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Promoting regional cooperation on applications of space technology and geographic information systems for disaster risk reduction

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Note by the secretariat

Summary

The present document outlines the secretariat's efforts to implement the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017. The importance of regional cooperation in deepening and broadening the applications of space technology and geographic information systems for disaster risk reduction in the Asia-Pacific region are also highlighted. The key activities and achievements under the Regional Space Applications Programme for Sustainable Development and the Regional Cooperative Mechanism for Disaster Monitoring and Early Warning, Particularly Drought are further highlighted. The present document contains a brief overview of the secretariat's work in enhancing capacity-building for the developing countries in the region, within the context of using space-based information for disaster risk reduction, providing efficient and effective services to the countries affected by severe natural disasters, promoting the establishment and use of geo-referenced information systems for disaster management and enhancing partnerships with other international and regional initiatives. The Committee's guidance on enhancing regional cooperation in building resilience to disasters is also sought in the present document. A number of issues that the Committee may wish to consider are also presented.

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I. Introduction

1. Space technology and geographic information systems (GIS) applications are key tools in reducing levels of risk and the damage and losses that result from natural disasters. This is possible by enabling comprehensive hazard and risk assessments, disaster response, relief and impact assessments. The major information and knowledge products emanating from space technology and GIS applications are near real-time satellite imagery, geo-referenced information, emergency communications tools and positioning, navigation and time information. Effective use of such space-based information, along with other monitoring systems, can help in mapping out hazards and vulnerabilities for evidence-based policymaking and planning, provide accurate warnings of impending disasters and provide disaster impact assessments at the regional, subregional and national levels; thus significantly mitigating the adverse impacts of natural disasters in countries in Asia-Pacific region.

2. As clearly recognized in the outcome document of the United Nations Conference on Sustainable Development, which is entitled "The future we want",¹ the use of space technology and GIS applications can contribute significantly to disaster risk reduction and management. In the outcome document, there is recognition of the importance of comprehensive hazard and risk assessments, and knowledge and information sharing, including reliable geospatial information, together with the importance of early warning systems. This forms part of effective disaster risk reduction at all levels in order to reduce economic and social damage, including the loss of human life. Further affirming the importance of space technology and regional cooperation in disaster risk reduction and management, the Commission adopted resolution 69/11 on implementation of the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017. This builds on resolution 68/5, in which there is recognition of the importance of enhancing regional cooperation for improving disasters and associated socioeconomic risk management and the urgent need to promote

¹ General Assembly resolution 66/288, annex.

information and communications technology applications for inclusive and sustainable development in Asia and the Pacific.

3. Despite the significant progress achieved in this region, the spread of these technology applications has been uneven. Although the Asia-Pacific region has a growing number of space-faring countries with a number of existing and planned remote sensing satellites, these technologies are yet to fully benefit the most vulnerable in our societies. Space technology and GIS applications continue to be underutilized, primarily because of the lack of capacity in developing countries in terms of human, scientific, technological, organizational and institutional resources. Moreover, the relatively prohibitive costs of higher-resolution and radar satellite data, and the uneven level of connectivity in accessing free data, exacerbates the problem even further. Despite several efforts to harness the potential of space technology and GIS, their application continues to be hindered in many developing countries, particularly in countries with special needs in the region.

II. Enhanced regional cooperation for developing member States' capacity for effective disaster risk reduction

A. The secretariat's efforts in implementing the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017

4. Regional and subregional cooperation has become increasingly critical in sharing good practices and enhancing the capacity of member States in the active use of space-based information, near real-time satellite imagery and data, including scale, geographic coverage and maps, as well as learning from good policy practices.

5. Even if individual countries possess their own space infrastructure and maintain supporting institutional capacities, they can still benefit from well-established regional and international cooperation mechanisms. Countries obtain benefits from these international and regional cooperation mechanisms, such as near real-time satellite imagery and other essential space-based information products and services, in order to forecast and respond to, or recover from, region-wide disasters, such as typhoons, floods, drought and forest fires. More importantly, the mechanisms are useful resources for sharing good policies, expertise and practices, strengthening capacity-building, conducting regional/subregional joint training programmes, and carrying out joint actions on regional disasters in a particular area of mutual interest. Despite the expected benefits, these regional mechanisms and activity programmes are seldom coordinated and harmonized properly, often failing to have a significant impact on disaster risk prevention and reduction.

6. Against this backdrop, member States have tasked the secretariat to take the lead in implementing the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017 (hereinafter, "Asia-Pacific Plan of Action") at the regional level, to harmonize and enhance existing regional initiatives, to pool expertise and resources at the regional and subregional levels and to act as a clearing house for good practices and lessons.

7. ESCAP has undertaken several initiatives to implement the Asia-Pacific Plan of Action. The efforts of ESCAP in promoting regional cooperation through the use of space technology and GIS are noted in a report of the Secretary General.²

8. The secretariat has been focusing on: (a) capacity-building to address the main technical gaps in developing countries in their use of space technology and GIS applications in disaster risk reduction; (b) research and policy analysis on the application of emerging technologies; (c) provision of near real-time satellite imagery to the countries affected by severe disasters; and (d) standardization of operating procedures on drought monitoring and early warning that will be rolled out shortly in the region.

9. These programmes are delivered in collaboration, or as part of, the Regional Space Applications Programme for Sustainable Development (RESAP) of ESCAP, and in close collaboration with: United Nations Institute for Training and Research (UNITAR) and its Operational Satellite Applications Programme (UNOSAT); United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER); International Charter Space and Major Disaster (the Charter); Asia-Pacific Space Cooperation Organization (APSCO); Sentinel Asia; and Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES).

10. The secretariat gives high priority to capacity-building programmes. Since the second session of the Committee on Disaster Risk Reduction, the secretariat has organized a series of workshops and training on space technology and GIS applications for effective disaster risk reduction, which benefitted approximately 400 governmental policymakers, administrative officials, planners, professional staff, researchers and project managers from 38 member States, 20 United Nations entities, international bodies, academic institutes and NGOs.

11. Analytical work on space applications, particularly the important role and good practices of space technology and GIS applications for building resilience to disasters, was highlighted in the ESCAP 2013 Theme Study.³ In addition, the innovative space technology and GIS applications, which have been recognized as cost-effective tools for disaster risk reduction, were emphasized in chapter 5, "Harnessing innovative technologies", in *Reducing Vulnerability and Exposure to Disasters: the Asia-Pacific Disaster Report 2012*,⁴ the flagship publication of ESCAP and ISDR.

12. When severe disasters such as floods, earthquakes and cyclones hit countries in the region, the secretariat mobilized more than 50 scenes of near real-time and archived satellite imagery to support the disaster response, relief efforts and damage assessment. In addition, the secretariat is promoting the use of the online geo-referenced information system for disaster risk management (Geo-DRM) in some of the countries with special needs. The Geo-DRM will combine disaster data with disaggregated socioeconomic data for evidence-based policymaking and to provide effective disaster management.

² A/AC.105/1014.

³ *Building Resilience to Natural Disasters and Major Economic Crises* (United Nations publication, Sales No. E.13.II.F.3).

⁴ ST/ESCAP/2639.

13. At present, the secretariat is working on standardization of the operational drought monitoring mechanism, including modalities and standard operating procedures, which would serve as guidelines for drought assessment and monitoring in the Asia-Pacific region. Some of the recent highlights of the secretariat's work in this regard are outlined below.

B. Regional Space Applications Programme for Sustainable Development

14. The Regional Space Applications Programme for Sustainable Development (RESAP) was launched by ESCAP during the first Ministerial Conference on Space Applications for Development in Asia and the Pacific in 1994. RESAP is mandated to promote and coordinate regional space cooperation for development; organize and implement space application projects of regional interest; and provide policies, models, techniques, information and analysis. It is also tasked to conduct studies related to various issues on space applications; establish regional networks comprising national focal points and working groups in major space technology application fields; and promote national capacity-building for space applications. Numerous activities have been initiated that have contributed towards raising the status of the region's deployment of space technology for supporting sustainable development goals, particularly in capacity-building and promoting regional space cooperation for disaster risk reduction and development.

15. Since the second session of the Committee on Disaster Risk Reduction, the secretariat has undertaken several initiatives to support member States in implementing disaster risk reduction and management. Some of the highlights are presented below.

1. Regional support to disaster-affected countries including timely provision of near real-time imagery for disaster response, relief and impact assessments

16. The Asia-Pacific region is the area most affected by disasters. Moreover, floods and storms remain the main threats in Asia and the Pacific, causing major economic damage to the region in 2012 and 2013. In 2012, floods caused 54 per cent of the total death toll for all natural disasters in Asia, 78 per cent of the total number of people affected and 56 per cent of the total economic damage in the region.⁵ Despite the rapid economic growth in the region, many developing countries are increasingly vulnerable to disasters, as the coping capacities of communities have not expanded at the same rate as the frequency of disasters.

17. The secretariat has been promoting regional cooperation among member States to support rapid disaster mapping, and disaster response, relief and impact assessments through timely provision of near real-time data and other space-based information services, after receiving requests from disaster-affected countries. In 2012, when Typhoons Haikui and Bopha hit the Philippines, the secretariat coordinated with RESAP members as well as its strategic partners, including UNITAR/UNOSAT, UN-SPIDER, International Charter Space and Major Disaster and Sentinel Asia to contribute to near real-time satellite imagery and products to the Philippines

⁵ United Nations Office for Disaster Risk Reduction, "2012 Asian disaster figures: flood deaths down but economic losses significant", press release, Bangkok, 11 December 2012. Available from <http://cred.be/sites/default/files/2012.12.21-PressRelease-Erratum.pdf>.

and the Association of Southeast Asian Nations (ASEAN). Several other countries have also benefited from similar products and services during disasters. In 2013 — when tropical cyclone Mahasen hit Bangladesh and Myanmar in May 2013; when an earthquake brought deadly destruction to Lushan County, China, in April 2013; and when serious floods, caused by heavy rain, occurred in Pakistan and northeast China, in August 2013 — the secretariat immediately mobilized near real-time satellite imagery, through the RESAP network of space agencies, together with other strategic partners, such as the UNITAR/UNOSAT, at the onset of each disaster, upon receiving requests for support from the affected countries.

18. These efforts have resulted in timely provision of more than 50 scenes of near real-time and archived satellite imagery, which were provided by China, India, Japan, Thailand and other RESAP members, as well as UNOSAT. The imagery from the Indian Radar Imaging Satellite proved extremely valuable to the relief efforts that were mobilized in response to these disasters. The secretariat is also working on an institutional mechanism through the development of standard operating procedures and the use of up-to-date information and communication technology tools that will enable effective, reliable and easy access to communication in times of disaster.

2. Capacity development

19. Under the auspices of RESAP, the secretariat has conducted a series of capacity-building programmes, especially in high-risk developing countries that lack the capacity to access space technologies and GIS applications. The training courses and workshops covered flood-risk mapping, modelling and assessment, regional and subregional geo-referenced information for disaster management and satellite imagery for disaster management in the Pacific, among other things. These capacity-building programmes benefitted approximately 120 governmental officials, researchers and managers from 20 member States.

20. Most of these capacity-building activities were conducted through the nodes of RESAP training networks at the Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) in Dehradun, India, the National Coordination Agency for Surveys and Mapping in Indonesia and training partners at the Chinese University of Hong Kong, China. Such programmes were delivered in close collaboration with UNITAR/UNOSAT; secretariat of the United Nations Convention to Combat Desertification (UNCCD); UN-SPIDER; Applied Geoscience and Technology Division of the Secretariat of the Pacific Community; Pacific Islands Telecommunications Association; GeoInformatics Center of the Asian Institute of Technology; International Water Management Institute; and with technical and financial support from China, India, Indonesia, Japan and the Republic of Korea.

3. Strengthening cooperation

21. The secretariat also made an effort to harmonize regional cooperation mechanisms and initiatives. For instance, a memorandum of agreement was signed in Bangkok in February 2013 to strengthen the strategic partnership between ESCAP and UNITAR to provide effective support to member States, in order to achieve better and more comprehensive access to and use of space-related services, as well as to benefit from geospatial information for effective disaster risk reduction. In November 2013, a three-week training course on GIS applications for disaster risk management will take place; it is being jointly organized by ESCAP, the Korea International Cooperation

Agency and UNITAR. Government officials from national disaster management authorities and the space agencies of countries with special needs will be trained in Seoul.

22. In line with the One UN policy, ESCAP also participated in technical advisory missions conducted by UN-SPIDER in Sri Lanka and Myanmar, and continues to enhance this collaboration through joint efforts to implement the recommendations provided by these technical advisory missions. As part of implementing the Asia-Pacific Plan of Action with respect to enhancing collaboration and harmonization, a mapping exercise was undertaken to develop an inventory and calendar of events (2013-2017) of related United Nations entities and regional initiatives, in the context of capacity-building in the use of space technology and GIS applications for effective disaster risk reduction, strengthening cooperation, creating synergy, pooling resources and reducing duplication.

C. Operationalization of the Regional Cooperative Mechanism for Disaster Monitoring and Early Warning, Particularly Drought

23. Among natural disasters, drought gets relatively less attention from policymakers even though it has serious long-term socioeconomic implications. Owing to its slow and gradual onset, it is often regarded as a transient event not to be taken seriously once the rainfalls return. In the 4th Assessment Report of Working Group I of the Intergovernmental Panel on Climate Change (IPCC),⁶ it was concluded that the area of land affected by drought since the 1970s has increased significantly, adversely affecting socioeconomic development and exacerbating poverty among millions of people who depend directly on the land as a source of livelihood. Due to the impacts of climate change, there is a global consensus that the frequency and intensity of droughts will be greater in the future.

24. A comparison of the data on drought reveals that Asia has the largest number of people affected by droughts of any continent. A total of 123 drought events in the Asia-Pacific region affected more than 1.31 billion people, causing damage amounting to more than \$53 billion (at 2005 prices), over the last 29 years.⁷ In severe cases, drought has devastating effects on vulnerable people as well as natural resources, such as water, for agriculture and eco-systems; it also causes long-term environmental degradation and biodiversity loss. Droughts combined with human activities lead to desertification of vulnerable arid, semiarid and dry subhumid areas, resulting in degradation of the soil structure and fertility.⁸ It is important to comprehend the inter-relationship among drought, land degradation, desertification, agriculture, ecosystems and socioeconomic development plans.

25. An effective regional cooperative mechanism for monitoring and early warning of drought events could assist stakeholders, particularly Governments with regard to national and local levels, to more effectively reduce drought risks. It should include the capacity to predict and comprehend the possible threats and impacts in terms of coverage, severity and probable economic, environmental and social consequences. This would allow effective prevention and mitigation measures to reduce the potential

⁶ Intergovernmental Panel on Climate Change, *Climate Change 2007: the Physical Science Basis* (New York, Cambridge University Press, 2007).

⁷ Data from the International Disaster Database.

⁸ Z.W. Kundzewicz, "Water resources for sustainable development", *Hydrological Sciences Journal*, vol. 42, No. 4, pp. 467-480.

risks and hazards and, subsequently, to enable timely recovery from the serious impacts of drought disasters.

26. Many countries in the region face tremendous challenges in the area of drought monitoring and early warning. These challenges include relatively little capacity to access and analyze critical information, lack of effective methodology to combine space-based information products with ground-based information for appropriate decision-making, very few regional platforms for sharing knowledge and good practices, and a lack of coordination among agencies and institutions at the national level.

27. In order to address such challenges, ESCAP has been promoting the Regional Cooperative Mechanism for Disaster Monitoring and Early Warning, Particularly Drought (hereinafter the “Drought Mechanism”) under RESAP. The drought mechanism aims to enable drought-prone countries to establish or strengthen their systems for effective and collaborative drought monitoring and early warning. Key components of the Drought Mechanism include standard operating procedures, the establishment of regional service nodes, an information portal for drought disaster management, and assistance to member States on capacity-building measures through training and technical assistance, and the exchange of good practices.

28. In December 2012, RESAP members agreed to establish regional operational service nodes and expressed their support for the operationalization of the Drought Mechanism and stand ready to share good practices, experiences and expertise in space-based information for drought modelling. For example, China offered to host one of the service nodes of the Drought Mechanism and will provide and host training courses on drought monitoring and early warning through the use of space technology and GIS applications; it also offered to make available GIS software to developing countries in the region through RESAP. In addition, India offered to consider hosting a service node in the region and support disaster mechanisms by providing access to its data from its satellites, increasing such access from 50 scenes to 100 scenes per year. India also offers training at CSSTEAP to support the establishment of geo-portals and to host the data on the Bhuvan portal (a geoportal of the Indian Space Research Organization) for countries that are yet to establish their own mechanism. Such offers from RESAP members will allow the Drought Mechanism to begin offering services to identify high-risk drought-prone areas and thus have a positive impact on the issues of food security and poverty in many at-risk agrarian countries in the region.

29. Drought monitoring and assessment are two facets of effective drought management. Drought management drives the need for improved drought monitoring and this in turn facilitates highly effective drought management. Hence, the main challenge is to develop robust indicators that aid effective in-season monitoring and thus facilitate the design of appropriate management practices, which mitigate adverse impacts and build resilience. Furthermore, the vulnerability to drought of different nations varies with their level of exposure to such a phenomenon, sensitivity and their capacity to adapt; thus they need to be characterized accordingly for effective drought management. Thus, considering the complexity of drought and its variants, both in terms of its causes and responses, standard operating procedures (SOPs) need to be developed, which would serve as guidelines for drought assessment and monitoring by different member States in the Asia-Pacific region. In this regard, the secretariat, with support from the member States, has made a preliminary attempt to develop the SOPs of the Drought Mechanism. They cover country profiles, drought assessment and monitoring indicators, and customization of inputs for the purposes of administration and

capacity-building. The interim secretariat of the Drought Mechanism⁹ will support implementation of the SOPs.

30. The secretariat has provided, on a pilot basis, technical assistance programmes in Mongolia in order to support the effective monitoring of drought by using space technology and GIS applications. It is also in the process of stimulating and enabling drought-affected countries to adopt drought monitoring through effective cooperation and the use of space-based information. The objectives of the programme are to develop methodology and provide assistance in using the moderate resolution imaging spectroradiometer (MODIS), and other moderate-to-high resolution multi-spectral data provided by RESAP members, to more efficiently monitor drought and to operationalize drought detection and early warning. Other arid/semiarid countries in the Asia-Pacific region are free to avail themselves of the initial products, services and capacity-building efforts in addressing drought.

31. The firm commitment to operational service nodes has encouraged member States and regional initiatives to make a commitment to sharing their satellite and technical resources; sharing localized modelling and practices on the applications of space-based products; provision of relevant services as in-kind contributions; and the regular sharing of work programmes with other countries, through cross-participation and joint implementation of capacity-building programmes for effective drought monitoring.

D. Promotion of space technology and geographic information systems applications for disaster risk reduction

32. The secretariat has been working closely with countries with special needs to address capacity gaps in accessing up-to-date and accurate socioeconomic data using satellite imagery in disaster-affected areas (that is, geo-referenced information systems).¹⁰

33. Under this initiative, the secretariat has been developing a geo-referenced information system for disaster risk management (Geo-DRM) in collaboration with the United Nations Office for Disaster Risk Reduction (UNISDR) and the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). The geo-portal provides a unique opportunity for policymakers to combine disaster data with a valuable set of disaggregated socioeconomic data, which are crucial for evidence-based policymaking. It also provides effective disaster response, relief and recovery to those who are most vulnerable in the region. It thus helps to forge a new path towards inclusive and sustainable development based on a shared commitment to bring the benefits of space technology applications to all.

34. In terms of capacity development, the secretariat has conducted a series of regional and subregional meetings to build awareness among policymakers and practitioners on the benefits of geo-referenced information systems in evidence-based decision-making, following up with capacity-building workshops, at subregional and national level, on the development and use of Geo-DRM. During its one-year period of implementation, this

⁹ Namely, the Information and Communications Technology and Disaster Risk Reduction Division of ESCAP.

¹⁰ A geo-referenced information system is a computer-based platform that combines data management with mapping, allowing planners and those managing emergency situations to graphically display hazard impact areas, and relate them to people and property at risk.

project has generated a great deal of interest from member States, in particular the countries with special needs in the Asia-Pacific region. Countries such as Afghanistan, Bangladesh, Bhutan, Cambodia, Cook Islands, Fiji, Kiribati, Kyrgyzstan, the Lao People's Democratic Republic, Maldives, Nepal and Mongolia have requested the secretariat to provide technical support to enhance their disaster risk management capacity through the establishment and use of the customized Geo-DRM. The prototype Geo-DRMs provided to the National Emergency Management Agency of Mongolia and Emergency Management Cook Islands have recently been enriched with disaster data and shared with other government agencies for disaster risk reduction and relief.

35. The secretariat has conducted training programmes that have benefited approximately 200 participants from around 37 developing countries in the region, including governmental policymakers, land use planners, administrative officials responsible for managing national disasters, researchers and managers. These have improved the technical knowledge and understanding of the Geo-DRM portals among the participants and facilitated coordination and sharing of data among different ministries for effective disaster risk reduction and management in the region. The secretariat has been requested to continue its efforts to share knowledge and develop capacity using practical training programmes. It has also been requested to include issues in future such as monitoring glacial lakes as well as documenting the experience of countries such as Mongolia in order to learn from their good practices. In this regard, ESCAP and UNITAR/UNOSAT are engaged in a collaborative partnership to ensure state-of-the-art training, services and data are available to interested countries. This partnership puts special focus on practical capacity development and hands-on activities to assist countries to benefit from space technologies and GIS applications, including the use of crowd-sourcing technologies.

36. The secretariat established an online community of practices (CoP) based on a platform (www.unteamworks.org) developed by the United Nations Development Programme (UNDP); it continues to promote its use. The CoP acts as a knowledge forum and a platform for social learning by allowing easy access to relevant information, best practices, documents, and discussion of issues that are pertinent and topical for policymakers and other stakeholders. The CoP currently hosts approximately 100 members from a range of countries in the region and contains most of the important materials that have been generated from a number of regional meetings on geo-referenced information-sharing platforms.

E. The way forward

37. The Asia-Pacific Plan of Action bears testimony to the strong resolve of the member States to enhance regional cooperation on space technology and GIS applications for improving disaster risk reduction and management, as well as sustainable development in the region. The secretariat, in collaboration with all partners and stakeholders, is requested to take the lead in implementing the Asia-Pacific Plan of Action at the regional level and facilitating its implementation at the national level. Going forward, the secretariat will pay particular attention to strengthening regional cooperation, promoting information and knowledge exchange, and building capacity. The objective is to promote more effective use of space technology and GIS applications to support evidence-based policymaking, particularly in the areas of disaster risk reduction, disaster response and sustainable development.

1. Harmonize existing regional initiatives and create synergy

38. The secretariat will continue to enhance collaboration and harmonization with various existing regional initiatives and build partnerships at the global, regional and subregional levels. Rapid advances in cutting-edge space technology and GIS applications offer immense potential to improve the quality of services associated with disaster risk reduction and management. Therefore, the secretariat will make more effort to enhance collective cooperation and establish strategic partnerships with related United Nations agencies and initiatives at the global and regional levels. This is to be accomplished through existing agreements, such as the memorandum of agreement between ESCAP and UNITAR, for providing efficient and effective support to member States in terms of providing space-based information services and capacity development. In addition, the secretariat will strengthen its networking activities with relevant initiatives so as to enlarge the base of stakeholders around a common theme. The secretariat will also create synergy through activities such as regular cross-participation and joint delivery of capacity-building, and sharing information and good practices at the Commission session, Committee meetings, expert group meetings, workshops and training. Furthermore, the Asia-Pacific Gateway for Disaster Risk Management and Development¹¹ and existing CoPs will be key platforms through which these harmonization efforts will be widely shared across the region.

2. Strengthening information and knowledge exchange

39. The secretariat will facilitate information exchange and sharing good practices at the national level in space technology and GIS applications for disaster risk reduction and management. In this context, the secretariat will encourage mutual support and dialogue between disaster management authorities and space agencies so as to integrate space technology and GIS applications more effectively into disaster risk reduction at the national level. It will promote the inclusion of space and GIS applications in national disaster risk reduction policies, and regulation and implementation plans; as well as national spatial data infrastructure, data policies and data-sharing arrangements to improve timely access to space-based data and products. Furthermore, it will encourage Governments to consider policies that enhance the participation of the private sector in the provision of public services.

40. The secretariat aims to carry on its work plan through a pilot project in two or three preselected countries based on information sharing and exchange. It is estimated that around 8 or 10 countries would be selected to implement related projects during the period from 2014 to 2017.

3. Enhanced capacity-building

41. The secretariat is updating the regional compendium on the space applications capacity and needs of member States, so as to identify the capacity gaps and needs of member States and promote regional cooperation and thus to provide member States with policy advice, capacity development, technical assistance and emergency responses through such applications. The secretariat will provide guidance, according to the results, to member States to mainstream space technology and GIS applications into disaster risk reduction policy agendas, promote the sharing of space/GIS data and information, and provide demand-driven capacity-building in the mid and long term.

¹¹ www.drrgateway.net.

42. Capacity-building will be addressed collaboratively with existing regional initiatives, partners and key stakeholders so as to enhance its effectiveness, foster synergies and address potential gaps. These efforts will bring together United Nations agencies and institutions, subregional organizations, non-governmental organizations and other partners. The secretariat is working on organizing training courses, based on requests from member States, to enhance capacity to handle the rapid onset of disasters through the use of space and GIS tools. Capacity-building activities — in disaster-prone countries and those with special needs — on satellite image processing and applications for different kinds of disasters, such as desertification and arable land degradation, landslides, urban disasters, floods and droughts, will be organized in collaboration with partners and RESAP training networks in 2014 and 2015.

43. Initial operation of the Drought Mechanism will begin with implementation of SOPs. The secretariat intends to group together countries with similar needs so as to enable a focused approach to be taken, guaranteeing maximum impact. Infrastructure requirements will also be identified in addition to technical and institutional capacities, with consideration also being taken of wider cyclical contexts, such as crop year, life cycle and other seasonal cycles. Taking this holistic approach to feedback, assessment and operationalization, the secretariat hopes to promote synergy and coordination across, among others, line ministries, academia and non-governmental organizations. It is envisioned that the long-term operationalization of the Drought Mechanism will start from Mongolia and another country, probably one from South Asia. According to the contributions received from and the requests made by member States, the secretariat will expand space-based data products, services and capacity-building efforts, as part of establishing effective drought monitoring and early warning, to other drought-affected countries in the region.

44. The secretariat will continue to support participants from developing countries during their training at the nodes of the RESAP network, together with other countries. The secretariat will explore more financial and human resources to support the operationalization of the Geo-DRM in countries with special needs and find opportunities for these countries to share good practices and experiences in using space technology and GIS applications in disaster risk reduction and management. Furthermore, it will assist those member States that have expressed an interest to establish, use, and enrich the Geo-DRM with key socioeconomic statistics and disaster information.

45. An annual stakeholder meeting will be organized (2014-2017) so that policymakers can discuss the following agenda: better utilization of space technology for disaster risk reduction, disaster management and sustainable development; sharing of good practices at both regional and national level; and identification of needs and gaps as regards practical and technical issues.

46. A ministerial conference on space applications for disaster risk reduction and management and sustainable development in Asia and the Pacific is expected to be organized in 2015, as recommended in resolution 69/11, in order to evaluate the progress made in implementing the Asia-Pacific Plan of Action, provide further guidance for its successful implementation and build stronger political support and ownership among all stakeholders.

III. Issues for consideration by the Committee

47. The Committee may wish to provide the secretariat with further guidance on work in the area of space technology and GIS applications. The secretariat would also welcome the Committee's guidance on how the secretariat may effectively engage with member States in the area of disaster risk reduction and management, and in enhancing regional cooperation:

(a) The Committee may wish to encourage member States to carry out activities identified in, and inform the secretariat on steps taken to implement, resolution 69/11 and the Asia-Pacific Plan of Action. The Committee may also wish to invite member States to host the ministerial conference on space applications for disaster risk reduction and management and sustainable development in Asia and the Pacific;

(b) The Committee may wish to encourage member States to continue utilizing the regional mechanism by requesting support and services from the secretariat on the timely provision of near real-time satellite imagery for severe disaster mapping and damage assessment, and by expressing an interest in developing capacity and training on the interpretation of satellite imagery. Member States are also to be encouraged to exchange information and share good practices in using space technology and GIS for disaster risk reduction; to support the operational drought mechanisms; and to monitor drought in pilot countries and observatories;

(c) The Committee may wish to encourage member States to establish and use the geo-referenced information system as an integral part of, and complement to, a socioeconomic and disaster platform, with combined space-sourced information for evidence-based decision-making at both national and local levels.
