala, from 2 to 10 June
4. Spring School on Natural Disasters and Spatial Solutions for Disaster Management: Flooding, held in Santa Maria, Brazil, from 8 to 12 September
5. Iranian Space Agency/UN-SPIDER regional workshop on building upon regional space-based solutions for disaster management and emergency response, held in Tehran from 6 to 8 October
6. Workshop on the technical, organizational and legal aspects of using space technology for disaster management and emergency response, held in Rabat from 10 to 12 November

#### **B. Outreach activities: workshops and expert meetings organized by staff of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response**

1. United Nations international UN-SPIDER expert meeting on building upon the network of regional support offices, held in Salzburg, Austria, from 7 to 9 February
2. Working meeting on United Nations initiatives in the area of risk and disaster management and space-based solutions, held in Geneva on 27 March
3. United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Caribbean, held in Hastings, Barbados, from 8 to 11 July
4. United Nations regional UN-SPIDER workshop on building upon regional space-based solutions for disaster management and emergency response for the Pacific, held in Suva from 16 to 19 September

5. Second United Nations international UN-SPIDER Bonn workshop on disaster management and space technology: bridging the gap, held in Bonn, Germany, from 13 to 15 October
6. Fifth United Nations-wide meeting on the use of space technologies for emergency response and humanitarian assistance, held in Bonn, Germany, on 16 and 17 October

### **C. Provision of expert speakers**

1. International conference entitled “Earth Observation: Solutions for Decision-Making”, held at the Berlin Air Show in Berlin on 27 and 28 May
2. First Joint Project Team Meeting for Sentinel Asia Step-2, held in Kobe, Japan, on 5 and 6 June
3. European Community Civil Protection Mechanism Assessment Mission Course, held in Agros, Cyprus from 6 to 13 June
4. Fifteenth annual conference of the International Emergency Management Society, held in Prague from 17 to 19 June
5. Workshop entitled “Role of Modern Civil Protection Systems and the New Global Challenges: from the Hyogo Framework of Action to Real-time Response”, held in Geneva on 25 June
6. International conference entitled “Global Change and Water Resources in West Africa”, held in Ouagadougou from 25 to 28 August
7. 2008 International Disaster and Risk Conference, held in Davos, Switzerland, from 25 to 29 August
8. Seventh International Conference of the African Association of Remote Sensing of the Environment, held in Accra from 27 to 31 October
9. First Regional Conference on Geoinformatics: Disaster Management and Early Warning Systems, held in Kuwait City from 24 to 26 November
10. Third Asian Ministerial Conference on Disaster Risk Reduction, held in Kuala Lumpur from 2 to 4 December

## Annex III

### **Major international and regional meetings in which staff of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response participated in 2008**

1. Twenty-eighth session of the United Nations Inter-Agency Meeting on Outer Space Activities, held in Geneva from 16 to 18 January
2. Deliverables Workshop of the United Nations Spatial Data Infrastructure of the United Nations Geographic Information Working Group, held in Rome on 5 and 6 February
3. Eighteenth meeting of the 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), held in Montreal, Canada, on 15 April
4. International conference entitled “Earth Observation: Solutions for Decision-Making”, held at the Berlin Air Show in Berlin on 27 and 28 May
5. First Joint Project Team Meeting for Sentinel Asia Step-2, held in Kobe, Japan, on 5 and 6 June
6. European Union Community Civil Protection Mechanism Assessment Mission Course, held in Cyprus from 6 to 13 June
7. Fifteenth annual conference of the International Emergency Management Society, held in Prague from 17 to 19 June
8. Workshop entitled “Role of Modern Civil Protection Systems and the New Global Challenges: from the Hyogo Framework of Action to Real-time Response”, held in Geneva on 25 June
9. International conference entitled “Global Change and Water Resources in West Africa”, held in Ouagadougou from 25 to 28 August
10. 2008 International Disaster and Risk Conference, held in Davos, Switzerland, from 25 to 29 August
11. Seventh International Conference of the African Association of Remote Sensing of the Environment, held in Accra from 27 to 31 October
12. Ninth plenary meeting of the United Nations Geographic Information Working Group, held in Vienna from 4 to 7 November
13. Fifth plenary session of the Group on Earth Observations, held in Bucharest on 19 and 20 November
14. First Regional Conference on Geoinformatics: Disaster Management and Early Warning Systems, held in Kuwait City from 23 to 27 November
15. Third Asian Ministerial Conference on Disaster Risk Reduction, held in Kuala Lumpur from 2 to 4 December