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Long-term sustainability of outer space activities

Implementation of the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space: Belgium

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GUIDELINES	IMPLEMENTATION THROUGH THE BELGIAN POLICY AND/OR LEGAL FRAMEWORK FOR OUTER SPACE ACTIVITIES
A. Policy and regulatory framework for space activities	
Guideline A.1	
Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities	
1. States should adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities, taking into account their obligations under the United Nations treaties on outer space as States responsible for national activities in outer space and as launching States. When adopting, revising, amending or implementing national regulatory frameworks, States should consider the need to ensure and enhance the long-term sustainability of outer space activities.	*In 2005, Belgium adopted a law on the activities of launching, flight operation or guidance of space objects, submitting operational space activities to an authorization regime. The law is implemented through a royal decree of 2008. The law provides for the obligation of the applicant to carry out prior environmental impact assessment with respect to the performance of the activity on the Earth ground as well as in outer space. The law also provides for the possibility for the King to add conditions specific to a kind of activities, or for the Minister to add conditions to a single activity. Such conditions can consist, for instance, in the compliance with international norms, standards, guidelines or recommendations.*
2. With the increase in outer space activities by governmental and non-governmental actors from around the world, and considering that States bear international responsibility for the space activities of non-governmental entities, States should adopt, revise or amend regulatory frameworks to ensure the effective application of relevant, generally accepted international norms, standards and practices for the safe conduct of outer space activities.	*For the purpose of implementing the legislative and regulatory framework for space activity, a compilation of the main applicable norms, standards, guidelines and recommendations has been set up and is published on the Belgian space law webpage (http://www.belspo.be/belspo/space/beLaw_en.stm) (cf. Operator Handbook).*
3. When developing, revising, amending or adopting national regulatory frameworks, States should consider the provisions of General Assembly resolution 68/74, on recommendations on national legislation relevant to the peaceful exploration and use of outer space. In particular, States should consider not only existing space projects and activities but also, to the extent practicable, the potential development of their national space sector, and envisage appropriate, timely regulation in order to avoid legal lacunae.	*A revision of the 2008 royal decree is currently processed in order to be submitted to the Belgian Government as soon as possible. This revision aims at taking stock of the experience gained since the first case of application of the Belgian space law and at encouraging new activities under the Belgian space law.*
4. States, in enacting new regulations, or in revising or amending existing legislation, should bear in mind their obligations under article VI of the Outer Space Treaty. Traditionally, national regulations have been concerned with issues such as safety, liability, reliability and cost. As new regulations are developed, States should consider regulations that enhance the long-term	*The Belgian space law provides a flexible framework, encompassing activities performed under the authority of operators located in Belgium. As an ESA member State, Belgium fosters the technical support and supervision brought to operators by ESA, notably through the establishment and the funding of dedicated programmes and activities.*

sustainability of outer space activities. At the same time, regulations should not be so prescriptive as to prevent initiatives addressing the long-term sustainability of outer space activities.	
Guideline A.2	
Consider a number of elements when developing, revising or amending, as necessary, national regulatory frameworks for outer space activities	
1. When developing, revising or amending, as necessary, regulatory measures applicable to the long-term sustainability of outer space activities, States and international intergovernmental organizations should implement international obligations, including those arising under the United Nations space treaties to which they are party.	*Belgium is party to the five United Nations treaties on Outer Space. All the principles of those treaties which require implementation through national legislation and/or regulation are reflected in the Belgian space law, as complemented by the royal decree, so as to allow their effective application combined with the necessary flexibility required by the fast technological evolution.*
2. In developing, revising or amending, as necessary, national regulatory frameworks, States and international intergovernmental organizations should:	
(a) Consider the provisions of General Assembly resolution 68/74, on recommendations on national legislation relevant to the peaceful exploration and use of outer space;	*The envisaged revision of the Belgian space regulation (2008 royal decree) responds to some concerns (notably related to the registration of space objects) as expressed in the UNGA Resolution 68/74 in order to strengthen the provisions of the Belgian space law.*
(b) Implement space debris mitigation measures, such as the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, through applicable mechanisms;	*This is done through the environmental impact assessment mechanism, as described above.*
(c) Address, to the extent practicable, risks to people, property, public health and the environment associated with the launch, in-orbit operation and re-entry of space objects;	*This is done through the indemnification process, as set up by the Belgian space law and organized by the 2008 royal decree.*
(d) Promote regulations and policies that support the idea of minimizing the impacts of human activities on Earth as well as on the outer space environment. They are encouraged to plan their activities based on the Sustainable Development Goals, their main national requirements and international considerations for the sustainability of space and the Earth;	*This is done through the environmental impact assessment mechanism, as described above.*
(e) Implement the guidance contained in the Safety Framework for Nuclear Power Source Applications in Outer Space and satisfy the intent of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space through applicable mechanisms that provide a regulatory, legal and technical	*This is done through the provisions of the Belgian space law (art. 8, §9) and the mention of the use of nuclear power source in the national space objects register.*

framework that sets out responsibilities and assistance mechanisms, prior to using nuclear power sources in outer space;	
(f) Consider the potential benefits of using existing international technical standards, including those published by the International Organization for Standardization (ISO), the Consultative Committee for Space Data Systems and national standardization bodies. In addition, States should consider the utilization of recommended practices and voluntary guidelines proposed by the Inter-Agency Space Debris Coordination Committee and the Committee on Space Research;	*ISO norms, as well IADC guidelines and UNCOPUOS technical recommendations (space debris, nuclear power source), are part of the list of references featured in the Operator Manual as mentioned above.*
(g) Weigh the costs, benefits, disadvantages and risks of a range of alternatives and ensure that such measures have a clear purpose and are implementable and practicable in terms of the technical, legal and management capacities of the State imposing the regulation. Regulations should also be efficient in terms of limiting the cost for compliance (e.g., in terms of money, time or risk) compared with feasible alternatives;	*This is addressed by the provisions of the 2008 royal decree, more specifically its article 8, §1, 2°.*
(h) Encourage advisory input from affected national entities during the process of developing regulatory frameworks governing space activities to avoid unintended consequences of regulation that might be more restrictive than necessary or that conflicts with other legal obligations;	*The envisaged revision of the 2008 royal decree has been submitted for advice to operators in Belgium.*
(i) Examine and adapt existing relevant legislation to ensure its compliance with these guidelines, considering the need for transition periods appropriate to their level of technical development.	*This is done through the articulation between legislation and executive regulation which notably allows appropriate adaptation to living instruments at international level.*
Guideline A.3	
Supervise national space activities	
1. In supervising space activities of non-governmental entities, States should ensure that entities under their jurisdiction and/or control that conduct outer space activities have the appropriate structures and procedures for planning and conducting space activities in a manner that supports the objective of enhancing the long-term sustainability of outer space activities, and that they have the means to comply with relevant national and international regulatory frameworks, requirements, policies and processes in this regard.	*This is done through article 7, §2, of the Belgian space law.*

2. States bear international responsibility for national activities in outer space and for the authorization and continuing supervision of such activities, which are to be carried out in conformity with applicable international law. In fulfilling this responsibility, States should encourage each entity conducting space activities to:	
(a) Establish and maintain all the necessary technical competencies required to conduct the outer space activities in a safe and responsible manner and to enable the entity to comply with the relevant governmental and intergovernmental regulatory frameworks, requirements, policies and processes;	*This is done through the funding of ESA programmes and activities by Belgium which aims at preserving technological know-how and at encouraging its exploitation by the industrial contractor for its own activities.*
(b) Develop specific requirements and procedures to address the safety and reliability of outer space activities under the entity's control, during all phases of a mission life cycle;	*This is done through applicable review process as performed by ESA within its programmes and activities, or at Belgium's request.*
(c) Assess all risks to the long-term sustainability of outer space activities associated with the space activities conducted by the entity, in all phases of the mission life cycle, and take steps to mitigate such risks to the extent feasible.	*This is done through cooperation with USSTRATCOM (US Strategic Air Command) with whom a specific agreement has been concluded in 2017.*
3. In addition, States are encouraged to designate a responsible entity or entities to plan, coordinate and assess space activities with the aim of promoting their effectiveness in supporting the Sustainable Development Goals and in supporting the objectives of the guidelines for the long-term sustainability of outer space activities in a broader perspective and vision.	[to be implemented]
4. States should ensure that the management of an entity that conducts outer space activities establishes structures and procedures for planning and conducting space activities in a manner that supports the objective of promoting the long-term sustainability of outer space activities. Appropriate measures to be taken by management in this regard should include:	*As far as in-orbit operational activities are concerned, such activities remains, to this day, rather limited with respect to the activities of the whole space sector in Belgium. Moreover, all operational activities conducted by Belgian entities have been carried out on the basis of projects reviewed or assessed by ESA, taking care of their compliance with existing norms, standards, guidelines or recommendations aiming at enhancing the long-term sustainability of space activities. This explains why, until now, the concept of the long-term sustainability of space activities may not have been explicitly integrated in the managerial culture of the concerned Belgian entities, as described by this Guideline. This is however an action to be implemented through raising awareness on the importance of achieving a more sustainable use of outer space, as repeatedly stated by Belgium and by other States, notably within UNCOPUOS.*

(a) A commitment at the highest levels of the entity to promoting the long-term sustainability of outer space activities;	*See official statement by Belgian federal Secretary of State for Science Policy at UNISPACE+50.*
(b) Establishing and fostering an organizational commitment to promoting the long-term sustainability of outer space activities within the entity, as well as in relevant interactions with other entities;	[partially implemented through ESA - to be further implemented]
(c) Urging, to the extent practicable, that the entity's commitment to the long-term sustainability of outer space activities is reflected in its management structure and procedures for planning, developing and conducting outer space activities;	[partially implemented through ESA - to be further implemented]
(d) Encouraging, as appropriate, the sharing of the experiences of the entity in the conduct of safe and sustainable outer space activities as a contribution by the entity to enhancing the long-term sustainability of outer space activities;	[partially implemented through ESA - to be further implemented]
(e) Designating a contact point within the entity responsible for communication with relevant authorities to facilitate efficient and timely sharing of information and coordination of potentially urgent measures to promote the safety and sustainability of outer space activities.	[to be further implemented, possibly through ESA]
5. States should ensure that appropriate communication and consultation mechanisms are in place within and among the competent bodies that oversee or conduct space activities. Communication within and among relevant regulatory bodies can promote regulations that are consistent, predictable and transparent so as to ensure that regulatory outcomes are as intended.	[to be further implemented]
Guideline A.4	
Ensure the equitable, rational and efficient use of the radio frequency spectrum and the various orbital regions used by satellites	
1. In fulfilling their obligations under the Constitution and the Radio Regulations of the International Telecommunication Union (ITU), States should pay particular attention to the long-term sustainability of space activities and sustainable development on Earth and to facilitating the prompt resolution of identified harmful radio frequency interference.	[input to be delivered by Belgian regulatory authority for telecommunication]
2. As provided for in article 44 of the ITU Constitution, radio frequencies and any	[input to be delivered by Belgian regulatory authority for telecommunication]

associated orbits, including the geostationary-satellite orbit, are limited natural resources that must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of developing countries and the geographical situation of particular countries.	
3. Consistent with the purpose of article 45 of the ITU Constitution, States and international intergovernmental organizations should ensure that their space activities are conducted in such a manner as not to cause harmful interference with the reception and transmission of radio signals related to the space activities of other States and international intergovernmental organizations, as one of the means of promoting the long-term sustainability of outer space activities.	[input to be delivered by Belgian regulatory authority for telecommunication]
4. In their use of the electromagnetic spectrum, States and international intergovernmental organizations should consider the requirements for space-based Earth observation systems and other space-based systems and services in support of sustainable development on Earth, in accordance with the ITU Radio Regulations and the ITU Radiocommunication Sector (ITU-R) Recommendations.	[input to be delivered by Belgian regulatory authority for telecommunication]
5. States and international intergovernmental organizations should ensure the implementation of the radio regulation procedures established by ITU for space radio links. Moreover, States and international intergovernmental organizations should encourage and support regional and international cooperation aimed at improving efficiency in decision-making and implementation of practical measures to eliminate identified harmful radiofrequency interference in space radio links.	[input to be delivered by Belgian regulatory authority for telecommunication]
6. Spacecraft and launch vehicle orbital stages that have terminated their operational phases in orbits that pass through the low-Earth orbit (LEO) region should be removed from orbit in a controlled fashion. If this is not possible, they should be disposed of in orbits that avoid their long-term presence in the LEO region. Spacecraft and launch vehicle orbital stages that have terminated their operational phases in orbits that pass through the geosynchronous Earth orbit (GEO) region should be left in orbits that avoid their long-term interference with the GEO region. For space objects in or near the GEO region, the potential for future collisions	*This is done through the environmental impact assessment mechanism, as described above.*

can be reduced by leaving objects at the end of their mission in an orbit above the GEO region such that they will not interfere with, or return to, the GEO region.	
Guideline A.5	
Enhance the practice of registering space objects	
1. States and international intergovernmental organizations, acting in accordance with their obligations under article VIII of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space and taking into consideration the recommendations contained in General Assembly resolutions 1721B (XVI) and 62/101, should ensure the development and/or implementation of effective and comprehensive registration practices, as proper registration of space objects is a key factor in the safety and the long-term sustainability of space activities. Inadequate registration practices may have negative implications for ensuring the safety of space operations.	*The Belgian space law has established a national register for space objects. The (national) registration of a space object by Belgium is due to be effective before the date of the launch, so that the object is clearly identifiable from the moment it enters outer space. The procedure of application to an authorization includes the communication, by the applicant operator, of elements of information which are required by the United Nations Convention of the Registration of Objects launched into Outer Space, as well as by the United Nations General Assembly's resolutions 1721 (XVI) and 62/101.*
2. To that end, States and international intergovernmental organizations should adopt appropriate national or other relevant policies and regulations to harmonize and sustain over the long term such registration practices on the widest possible international basis. When registering space objects, States and international intergovernmental organizations should bear in mind the need to provide timely information that contributes to the long-term sustainability of outer space activities and should consider also providing information on space objects, their operation and their status, as set out in General Assembly resolution 62/101.	*As a policy, Belgium doesn't register objects launched into outer space under procurement by a non-governmental entity if that procurement has not been explicitly or implicitly approved by the Belgian federal government. However, the fulfilment of this requirement has been interpreted in an extensive manner since the first case of application of the Belgian space law.*
3. Prior to the launch of a space object, the State from whose territory or facility a space object will be launched should, in the absence of prior agreement, contact States or international intergovernmental organizations that could qualify as the launching States of that space object to jointly determine how to proceed with the registration of that particular space object. Following the launch of a space object, and considering relevant criteria in the Convention on Registration of Objects Launched into Outer Space (Registration Convention), States and/or international intergovernmental organizations that were involved in the launch should coordinate among themselves, to include those	*Belgium doesn't have any launch service operator under its jurisdiction, or any launch facility on its territory. Nevertheless, Belgium willingly collaborates with other States in order to effectively respond to the requirement of the United Nations Convention of the Registration of Objects launched into Outer Space, as well as to the recommendations of the United Nations General Assembly's resolutions 1721 (XVI) and 62/101. For instance, in the framework of the QB50 mission involving institutes from some 20 States, Belgium has concluded several agreements in order to allocate the responsibilities of delivering authorization and ensuring continuous supervision, as well as of registering objects, ensuring full compliance with international law. It must however be noticed that the*

States and international intergovernmental organizations that may exercise jurisdiction and control over the non-registered space object, to register the space object.	*conclusion of such arrangements for large scale missions is not easily done within the corresponding timeframe. Therefore, Belgium continues to advocate the adoption, within UNCOPUOS, of a dedicated template agreement which could provide a ready-to-use draft for governments involved in a joint space activity.*
4. In the event that a State or international intergovernmental organization receives, from another State or international intergovernmental organization, an enquiry seeking clarification about the registration/non-registration of a space object that could presumably be under its jurisdiction and/or control, that State or international intergovernmental organization should respond, as soon as practicable, in order to facilitate the clarification and/or resolution of a particular registration issue. In certain circumstances, a State may choose to communicate an enquiry through or copy an enquiry to the Office for Outer Space Affairs. In such cases, the requested State is encouraged to reply likewise.	*Belgium stands ready to respond to any request for clarification about the registration status that could presumably be under its jurisdiction and/or control.*
5. The Office should be effectively engaged, within its standing responsibilities and existing resources, in executing integrated functions pertaining to: (a) the accumulation of information on orbital launches performed (i.e., completed launches resulting in the placement of objects into Earth orbit or beyond) and on orbital objects (i.e., space objects that have been launched into Earth orbit or beyond); and (b)the assignment of international designations to orbital launches and orbital objects in accordance with Committee on Space Research notation, as well as the provision of such designations to the States of registry. States and international intergovernmental organizations should support efforts by the Office to promote initiatives that would enable States to adhere to registration practices and consider implementing and sustaining the provision of registration information in furtherance of General Assembly resolution 62/101.	*Belgium supports the United Nations Office for Outer Space Affairs in its mission of international registrar of information and data provided by competent national authorities about space objects.*
6. The launching States and, where appropriate, international intergovernmental organizations should request all necessary information from space launch service providers and users under their jurisdiction and/or control to meet all registration requirements under the Registration Convention and encourage their receptiveness to and consideration of the provision of expanded registration information. States and international intergovernmental organizations, having institutionalized the practice of providing	*See above (para. 1).*

expanded registration information, should strive to sustain such practice and identify circumstances complicating the achievement of that task.	
7. States and international intergovernmental organizations should take into account General Assembly resolution 62/101and consider providing information on any change of status in operations (inter alia, when a space object is no longer functional) and, following the change in supervision of a space object in orbit, information about changes in the orbital position. States and international intergovernmental organizations should be aware of the importance of achieving and sustaining a practicable degree of coherence and uniformity in applying the provisions of this paragraph. Varying implementation practices, in as much as such may relate to the contents and attributes of information furnished, may necessitate addressing appropriate interpretative aspects. In such cases, States and international intergovernmental organizations should, through dedicated consultative process within the Committee on the Peaceful Uses of Outer Space, consider, acquire and develop shared positions with respect to providing information on any changes in space objects' status of operations and in the orbital positions of space objects.	*Belgium has communicated and continues to communicate, in a timely manner, to the United Nations Office for Outer Space, all information with regard to any deorbiting, re-entry, destruction or malfunction of space objects, as well as any event affecting their in-orbit operation.*
8. In cases where a launched space object contains other space objects planned for future separation and independent orbital flight, States and international intergovernmental organizations should, when entering these objects in their registry and when furnishing registration information to the Secretary-General of the United Nations, indicate (for example, in the form of side notes) the number and names of space objects that may, in the future, separate from the main space object, on the understanding that those space objects should not be given different or modified names when they are subsequently registered.	*Although such a situation has not yet occurred under the implementation of the Belgian space law, Belgium takes note of this guideline and will consider any means to comply with it.*
9. In accordance with article IV, paragraph 2, of the Registration Convention, and considering General Assembly resolution 62/101, on registration practices, as well as principle 4.3 of General Assembly resolution 47/68, States and international intergovernmental organizations should provide information to the Office through internationally accepted mechanisms on all space activities or objects that involve the use of nuclear power sources in outer space.	*See above (Guideline A.2, para 2, e).*

B. Safety of space operations	
Guideline B.1	
Provide updated contact information and share information on space objects and orbital events	
1. States and international intergovernmental organizations should exchange, on a voluntary basis, and/or make readily available regularly updated contact information on their designated entities authorized to engage in exchanges of appropriate information on on-orbit spacecraft operations, conjunction assessments and the monitoring of objects and events in outer space, in particular those entities that are responsible for processing incoming incident reports and forecasts and adopting precautionary and response measures. This may be achieved either by providing such information to the Office for Outer Space Affairs so that the Office can make it available, within its standing mandate and existing resources, to other States and international intergovernmental organizations and/or by providing it directly to other States and international intergovernmental organizations, with the understanding that contact information for national focal points, at a minimum, will likewise be communicated to the Office.	*Belgium doesn't have any national capacity to track objects in orbit and to detect risks or events occurring in outer space. However, Belgium is participating, as European Union Member States and as ESA Member States in the development of a European capacity to that end. Besides, Belgium concluded a specific agreement with USSTRATCOM (see above, Guideline A.3, para. 2, c).*
2. States and international intergovernmental organizations should establish appropriate means to enable timely coordination to reduce the probability of and/or to facilitate effective responses to orbital collisions, orbital break-ups and other events that might increase the probability of accidental collisions or may pose a risk to human lives, property and/or the environment, in the case of uncontrolled re-entries of space objects.	*See above.*
3. States and international intergovernmental organizations should exchange, on a voluntary basis and as mutually agreed, relevant information on space objects and information related to actual or potential situations in near-Earth space that may affect the safety of outer space operations. The information exchanged should, to the extent practicable, be reliable, accurate and complete, and be concluded to be so by the providing entity. The information to be exchanged, including time reference and period of applicability and other relevant information, should be provided in a timely manner and on a mutually agreed basis.	*This is done through ESA orbital watch activities and through a dedicated agreement concluded with USSTRATCOM (see above, Guideline A.3, para. 2, c) .*

4. States and international intergovernmental organizations should, through a dedicated consultative process, preferably under the auspices of the Committee on the Peaceful Uses of Outer Space, taking into account the work of relevant technical bodies, consider, acquire specific understanding of, and develop shared positions on the practical issues and modalities, as appropriate, relating to the exchange of relevant information on space objects and events in near-Earth space obtained from different authorized sources, in order to achieve harmonized and standardized record-keeping on space objects and events in outer space.	*This is done through ESA activities and capacity.*
5. States and international intergovernmental organizations should consider the options for effectively accumulating and providing access to information on objects and events in outer space on a timely basis and for achieving consistency in the understanding and use of such information as one of the means to support their activities aimed at maintaining the safety of space operations. The options for consideration could include: standards and formats for representing information to enable the interoperability of information shared on a voluntary basis; bilateral, regional or multilateral arrangements to exchange information; bilateral, regional or multilateral coordination among providers of information to enable cooperation and interoperability; and the establishment of a United Nations information platform. Those options could serve as a basis for a distributed international information system for multilateral cooperation in sharing and disseminating multi-source information on objects and events in near-Earth space.	*This is done through ESA activities and capacity. This could possibly be further implemented.*
Guideline B.2	
Improve accuracy of orbital data on space objects and enhance the practice and utility of sharing orbital information on space objects	
1. States and international intergovernmental organizations should promote the development and use of techniques and methods to improve the accuracy of orbital data for spaceflight safety and the use of common, internationally recognized standards when sharing orbital information on space objects.	*Belgium doesn't have any national capacity to track objects in orbit and to detect risks or events occurring in outer space. However, Belgium is participating, as European Union Member States and as an ESA Member States in the development of a European capacity to that end. Besides, Belgium concluded a specific agreement with USSTRATCOM (see above, Guideline A.3, para. 2, c).*
2. Recognizing that spaceflight safety strongly depends upon the accuracy of orbital and other relevant data, States and international	*See above.*

intergovernmental organizations should promote techniques and the investigation of new methods to improve such accuracy. Those methods could include national and international activities to improve the capabilities and geographical distribution of existing and new sensors, use of passive and active on-orbit tracking aids, and combining and validating data from different sources. Special attention should be paid to encouraging the participation and capacity-building of developing countries with emerging space capabilities in this domain.	
3. When sharing orbital information on space objects, operators and other appropriate entities should be encouraged to use common, internationally recognized standards to enable collaboration and information exchange. Facilitating greater shared awareness of the current and predicted location of space objects would enable timely prediction and prevention of potential collisions.	*Not applicable to Belgium.*
Guideline B.3	
Promote the collection, sharing and dissemination of space debris monitoring information	
1. States and international intergovernmental organizations should encourage the development and use of relevant technologies for the measurement, monitoring and characterization of the orbital and physical properties of space debris. States and international intergovernmental organizations should also promote the sharing and dissemination of derived data products and methodologies in support of research and international scientific cooperation on the evolution of the orbital debris population.	*As ESA Member States, Belgium participates in the development of technologies to counter the impact of space debris, and fosters the optimization of the use of such technology for the benefit of all space actors.*
Guideline B.4	
Perform conjunction assessment during all orbital phases of controlled flight	
1. Conjunction assessment should be performed for all spacecraft capable of adjusting trajectories during orbital phases of controlled flight for current and planned spacecraft trajectories. States and international intergovernmental organizations should, through national mechanisms and/or international cooperation, perform conjunction assessments during all orbital phases of controlled flight for their current and planned spacecraft trajectories. With due consideration to article VI of the	*Belgium doesn't have national conjunction assessment capacities. Such capacity has been and continues to be developed within ESA.*

1967 Outer Space Treaty, States should encourage entities, including spacecraft operators and conjunction assessment service providers under their jurisdiction and/or control to perform conjunction assessments through national mechanisms, when applicable. International intergovernmental organizations should perform such assessments through their respective mechanisms.	
2. States and international intergovernmental organizations should develop and implement in an appropriate manner approaches to and methods for conjunction assessment that may include: (a) improving the orbit determination of relevant space objects; (b) screening current and planned trajectories of relevant space objects for potential collisions; (c) determining the risk of collision and whether an adjustment of trajectory is required to reduce the risk of collision; and (d) sharing information on the proper interpretation and usage of the conjunction assessment results, as appropriate. States and international intergovernmental organizations should, where applicable, encourage entities under their respective jurisdiction and/or control, including spacecraft operators and conjunction assessment service providers, to develop or help develop such approaches and methods to conjunction assessment.	*See above.*
3. Spacecraft operators, including those of non-governmental entities, that are unable to perform conjunction assessments should seek support, via State authorities, as necessary and in accordance with relevant applicable regulations, from appropriate around-the-clock conjunction assessment entities. International intergovernmental organizations that are unable to perform conjunction assessments should seek support through their respective mechanisms.	*Belgium concluded a specific agreement with USSTRATCOM to that purpose (see above, Guideline A.3, para. 2, c).*
4. States and international intergovernmental organizations should, in a dedicated international consultative process, acting through their designated entities, as appropriate, share knowledge and experience related to the interpretation of conjunction assessment information with the objective of developing methods and consistent criteria for assessing probability of collisions and making avoidance manoeuvre decisions and agreeing on classes of methods applicable to different types of conjunctions. States and international intergovernmental organizations that have developed practical methods and approaches for conjunction assessments and collision avoidance	*Not applicable to Belgium.*

manoeuvre decision-making processes should also share their expertise by, inter alia, providing training opportunities for emerging spacecraft operators and disseminating best practices, knowledge and experience.	
5. States and international intergovernmental organizations should encourage conjunction assessment service providers under their jurisdiction and control to consult on screening criteria and notification thresholds with spacecraft operators and pertinent parties before providing conjunction assessment services, as practicable.	*Not applicable to Belgium.*
Guideline B.5	
Develop practical approaches for pre-launch conjunction assessment	
1. States and international intergovernmental organizations are encouraged to advise launch service providers under their jurisdiction and control to consider conducting pre-launch conjunction assessment for space objects to be launched. To facilitate and promote such pre-launch conjunction assessment practices, States and international intergovernmental organizations are encouraged, with the involvement of launch service providers and, as necessary, other relevant entities under their jurisdiction and control, to develop, implement and improve the corresponding methods and procedures.	*Not applicable to Belgium.*
2. States and international intergovernmental organizations are encouraged to advise launch service providers under their jurisdiction and control to seek support, as necessary, via designated entities authorized to engage in exchanges of information on pre-launch conjunction assessment, as appropriate and in accordance with relevant applicable regulations, for pre-launch conjunction assessment from appropriate conjunction assessment entities.	*Not applicable to Belgium.*
3. When performing a specific pre-launch conjunction assessment, launch service providers are encouraged to coordinate, via designated entities authorized to engage in exchanges of information on pre-launch conjunction assessment, with pertinent States and international intergovernmental organizations concerning the given assessment, if necessary.	*Not applicable to Belgium.*
4. States and international intergovernmental organizations should, with the involvement of	*Not applicable to Belgium.*

launch service providers and other relevant entities under their jurisdiction and control as necessary, develop common international standards for describing relevant information required for pre-launch conjunction assessment in order to facilitate the provision, as mutually agreed, of pre-launch conjunction assessment support.	
5. States and international intergovernmental organizations are encouraged to exchange their analytical assessment of the trends in the change of the risk of collision of space objects to be launched with other space objects operating near the planned insertion orbit.	*Not applicable to Belgium.*
6. States and international intergovernmental organizations are encouraged to consider providing, using, as appropriate, applicable existing and/or new dedicated mechanisms, information on launch schedules useful for assessing changes in the future population of space objects, pre-launch notifications containing information on the launch plan that would be useful for assisting in the identification of newly launched space objects, and notices for mariners and pilots on restricted zones at sea and in airspace. The contents and attributes of such information should be appropriate for its intended use.	*Not applicable to Belgium.*
7. States and international intergovernmental organizations should, through a dedicated consultative process within the Committee on the Peaceful Uses of Outer Space, consider, acquire and develop shared positions on information to be provided for pre-launch conjunction assessment.	[To be further implemented]
Guideline B.6	
Share operational space weather data and forecasts	
1. States and international intergovernmental organizations should support and promote the collection, archiving, sharing, intercalibration, long-term continuity and dissemination of critical space [input to be provided by Belgian Royal Observatory] weather data and space weather model outputs and forecasts, where appropriate in real time, as a means of enhancing the long-term sustainability of outer space activities.	[input to be provided by Belgian Royal Observatory]
2. States should be encouraged to monitor, to the extent feasible, space weather continuously and to share data and information with the aim of	[input to be provided by Belgian Royal Observatory]

establishing an international space weather database network.	
3. States and international intergovernmental organizations should support the identification of data sets critical for space weather services and research and should consider adopting policies for the free and unrestricted sharing of critical space weather data from their space-and-ground-based assets. All governmental, civilian and commercial space weather data owners are urged to allow free and unrestricted access to and archiving of such data for mutual benefit.	[input to be provided by Belgian Royal Observatory]
4. States and international intergovernmental organizations should also consider sharing real-time and near-real-time critical space weather data and data products in a common format, promote and adopt common access protocols for their critical space weather data and data products, and promote the interoperability of space weather data portals, thus promoting ease of data access for users and researchers. The real-time sharing of these data could provide a valuable experience for sharing in real time other kinds of data relevant to the long-term sustainability of outer space activities.	[input to be provided by Belgian Royal Observatory]
5. States and international intergovernmental organizations should further undertake a coordinated approach to maintaining the long-term continuity of space weather observations and identifying and filling key measurement gaps, so as to meet critical needs for space weather information and/or data.	[input to be provided by Belgian Royal Observatory]
6. States and international intergovernmental organizations should identify high-priority needs for space weather models, space weather model outputs and space weather forecasts and adopt policies for free and unrestricted sharing of space weather model outputs and forecasts. All governmental, civilian and commercial space weather model developers and forecast providers are urged to allow free and unrestricted access to and archival of space weather model outputs and forecasts for mutual benefit, which will promote research and development in this domain.	[input to be provided by Belgian Royal Observatory]
7. States and international intergovernmental organizations should also encourage their space weather service providers to:	[input to be provided by Belgian Royal Observatory]
(a) Undertake comparisons of space weather model and forecast outputs with the goal of improved model performance and forecast accuracy;	

(b) Openly share and disseminate historical and future critical space weather model outputs and forecast products in a common format;	
(c) Adopt common access protocols for their space weather model outputs and forecast products to the extent possible, to promote their ease of use by users and researchers, including through interoperability of space weather portals;	
(d) Undertake coordinated dissemination of space weather forecasts among space weather service providers and to operational end users.	
Guideline B.7	
Develop space weather models and tools and collect established practices on the mitigation of space weather effects	
1. States and international intergovernmental organizations should undertake a coordinated approach to identifying and filling gaps in research and operational models and forecasting tools required to meet the needs of the scientific community and of the providers and users of space weather information services. Where possible, this should include coordinated efforts to support and promote research and development to further advance space weather models and forecasting tools, incorporating the effects of the changing solar environment and the evolving terrestrial magnetic field as appropriate, including within the context of the Committee on the Peaceful Uses of Outer Space and its Subcommittees, as well as in collaboration with other entities such as the World Meteorological Organization and the International Space Environment Service.	[input to be provided by Belgian Royal Observatory]
2. States and international intergovernmental organizations should support and promote cooperation and coordination on ground-and-space-based space weather observations, forecast modelling, satellite anomalies and reporting of space weather effects in order to safeguard space activities. Practical measures in this regard could include:	[input to be provided by Belgian Royal Observatory]
(a) Incorporating current and forecast space weather thresholds into space launch criteria;	
(b) Encouraging satellite operators to cooperate with space weather service providers to identify the information that would be most useful to mitigate anomalies and to derive recommended	

specific guidelines for on-orbit operations. For example, if the radiation environment is hazardous, this might include actions to delay the uploading of software, implementation of manoeuvres, etc.;	
(c) Encouraging the collection, collation and sharing of information relating to ground-and space-based space weather-related impacts and system anomalies, including spacecraft anomalies;	
(d) Encouraging the use of a common format for reporting space weather information. In relation to the reporting of spacecraft anomalies, satellite operators are encouraged to take note of the template proposed by the Coordination Group for Meteorological Satellites;	
(e) Encouraging policies promoting the sharing of satellite anomaly data related to space weather-induced effects;	
(f) Encouraging training on and knowledge transfer relating to the use of space weather data, taking into account the participation of countries with emerging space capabilities.	
3. It is acknowledged that some data may be subject to legal restrictions and/or measures for the protection of proprietary or confidential information, in accordance with national legislation, multilateral commitments, non-proliferation norms and international law.	
4. States and international intergovernmental organizations should work towards the development of international standards and the collection of established practices applicable for the mitigation of space weather effects in satellite design. This could include the sharing of information on design practices, guidelines and lessons learned relating to mitigation of the effects of space weather on operational space systems, as well as documentation and reports relating to space weather user needs, measurement requirements, gap analyses, cost-benefit analyses and related space weather assessments.	[input to be provided by Belgian Royal Observatory]
5. States should encourage entities under their jurisdiction and/or control to:	
(a) Incorporate in satellite designs the capability to recover from a debilitating space weather effect, such as by including a safe mode;	[to be further implemented, possibly through ESA]

(b) Incorporate space weather effects into satellite designs and mission planning for end-of-life disposal in order to ensure that the spacecraft either reach their intended graveyard orbit or de-orbit appropriately, in accordance with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. This should include appropriate margin analysis.	[to be further implemented, possibly through ESA]
6. International intergovernmental organizations should also promote such measures among their member States.	[to be further implemented, possibly through ESA]
7. States should undertake an assessment of the risk and socioeconomic impacts of adverse space weather effects on the technological systems in their respective countries. The results from such studies should be published and made available to all States and used to inform decision-making relating to the long-term sustainability of outer space activities, particularly with regard to mitigating the adverse impacts of space weather on operational space systems.	[to be further implemented, possibly through ESA]
Guideline B.8	
Design and operation of space objects regardless of their physical and operational characteristics	
1. States and international intergovernmental organizations are encouraged to promote design approaches that increase the trackability of space objects, regardless of their physical and operational characteristics, including small-size space objects, and those that are difficult to track throughout their orbital lifetime, as well as facilitate the accurate and precise determination of their position in orbit. Such design solutions could include the use of appropriate on-board technology.	*This is done through ESA applicable standards and norms.*
2. States and international intergovernmental organizations should encourage manufacturers and operators of space objects, regardless of their physical and operational characteristics, to design such objects to implement applicable international and national space debris mitigation standards and/or guidelines in order to limit the long-term presence of space objects in protected regions of outer space after the end of their mission. States and international intergovernmental organizations are encouraged to share their experiences and information on the	*This is done through ESA applicable standards and norms.*

operation and end-of-life disposal of space objects, in furtherance of the long-term sustainability of space activities.	
3. Due to the importance of small-size space objects to all space programmes, in particular, for developing countries and emerging spacefaring countries, the implementation of the present guideline supports the development of space programmes, including the launching and operation of small-size space objects or any other space objects that are difficult to track, in a way that promotes the long-term sustainability of outer space activities.	*This is done through ESA applicable standards and norms.*
Guideline B.9	
Take measures to address risks associated with the uncontrolled re-entry of space objects	
1. States and international intergovernmental organizations should have in place procedures for furnishing to other States and/or the Secretary-General of the United Nations, via designated entities, as soon as practicable and with updates if necessary, information on the forecasted uncontrolled re-entry of potentially hazardous space objects that are under their jurisdiction and control, and communicating and coordinating the mitigation of risks associated with such events. States and international intergovernmental organizations without space object tracking capabilities should seek support from other States and international intergovernmental organizations with such capabilities. If a State or international intergovernmental organization has early information on forecasted uncontrolled re-entry of potentially hazardous space objects that are under the jurisdiction and control of another State or international intergovernmental organization, it should share such information with that State or international intergovernmental organization via their designated entities. If a State or international intergovernmental organization has early information on the forecasted uncontrolled re-entry of potentially hazardous space objects whose jurisdiction and control is not identified, it should share such information with other States and/or the United Nations via designated entities.	*This is done through specific requirements imposed to the operator to take useful contact with the competent (national and/or foreign) authorities in order to prevent damage on the surface of the Earth, or in the airspace. This is applicable either to controlled or uncontrolled re-entry.*
2. States and international intergovernmental organizations with relevant technical capabilities and resources and/or States and international intergovernmental organizations which exercise	*Not applicable to Belgium.*

jurisdiction over the objects forecast to re-enter the atmosphere should assist each other (in a proactive manner and/or in responding to a request) to improve the reliability of results when predicting the uncontrolled re-entry of potentially hazardous space objects, such as by tracking the objects and generating information on their trajectory. States and international intergovernmental organizations should cooperate to build capacity in the area of monitoring uncontrolled space object re-entries.	
3. When feasible and without prejudice to furnishing preliminary information on possible hazardous events associated with the uncontrolled re-entry of space objects, the procedures referred to above should be employed during the final phase of the orbital flight of a space object. The procedures should be used until the termination of the ballistic flight of the space object has been confirmed, as well as in the event of the identification of the space object or its fragments that reach the surface of the Earth.	*Not applicable to Belgium.*
4. States and international intergovernmental organizations should furnish in a timely fashion relevant information they may have at their disposal, as practicable, to support addressing risks from uncontrolled re-entries. The contents and attributes of such information should, to the extent practicable, be relevant to raising awareness, where appropriate, of possible contingencies associated with high-risk uncontrolled re-entries. States and international intergovernmental organizations should designate appropriate entities that are authorized to provide, request and receive such information.	*This is done through the data updating process as provided by the Belgian space law and regulation.*
5. States and international intergovernmental organizations should consider applying design techniques to minimize the risk associated with fragments of space objects surviving uncontrolled re-entry.	*This is done through ESA activities and programmes.*
6. Without prejudice to article 5 of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the State(s) having jurisdiction over the territory on which a space object or its component parts have been discovered or are presumed to have reached the surface of the Earth, should respond to any request for timely consultations by the State or international intergovernmental organization with jurisdiction and control over the object. In such consultations, the State or international	*Article 17 of the Belgian space law of 2005 provides for a retrieval and restitution mechanism of landed objects or debris.*

intergovernmental organization exercising jurisdiction and control over the object should advise and, if mutually agreed, assist the potentially affected State(s) in the search for and identification, assessment, analysis, evacuation and return of the object or its fragments. State(s) on whose territory a space object or its component parts have been discovered or are presumed to have reached the surface of the Earth should respond to requests from the State or international intergovernmental organization with jurisdiction and control over the object to follow appropriate procedures for, inter alia, identification, assessment, and analysis of the space object or its component parts, to avoid the harmful effects of any hazardous materials which could have survived the uncontrolled re-entry.	
Guideline B.10	
Observe measures of precaution when using sources of laser beams passing through outer space	
When governmental and/or non-governmental entities under the jurisdiction and control of States and international intergovernmental organizations use lasers that generate beams passing through near-Earth outer space, States and international intergovernmental organizations should analyse the probability of accidental illumination of passing space objects by laser beams; conduct a quantitative evaluation of the laser radiation power at the distance of crossing space objects; if possible, perform an assessment of the risk of malfunctioning of, damage to, and/or break-up of space objects due to such illumination; and, as necessary, observe appropriate measures of precaution.	*Belgian law prohibits the use of laser above class 2 (power superior to 1 mW), with restricted exceptions for specifically regulated professional uses.*
C. International cooperation, capacity-building and awareness	
Guideline C.1	
Promote and facilitate international cooperation in support of the long-term sustainability of outer space activities	
States and international intergovernmental organizations should promote and facilitate international cooperation to enable all countries, in particular developing and emerging spacefaring countries, to implement these guidelines. International cooperation should, where appropriate, involve the public, private	*In addition to having several bilateral cooperation instruments in the space domain with emerging space faring nations, Belgium supports ESA and EU policies of cooperation with other States and international intergovernmental organizations. Belgium will seek to further emphasize the recognition of the long-term*

and academic sectors, and may include, inter alia, the exchange of experience, scientific knowledge, technology and equipment for space activities on an equitable and mutually acceptable basis.	*sustainability of space activities as an important topic for such cooperation.*
Guideline C.2	
Share experience related to the long-term sustainability of outer space activities and develop new procedures, as appropriate, for information exchange	
1. States and international intergovernmental organizations should share, as mutually agreed, experiences, expertise and information relating to the long-term sustainability of outer space activities, including with non-governmental entities, and develop and adopt procedures to facilitate the compilation and effective dissemination of information on the ways and means of enhancing the long-term sustainability of space activities. When further developing their information-sharing procedures, States and international intergovernmental organizations could take note of existing data-sharing practices used by non-governmental entities.	*This is to be implemented though ESA and through UNCOPUOS.*
2. The experiences and expertise acquired by those engaged in space activities should be regarded as instrumental in the development of effective measures to enhance the long-term sustainability of outer space activities. States and international intergovernmental organizations should therefore share relevant experiences and expertise to enhance the long-term sustainability of space activities.	*Idem*
Guideline C.3	
Promote and support capacity-building	
1. States and international intergovernmental organizations with experience in space activities should encourage and support capacity-building in developing countries with emerging space programmes, on a mutually acceptable basis, through measures such as improving their expertise and knowledge on spacecraft design, flight dynamics and orbits, performing joint orbital calculations and conjunction assessments, and providing access to appropriate precise orbital data and appropriate tools for the monitoring of space objects through relevant arrangements as appropriate.	*This could be done through promoting the integration of long-term sustainability in traineeship programmes, such as the ESA National Traineeship Programme to which Belgium contributes by funding the participation of students from Belgian academies. Another initiative could serve as a capacity-building tool: the Odissea Prize which rewards every year a thematic thesis in the space domain.*
2. States and international intergovernmental organizations should support current	*This is implemented through ESA and UNCOPUOS.*

capacity-building initiatives and promote new forms of regional and international cooperation and capacity-building that are in accordance with national and international law to assist countries in gathering human and financial resources and achieving efficient technical capabilities, standards, regulatory frameworks and governance methods that support the long-term sustainability of outer space activities and sustainable development on Earth.	
3. States and international intergovernmental organizations should coordinate their efforts in space-related capacity-building and data accessibility in order to ensure efficiency in the use of available resources and, to the extent that it is reasonable and relevant, avoid unnecessary duplication of functions and efforts, taking into account the needs and interests of developing countries. Capacity-building activities include education, training and sharing of appropriate experience, information, data, tools and management methodologies and techniques, as well as the transfer of technology.	*See above.*
4. States and international intergovernmental organizations should also undertake efforts to make relevant space-based information and data accessible to countries affected by natural disasters or other catastrophes, guided by considerations of humanity, neutrality and impartiality, and to support capacity-building activities aimed at enabling the receiving countries to make optimal use of such data and information. These space-based data and information with appropriate spatial and temporal resolution should be freely, quickly and easily available for countries in crisis.	*This is implemented through several mechanisms and earth observation data-based systems, notably the European Union Copernicus programme, as well as the Charter on Space for Major Disasters.*
Guideline C.4	
Raise awareness of space activities	
1. States and international intergovernmental organizations should raise general public awareness of the important societal benefits of space activities and of the consequent importance of enhancing the long-term sustainability of outer space activities. To this end, States and international intergovernmental organizations should:	*Cf. Guidelines A.3, para. 4.*
(a) Promote institutional and public awareness of space activities and their applications for sustainable development, environmental monitoring and assessment, disaster management and emergency response;	*This is the reason why Belgium supports, on an almost full-cost basis, the ALTIUS-mission dedicated to providing continuity in profiling atmosphere composition and evolution from outer space.*

(b) Conduct outreach, capacity-building and education on regulations and established practices relevant to the long-term sustainability of space activities;	
(c) Promote activities of non-governmental entities that will enhance the long-term sustainability of outer space activities;	
(d) Raise awareness among relevant public institutions and non-governmental entities about national and international policies, legislation, regulations and best practices that are applicable to space activities.	*The Belgian federal Office for Science Policy, including Space Policy, offers regular assistance to academies and think tanks, in Belgium or abroad, in providing education and information on the various aspects of international space cooperation, including legal, scientific and technical aspects related to the long-term sustainability of space activities.*
2. States and international intergovernmental organizations should promote public awareness of space applications for sustainable development, environmental monitoring and assessment, disaster management and emergency response through information-sharing and joint efforts with public institutions and non-governmental entities, taking into account the needs of current and future generations. In designing space education programmes, States, international intergovernmental organizations and non-governmental entities should pay special attention to courses on enhancing knowledge and practice of the utilization of space applications to support sustainable development. States and international intergovernmental organizations should initiate the voluntary collection of information on public awareness and education tools and programmes with a view to facilitating the development and implementation of other initiatives with similar objectives.	*See above Guideline C.3, para. 1.*
3. States and international intergovernmental organizations should foster outreach activities by or with industry, academia and other relevant non-governmental entities. Outreach, capacity-building and educational initiatives could take the form of seminars (in person or broadcast over the Internet), published guidelines to complement national and international regulations or a website with basic information on a regulatory framework and/or a contact point within the Government for regulatory information. Appropriately targeted outreach and education can assist all entities engaged in space activities in gaining a better appreciation and understanding of the nature of their obligations, in particular relating to implementation, which can lead to improved compliance with the existing regulatory framework and the practices currently being employed to enhance the long-term sustainability of outer space activities. This is	*See above para. 1, d.*

particularly valuable where the regulatory framework has been changed or updated, resulting in new obligations for participants in space activities.	
4. Cooperation between Governments and non-governmental entities should be encouraged and fostered. Non-governmental entities, including professional and industry associations and academic institutions, can play important roles in increasing international awareness of issues associated with space sustainability, as well as promoting practical measures to enhance space sustainability. Such measures could include adoption of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space; compliance with the ITU Radio Regulations related to space services; and the development of open, transparent standards for the exchange of data necessary to avoid collisions, harmful radio frequency interference or other harmful events in outer space. Non-governmental entities can also play important roles in bringing stakeholders together to develop common approaches to certain aspects of space activities that can collectively enhance the long-term sustainability of space activities.	
D. Scientific and technical research and development	
Guideline D.1	
Promote and support research into and the development of ways to support sustainable exploration and use of outer space	
1. States and international intergovernmental organizations should promote and support research into and the development of sustainable space technologies, processes and services and other initiatives for the sustainable exploration and use of outer space, including celestial bodies.	
2. In their conduct of space activities for the peaceful exploration and use of outer space, including celestial bodies, States and international intergovernmental organizations should take into account, with reference to the outcome document of the United Nations Conference on Sustainable Development (General Assembly resolution 66/288, annex), the social, economic and environmental dimensions of sustainable development on Earth.	

3. States and international intergovernmental organizations should promote the development of technologies that minimize the environmental impact of manufacturing and launching space assets and that maximize the use of renewable resources and the reusability or repurposing of space assets to enhance the long-term sustainability of those activities.	
4. States and international intergovernmental organizations should consider appropriate safety measures to protect the Earth and the space environment from harmful contamination, taking advantage of existing measures, practices and guidelines that may apply to those activities, and developing new measures as appropriate.	
5. States and international intergovernmental organizations conducting research and development activities to support the sustainable exploration and use of outer space should also encourage the participation of developing countries in such activities.	
Guideline D.2	
Investigate and consider new measures to manage the space debris population in the long term	*Belgium takes due account of these recommendations in its position and initiatives in international fora, in particular UNCOPUOS.*
1. States and international intergovernmental organizations should investigate the necessity and feasibility of possible new measures, including technological solutions, and consider implementation thereof, in order to address the evolution of and manage the space debris population in the long term. These new measures, together with existing ones, should be envisaged so as not to impose undue costs on the space programmes of emerging spacefaring nations.	
2. States and international intergovernmental organizations should take measures at the national and international levels, including international cooperation and capacity-building, to increase compliance with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.	
3. Investigation of new measures could include, inter alia, methods for the extension of operational lifetime, novel techniques to prevent collision with and among debris and objects with no means of changing their trajectory, advanced measures for spacecraft passivation and post-mission disposal and designs to	

enhance the disintegration of space systems during uncontrolled atmospheric re-entry.	
4. Such new measures aimed at ensuring the sustainability of space activities and involving either controlled or uncontrolled re-entries should not pose an undue risk to people or property, including through environmental pollution caused by hazardous substances.	
5. Policy and legal issues, such as ensuring that these new measures are compliant with the provisions of the Charter of the United Nations and applicable international law, may also need to be addressed.	