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Report on joint activities carried out in 2015 by the regional support offices of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response

I. Introduction

1. In its resolution 61/110, the General Assembly decided to establish the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) as a programme of the Office for Outer Space Affairs of the Secretariat to provide universal access for all countries and all relevant international and regional organizations to all types of space-based information and services to support the full disaster management cycle.
2. In the same resolution, the Assembly noted that the UN-SPIDER programme should, when possible, work closely with regional and national centres of expertise in the use of space technology in disaster management and aim to form a network of regional support offices to better implement the activities of the programme in their respective regions, and in a coordinated manner. Since 2008, the Office for Outer Space Affairs has been overseeing the incorporation of such centres of expertise into that network, formalized through a cooperation agreement signed by both the relevant centre of expertise and the Office for Outer Space Affairs. The network was from the beginning seen as an important source of knowledge, and an additional set of resources and a key to the success of the programme.
3. The network of regional support offices is expected to contribute to any of the specific activities included in the UN-SPIDER workplan by taking on the added responsibility of identifying resources and funding and implementing activities jointly and in coordination with the UN-SPIDER team. Such activities can include: hosting a regional workshop, promoting capacity-building activities in a region, contributing to technical advisory missions in a region to support national disaster management planning, supporting national and regional vulnerability and risk assessments, providing mapping support during emergencies, contributing to the systematic compilation of relevant information (including the development of



country profiles and the compilation of specific geospatial databases) in support of the UN-SPIDER knowledge portal (www.un-spider.org/), supporting awareness-raising campaigns and promoting the establishment of regional and national networks of experts that would be relevant to the programme.

4. The existing network of regional support offices has significantly greater importance in the more recent context, as resources available to the programme are being reduced. Despite the efforts of the main supporters, the programme needs to optimize and refocus the available resources to be able to respond to an increasing number of requests for support and to follow up on numerous recommendations resulting from past technical advisory missions. Regional support offices are an essential complement to that effort, as they are able to act as focal points or lead the implementation of recommendations resulting from past advisory activities.

5. Seventeen UN-SPIDER regional support offices are currently being hosted by the following 11 national organizations: Agency for Support and Coordination of Russian Participation in International Humanitarian Operations (EMERCOM, agreement signed in 2013); Algerian Space Agency (ASAL, 2009); Augustín Codazzi Geographic Institute of Colombia (IGAC, 2012); Iranian Space Agency (ISA, 2009); Károly Róbert University of Hungary (2012); National Academy of Sciences and State Space Agency of Ukraine (NASU-SSAU, 2010); National Commission on Space Activities of Argentina (CONAE, 2012); National Institute of Aeronautics and Space of Indonesia (LAPAN, 2013); National Space Research and Development Agency of Nigeria (NASRDA, 2009); Romanian Space Agency (ROSA, 2009); and Space and Upper Atmosphere Research Commission of Pakistan (SUPARCO, 2010). The following six regional organizations also host regional support offices: Asian Disaster Reduction Center (ADRC), based in Kobe, Japan (2009); International Centre for Integrated Mountain Development (ICIMOD), based in Kathmandu (2013); International Water Management Institute (IWMI), as a member of the Consultative Group on International Agricultural Research (CGIAR) Consortium for Spatial Information, based in Sri Lanka (2015); Regional Centre for Mapping of Resources for Development, based in Nairobi (RCMRD, 2010); University of the West Indies, based in Saint Augustine, Trinidad and Tobago (UWI, 2010); and Water Center for the Humid Tropics of Latin America and the Caribbean, based in Panama City (CATHALAC, 2010).

6. Previous activities and joint efforts of those regional support offices are regularly highlighted in a number of UN-SPIDER activity reports, as well as in various conference room papers submitted to the Committee on the Peaceful Uses of Outer Space and to its Scientific and Technical Subcommittee, and can be consulted on the website of the Office for Outer Space Affairs or on the UN-SPIDER knowledge portal.

7. In 2014 and 2015, a number of other regional or national centres of relevant expertise have enquired about the possibility of joining the network of UN-SPIDER regional support offices. Such offers of support are currently being evaluated in the respective regional contexts. The Office for Outer Space Affairs is already in advanced negotiations for the signing of regional support office cooperation agreements before the end of 2015 with the new Regional Visualization and Monitoring System (SERVIR) node for the Mekong region, with the Center for Remote Sensing of Land Surfaces of the University of Bonn and with the Building a Centre of Excellence for Earth Observation-based Monitoring of Natural Disasters

at the Athens National Observatory, and is also continuing its discussions with the South African National Space Agency and GRID-Arendal (Norway) in this context.

8. More detailed and continuously updated information and background on each regional support office, as well as on relevant contacts or resources, can be found on the UN-SPIDER knowledge portal.

9. The UN-SPIDER regional support offices agreed to meet every year, resources permitting, normally during the session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, to review the work carried out during the previous year and to plan future activities in support of the programme. The meetings are also an opportunity to contribute to the development of the UN-SPIDER workplan and to synchronize the programme activities with other regional initiatives that the regional support offices might be part of.

10. The first meeting of the established and prospective UN-SPIDER regional support offices was held on 9 and 10 February 2010, and focused on the work of the network and on their involvement in the implementation of the programme. On 8 and 9 February 2011, the second meeting was held, building upon the discussions of the previous year and benefiting from the presence of representatives from several leading mechanisms that make space-based information available for emergency response at the expert meeting on space-based technologies and emergency response, which was held jointly on the second day of that meeting. The third meeting of the network took place on 6 and 7 February 2012, during the forty-ninth session of the Scientific and Technical Subcommittee, and the fourth meeting took place in the course of the fiftieth session of the Scientific and Technical Subcommittee, on 11 and 12 February 2013. The fifth meeting was held on 13 and 14 February 2014, during the fifty-first session of the Scientific and Technical Subcommittee and focused on an agreed joint workplan for regional support offices that is better aligned with the adopted UN-SPIDER programme of work, as well as on developing a regional support office strategy document for longer-term planning. Similarly, the sixth meeting took place in Vienna on 5 and 6 February 2015, linked to the fifty-second session of the Subcommittee. That last meeting was preceded by a training event for 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) project managers, in coordination with the executive secretariat of the International Charter.

II. Workplan and joint activities for regional support offices in 2015

11. As noted in paragraph 10 above, the most recent coordination meeting of UN-SPIDER staff with the regional support offices took place in February 2015. A detailed report of that meeting was circulated to all regional support offices for further information, as not all entities could participate; 13 out of the 16 active regional support offices attended. The signing of the seventeenth regional support office agreement, with IWMI, took place at the opening of that meeting in February. The meeting helped to develop a joint programme of activities for 2015 and beyond,

taking into consideration the funding context of UN-SPIDER and the high-level plan of programme activities available at that time.

12. The meeting participants also considered collaboration with the Group on Earth Observations (GEO). They heard a presentation from the GEO secretariat, and reviewed the universal access efforts of the International Charter on Space and Major Disasters and recent knowledge portal developments. Opportunities for closer and stronger collaboration, joint fundraising and project development efforts were also discussed.

13. Specific attention was given to the UN-SPIDER workplan for 2015 and 2016 to identify possible support for the planned technical advisory missions and training efforts. The indicative workplan for 2015 was published for the fifty-second session of the Scientific and Technical Subcommittee in conference room paper A/AC.105/C.1/2015/CRP.13.

14. At the most recent network meeting, significant attention was paid to identifying means to increase the use and coordination of access to International Charter resources by the regional support office network in 2015 and beyond. Discussions also addressed means for stronger collaboration on the part of the Office for Outer Space Affairs with its UN-SPIDER team, with GEO and with the International Charter. Eight regional support offices (ASAL, EMERCOM, IGAC, ISA, IWMI, Károly Róbert University, LAPAN and NASRDA) participated in the Charter training mentioned in paragraph 10 above and received formal project manager certificates, enabling them to take a more active role in future activations of the Charter in their respective regions, as well as in support of UN-SPIDER mandate implementation. The executive secretariat of the Charter appealed to all regional support offices to support the further expansion of the universal access initiative by reaching out to their neighbouring countries through awareness-raising efforts.

15. In summary, the meeting agreed on continued support by all regional support offices for the upcoming UN-SPIDER technical advisory missions and for any planned technical advisory mission follow-up activities such as training or capacity-building, subject to the availability of resources to the regional support offices. Consideration of pooling satellite imagery and data resources or funds with a view to better sharing data across institutions, countries or regions, as discussed during the 2014 meeting, also remained under focus. Discussions with regional support offices at the latest meeting made it possible to refine the workplan proposal for UN-SPIDER for 2016-2017, later summarized in document A/AC.105/1093, published for the fifty-eighth session of the Committee on the Peaceful Uses of Outer Space.

16. The following sections of the present report highlight some of the joint activities and efforts implemented in line with the UN-SPIDER mandate and together with the regional support office network. As noted above, a number of collaborations have been initiated as a result of previously agreed regional support office network workplans, as also highlighted in earlier reports; some of the activities detailed in this report thus were continuing into 2015, while others were initiated in 2015.

A. Advisory support and capacity-building efforts

17. The most significant contributions made by the regional support offices to the implementation of UN-SPIDER remain their participation in various technical advisory missions in 2015, and their support in organizing follow-up activities mainly for capacity-building in countries already visited by UN-SPIDER experts, as in previous years. Regional support offices that have contributed to the provision of technical advisory support in Latin America and the Caribbean include CATHALAC, IGAC and CONAE, whose experts participated actively in the technical advisory mission to Honduras conducted at the request of the Permanent Contingency Commission of Honduras (COPECO). The mission took place from 13 to 18 July 2015 in Tegucigalpa and included the provision of specific support in the context of droughts. The UN-SPIDER Beijing Office also continued its efforts with the Asian regional support offices (ADRC, ICIMOD, ISA, IWMI and SUPARCO) in addressing the agreed workplan. IWMI, for example, contributed an expert for the technical advisory mission to the Lao People's Democratic Republic in July. Some of those regional support offices also attended the annual UN-SPIDER-organized conference in Beijing, contributing to various sessions and helping to provide specific training to conference attendees.

18. Various regional support offices actively supported the Office for Outer Space Affairs and the UN-SPIDER team in the preparations for the United Nations World Conference on Disaster Risk Reduction, held in Sendai, Japan, from 14 to 18 March 2015.

19. IGAC and the UN-SPIDER team joined forces to organize a regional expert meeting on the use of space-based information in disaster risk management with an emphasis on floods and droughts. The meeting was held in Bogota from 12 to 14 August, under the umbrella of the International Geomatic Week 2015, an event organized by IGAC. It benefited from the participation of nearly 30 experts from Bolivia (Plurinational State of), Brazil, Colombia, the Dominican Republic, El Salvador, Guatemala, Honduras and Mexico. The meeting agreed on the next steps in the context of the project that UN-SPIDER experts and several international, regional and national partners are conducting on the use of space-based information in drought early warning systems. The meeting included three training workshops on the use of recommended practices developed by IGAC and ISA targeting droughts and floods, and published on the UN-SPIDER knowledge portal.

20. In 2015, several regional support offices have further prepared and submitted to the UN-SPIDER programme a number of recommended practices to increase this type of content in the UN-SPIDER knowledge portal. IGAC submitted two specific practices on the use of space-based data to generate flood hazard maps and to delineate the expansion and contraction of water bodies owing to floods and droughts. ASAL and LAPAN have submitted recommended practices on the use of space-based imagery to generate information related to forest fires, which will be uploaded to the knowledge portal after the draft versions have been revised by UN-SPIDER staff.

21. In addition to the new contributions mentioned above, two existing recommended practices were updated. The practice on flood mapping developed by

NASU-SSAU was modified to incorporate the use of the recently launched European Space Agency Sentinel Application Platform version 2.0, and the practice on drought monitoring developed by ISA was further developed for use with open-source software. UN-SPIDER is also promoting the use of the recommended practice on drought in Central America and the Caribbean as part of its project to improve drought early warning systems in those areas.

22. Regional support offices have agreed to test and evaluate each other's recommended practices once published, and to provide input and feedback in the various contexts. Concrete cross-evaluation exercises were agreed for the available practices at the 2015 regional support office meeting.

23. The Office for Outer Space Affairs, through UN-SPIDER and CONAE, has continued to promote the International Charter on Space and Major Disasters in specific countries of Latin America and the Caribbean. Experts from CONAE have conducted videoconference presentations on the International Charter and on its recently launched universal access initiative. Efforts made with national civil protection agencies of Colombia, the Dominican Republic, El Salvador, Guatemala and Honduras have targeted the directors or managers of national emergency operation centres as a way to engage such centres as authorized users of the Charter.

24. The International Charter universal access promotion and awareness-raising efforts by UN-SPIDER and its regional support office network will continue in other countries of the Latin American and Caribbean region, and also in Africa and Central Asia, as a way to enlarge the base of authorized users of the Charter in those regions.

25. IWMI contributed to a capacity-building workshop on Earth observation technologies for flood risk mapping and forecast rating curve for flood recession agriculture in Nigeria, held in Abuja from 5 to 7 May 2015. The workshop and training were organized with support from NASRDA and the Federal Ministry of Agriculture and Rural Development of Nigeria.

26. A training event on Earth observation technologies for disaster damage and loss assessment was jointly organized by the Department of Disaster Management of Bangladesh and the UN-SPIDER Beijing Office in collaboration with IWMI, the Space Research and Remote Sensing Organization of Bangladesh and the Comprehensive Disaster Management Programme of the Ministry of Disaster Management and Relief of Bangladesh, and held in Dhaka from 5 to 9 April 2015.

27. IWMI also supported various emergency response activities in the context of its regional support office commitments, generating rapid emergency response mapping products for floods in Myanmar (August 2015), India (August and September 2015), Sri Lanka (October 2015) and Nigeria (October 2015) and for drought conditions in Sri Lanka (July to September 2015).

28. As a result of discussions and coordination between the Károly Róbert University regional support office and the Office for Outer Space Affairs, it was agreed, during a NASU-hosted workshop in Ukraine in October, that experts from the Károly Róbert University with hyperspectral imagery analysis skills would plan for 2016 an aerial imaging campaign, in coordination with UN-SPIDER experts, so that hyperspectral satellite imagery such as EO-1 could be acquired simultaneously

over the same area and comparisons made on how satellite-based hyperspectral imaging could better support disaster management efforts.

29. RCMRD has been actively collaborating with the Government of Zambia as a follow-up to the 2014 UN-SPIDER technical advisory mission, and capacity-building was a priority in 2015. The regional support office has also tried to improve support for the Sudan, based on earlier actions identified with UN-SPIDER, and provided relevant training in May and December.

30. The NASU-SSAU regional support office continued to support the programme by actively participating in the United Nations/Germany International Conference on Earth Observation: Global solutions for the challenges of sustainable development in societies at risk, held in Bonn, Germany, from 26 to 28 May 2015 (A/AC.105/1097). NASU-SSAU supported specific disaster management-related sessions there and organized a workshop on crop monitoring, including drought and water management, in Kyiv in October 2015, with UN-SPIDER participation.

31. Demand for support for the implementation of recommendations and actions defined through technical advisory missions remains high, especially given the fact that a large number of the recommendations resulting from past technical advisory missions have not been addressed yet, because of resource limitations, while new requests for advisory services and capacity-building are being received. The participants in the 2015 regional support office meeting reviewed once again the list of actions and recommendations from past technical advisory missions and discussed how to pool resources and inform each other of relevant events that could complement UN-SPIDER efforts. The possibility of organizing regional activities to review and assess the implementation of recommendations of technical advisory missions was again considered. In that context, an offer was received from SUPARCO to host a future meeting on its premises in Pakistan, which would enable better participation of the regional support offices in Asia.

32. A number of regional support offices continue to provide constant and important input to the UN-SPIDER knowledge portal, as they have done every year. Several regional support offices have contributed by preparing recommended practices, as noted above. Such activities and support are vital to the diversification of the portal's content and to the improved quality of the information posted. All regional support offices were encouraged to support this effort and to contribute more information for the enrichment of the UN-SPIDER knowledge portal, and ultimately for the benefit of its specialized users and disaster managers worldwide.

B. Activities related to outreach, joint project development and fundraising

33. As already highlighted above, improving information-sharing on activities planned by either the regional support offices or the UN-SPIDER team is important in order for coordination to be more effective and resources used more efficiently, and also as part of knowledge management. This was clearly stated not only at the 2015 regional support office meeting but also on subsequent occasions during the year, such as on the margins of the United Nations World Conference on Disaster Risk Reduction and the UN-SPIDER conferences in Bonn and Beijing. With the envisaged growth of the regional support office network to over 20 entities during

2015 and 2016, this information-sharing and coordination of efforts is becoming even more relevant.

34. Regional support offices, especially those that joined the network recently or will be joining soon, need to be well aware of the content and structure of the UN-SPIDER knowledge portal and of the regional support office pages hosted there, so that all are able to keep their profiles updated, edit as necessary or post news and events of relevance, through the option of direct access to the content management system. While this option has been available and its use encouraged since 2014, it is still used only minimally by the regional support offices. However, it is increasingly important to consider such proactive support, given the reduction in UN-SPIDER staff resources for the knowledge portal's operation and maintenance in 2015, with no prospect of increased resources in 2016. Support from UN-SPIDER staff was and is available to regional support offices for portal maintenance.

35. Regional support offices agreed in 2014 to develop and submit joint proposals for specific project funding or to involve other regional support offices and the UN-SPIDER programme in relevant funding proposals being developed. Such proposals would address themes close to the mandate of UN-SPIDER in its support for developing countries. Cooperation and joint efforts for fundraising will need to continue and increase during the coming period.

36. Regional support offices have continuously used opportunities created by various workshops and conferences they participate in to promote the UN-SPIDER programme and raise awareness about the utility of space technologies in disaster management. Various materials, including printed newsletters, were made available by the UN-SPIDER team for that purpose; regional support offices have contributed content to UN-SPIDER newsletters.

III. Conclusions and way forward

37. Currently, as agreed at the 2014 regional support office meeting, UN-SPIDER has a draft regional support office strategy document in order to further strengthen cooperation within the network and with UN-SPIDER. The first draft was presented and discussed during the 2015 regional support office meeting. The document should be further updated in the light of new regional support offices joining the network in the coming period and other developments. A review of progress will also be made during the next regional support office meeting, tentatively scheduled to be held in Vienna on 2 and 3 June 2016, to coincide with the fifty-ninth session of the Committee on the Peaceful Uses of Outer Space. On that occasion, the UN-SPIDER programme will also mark its tenth anniversary. All regional support offices consider the strategy development initiative important for ensuring the sustainability of the programme.

38. The tenth anniversary of the UN-SPIDER programme is an opportunity not only to review its successes but to consider, as it is a platform built on partnerships, how to increase its impacts globally, both on the nations it has already worked with and on those that have requested support. The knowledge accumulated by the programme in 10 years needs to now be harnessed for assisting countries in building their capabilities to comply with their commitments on reducing disaster risk (Sendai Framework for Disaster Risk Reduction 2015-2030), on reaching the

Sustainable Development Goals (2030 Agenda for Sustainable Development) and on adapting measures to reduce the effects of climate change (outcomes of the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change). The network of regional support offices is an essential arm for the implementation of the UN-SPIDER programme workplan implementation in this complex and challenging context.

39. The support of the regional support office network for the activities of the programme, its technical assistance missions, the knowledge portal contributions, and the outreach, capacity-building and awareness-raising efforts defined in its workplan have all been essential in setting up and sustaining the programme and making it much better known globally, and clearly in the more successful implementation of its mandate. It is therefore important to enlarge and diversify the network and to ensure that regional support offices remain active and genuinely contribute to the implementation of the UN-SPIDER mandate.

40. With a view to increasing the number and effectiveness of the activities of the network, the information technology environment of the UN-SPIDER knowledge portal is being migrated to the servers of the United Nations Office of Information and Communications Technology of the Secretariat. This will not only increase the level of security and support but will also facilitate the development of tools and content by the regional support office network. It is hoped that ownership of the knowledge portal will be expanded for the benefit of its end users.

41. The development of the above-mentioned strategy document is giving the UN-SPIDER team an opportunity to collect some thoughts and establish a vision for the future of the network. Parallel to the growth of the network, however, a continuous review of the efficiency and value of the contributions made will need to be put in place, allowing for the lapsing of collaboration agreements with specific regional support offices should they not be able to fulfil the purposes for which they were established. Such a review would also enable the refocusing of the limited resources within the UN-SPIDER programme to better maintain communication and collaboration with the active regional support offices in the network.

42. The Office for Outer Space Affairs and its UN-SPIDER team will also continue to work with relevant external partner organizations in order to increase the number and impact of regional support offices in every region of the world. For example, following a successful partnership with the SERVIR programme resulting in its regional nodes also becoming UN-SPIDER regional support offices, it was recently agreed that new SERVIR nodes, such as the ones planned for the Mekong region or West Africa, could also become new UN-SPIDER regional support offices.

43. As agreed at the 2015 regional support office meeting, and as a result of various regional support office experts being trained for project manager roles in activations of the International Charter on Space and Major Disasters, efforts will be made at the regional level through the regional support offices to promote the universal access initiative and the more proactive triggering of the International Charter when needed and to provide more concrete support under the UN-SPIDER mandate. As the Office for Outer Space Affairs and UN-SPIDER continue to enlist other space agencies and commercial entities operating satellite sensors to facilitate access to imagery during disaster situations, resources will also be better channelled through the regional support offices to the regions and countries in need.

44. At the annual regional support office meetings it always becomes clearer how many activities, workshops or other relevant events various regional support offices contribute to, organize or participate in every year. It was therefore agreed that regional support offices should more proactively promote the UN-SPIDER programme and its activities at such events, invite UN-SPIDER expert representation when relevant or deliver presentations on behalf of the programme, ensuring wider and more efficient outreach at the regional and local levels. Such cross-referencing and linking of activities will undoubtedly benefit the programme and inform expert communities and other actors about the UN-SPIDER mandate and relevant opportunities.

45. These efforts must be designed, implemented and evaluated within the context of the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (“UNISPACE+50”), in which the Office for Outer Space Affairs endeavours to foster the integration of its different programmes, promote integrated applications and encourage the development of new partnerships through new and innovative approaches and renewed commitments from Member States and partners. The role of the UN-SPIDER programme in this endeavour, with the support of its network of regional support offices, can become exemplary.

46. All such efforts, as they continue over the coming years, will undoubtedly contribute to the achievement of the goal stated in General Assembly resolution 61/110, by which UN-SPIDER was established as a programme nearly 10 years ago: 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.