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**Review of issues pertinent to the subsidiary structure of
the Commission, including the work of the regional
institutions: disaster risk reduction****Space applications for the 2030 Agenda for
Sustainable Development****Note by the secretariat***Summary*

Space applications have great potential for the new global development agenda, in particular as a tool for supporting the implementation, follow-up and review of the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction 2015-2030. In its 20-year-old Regional Space Applications Programme for Sustainable Development, which brings together space agencies and related stakeholders under one common purpose, the Economic and Social Commission for Asia and the Pacific has a ready-made mechanism to address the challenges of space technology applications and geographic information systems and promote greater use of space applications for sustainable development and disaster risk reduction.

Consultations have started on a new Asia-Pacific plan of action for space applications (2018-2030) to guide the work of the Regional Space Applications Programme and the secretariat, including on priority areas to support work on the Sustainable Development Goals. Space leaders met in New Delhi on 2 November 2016, back to back with the annual Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development, and provided recommendations on how to reposition the Regional Space Applications Programme and the Commission's space applications programme in this new development environment. They underlined that though significant gaps still existed between the spacefaring countries and those that lacked the capacity to access space-derived information, there was great potential to support work towards attaining the Sustainable Development Goals using space applications, particularly in the areas of disaster risk management, food security and environmental resource management, including land, water, air and oceans, as well as in many other sectors.

The present document contains a discussion of this opportunity, and the views and guidance of the Commission are sought on developing the new Asia-Pacific plan of action for space applications (2018-2030).

* E/ESCAP/73/L.1.

I. Background

1. With a new global development landscape established in 2015, centring around the 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Paris Agreement, the potential for space applications has opened up to new areas. Existing regional cooperation mechanisms for space applications, originally established with a disaster risk reduction focus, can be extended to address global challenges beyond the disaster risk reduction sphere. Given this potential turning point in the use of space applications, the Asia-Pacific Space Leaders Forum was held on 2 November 2016 in New Delhi, back to back with the twentieth session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development and as an official pre-conference event to the first Asian Ministerial Conference on Disaster Risk Reduction after the advent of the Sendai Framework for Disaster Risk Reduction 2015-2030. The Forum adopted a declaration by Asia-Pacific space leaders on applications of space technology, annexed to the present document, to support implementation of the 2030 Agenda for Sustainable Development.

2. While developed countries, which have existing satellite technology infrastructure, experience the benefits of such innovations, many countries that do not have such technology infrastructure are potentially left behind. Challenges also remain in improving the utilization of these technologies and their applications.

3. The purpose of the present document is to provide an overview of discussions and recommendations from the Asia-Pacific Space Leaders Forum and seek input on a new Asia-Pacific plan of action for space applications (2018-2030) regarding how the Economic and Social Commission for Asia and the Pacific (ESCAP) can better support countries to effectively utilize space applications to attain the Sustainable Development Goals.

II. The evolution of the Regional Space Applications Programme for Sustainable Development as an institutional mechanism for space applications

4. The only regional commission with a space technology applications programme, ESCAP supports regional cooperation to ensure access to the technologies and geospatial data necessary for disaster management and sustainable development. Through its 20-year-old Regional Space Applications Programme for Sustainable Development, ESCAP brings together space agencies and related stakeholders under one common purpose: to discuss and address the challenges of space technology applications and geographic information systems (GIS) for disaster risk reduction and sustainable development. They collaborate with one another and generously contribute to response efforts during times of disaster and to reduce disaster risks.

5. When the Regional Space Applications Programme for Sustainable Development was conceived and established in the mid-1990s, it was against the backdrop of the first World Conference on

Natural Disaster Reduction and the International Decade for Natural Disaster Reduction (1990-1999). The Regional Space Applications Programme for Sustainable Development, as a regional cooperation initiative, provided the necessary platform for such technical cooperation and early warning initiatives.

6. The adoption of the Millennium Development Goals marked a shift towards a more target-based approach to the global development agenda that encompassed critical intersections among more areas of government, economy and civil society. During this time, the network of the Regional Space Applications Programme for Sustainable Development engaged with agencies that were operating more independently, and widened its engagement to academic institutions as well as other regional mechanisms that were working in the area of space applications. This enabled the network to remain relevant within the changing global development landscape.

7. At the same time, space leaders began recognizing the potential for space applications, particularly in the area of disaster management, and the International Charter on Space and Major Disasters was established in 2000. The second World Conference on Disaster Reduction took place in 2005, the outcome of which was the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, which specifically called on all actors to promote the application of in situ and space-based earth observations, space technologies, remote sensing, geographic information systems, tools for modelling, prediction and forecasting and studies of the costs and benefits of risk assessment and early warning.

8. Amid this increased global focus on disasters, the Regional Space Applications Programme itself expanded its disaster risk reduction activities without fully addressing sustainable development as a wider concept. Its focus remained largely in the area of disaster risk, and its wider contributions to impact assessment, food security, urban planning and efficient natural resource management remained largely underutilized. The focus on satellite-derived information for disasters has slowly changed as several earth observation initiatives followed suit in the open-data revolution during the second decade of the Regional Space Applications Programme.

9. With the adoption of the 2030 Agenda for Sustainable Development, space technology applications were identified as important tools for implementation, particularly for attaining the Sustainable Development Goals. In parallel, satellite-related technology and applications have evolved and become more accessible.

10. This evolving development environment and the progressive technological advances in the area of space applications have provided a critical opportunity to reposition the Regional Space Applications Programme for Sustainable Development within the new global development landscape.

III. Establishment of the five-year Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017

11. In the Asia-Pacific Plan of Action for Applications of Space Technology and Geographic Information Systems for Disaster Risk Reduction and Sustainable Development, 2012-2017, adopted through Commission resolution 69/11, the secretariat was asked to take the lead in implementing the Plan of Action at the regional level, in clear recognition of the fact that although considerable gaps in financial, technical and institutional capacity still exist in utilizing space applications, regional cooperation is one of the key mechanisms to address such gaps and needs in the region. Member States were thus urged to work closely through the mechanism offered by the Regional Space Applications Programme for Sustainable Development.

12. Since the establishment of the Plan of Action, the following modalities and core activities have been the focus of work within the secretariat through the Regional Space Applications Programme: (a) the building of stronger partnerships for regional cooperation in space applications; (b) the timely provision of near real-time satellite imagery to disaster-affected countries; (c) the Regional Cooperative Mechanism for Drought Monitoring and Early Warning; (d) skills and capacity to address existing gaps and emerging challenges; and (e) institutional development through knowledge products, standards and procedures.

(a) Building stronger partnerships for regional cooperation in space applications

13. The secretariat delivers its work through the Regional Space Applications Programme network and in partnership with international and regional organizations including specialized regional training centres and technical institutions, other United Nations and international organizations and regional and global space agencies and institutions. In particular, key partnerships include those with the following: Operational Satellite Applications Programme of the United Nations Institute for Training and Research (UNITAR); National Disaster Management Institute of the Republic of Korea; National Disaster Reduction Centre of China; South-South Education Foundation; Institute of Space and Earth Information Science of the Chinese University of Hong Kong; Agency for Meteorology, Climatology and Geophysics of the Government of Indonesia; United Nations Platform for Space-based Information for Disaster Management and Emergency Response; United Nations Initiative on Global Geospatial Information Management; World Meteorological Organization; Asia-Pacific Regional Space Agency Forum and Sentinel Asia; International Charter Space and Major Disasters; Group on Earth Observations; Association of Southeast Asian Nations (ASEAN) Coordinating Centre for Humanitarian Assistance on Disaster Management; South Asian Association for Regional Cooperation (SAARC); Centre for Space Science and Technology Education in Asia and the Pacific; Regional Integrated Multi-hazard Early Warning System for Africa and Asia; and Applied Geoscience and Technology Division of the Pacific Community. The secretariat

utilizes the Asia-Pacific Regional Coordination Mechanism Thematic Working Group on Disaster Risk Reduction and Resilience to coordinate activities between various United Nations institutions such as the Office for the Coordination of Humanitarian Affairs, the United Nations Environment Programme, the Food and Agriculture Organization of the United Nations, the secretariat of the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, and the United Nations Development Programme.

(b) Timely provision of near real-time satellite imagery to disaster-affected countries

14. The secretariat, during times of disaster and upon the request of member States, provides support through the facilitation of near real-time satellite imagery and access to geospatial data. This is possible because of the strategic partnership of ESCAP with the Operational Satellite Applications Programme of UNITAR and through its long-standing Regional Space Applications Programme network. Subsequently, disaster-affected member States can receive support for effective emergency response, post-disaster damage and impact assessment and policy advice on recovery and rehabilitation. Such services are of particular benefit to countries with special needs, which normally lack the necessary infrastructure and institutional arrangements required to access and maintain their own well-integrated monitoring, early warning and response mechanisms.

(c) Regional Cooperative Mechanism for Drought Monitoring and Early Warning

15. The Regional Cooperative Mechanism for Drought Monitoring and Early Warning provides regional resources in space and GIS applications and enhances capacities for integrated analysis of space and in-season ground data and information, to build the resilience of agrarian communities in developing countries that are perennially affected by drought. It follows four phases: (a) an initial introduction to space applications for drought monitoring and early warning, including drought maps and in-season monitoring products, (b) establishment of links between in-country forecasting and risk assessment programmes; (c) development of drought maps/products by the national team using customized software; and (d) graduation of the national team to undertaking monitoring by themselves.

16. The Regional Cooperative Mechanism is increasingly expanding its work to move beyond monitoring and early warning to incorporate satellite-derived information generated by and shared among the partners within the Regional Space Applications Programme for enhanced seasonal forecasts, longer-term risk analysis, impact assessment and other tools for managing and adapting to drought.

(d) Skills and capacity to address existing gaps and emerging challenges

17. Although the Asia-Pacific region has a growing number of spacefaring countries, these technologies are not yet equally benefiting countries because of the lack of capacity in terms of human, scientific, technological and institutional resources. The

secretariat supports capacity development for member States through a series of specialized programmes, carried out within the overall framework of the Regional Space Applications Programme for Sustainable Development, based on the needs identified through surveys and a regional inventory of space technology and GIS applications. The focus areas include mainstreaming space applications into disaster risk management; using space and GIS in flood-risk mapping, drought monitoring and early warning; facilitating the establishment and use of georeferenced information systems for disaster risk management in countries with special needs; and providing technical advisory services on the effective use of space and GIS for disaster management. Additionally, several other training courses and master's and bachelor's degrees have been funded by fellowship programmes facilitated by ESCAP through its Regional Space Applications Programme training network.

18. The secretariat has also been promoting a Pacific regional initiative to strengthen capacity of Pacific small island developing countries on the use of space technology and GIS applications for disaster risk management and early warning systems.

(e) Institutional development through knowledge products, standards and procedures

19. ESCAP has supported ASEAN member countries, particularly countries with special needs, by developing a set of procedural guidelines for national disaster management authorities and space agencies in ASEAN countries on the sharing of space-based information during emergency response.

20. Furthermore, the secretariat has developed a geospatial decision support handbook for specific hazards, based on requests made to ESCAP by member States. The handbook provides an overview of the nature of different hazards and the geospatial information elements related to each, in order for decision makers to better understand the disaster scenario and related decisions that are specific to each hazard.

21. The secretariat has also converted its recently published manual on rapid assessment for resilient recovery, using innovative tools, techniques and space applications for the SAARC region, to focus on the ASEAN region. The manual is designed to provide guidelines to enhance the capacity of practitioners of government agencies on conducting rapid post-disaster needs assessments.

IV. Space applications for the 2030 Agenda for Sustainable Development

22. With the adoption of the 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals, and of the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Paris Agreement in 2015, a new integrated global development agenda has been set. The next 14 years to 2030 will be crucial for shaping our world for generations to come. It is in this context that an immense opportunity is presented to leaders of the space community to address the collective challenges that remain and ensure the successful implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals.

23. Space applications and their associated tools can provide far-reaching solutions to some of the most pressing issues facing humanity, ranging from health, education, food security, agriculture and natural resource management to disaster risk reduction and resilience-building. They provide satellite-derived data and images that can support evidence-based approaches for better-informed decision-making. Of importance is the application of this information to medium-term development planning and more accurate monitoring and evaluation of development interventions. For example, by fusing space-derived data such as water levels in rivers with ground-based information such as rainfall, action plans can be developed for more effective management of water supply and, if needed, prioritization and early warning on national policy-setting agendas.

24. Until recently the application of space technologies to the enhancement of social and environmental benefits was expensive and inaccessible to most countries in the Asian and Pacific region. These technologies were cutting-edge and firmly ensconced in the domain of developed countries and their scientists, policymaking organs and private sector developers. Over the past several years, progress has been made in improving access to the information that space technologies generate, as a result of an exponential growth in Earth observation technologies, increasingly free access to satellite-derived information and enhanced information-sharing through regional cooperation. A number of regional mechanisms have allowed policymakers, practitioners and scientists in developing countries to benefit from satellite-derived information, notably in disaster risk reduction, without needing a space programme of their own.

25. Space technologies and their potential applications are also growing rapidly, and are expected to continue to do so over the next 15 years. Advances in remote sensing that include improved spatial resolution, particularly through the use of unmanned aerial vehicles, reduced commercial prices for satellite data and the launch of more satellites with better sensors all provide more frequent imagery and data, on a larger scale and at a lower cost.

26. Leaders in space technology applications now have an opportunity to be an integral part of implementation of the 2030 Agenda for Sustainable Development. Sharing satellite-derived data and information and making them available to all will be essential for effective implementation, monitoring and review of the Sustainable Development Goals.

V. Recommendations by the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development at its twentieth session and the Asia-Pacific Space Leaders Forum

27. Prior to the Asia-Pacific Space Leaders Forum, the twentieth session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development was held to generate recommendations on a new Asia-

Pacific plan of action for space applications (2018-2030),¹ which were then presented to the Forum. Key recommendations included the following:

(a) Expand the use of space applications as an important means of achieving the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction 2015-2030, in particular in areas that are a common priority among many countries, present a potential transboundary concern and can be addressed through regional cooperation;

(b) Continue sustained support for and strengthening of the Regional Cooperative Mechanism for Drought Monitoring and Early Warning, including the work of the secretariat, regional service nodes and national implementation teams; conduct analytical and normative work on drought in the Asia-Pacific region in collaboration with key partners, experts and institutions, along with expansion of the Mechanism to impact assessment and crop health/yield monitoring;

(c) Focus more on water including snow and ice, agriculture, coastal resources and fisheries, urbanization, land resources and forestry, and the supporting capacity-building to establish some degree of national geospatial information infrastructure;

(d) Expand the Regional Space Applications Programme for Sustainable Development network beyond the space community to include, as may be reasonably required, end users, the private sector and other stakeholders;

(e) Enhance the Regional Space Applications Programme network for the sharing of knowledge and technology, including through collaboration with various regional and global institutions;

(f) Draft a plan of action for 2018-2030 in consideration of end-user needs, in close collaboration with the Regional Space Applications Programme members, and present the draft to the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development at its twenty-first session;

(g) Organize a ministerial conference on space applications for sustainable development in Asia and the Pacific in 2018.

VI. Development of a new Asia-Pacific plan of action for space applications (2018-2030)

28. Based on preliminary recommendations by the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development at its twentieth session and the Asia-Pacific Space Leaders Forum, the Asia-Pacific plan of action for space applications (2018-2030) will be developed in consultation with stakeholders. Concurrently, an evaluation of the Regional Space Applications Programme will be

¹ ESCAP, “The 20th session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development: Summary meeting report”, meeting held in New Delhi on 31 October and 1 November 2016. Available from www.unescap.org/sites/default/files/Final%20report_20thICC.pdf.

carried out by the secretariat to determine more appropriate structures or mechanisms to deliver on the new plan of action.

29. Three pillars have been identified as priority areas of focus for utilizing space applications for implementing the Sustainable Development Goals in the Asia-Pacific region. The first pillar focuses on disaster risk reduction and resilience, including slow-onset disasters, such as drought, which affect food security as well as the prevalence and depth of poverty. The second pillar focuses on the environment and natural resources, including urban development, freshwater management, land use and ecosystem services, oceans, and improving air quality and monitoring the atmosphere. The third pillar focuses on geospatial information for social services, including health and education.

30. The new Asia-Pacific plan of action for space applications (2018-2030) should encompass interventions at the international, regional and national levels and elaborate on key priority areas of work for the Regional Space Applications Programme and the secretariat. It should identify modes of implementation, potential partners, reporting structures and stakeholder groups to be involved. In addition, it should formalize commitments from member States, donors and the United Nations on the means of implementation, along with the roles and responsibilities of various stakeholders, as necessary. To this end, the secretariat will circulate a survey to determine the status, gaps, potential and future needs of member States in utilizing space applications for implementing the Sustainable Development Goals.

31. Inputs are also being sought from various intergovernmental platforms across the secretariat and through other international organizations or platforms in drafting the new plan of action. In particular, the secretariat will be seeking views from both the space community and end users in line ministries not traditionally involved in space application tools but which can benefit from the work, covering areas such as statistics, agriculture, water, coastal and ocean management, disaster risk management, health, environment, social development and urban planning.

32. The draft Asia-Pacific plan of action for space applications (2018-2030) will be discussed by the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development at its twenty-first session, in late 2017. A final draft is to be presented and endorsed at the proposed third Asia-Pacific Ministerial Conference on Space Applications,² to be held in 2018.

33. The Commission is encouraged to provide guidance to the secretariat on the development of the Asia-Pacific plan of action for space applications (2018-2030), through, inter alia, the survey as well as a series of consultations that will include the fifth session of the

² The Commission in its 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, states that a ministerial conference on space applications for disaster risk reduction and management and sustainable development in Asia and the Pacific should be organized.

Committee on Disaster Risk Reduction, to be held from 11 to 13 October 2017. The figure depicts an overview of the process.

VII. Issues for consideration

34. The potential role of space applications, the Regional Space Applications Programme network and ESCAP as a regional multisectoral intergovernmental platform for cooperation in enhancing access to these tools is immense. The new global frameworks, such as the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Paris Agreement, open up opportunities for greater partnership and collaboration on using science to address some of our most pressing development issues. The purpose of the present document is to highlight the growing options for using space applications to achieve the Sustainable Development Goals and to seek the views and guidance of the Commission on developing a new plan of action (2018-2030). The next 14 years to 2030 will be critical for future generations, and the space community has the opportunity now to contribute to shaping a sustainable future.

35. The Commission may wish to consider the following questions or propose additional issues when discussing the future plan of action for 2018-2030:

(a) What are the gaps and challenges faced by Asia-Pacific countries in accessing and effectively using space applications for implementation of the Sustainable Development Goals?

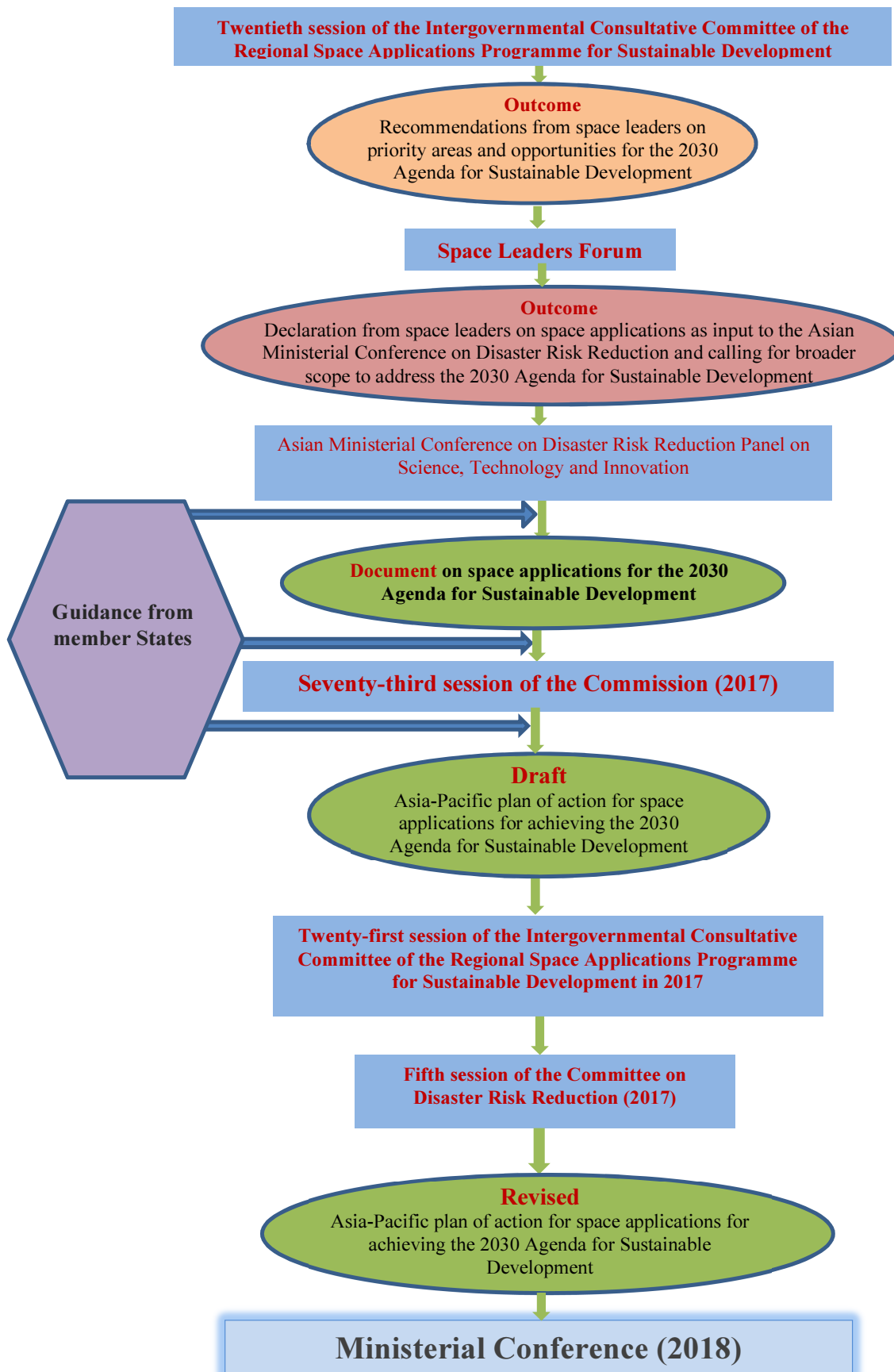
(b) Are the three pillars and their relevant thematic areas – identified in paragraph 29 above as (i) disaster risk management, including for slow-onset disasters, (ii) environment and natural resources, and (iii) geospatial information for social services – the highest priority for the space community to contribute to the Sustainable Development Goals? Are there any other priority areas that space applications can readily support, particularly through regional cooperation?

(c) How could the Regional Space Applications Programme for Sustainable Development be restructured or adapted to be more effective in supporting the attainment of the Sustainable Development Goals?

(d) What other stakeholders or end users should the Regional Space Applications Programme engage with or include as members?

(e) How do you envisage the role of the secretariat?

Flow diagram of the development of the Asia-Pacific plan of action for space applications (2018-2030)



Annex

Declaration by Asia-Pacific Space Leaders on Applications of Space Technology to support implementation of the 2030 Agenda for Sustainable Development*

1. We, the representatives of the space technology community in Asia and the Pacific and members of the Regional Space Applications Programme for Sustainable Development (RESAP) who have convened through the regional platform provided to us by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), at the Asia-Pacific Space Leaders Forum held in New Delhi, India on the 2nd of November 2016, hereby adopt the following declaration.

2. We acknowledge the contributions of space technology applications in addressing sustainable development and disaster risk management in the region and recognize the potential of space technology applications to support the implementation of the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and COP-21.

3. We recall the outcome document of the United Nations Conference on Sustainable Development (Rio+20), entitled “The future we want”,^a and the strong acknowledgement of the potential role of space applications for sustainable development. This document formed a basis for ESCAP Resolution 68/5 on 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. We reaffirm that space applications are now an integral part of disaster risk management by providing early warning alerts for impending disaster, allowing the modelling and forecasting of different disaster scenarios, providing valuable and timely information that can save lives during emergencies, and giving us the means to evaluate and monitor redevelopment efforts to ensure that resilience is achieved and maintained in order to better manage disaster risks.

5. We acknowledge that the institutional frameworks, cooperation mechanisms and technical capacity of the space community that has been developed in the Asia-Pacific region has great potential to address disaster risk management while playing a central role in the implementation of the 2030 Agenda for Sustainable Development as well as support the monitoring of related global goals and targets.

6. We undertake to share good practices from our own experiences and to support other countries to access and effectively utilize space technology applications, by offering our spacefaring capabilities, technologies, tools, geo-spatial information & services, capacity building & development opportunities as appropriate,

* The present annex is being issued without formal editing.

^a General Assembly resolution 66/288, annex.

including through regional cooperation mechanisms such as RESAP and its collaboration with AOMSUC and IN-MHEW.

7. We reconfirm the relevance of ESCAP's RESAP for bringing together the space community in support of the 2030 Agenda for Sustainable Development. We also encourage greater engagement with new institutions such as the ESCAP's Asia and Pacific Centre for the Development of Disaster Information Management (APDIM).

8. We support the preparation of a new Asia-Pacific Plan of Action for Space Applications, 2018-2030 by ESCAP Secretariat; to focus on how space technology applications and RESAP can support the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals as well as the implementation of the Asian Regional Plan for Implementation of the Sendai Framework – the outcome of the Seventh Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR).

9. We recommend that the draft plan to be brought for endorsement at the Inter-governmental Consultative Committee of RESAP in 2017 and subsequent adoption at the Third Ministerial Conference on Space Applications to be convened in 2018 and/or the ESCAP commission in 2018. We further encourage Member States to consider hosting the Ministerial Conference.
