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Chair: Mr. Bahr Aluloom (Iraq)

The meeting was called to order at 10.05 a.m.

Joint panel discussion of the First and Fourth Committees on possible challenges to space security and sustainability

International cooperation in the peaceful uses of outer space

Co-Chair Bahr Aluloom: I warmly welcome everyone — including Mr. Thomas Markram, Director and Deputy to the High Representative for Disarmament Affairs, Ms. Simonetta Di Pippo, Director of the Office for Outer Space Affairs, and our panellists — to this joint meeting of the First and Fourth Committees, convened pursuant to General Assembly resolution 71/90 as a joint contribution of the two Committees to the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

It is a pleasure to co-chair this meeting with the Chair of the Fourth Committee, His Excellency Ambassador Rafael Darió Ramírez Carreño of the Bolivarian Republic of Venezuela. We have agreed to take turns in guiding the proceedings of the meeting. Accordingly, I will chair the first half of our proceedings and my co-Chair Ramírez Carreño the second half.

The question of how best to preserve outer space exclusively for peaceful purposes has been considered by both Committees over the years. The First Committee has addressed it under item 99, on general and complete disarmament, sub-item (v), entitled “Transparency and

confidence-building measures in outer space activities”. The Fourth Committee considers it under sub-item (b) of agenda item 52, on international cooperation in the peaceful uses of outer space. This joint meeting provides an integrated forum for members of both Committees to consider the issue together.

The programme for today’s joint panel discussion has been circulated. As it notes, the meeting today will consider the general topic of possible challenges to space security and sustainability. In that context, the overarching theme is the fiftieth anniversary of the Outer Space Treaty, taking into account its past, present and future. We will also focus on four sub-items to promote a focused and structured interactive dialogue among delegations. The first is on the Outer Space Treaty — 50 years in the service of the peaceful use of outer space and the maintenance of international peace and security. The second is on the legal regime for outer space and the global governance of outer-space activities. The third is on ways and means of maintaining outer space for peaceful purposes and the fourth is on efforts to ensure space sustainability for all nations.

We will now hear keynote statements by Mr. Thomas Markram, Director and Deputy to the High Representative for Disarmament Affairs, on behalf of the High Representative, and Ms. Simonetta Di Pippo, Director of the United Nations Office for Outer Space Affairs. They will be followed by a panel discussion.

I now invite Mr. Markram to address the Committee.

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Mr. Markram (United Nations Office for Disarmament Affairs): I welcome this opportunity to participate in this second joint meeting of the First and Fourth Committees. At the outset, I would like to thank the Chairs and Bureaus of the Committees for their support and to express my appreciation to the Office for Outer Space Affairs for its close cooperation in organizing this panel. I also thank the panellists for travelling to New York to participate in this meeting.

Just two days ago, the international community commemorated the fiftieth anniversary of the entry into force of the Outer Space Treaty. That landmark instrument codified the foundations of outer-space law and established the shared objective of maintaining space as a realm of peace. Its important legacies include the non-militarization of celestial bodies and the non-placement of weapons of mass destruction anywhere in outer space. The Treaty was central to ensuring that the Cold War arms race did not extend beyond the Earth's boundaries, but it did not attempt to comprehensively solve all possible challenges to outer-space security. Concerns relating to the weaponization of space were left for future deliberations and remain an urgent priority to this day. The theme of this meeting therefore provides a fitting opportunity to take stock of the global governance regime for outer-space activities.

The increasing accessibility of outer space to Governments and the private sector, and their increasing use of it, has brought undeniable benefits to human development, well-being and security. Space-based activities touch every aspect of modern life. Our dependence on outer space affects all sectors of society, from the economy to the military. However, outer space is a fragile environment, and actions taken by a single actor can have an impact on all the others. Preventing any conflict from extending into outer space therefore remains an urgent imperative, even as the growing military dependence on outer space is increasing its strategic significance and exposing the inherent vulnerability of space-based assets. The preservation of outer space for peaceful purposes has also been regarded as an essential step in enabling the United Nations to accomplish its ultimate objectives in the field of disarmament since 1957 and the General Assembly's adoption that year of resolution 1148 (XXII).

Yet despite the subsequent conclusion of the five international treaties governing outer space, some aspects of the legal regime meant to prevent outer space from becoming a realm of conflict remain largely

underdeveloped. For instance, while there appears to be no dispute that the right to self-defence is applicable to activities in outer space, we still lack a common understanding of how that right could be applied in conformity with international law and without producing severe and long-lasting consequences. While we have yet to witness any active arms race in outer space, the relevant technological capabilities have existed for decades. Many concepts for the placement of various types of disruptive and destructive counter-space capabilities have been studied, developed and tested. There are anti-ballistic-missile systems deployed today that could function as anti-satellite weapons.

Secretary-General Guterres has described our world as one of new and old conflicts woven in a complex web. At the same time, we live in an era of exponential acceleration in the rate of scientific and technological development. Those trends, when factored together, point to an increasing probability that the rapid emergence of new military capabilities could finally tip the balance and result in the uncontrolled expansion of armed conflict into outer space, an outcome that could have unimaginable consequences. Against that backdrop, it is encouraging that the United Nations appears to be experiencing a renaissance in its long-standing efforts to increase security and sustainability in outer space and to prevent an arms race in this domain. I will highlight a few areas where we see the greatest opportunities for progress.

Since 2013, the General Assembly has encouraged and subsequently called on all Member States to review and implement the proposals of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities. Entities within the United Nations system have established coordination mechanisms, including through UN-Space, to assist Member States in implementing those measures. In April, the Secretary-General issued a report (A/72/65) that described those activities, identified gaps and recommended ways in which United Nations entities can further assist in the implementation of transparency and confidence-building measures (TCBMs) if Member States so decide. In that connection, it is encouraging that there appears to be a high level of interest in pursuing deliberations in the Disarmament Commission's forthcoming cycle on the implementation of TCBMs on a basis of the joint proposal by China, the Russian Federation and the United States.

The Committee on the Peaceful Uses of Outer Space agreed last year to an initial set of guidelines on the long-term sustainability of outer space. It has continued to work hard on finalizing the outstanding issues, a number of which address international security matters, including some set out in the 2013 report of the Group of Governmental Experts (A/68/189) and beyond.

Finally, China and the Russian Federation have proposed the establishment of a new expert group intended to further the formulation of legally binding measures to prevent an arms race in outer space. If approved by the General Assembly, the work of that group could help narrow differences on how the outer-space legal regime could be further codified and developed, pending the end of the stalemate at the Conference on Disarmament.

In recent years, we have built up substantial momentum towards advancing security in outer space in the interests of peace and disarmament. I hope that this joint meeting today can serve as a platform for the comprehensive review of all of these efforts across the United Nations system and point the way for the progressive development of outer-space governance for the benefit of all.

Co-Chair Bahr Aluloom: I thank Mr. Markram for his statement.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I now invite Ms. Simonetta Di Pippo to address the Committee.

Ms. Di Pippo (Director, United Nations Office for Outer Space Affairs): It is a pleasure to address this joint panel discussion of the First and Fourth Committees on the topic of possible challenges to space security and sustainability. I can confirm our fruitful cooperation and coordination efforts with the United Nations Office for Disarmament Affairs. The holding of joint meetings of the First and Fourth Committees in 2015 and today is proof of a joint commitment by our Offices. Today's panel discussion follows up on the joint ad hoc meeting held in 2015 (see A/C.1/70/PV.13), while also providing a different and innovative format that I hope will contribute to a continuing forward-looking dialogue on several key concerns related to space security and sustainability, including perspectives from industry, the private sector, academia and civil society.

With the commemoration of the sixtieth anniversary of the launch of Sputnik 1 and the fiftieth anniversary

of the Outer Space Treaty, this is a historically significant year. The panel discussion today constitutes a contribution by the First and Fourth Committees to that fiftieth anniversary of the Treaty. In that regard, it will be important to address the Treaty's fundamental role in the broader perspective of space security. The indicative themes of the programme that my Office has developed together with the Office of Disarmament Affairs testify to the importance of the Outer Space Treaty to past, present and future space activities. The Treaty plays a paramount role in maintaining international peace and security and promoting international cooperation and understanding. It serves as a constitution for space activities, and it forms the central legal basis for the global governance of outer-space activities. As part of the legal regime for outer space, it provides us with the fundamental principles for upholding legal order in outer-space activities.

In considering the broader perspective of space security as a fundamental pillar for meeting the objectives of the 2030 Agenda for Sustainable Development, transparency and confidence-building measures in outer-space activities have the potential to reduce mishaps, misinterpretations and miscalculations, foster cooperation, create more predictability and gather consensus on matters crucial to maintaining outer space for peaceful purposes, at least as a first step in the progressive development of international space law. We can conclude that the 2013 report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189) constitutes an unprecedented account in that regard. We have now considerably developed the agenda of transparency and confidence-building measures through last year's special report by the Inter-Agency Meeting on Outer Space Activities (A/AC.105/1116) and the Secretary-General's report issued in April of this year (A/72/65 and A/72/65/Add.1). We have also collected additional contributions from Member States contained in document A/AC.105/1145 and previously issued documents such as A/AC.105/1080 and their respective addenda. They give us a comprehensive basis for moving ahead.

It has already been pointed out that outer space is an environment where steps taken by one actor may have an impact on others, including users of space services on Earth. In that sense, the broader application of space operations and the increased strategic value of space have increased the need to enhance the safety of

space operations and the security of space assets and systems, including critical infrastructures — which are also vital to cybersecurity concerns — and preserve the space environment. The long-term sustainability of outer-space activities will be key to meeting those concerns. In the context of protecting the Earth, we also have to consider the risks posed by natural hazards such as near-Earth objects and space weather. The United Nations Office for Outer Space Affairs (UNOOSA) works together with States, international organizations and other relevant entities to strengthen resiliency and the ability to depend on space systems to respond to the effects of such hazards.

For four decades, UNOOSA has been mandated to maintain the central Register of Objects Launched into Outer Space, under the obligation of the 1975 Convention on Registration of Objects Launched into Outer Space. The Register functions as the core mechanism for treaty-based transparency and confidence-building. In that regard, it is important to recognize the impact on registration practice of General Assembly resolution 62/101, of 2007. We note that several States increasingly use the resolution's recommendations to provide additional and voluntary registration data for the purposes of the Register on the change of status of space objects in orbit, information on re-entry events and the de-orbiting of space objects and similar information they deem important for the purpose of the registration regime and, as appropriate, for enhancing the safety of space operations.

I specifically mention the registration regime because — together with the established procedures for discharging the Secretary-General's responsibilities under the United Nations treaties and principles on outer space, including the Outer Space Treaty and the Principles Relevant to the Use of Nuclear Power Sources in Outer Space — the Office for Outer Space Affairs is vested with a mandate to assist in global efforts to enhance international governance in the long-term sustainability of outer-space activities. In that context, UNOOSA stands ready to work with Member States to build appropriate and robust information-exchange and notification procedures, building on the long-standing treaty-based Register of Objects Launched into Outer Space and the notification procedures under the United Nations treaties and principles on outer space.

The Committee on the Peaceful Uses of Outer Space (COPUOS) is in the process of finalizing the preparations for the fiftieth anniversary, in

2018, of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space, also known as UNISPACE+50. Overall, we are considering mechanisms for space cooperation and coordination at the international, interregional, regional and national levels with a view to an enhanced and stronger space economy, society, accessibility and diplomacy for the twenty-first century, forming what we call the Space 2030 agenda. For COPUOS and the Office for Outer Space Affairs, UNISPACE+50 and the process beyond it, looking towards 2030, represent an opportunity to renew and strengthen this unique common platform for cooperation between major spacefaring nations and emerging space nations, including by strengthening the important dialogue among all the players and stakeholders — Governments, non-governmental organizations, industry, the private sector and civil society. The Outer Space Treaty lies at the core of that comprehensive effort at the global level of space diplomacy. I am very much looking forward to today's panel discussion and interactive dialogue. We have a common interest in maintaining outer space for peaceful purposes. That must be our key objective from a space-related perspective in securing peace, prosperity and sustainable development for all humankind.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I thank Ms. Di Pippa for her statement.

I now have the pleasure to once again warmly welcome our panellists, Ms. Charity Weeden of the Satellite Industry Association, Ms. Laura Grego of the Union of Concerned Scientists, Ms. Daniela Genta of Airbus and Ms. Jessica West of Project Ploughshares. I would also like to welcome Ms. Joanne Wheeler of Bird & Bird, who is joining us via video link and who will participate in the interactive exchange of views. In order to help us manage the time available to us efficiently, panellists are kindly requested to limit their statements to no more than seven minutes.

I now give the floor to Ms. Charity Weeden, Senior Director of Policy of the Satellite Industry Association.

Ms. Weeden (Satellite Industry Association): It is an honour and a privilege to be here today to offer a satellite-industry perspective on long-term sustainability efforts.

Four years ago, the Satellite Industry Association (SIA), along with the European, Middle East and African Satellite Operators Association and the Space Data Association (SDA), delivered a joint presentation

at the fiftieth session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space (COPUOS), offering information about the satellite industry's commitment to investment aimed at space sustainability.

Today I would like to highlight the progress of commercial space activities and initiatives that aim to create a sustainable space environment while encouraging the growth of the satellite industry, two complementary and necessary efforts that bring a multitude of benefits to all. I will also identify industry actions for safe space operations and the ways in which the SIA is interacting with the United States Government and international bodies such as COPUOS to offer satellite-industry inputs in the pursuit of our shared interest in long-term space sustainability.

The SIA consists of more than 40 members in satellite operations, services, manufacturing, launch and ground infrastructure and is proud to have been engaged over the past several years with the United States delegation to COPUOS in its efforts towards space sustainability. That engagement has been beneficial to the satellite industry, providing an avenue for participation for those in the industry who want to be more active. COPUOS discusses items that have a similar impact on commercial assets, and the relationship provides a greater opportunity for collectively commenting on proposals and positions. That leads to a greater understanding of COPUOS activities and processes on the part of the industry and a more productive engagement.

The commercial satellite industry has been innovating in technology, capability and applications for more than 50 years. The miniaturization of electronics has led to an abundance of smaller satellites. Advances in camera technology enable higher resolution at a lower cost, bringing more frequent and higher-quality information about our planet. Spot-beam technology has resulted in a higher throughput of data in more precise locations, making the most of the available spectrum. Antennas are smaller and more agile, and terminals are portable and more compatible. Timing and positional signals from space are essential to most businesses and activities.

Since the launch of Intelsat I, the first commercial communications satellite, revolutions in space technology have permeated our global economy and our way of life. Today, 41 per cent of the more than

1,400 functioning satellites in orbit are commercially owned, with an array of purposes including broadband in rural and urban areas and over-the-sea and in-air connectivity. Global communications via private space enterprise are common. Television broadcast signals come directly or indirectly from space, and multiple methods and sensors exist to measure and observe the Earth with commercial satellite technology.

The resulting benefits have been significant. Measured against the Sustainable Development Goals, satellites, including commercially owned and available ones, enable health, public safety and educational advances. They empower nations to both monitor and be stewards of their natural resources. The commercial space industry, in particular, is a pathway to technology-based and vibrant economic growth, inspiring current and future scientists and engineers.

The SIA supports responsibly managed and effective space operations for all entities involved in space activities. Responsible conduct helps ensure that satellite users, including consumers, businesses and Governments, can rely on satellite technologies to meet their needs and protect the significant investment that has been made in the global satellite infrastructure. Commercial satellite operators ensure system redundancies to mitigate the possibility of unresponsive, unmanoeuvrable satellite in a highly valued orbit. They also take measures to ensure the cybersecurity of their systems. Space situational awareness is an essential component of conducting safe and effective space operations. Specifically, operators require precise knowledge of their systems, concerning location, orbital path, manoeuvre capability and system health.

Equally important is understanding the attributes of other operating systems and debris, such as location, orbit, planned manoeuvres and potential for radiofrequency interference. That is why it is critical for all space operators to be able to exchange information in order to account for activities in space and ensure the safety of flight for all spacecraft. The SDA — a non-profit association of satellite operators that improves the safety and integrity of satellite operations through industry coordination — enables the controlled, reliable and efficient sharing of that operational data. Furthermore, the United States Government, through strategic command, has entered into more than 50 data-sharing agreements with

commercial entities and other nations for greater awareness of potential debris-causing events.

At the end of a satellite's lifetime, disposal activities and adhering to Inter-Agency Space Debris Coordination Committee guidelines help to minimize the potential for collision, particularly in highly active orbital regimes. All of those actions by the satellite industry are aimed at ensuring a stable and usable space environment for all.

Industry-Government interaction is also an important step towards the long-term sustainability of space, particularly when considering voluntary guidelines or national regulatory or licensing requirements affecting the satellite industry. There are several opportunities for industry to have active involvement with governmental or international organizations.

The first is through dialogue. In the United States, there are formal industry advisory committees to enable that input. Workshops, conferences, industry days or other ad hoc types of interaction are also ongoing examples of industry-Government dialogue.

The second is through partnerships. Developing common technologies and standards, conducting academic research in which both the Government and industry participate, and establishing programmes whereby the Government is a customer of commercial satellite capabilities are all examples of key interaction between the satellite industry and United States Government.

The third opportunity is through international forums. In venues such as this meeting today or at the International Telecommunication Union, satellite-industry inputs can bring a variety of perspectives to topics such as the long-term sustainability of space. I would also like to note the High-Level Forum of the United Nations Office for Outer Space Affairs as an opportunity for industry to offer inputs or other programmes like the International Charter: Space and Major Disasters.

Finally, advocacy is a key engagement to communicate industry interests. Whether through individual companies or trade associations such as the SIA, the United States satellite industry advocates directly to the United States Government for predictable and certain regulation, efficient licensing and assured spectrum allocation, and a long-term vision that creates the conditions for a vibrant and competitive space

industry and a space environment that can support those goals.

Satellite industry involvement in the space sustainability dialogue is paramount. There are extremely strong incentives to operate responsibly in space. To do otherwise would put at risk the tens of billions of dollars the industry has invested in building and launching spacecraft to serve customers. In other words, space sustainability is not just good judgment; it is a good business practice. The commercial satellite industry has a legacy of more than 50 years of operating in space, applying a tremendous amount of expertise in conducting safe space operations and adopting many practices that mitigate debris-causing events.

Data-sharing is one of the most important of those actions available to operators. With significant changes happening to make space more accessible to all, there has been substantive growth in the number of satellites, applications and downstream benefits. That growth and those changes are happening in a space environment where debris events can and have occurred, which can put at risk the investments and progress made in the space industry to date.

So there is more to be done — more best practices to be developed as well as more guidelines, more interaction, increased sharing and better data — to address orbital congestion and space sustainability. Dialogue, partnerships, international input and advocacy are all avenues for collaboration between industry and Government in the pursuit of a common goal, the long-term sustainability of space.

I thank Committee members for giving me the opportunity to speak today. On behalf of the Satellite Industry Association, we look forward to contributing to this important work.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I thank Ms. Weeden for her statement.

I now give the floor to Ms. Laura Grego of the Union of Concerned Scientists.

Ms. Grego (Union of Concerned Scientists): It is a great honour to address the First and Fourth Committees today. I thank delegations for the attention they are paying to the security and sustainability of outer space. My organization, the Union of Concerned Scientists, has for decades been engaged in efforts to promote arms control and security in space. Today I will use the short time I am with Committee members to illuminate,

as a scientist, the challenges and opportunities that technology presents and how it shapes the choices and challenges before us.

Satellites provide information and other services that are increasingly critical to national security, economic vitality and human well-being. Their owners are increasingly concerned about keeping them safe; for as long as there have been satellites there have been plans for interfering with them. The act of destroying a satellite can damage the space environment by creating dangerous amounts of space debris. What is more, the impairment or loss of an important satellite, such as one used for reconnaissance, can quickly escalate a terrestrial crisis or generate other unpredictable and dangerous consequences. Short of an actual attack on a satellite, even the targeting of satellites or the construction of space-based weapons could precipitate an arms race with its own damaging and far-reaching consequences, including the diversion of critical economic and political resources from other pressing issues or the hindrance of the international cooperation necessary to make progress on important challenges, such as nuclear non-proliferation, climate change and terrorism. In short, we all have a lot at stake in space.

Satellites are used for civil, military and commercial purposes. In this slide, we can see the current approximate breakdown of the numbers of satellites for these missions. As Committee members will hear today from my colleagues, this balance may radically change in the upcoming years. Varying types of actors have varying needs from the space environment with respect to transparency, predictability, regulation, the freedom of action and coordination. To ensure that a balance of perspectives is brought to the governance of space, all must be at the table. Now is not the time to opt out or imagine that there is time to do it later. I will briefly give an overview of the transnational security aspects of space.

The space environment has changed in the past 50 years, and it has changed especially rapidly over the past decade or two. For a large fraction of our history in space, it was primarily the domain of two main actors, the United States and the Soviet Union. The map in the current slide shows what the actors in space were in 1966 and what they are today. In past decades, space was primarily used for strategic national security purposes, such as early warnings of ballistic-missile launches and intelligence support to verify arms-control treaty compliance.

In those days, both the United States and the Soviet Union developed prototype anti-satellite weapons, conducted atmospheric nuclear tests — which demonstrated, among other things, that nuclear explosions in space had the potential to damage or destroy large numbers of satellites — and conducted research on anti-ballistic-missile defence. While there was interest in these technologies and projects, the overall story was one of mutual restraint. Both States understood that the unconstrained weaponization of space would lead to an arms race and dangerous instabilities in the nuclear relationship. The international community negotiated the Partial Test Ban Treaty in 1963 and the Outer Space Treaty in 1967, which set out the foundational principles by which space should be used, and the United States and the Soviet Union crafted the Anti-Ballistic Missile Treaty in 1972.

Of course, that was truly a golden age for negotiated agreements. Since then, however, rapid technological advances have increased the utility of outer space in perhaps unanticipated ways. One important development has been the growing importance of space assets to the conduct of conventional military actions. They provide the means for precision-guided munitions, for intelligence, surveillance and reconnaissance, and for global communications. Space has become home to tactical national security missions as well as strategic ones.

The desire to preserve these capabilities for oneself and find ways to deny them to adversaries, if necessary, has led to plans for dominating space, including proposals for ground-based weapons aimed at satellites and space-based weapons aimed at ground and space objects. This, of course, has put significant pressure on the foundational principle that space is to be used for peaceful purposes and that it functions as a global commons. Many of these plans foundered in the past as they came up against technical and economic realities and because the countries had not yet to come to clear conclusions internally about how to balance national security issues in space with peaceful uses.

Today, many more actors are now in space, trying to use it to develop economically, pursue scientific goals and support national security. This has created a complex ecosystem that can bring great benefits but also creates competition. Space is not insulated from conflict on Earth, and it can unpredictably escalate crises on the ground or be the spark that starts one.

In recent decades, there have been numerous efforts aimed at getting a handle on these risks by negotiating agreed constraints. Many delegations at this meeting have worked creatively and tirelessly to move this issue ahead. For that, they have my gratitude. In any case, international efforts have not yet led to a substantive set of constraints either on space-based weapons or on anti-satellite weapons, nor on behaviour that could be dangerous. But because it is important, we must keep trying, we must keep engaging and we must continue to look at the issue from new angles.

To support what I expect to be a creative and engaged discussion today, I thought I would use a bit of time to briefly introduce the technological trends and to discuss where they present opportunities and challenges in a quest to building a secure future in space. I will keep everyone awake with animation. This is the only science I will do today. To stay in space, an object must experience a force that balances gravity, which is the centripetal force that results from the object going rapidly around the Earth. It is an exquisite balance. To be in orbit, an object must move at high speeds; low-Earth orbiting satellites — ones that are closest to us — must move at around 7.5 kilometres per second, which is 30 times the speed of a jet. In the current slide, this is how it looks in motion. The blue sphere represents the Earth. The satellite on the inner orbit goes faster than the more distant one. What I would like Committee members to understand is that satellites move rapidly but predictably.

That leads to a number of consequences. One is that our intuition that space provides a unique strategic position that must be occupied first and defended is incorrect. On the Earth, there is the concept of the high ground, whereby one can see much further from a fortification on a hill that only one force occupies. High ground may allow its occupier to conceal itself from its enemy's view. However, this is not how it works in space. Earth-observing satellites are generally in low-Earth orbits to be as close as possible to the Earth's surface. There are a great number of them; we count more than 400 Earth-observing satellites in orbit, including the one that produced the image in this slide of where we are all seated today.

The Earth turns underneath the orbit, so the satellite can see the entire Earth in a timely way. But Committee members will notice that there is not just one premium vantage point here. Many satellites can fit into one of these orbits and many variations of these orbits exist.

This high ground is widely available, and there is room for everyone to coexist. In fact, they must coexist.

Because Earth-observing satellites provide critical intelligence and imaging services, including for resource management, particularly for remote areas, they can be used to confirm that actors are abiding by their commitments to environmental stewardship. One can imagine the power of satellite-enabled telephone and Internet services to transform underdeveloped economies and provide robust communications in the face of natural disasters that wipe out terrestrial networks.

While a ground-based hill fortification is also thought to provide an advantage in that the occupiers can conceal themselves from enemies' view, this is not the case in the high ground of space. In fact, there are few places on Earth that are as difficult to hide in as space. Satellite orbits are readily calculated, and their future positions are predictable. They are readily observed from the ground by radars and large optical telescopes.

The current slide shows a ground-based optical tracking station, but as it turns out, one does not have to have sophisticated equipment to track satellites. Even amateurs in their backyards are able to track them with binoculars very well. As a consequence, satellites can be perceived as being vulnerable to attack, but this also provides an opportunity, in that verification of adherence to many kinds of norms and rules is possible by direct observation.

Imagining space as a military high ground can lead us astray in other ways. Although the thought that space could be used to directly mount an attack on the ground could be very dangerous and destabilizing — and understandably draws a great deal of our attention — it is a very unlikely use of space for technical reasons. It takes an enormous amount of energy to get objects into orbit. Only a few per cent of the mass that can be seen in the Atlas V at the top of the current slide is dedicated to the actual satellite. It takes 45 tons of fuel to put a one-ton satellite into orbit. From there, a weapon does not just drop back down to earth. It takes approximately the same amount of energy to get it to slow back down, and that fuel has to be carried up with the satellite. Although this is one of the technologies that has long captured the imagination and is certainly very dangerous, it is therefore also very unlikely to be used.

Additionally, objects in space move rapidly in relation to the ground, so if there is a need to deploy an asset quickly, multiples will be required, which gets expensive rather quickly. In the current slide, the animation shows a constellation of global-positioning-service navigation satellites. As the satellites become visible to North America, their lines of sight light up in purple. At least 24 satellites are needed to have enough of them in view to make the system work. Putting weapons in orbit to prepare to use them to target the ground is incredibly costly and is not an advantage. So while space-based Earth-targeting weapons and ballistic-missile defences are an idea that never seems to entirely disappear, captivates an enormous amount of our attention and is potentially very destabilizing, they are not very useful. Accordingly, this might be an area where there is potential for States to engage in negotiated constraints.

The fact that once an object is put into orbit it stays up unless it is taken down, as I mentioned, is important to remember. If a satellite is broken into pieces because its fuel tank explodes or has been targeted by a weapon, the many thousands of pieces of debris remain in orbit at the same high speeds characteristic of the original satellite, and they can remain there for decades or centuries, which can create a very dangerous environment for other satellites. It is a serious problem. This slide contains an animated illustration of the rapid increase of debris in space since the dawn of the space age. It should be noted that the dots are not to scale. What this slide shows is that the behaviour of one actor in space affects all other space users. One cannot secure one's own satellites without the cooperation of others. We are all in it together.

In terms of opportunities and solutions, in my view, a multitude of approaches is needed to secure space. Much can be done to address the issues via the establishment and reinforcement of norms and by acknowledging and reinforcing the guidance already provided by existing international law but that is likely to be insufficient for a long-term secure space environment. Some technologies and behaviours will have to be addressed through negotiated constraints, and the attention of the arms-control and disarmament community is critically needed in that regard.

One question, therefore, is what legal constraints currently exist in the outer-space regime. Under the current legal framework applicable to the space domain, certain military uses of space are compatible with the

cardinal peaceful-purposes principle set out in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967. However, the law does not expressly mention the initiation and conduct of hostilities involving space, and little State practice exists on the subject.

A civil-society project, the Manual on International Law Applicable to Military Uses of Outer Space project, aims to develop a widely accepted manual that clarifies the fundamental rules applicable to the military use of outer space by both States and non-State actors in times of peace as well as in times of tension, and in outright armed conflict. The manual is intended for military practitioners, policymakers and non-governmental organizations, and it is designed to be practical and accessible. The project is sponsored by McGill University's Centre for Research in Air and Space Law, in Canada, the University of Adelaide's Research Unit on Military Law and Ethics, in Australia, and the University of Exeter, in the United Kingdom. The group of approximately 40 experts is international and includes academics, practitioners and technical experts, including myself, as well as governmental and non-governmental observers, for example, from the International Committee of the Red Cross.

Although an elaborate body of law regulates the initiation and conduct of armed conflict in the terrestrial context, the interpretation and extent of application of this body of law in outer space has never been comprehensively and objectively addressed or authoritatively stated. Until that happens, there is a danger that some States will draw the inaccurate conclusion that no such legal restraints exist, or that certain principles are discretionary. In any conflict that does ensue, it is important that space actors acknowledge that outer space is not a lawless frontier. We look forward to introducing this document to the international community in two years, and I invite everyone to feel free to ask any questions they might have.

I have a final comment with respect to the international community. The golden anniversary of the Outer Space Treaty is a prime opportunity for us, the depositary States of the Treaty and space users, to provide leadership and convene a meeting, perhaps a review conference, to provide clarifying discussions about how various States view the balancing of freedom to use space for peaceful purposes, due regard to other

actors and the use of space to benefit all humankind. Another option would be to discuss how best to implement the very good suggestions for transparency and confidence-building measures developed in the United Nations Committee on the Peaceful Uses of Outer Space and the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities. Alternatively, a new generation of space States or civil society will take the lead. The sense that space is fundamentally for peaceful purposes and its use must be for the benefit of all humankind should be reaffirmed by practice and rhetoric, and the Treaty's basic principles must be expanded on to respond to new challenges.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I thank Ms. Grego for her statement.

I now give the floor to Ms. Daniela Genta, Vice-President of Airbus Defence and Space, who will make a joint statement with Ms. Joanne Wheeler, Program Officer, Project Ploughshares, who is joining today's meeting via video-teleconference.

Ms. Genta (Airbus Defence and Space): I thank you, Sir, for this opportunity to present the industry's perspective at a time when we are facilitating the fusion of new technologies and business models that are broadening access to space and to discuss how the industry is willing to cooperate with various institutional actors, including the United Nations Office for Outer Space Affairs, in compliance with the broader legal regime of activities in outer space.

Last year, Airbus adopted the United Nations Sustainable Development Goals (SDGs) as a corporate social-responsibility framework initiative, and we outsourced the project of conducting a large-scale mapping of our activities to DNV GL, a leader in the area of global certification. The mapping concluded that through its business operations, Airbus is actively supporting eight of the SDGs, one of which is Goal 16, which involves promoting peace, justice and strong institutions. This exercise remains ongoing, the next step being to measure key performance indicators in relation to our contribution to the Goals.

Among the major activities of Airbus are its activities involving outer space. Space-based programmes and technologies are key enablers of the 17 Goals. A recent report by the Working Group on Technologies in Space and the Upper Atmosphere of the Broadband Commission for Sustainable

Development, entitled "Identifying the potential of new communications technologies for sustainable development", details the technological advantages and the "explosion in capacity" resulting from space-based technologies, in particular low Earth orbits, which will play a critical role in connecting the "other 4 billion unconnected people" and helping to meet the Sustainable Development Goals.

Satellite technology is used to monitor changes in the environment and give Governments and public agencies greater understanding in the use of data coming from a variety of sources, including an entirely new generation of satellite constellations such as the European Copernicus Sentinel satellite programme. The potential cost savings brought by environmental monitoring have always been part of the rationale of the Copernicus programme. We estimate that for every euro invested in environmental monitoring, there will be a return of €10 for the benefit of society.

As an industry involved in space activities, we obviously look very closely at the special occasion of the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies and at the Dubai Declaration, issued in November 2016 at the high-level forum on space as a driver for socioeconomic sustainable development, and setting forth the four pillars of the Space2030 agenda. The forum noted in particular the recent advancements made in space technology, of which we as an industry have been at the centre as leaders of the fourth industrial revolution, thanks to the automatization of spacecraft manufacturing and the emergence of new business models. Our contributions have been made in the context of the Space2030 agenda's four pillars, particularly in terms of strengthened cooperation, including with the private sector. Indeed, we are focused on the space economy, where new spacecraft technology can enable an entirely new economy in orbit. We look at space accessibility, where we seek to create greater and more reliable access to space and infrastructure for new users, and space society, where new constellations bring seamless connectivity and global observation benefits to humankind.

The Dubai Declaration also refers to and highlights the relevance of regional capacity-building. In this respect, we remain very much involved with initiatives led by the European Space Agency in relation to the space economy. The European Space Agency, along

with the National Aeronautics and Space Administration (NASA), is a founding member of the Inter-Agency Space Debris Coordination Committee (IADC), together with 13 additional space agencies around the world. In order to ensure the competitiveness of the European industry in implementing mitigation measures for debris, the Clean Space Initiative was launched by the Israel Space Agency (ISA), which initiated a programme called the Clean Satellite Project. Using an approach designed to coordinate system and equipment manufacturers in developing and implementing such innovative debris-mitigation techniques as orbiting systems, demisable equipment and pacification solutions, the e.Deorbit project, the European Space Agency's first active mission for strategic debris removal, has been launched, with Space Tug as the first part of the mission. The Space Tug mission's purpose is to stabilize the growth of space debris, with a view to developing eco-designs for the spacecraft we manufacture.

Space Tug will make innovative use of existing off-the-shelf satellite platforms with robotic service models. It will start its implementation phase using purely private initial funding. It is nevertheless open to cooperation with the European Space Agency and other institutional and private partners. We will launch several missions to bring about significant developments in the establishment of a real orbital economy for end-to-end services, including refuelling geostationary satellites to extend the lifespan of spacecraft in use, transmitting images of the space environment to spacecraft in orbit, or more actively participate in debris removal.

A further initiative undertaken together with the European Space Agency and the Austrian Space Agency serves to bring new access to the international space station. We have developed a new space platform that will be operated as an external payload on the European Columbus laboratory module. An agreement with the European Space Agency is in place today that enables Bartolomeo, named after the brother of Christopher Columbus, to allow further access to the international space station. Bartolomeo has been developed and will be operated in partnership with the ISA and NASA and will offer the possibility for 12 external payloads to be placed on board the module. Today, flying on the international space station can take a lot of time and is limited to participants from member States of the international space station. With this initiative, we offer an end-to-end assessment service for the international

space station in order to streamline and simplify access to its capacities for new users.

Space debris is definitely at the core of ensuring long-term sustainable access to space. It is a crucial problem that must be approached legally by developing non-coercive regulations, what we call "soft law". I refer to resolution 62/217, the mitigation guidelines adopted by the IADC and International Organization for Standardization standard 24113:2011. However, none of these measures are binding. One way to support them is through the industry's technological innovations, and another is to enforce them through national space laws adopted by Governments and via the national licensing system for space operations and satellite operators. In parallel, the industry is involved in the development of dedicated technical rules that are sometimes attached to national space laws or licensing conditions, particularly for constellations. They cover aspects like constellation design, spacecraft design and operations in orbit. But the industry also goes a step further because our relations with customers give rise to contractual obligations in terms of the way we design spacecraft and how we foresee their operations, which of course must comply with the technical guidelines.

A key element in this environment is States' responsibility, liability and jurisdiction with respect to the operation of large constellations, which since 2015 have become an important development and are considered to be making the largest contribution to what space can offer society today.

We have already heard several times today that the fiftieth anniversary of the implementation of the Outer Space Treaty was celebrated two days ago. Four other major international space treaties expand the reach of the Outer Space Treaty. Of key importance to the Outer Space Treaty is the international responsibility that States have for national activities, and whether those activities are carried out by Government agencies or private commercial operators. The activities of private entities require the authorization of and continuing supervision by individual States. States therefore provide support to private and commercial operators through the adoption of national space laws and licensing frameworks.

Last year, the European Commission outsourced a study on space law in Europe. A piece of evidence that emerged from the study was that the nations carrying out commercial space activity using satellite operators

were the first to implement national space law and other measures that also correspond to aspects of the International Telecommunication Union (ITU) treaty, which governs access to spectrum frequency resources and is always in full alignment with the principles of the Outer Space Treaty.

One of the major aspects of national law related to the international legal framework of the Outer Space Treaty is liability and third-party insurance requirements. In general, space law requires licensed operators to obtain third-party liability insurance to ensure that third parties injured by space objects under their control are compensated. This normally covers injuries on Earth, because private-sector satellite operators undertake unlimited liability for damages that occur in space.

A survey of various national space laws shows that there are different mandatory aspects related to third-party liability. In Europe, the countries that have space laws or a particular framework in place with regard to concessions to private operators sometimes make third-party liability insurance for commercial operators mandatory, and at other times make such insurance voluntary. The cap also varies depending on the insurance.

In Italy and Spain, for instance, there is no requirement for third-party liability. The main reason for this is that the operators of space activities still receive strong support from the Government. But all of these aspects were developed with a single spacecraft in mind, while today we are witnessing the development of large constellations with thousands of satellites and activities involving them. Some of those aspects are therefore not suited to the latest advances in technology.

A third issue arising from international law is the implementation of licensing at the national level. We understand that an international perspective must be integrated into national legal frameworks, which in turn need to encourage and stimulate investment and the spirit of entrepreneurship and innovation in the industry, ensuring thereby that new technologies can come to market. We also understand that nations and Governments must apply the Outer Space Treaty, which is necessary for limiting State liability, while also protecting the public coffers. In this framework, we see new space technology as a catalyst for the development and transformation of regulations and policy,

particularly at the national level. An adequate transition phase is needed to implement the necessary changes.

Dedicated technological regulations are also needed, particularly to cover aspects relating to space-debris mitigation, for instance, through licensing requirements. In France's national space legislation there are decrees that cover technical aspects and set out stringent rules for the industry implementation of those technical aspects, which increases cost of operations and production. So far, however, there has been no agreement on the criteria for re-entry of low-Earth-orbit observation objects after 25 years in orbit. In general, space is a growth industry, leads to innovation and acts as a catalyst for licensing and development, not necessarily as a result of international frameworks, but rather thanks, in fact, to national law and regulations.

As a private-sector company, we very much support binding norms whose benefits outweigh the risks, particularly with respect to establishing a registry of objects, third-party liability insurance aspects and the protection of investments. We understand that we are influencing the evolution of regulations and space law, for which we take responsibility. We very much support and foster the development of best practices and solutions that can also be translated into technological developments that give rise to international standards.

Finally, we emphasize the necessity of maintaining sustainable long-term access to radio frequency spectrums for space-based activities, particularly for observation services. The ITU regulations, which take the form of a treaty, are revisited every four years, in order to keep up with technological developments. In particular, the upcoming World Radiocommunication Conference will provide an opportunity for reviewing and updating regulations that specifically apply to assigning frequencies to constellations being brought into use.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I now give the floor to Ms. Jessica West, of Project Ploughshares.

Ms. West (Project Ploughshares): My name is Jessica West. I manage the Space Security Index project, which represents an effort to contribute to transparency, trust and accountability by producing an annual fact-based and comprehensive report on the status of outer space security. Most of my time is spent following and reporting on the work of the First Committee. It is quite an honour to be invited to participate.

Today's presentation is based on my experience working with the Space Security Index, but I will stress that the views expressed are my own. That project is an objective, policy-neutral document, whereas my presentation is not quite that.

On that note, I will take the opportunity of speaking from this rostrum to advertise the official launch of the latest Space Security Index report, which I picked up this very week. We will host an event next Tuesday over the lunch break, generously supported by the Government of Canada. We will have an opportunity to hear a few words from Canada's Ambassador, Rosemary McCarney. My own presentation will be different from today's, and I will have full copies of the report to distribute free of cost.

My talk today will focus on trends in outer space governance and how they relate to key tenets of the Outer Space Treaty — the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies — which created a security regime by balancing aspiration with restraint through a focus on international cooperation, environmental integrity and various elements of non-armament.

I will briefly review key challenges to the security of outer space, with a particular focus on the effects of contemporary strategic instability, and turn to trends in outer space governance. What I will note is that there is not an absence of efforts to address outer space security today, but instead a variety of directions being taken by a number of different actors pulling in different directions. My key point is that it is the role of the United Nations to bring those efforts together and to maintain the coherence of the governance framework for outer space.

My starting point is a comprehensive definition of the security of outer space, which will not be new to members. It includes safety of operations, security of space systems and security of access to space, and sustainability of the environment. All three elements are needed to have adequate security in outer space. I will suggest, however, that the current inability to address the hard security concerns that are related to national security and potential warfare in space is the weak link of this equation today, and a detriment to the other safety and sustainability efforts that are taking place.

I think that what we heard today is that access to outer space is flourishing. In large part that is because of the success of the Outer Space Treaty in creating and maintaining a secure environment for stable interaction. Changes to the way in which space is used, and by whom, and shifting technological capabilities have been well captured by the previous speakers. My overall point here is that those changes bring with them new but, in many ways, old challenges, including environmental sustainability, the growing complexities associated with safe operations, and dealing with new users and uses. But I would like to highlight in particular strategic instability.

The risk of warfare in outer space is growing. We heard from Laura Grego about various technological developments that are part of this momentum. However, to my mind, this is actually made more severe by political developments. Those include rising geopolitical tensions, demonstrations of technological capabilities, a growing willingness to approach outer space as a domain of warfare and ongoing failures to agree to new restraints on the use of force in outer space.

With regard to the various challenges to security, safety and sustainability in space, there is a consensus that more needs to be done to reinforce the key values of the Outer Space Treaty and the security of outer space. I often have the privilege of working with retired Ambassador Paul Meyer on this project, and he compares this need to pedalling a bicycle — we have to keep pedalling to keep going forward. He is not here today, so I am going to take the opportunity to tweak his metaphor and suggest that governance is instead like a group of people chained together. A bicycle assumes unity of purpose and direction and effort, but with the idea of a chain, there is the notion that individuals may be pulling in different directions — some are racing ahead, some are lagging behind, some might just be going the wrong way. We can progress only by slowly pulling each other along and trying to move together in a common direction. I think that is what we are trying to do today.

As we turn to the governance trends in outer space, it is clear that there is a lot going on, not just at the global level. National policies have a significant impact. Charity Weeden and Daniela Genta both spoke to some of the ways in which States are creating laws that have an impact on outer-space governance. The role of the private sector as a partner in governance is increasing, and Charity spoke to that. Civil society and academic

contributions are also really important here. Projects such as MILAMOS, the Manual on International Law Applicable to Military Uses of Outer Space, and my own project, which seek to bring greater clarity and transparency to policy debates and provide neutral, Track II environments for talks, are an important part of the process.

To my mind, therefore, the risk is not so much a lack of governance related to space security, but a fragmenting of efforts that might start to chip away at the universality of the Outer Space Treaty and the risk that the chains holding us together will break. I think the role of the United Nations should be to maintain coherence and guide the chain forward in a unified direction.

The ability of the United Nations to lead on outer-space governance is also somewhat fragmented. While there is a lot of momentum on some elements of space security, particularly the safety and sustainability elements, it is hindered by the inability to address tensions with regard to national security and the use of force in outer space.

The outlook on safety and sustainability at the moment is cautiously optimistic, particularly when we look at the ongoing work of the Committee on the Peaceful Uses of Outer Space, which functions through consensus and has been focused on developing voluntary guidelines that bring together established best practices. It is reassuring to see that new issues such as resource extraction are at the table. The value of the work being done here is evident in the growing number of States that are joining the Organization and wanting to participate in the process. The main concern might be the potential for activities in outer space to outpace the ability of this body to develop guidelines and its having to respond to facts in space once we are already there.

Similarly, the United Nations Office for Outer Space Affairs has a role in space governance at the global level. It maintains the United Nations Register of Objects Launched into Outer Space that we heard about earlier. There are also a number of programmes focused on universalizing the benefits of outer space, which is a key element in realizing the goals of the Outer Space Treaty. It is a growing focal point for international cooperation, which is really at the cornerstone of peace and prosperity.

Efforts to address geopolitical tensions related to the potential for an arms race or warfare in outer space currently seem intractable. The Conference on Disarmament has been deadlocked for so many years that I have lost count. Efforts to develop a treaty banning weapons or the use of force in outer space have been divisive and somewhat rigid. Efforts to develop a voluntary code of conduct have disintegrated. I have heard that they might be revived, but we are not sure.

Nevertheless, it is important to note that there are indeed clear points of consensus on the issue, which can and should form the basis for renewed efforts on this front, particularly in terms of agreement on transparency and confidence-building measures and on the prevention of an arms race in outer space. Every year the General Assembly unanimously adopts resolutions on these issues.

Two potential initiatives emerging this year are focused on working on this consensus. First is the discussions at the Disarmament Commission on a joint working paper by the United States, Russia and China to promote practical efforts to implement the recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (see A/68/189). I think that is a great idea, one that should be welcomed by the international community and civil society alike. The need to increase trust and transparency is unanimously supported, and a way of institutionalizing progress would also be welcome. Moreover, the Disarmament Commission is a universal body, and the lack of universality has impeded other efforts on space security.

I believe it would be particularly helpful if greater transparency were brought to military programmes, which continue to exist at an excessive level of secrecy, some of which is just absurd, frankly. We can see the satellites, and there is a lot of open-access information on a lot of military space activities that is not necessarily made available by States. Reducing this secrecy would be an important step towards trust and transparency.

Last week, both China and Russia mentioned an initiative to create a group of governmental experts on preventing an arms race in outer space. Again, the resolution on this subject is adopted unanimously every year, so finding a venue other than the Conference on Disarmament through which it can be further explored would also be a welcome contribution to this debate.

Ideally these two initiatives would reinforce each another in the long term. There is clearly a preference for arms control for the majority of States. In the past, efforts to limit the use of weapons in outer space have contributed a lot to strategic stability. In the meantime, however, there is certainly a need to build trust in relationships that are necessary to put those restraints in place. Nevertheless, both processes should include ways to track progress and accountability in order to maintain integrity of the process and continue the momentum.

Overall, there is a need for greater coordination of efforts within the United Nations in order to keep the various space safety, security and sustainability components together. I believe that this is generally recognized, and it is encouraging to see efforts moving in that direction. It is also important for United Nations bodies to remain engaged with governance efforts being developed at the national level, as well as with the private sector and civil society, in an effort to maintain the coherence of the various developments that are taking place.

Finally, I think the United Nations has an important role to play in encouraging strategic restraint at the national level. Whether we are dealing with the chain or the bicycle, bicycles have chains, and at the end of the day, we are in this together and we will bear the outcomes collectively.

Co-Chair Ramírez Carreño (*spoke in Spanish*): On behalf of the co-Chairs and delegations, I would like to thank our panellists for their statements today. The fact that all of them are women is very encouraging, since we are sure that in their hands space will be safer for all of us. We commend them for their outstanding presentation of their ideas.

We will now begin the panel discussion. As this is to be interactive in nature, there is no list of speakers. Delegations wishing to take the floor should press the microphone button on their console. Our time for this meeting is limited, so I request that all delegations keep their statements short and certainly no longer than three minutes. Delegations are encouraged to deliver abridged versions of their statements and submit the full written statement to the secretariat for publication on the PaperSmart portal. As noted, the co-Chairs will prepare and issue a summary of the panel discussion and interactive dialogue.

Mr. Sun Lei (China) (*spoke in Chinese*): The Chinese delegation thanks the Chairs of the First and Fourth Committees for holding this joint event. We appreciate the excellent remarks by the speakers. In view of the statements that some of the speakers made, my delegation wishes to make the following comments.

Outer space is an international domain that is important to all humankind and is our common heritage. As some of the panellists said, along with the development of space technology, in recent years challenges have come to the security environment in outer space, while the risk of the weaponization of space remains and is the most fundamental threat we are facing in terms of security in outer space.

Several of the panellists made reference to global governance in this area, and we believe in order to enhance global governance, we should focus our efforts on the following concerns.

The first is that we must adhere to the current legal regime and principles in the field of outer space and ensure the peaceful uses of space. The Outer Space Treaty and other existing legal regimes and principles play an important role in maintaining the peaceful nature of the uses of outer space. First of all, the Treaty sets out fundamental principles for the uses of outer space. Secondly, it categorically prohibits the placement of nuclear arms and other weapons of mass destruction in outer space and clearly spells out the goal of maintaining the peaceful nature of the use of outer space and the means to achieve it. Thirdly, the Treaty as a legal instrument serves as an example in the maintenance of peace and security in outer space and thereby plays an important role in promoting the peaceful use of and regulating behaviour in space.

As the Director of the Office for Outer Space Affairs said, the Outer Space Treaty is our constitution and charter for maintaining the legal order in outer space, and its universality must be further strengthened.

Our second concern is that we must negotiate a legal instrument for preventing an arms race in outer space so as to fill the gaps in the existing international legal regime in outer space. The Outer Space Treaty forbids only the placement of nuclear weapons and other weapons of mass destruction in outer space, not other types of weapons. With the development of space technology and its applications, certain space-based weapon systems are ready to be placed and could be used in war. That demonstrates that the weaponization

of outer space is an emerging trend and that it is growing in strength. Obviously, the international community must work to enhance the current international legal regime for outer space and fill the existing gaps and loopholes.

China and Russia have jointly presented a draft resolution to the Conference on Disarmament (CD) in Geneva concerning the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects. At the same time, in view of the importance of this issue, China and Russia suggest that a resolution on this issue be adopted this year by the General Assembly and a group of governmental experts established. The group would hold meetings in both New York and Geneva in 2018 and 2019, and during each two-week session would focus on preventing the weaponization of outer space and establishing international legal regimes and instruments. The group of governmental experts would then submit a report.

The draft resolution we are going to propose will enhance the consensus on this issue and create the conditions for negotiations on the draft treaty. Once the CD has agreed on a comprehensive and balanced programme of work and started negotiations on the prevention of an arms race in outer space, the work of the group of experts would cease forthwith and be transferred to the CD. We hope that this draft resolution will have countries' unanimous support.

Our third concern is that we must make efforts to enhance transparency and confidence-building measures in outer space activities (TCBMs). China believes that appropriate and feasible TCBMs can build confidence and avoid mismanagement. They would also help to maintain peace and security in outer space and could become an important complement to efforts in this area. Some TCBMs can contribute to the maintenance of security in outer space and to instruments for verifying activities. However, transparency and confidence-building measures in outer-space activities have inherent limitations that cannot be avoided. They should not dominate the negotiation of a legal instrument on outer-space arms control.

Fourthly, we must promote the sustainability of outer-space activities. China hopes that in the interests of achieving the concrete objective of maintaining security in outer space, all sides can negotiate the

long-term sustainability of outer-space activities in that spirit.

Lastly, the United Nations and other relevant institutions must play their full part. Just now, Ms. Jessica West mentioned the role of the United Nations and relevant institutions in this area, and we appreciate her comments. As always, China will continue to participate within the United Nations framework in the field of outer space. We believe that in the current circumstances, the United Nations Committee on the Peaceful Uses of Outer Space and the CD should strengthen their efforts and play a greater role in enhancing security in outer space.

President Xi Jinping of China has put forward the important concept of building a community based on a shared future so as to achieve win-win development. The future of the human community's shared destiny is especially visible in outer space. Regardless of their size or level of development, all countries should participate in, contribute to and benefit from the peaceful uses of outer space. Major spacefaring nations should take up the responsibility of providing a public good and helping nations with limited or no space capabilities to enjoy the benefits and dividends of peaceful space exploration.

The First and the Fourth Committees have made tremendous efforts and achieved significant progress in this area. China will always support the work of the United Nations in this field and will continue to contribute to the long-term peace and stability of outer space.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I would like to remind delegations to keep to the stipulated time limit of three minutes. When one minute remains, the light on the microphone will begin to blink. I would also like to point out that the mechanism for asking for the floor is automatic, so when the button is touched it is reflected on the screen.

Mrs. Guitton (France) (*spoke in French*): My country associates itself with the statement to be delivered by the observer of the European Union.

France warmly thanks the panellists for their very interesting statements. I would summarize them in two words: change and continuity. The changes in the situation in outer space from the one we knew 50 years ago are clear, as has been noted. Space is now used by and for many more people. It is no longer reserved for

the military or for scientists, nor can it be summed up as a race of technology or exploration.

Today space is more open and more strategic for every one of us, as we depend on it for our daily activities. However, if there has been a break in the general context, there is also continuity in terms of what is at stake, which is guaranteed access to space. With the development of lighter satellites and the reduction of launch costs that access has certainly been democratized, but the question is still there. It is now less about guaranteeing the access of all to space and more about guaranteeing sustainable access.

How can we prevent the potential risks of collision and the proliferation of debris in an environment where the number of objects is growing and the actors are becoming more diverse? In that regard, which has in part to do with the management of space traffic, we must act pragmatically, abiding by rules that are understood and followed by all. The work that the Working Group on the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space (COPUOS) has been doing for nearly a decade is a step in that direction, and we hope it will culminate in the next session of the COPUOS Scientific and Technical Subcommittee, in February.

Generally speaking, in our view, transparency and confidence-building measures — which are certainly not legally binding but create a standard and a common lexicon — constitute a pragmatic instrument for meeting the challenges of security and sustainability.

I would like to address the issue of ensuring the peaceful use of space. Space is no longer the place of rivalry between two great Powers, but it has remained a strategic frontier and is still vulnerable to competition among Powers. In the context of the rapid development and dissemination of space technologies relevant to defence activities, the goal we set for ourselves 50 years ago of preventing an arms race in outer space is more relevant than ever. It is therefore essential that we once again focus on this issue, which has suffered from the impasse in the Conference on Disarmament, in order to enable States to reiterate their commitments in the most appropriate framework and manner.

On these issues, I believe the panellists' statements have shown us that we need to be more responsive when analysing the latest technological developments and their implications for the maintenance of the sustainability and security of space activities. We

should also be more inclusive and take into account the role played by non-State actors. Our worlds must interact more, and we must find the forums to talk to one another.

Finally, we should promote cooperation and regulation to maximize the benefits that we can all derive from outer space as a common good. That is why gatherings like today's — in which the General Assembly committees involved in peaceful use and disarmament, State representatives and private actors meet and exchange views — are indispensable and should, in our view, be more regular.

Mr. Al-Dobhany (Yemen) (*spoke in Arabic*): At the outset, I would like to express the gratitude of the Group of Arab States to the co-Chairs for convening this important meeting, which represents a unique opportunity for ensuring coordination among United Nations bodies and agencies concerned with space issues, especially since it is taking place at a time when it is increasingly difficult to distinguish between security and civilian activities in outer space.

The Group of Arab States would like to align itself with the statement to be delivered by the representative of Indonesia on behalf of the Movement of Non-Aligned Countries.

The role of outer space in a number of sectors of the economic, social and scientific life of States is increasing, due to scientific and technological developments, which require an appropriate environment of security, transparency and trust with regard to the activities of States in space. Like other States, the Arab countries want to harness outer space in order to meet their development needs, given that outer space constitutes a common heritage and possession of all humankind.

In that context, we would like to emphasize once again how crucial it is that the exploration and use of outer space remain restricted to peaceful purposes, in keeping with the provisions of the international conventions and treaties that seek to achieve the goal of eliminating the militarization of outer space, on the one hand, and guaranteeing its sustainability, on the other. The aim is to maintain peace, security and stability, and to strengthen international cooperation based on related principles and obligations.

The militarization of outer space is a matter of concern, since it could pose serious threats that might lead to new competitiveness and a new arms race, which

could have very serious consequences for international peace and security as well as negative economic and social effects. With a view to addressing the possible challenges in ensuring the security and sustainability of outer space, we want to once again emphasize our priorities in this context, based on the following fundamental principles.

First, all activities in outer space must be legal and conducted under the United Nations umbrella in order to ensure the principles of inclusiveness and universality, as stipulated in the Charter of the United Nations. The international consensus rule in that vital area must be applied. Secondly, any attempt to regulate and organize activities in outer space must aim at maintaining the interests of all peoples and countries, and must not create barriers to States' inherent rights to the peaceful use of outer space. Thirdly, outer space must be preserved for peace and safeguarded against any kind of dispute or warfare. It should be protected against a potential arms race through a ban on the placement of any defensive or offensive arms in it. Furthermore, we need a binding international regime to prohibit the placement or use of arms in outer space. Fourthly, the emphasis should be on the enormous importance of strengthening international cooperation in the area of peaceful uses of outer space and on including development for the group of countries that use and benefit from space applications in order to meet the special needs of those countries and strengthen their national capacity in that regard.

The Group of Arab States appreciates the content of the Dubai Declaration adopted at the first high-level forum on space as a driver for socioeconomic sustainable development, which was organized in November 2016 by the United Arab Emirates and the United Nations Office for Outer Space Affairs, and in which participants underscored the importance of joint efforts to ensure the long-term sustainability of outer space for purely peaceful purposes, as well as of making outer space accessible to emerging States.

The Group of Arab States welcomes any initiative that seeks to ensure the security and sustainability of outer space, as long as it takes into account these principles and preserves the peaceful nature of outer space, so that it cannot become an arena for an arms race.

In conclusion, we hope that other topics will be included in future meetings of the First and Fourth Committees in addition to the security and sustainability

of outer space, such as strengthening international cooperation in the area of peaceful uses of outer space.

Co-Chair Ramírez Carreño (*spoke in Spanish*): I now give the floor to the observer of the European Union.

Mr. Lenoir (European Union): I have the honour to speak on behalf of the European Union (EU) and its member States. The EU candidate countries Turkey, the former Yugoslav Republic of Macedonia, Montenegro and Albania, as well as the country of the Stabilization and Association Process and potential candidate Bosnia and Herzegovina, and Ukraine, Moldova and Georgia, align themselves with this statement.

We are very pleased to attend this meeting, and we warmly welcome the co-Chairs and thank the panellists. We would like to take this opportunity to make a number of points.

We would first like to underline that space activities and technologies are essential tools that can greatly help us to deliver on realizing the Goals and targets of the 2030 Agenda for Sustainable Development. Space applications are drivers for economic growth and innovation that contribute to the competitiveness of industry and to job creation, and thereby to poverty reduction. They can also be instrumental in tackling major societal challenges such as climate change, disaster management, health care and education for all, and in protecting the environment, scarce resources and biodiversity. They are important for the prevention and management of conflict and crime, as well as the protection of human rights.

Our second point is that the EU and its member States, like others, have developed significant space capabilities in the areas of global navigation, Earth observation and research, and our society increasingly depends on those capabilities. That increasing reliance on space creates a shared need for a safe, sustainable and secure space environment. We should therefore tackle significant risks and challenges together, including, to name just a few, dangerous space debris and the risk of destructive collisions, the need to share the geostationary orbit and the radio frequency spectrum, and the threat of the deliberate disruption or destruction of satellites.

That again explains why the EU and its member States attach great importance to the development and implementation of transparency and confidence-building measures as a means for

strengthening security and ensuring sustainability in the peaceful use of outer space. We support discussions on the non-legally binding instruments that would foster increased international cooperation and establish standards of responsible behaviour across the full range of space activities, strengthening commitments to non-interference in the peaceful exploration and use of outer space, facilitating equitable access to outer space and increasing the transparency of outer space activities.

We also support continuing work on the prevention of an arms race in outer space and on a shared understanding of the existing principles of global space governance as a measure for preventing conflict and promoting international cooperation.

Finally, we strongly support the very important work being done by the Committee on the Peaceful Uses of Outer Space Working Group on Long-term Sustainability of Outer Space Activities, which concluded negotiations on a first set of guidelines in 2016. We look forward to working with the Chair and all partners to conclude negotiations by the deadline set for the conclusion of the Working Group in June 2018.

Ms. McCarney (Canada): I will respond to two of the indicative themes and questions that were proposed in the programme, as well as to some of the comments made by the panellists this morning.

The first is on the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and how to achieve universalization. We all agree that all space actors should adhere to and conduct their activities within the current international space legal framework and its four core treaties, including the Outer Space Treaty. Universal adherence to those treaties and their principles is an important baseline for the international community as we develop new norms and behaviours to govern emerging space activities.

As Chair of the Committee on the Peaceful Uses of Outer Space (COPUOS), Canada encourages all COPUOS member States that have not yet done so to accede to the Outer Space Treaty so that we can help solidify this international legal regime, which currently governs outer space. At 50 years of age, the Outer Space Treaty remains a solid base that can enable the work of the international community to actually go beyond what the Treaty itself addresses so that we can continue to build and respond to new innovations and

technologies. We are making inroads through voluntary measures that help solidify the international behaviour norms that were addressed by some of the panellists this morning. They create the climate of confidence that is absolutely essential to developing future legally binding measures governing space.

So what can we do to build a safe and sustainable use of outer space? Here in this room, multilaterally and in regional groupings, States can undertake targeted discussions of the issues that are most pressing to them. We could perhaps add the subject of space to the international agenda in order to focus attention on the need for peaceful uses of space from which all of us, not just the spacefaring nations of today, but those that are new or emerging, as well as those of the future, can benefit.

We can also target conversations to encourage open discussion of existing and emerging trends and what they mean for Member States, their Governments, their industries and their citizens. Regionally or inter-regionally, organizations can be encouraged to foster research and analysis. As Ms. West mentioned, on 17 October we will be pleased to launch the 2017 Space Security Index, which addresses four themes reflecting the increasing interdependence, mutual vulnerabilities and synergies of outer space that the panellists all addressed. I would like to reiterate that new accessions to the Treaty ensure the continued relevance of the Treaty and that its underlying principles continue to serve us all.

My second point concerns the legal regime and global governance. I would caution that we should not allow the lack of consensus on the International Code of Conduct for Outer Space Activities to hold us back from advancing ideas within the Code that brought support. Rather we should discuss other practical steps to promote the development of clear rules of the road for the use of outer space.

Spacefaring nations must increase cooperation, develop transparency and confidence-building measures (TCBMs) and, most importantly, implement the recommendations of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189). Canada submitted its report in March, and we hope that it helps members to understand Canada's space activities. We would encourage others to implement these TCBMs as quickly as possible.

Finally, we are also progressing on the development of long-term sustainability guidelines in COPUOS, which are aimed at addressing a broad range of very practical issues, including space-debris prevention, mitigation and removal; regulatory regimes; space operations; guidance for new space actors; space weather and sustainable development. They will also be an important component of efforts to define responsible behaviour in the peaceful uses of space, in addition to their contribution to ensuring that space use can be sustainable. We therefore encourage all States to work with Canada, as the current Chair of COPUOS, to complete this work by June 2018 and submit the final compendium of voluntary guidelines for adoption by the General Assembly in 2018.

Finally, what we need to do is hold more meetings like this one. This joint meeting of the First and Fourth Committees is a welcome step, a transparency initiative and a confidence-building measure unto itself.

Mr. Méndez Graterol (Bolivarian Republic of Venezuela) (*spoke in Spanish*): At the outset, I would like to note that this joint meeting of the First and Fourth Committees to address the peaceful uses of outer space is of particular importance to the delegation of Venezuela, as it coincides with the sixtieth anniversary of the launching of Sputnik, which paved the way for progress in outer space, as well as the fiftieth anniversary of the Outer Space Treaty.

We are aware of the major advances made in this area. However, we cannot ignore some of the related risks facing humankind, such as the increasing militarization of activities in outer space that could have a negative impact on international peace and security. We believe that the international community, especially the bodies responsible for reviewing this subject, must undertake the fundamental task of negotiating international measures and agreements to prevent humankind from experiencing the disasters that could result from an arms race in outer space.

We are equally concerned about the fact that some space activities have been aimed at undermining the principles and purposes of the Charter of the United Nations, especially the deployment of spy satellites and other measures related to the interception of communications, which undermines State sovereignty. The delegation of Venezuela therefore considers the initiative being promoted by the delegations of Russia

and China on negotiations for a treaty on the prevention of an arms race in outer space very important.

Venezuela believes that international cooperation is fundamental to promoting the development of countries in this area, and therefore essential to making progress. The cooperation we are developing with the People's Republic of China has enabled us to place three satellites in orbit: the Simón Bolívar satellite in 2008, the Francisco de Miranda satellite in 2012 and, most recently, the Sucre satellite, all of them initiatives designed to promote cooperation, economic independence and sustainable development in my country.

Finally, I want to reiterate that my delegation is ready and willing to work with others to achieve the objectives that have brought us here today, the peaceful use of outer space and the promotion of cooperation to benefit humankind in the context of respect for the purposes and principles of the Charter of the United Nations.

Mr. Hansen (Australia): Australia welcomes this joint meeting on possible challenges to space security and sustainability, marking the fiftieth anniversary of the Outer Space Treaty, and we thank the co-Chairs and the panellists. We have been listening with particular interest this year, given the recent announcement of the Australian Government that we intend to establish a national space agency. We appreciate the useful thoughts we have heard on the legal regime for outer space.

The Outer Space Treaty, which is the cornerstone of the current regime, prohibits the placement of weapons of mass destruction in outer space, but there are currently no bans on the development of conventional weapons in outer space or ground-based anti-satellite weapons. While we are open to negotiating new legally binding treaties down the track, we believe that the international community should pursue non-binding verifiable transparency and confidence-building measures as an immediate priority.

The United Nations Disarmament Commission, as the inclusive deliberative body of the United Nations disarmament machinery, should discuss these issues starting with the next session. We support the proposal made in that regard by Russia, China and the United States for the inclusion of such discussions in the Disarmament Commission. If recommendations were to be made to consider a legally binding instrument in the course of Disarmament Commission deliberations,

that is something that the Conference on Disarmament could then take up.

With the growing number of Member States with interests in outer space, we have also seen a growing number of private-sector actors. We believe that those actors should be fully engaged in the development of space policy, including on the very critical issue of how to address space debris. In that regard, we would welcome further thoughts from the panel, building on the remarks that we have heard already, on how best to involve the private sector in space policy development.

Mr. Tene (Indonesia): I am speaking on behalf of the Movement of Non-Aligned Countries (NAM).

NAM shares the desire of the international community to strengthen the safety, security and long-term sustainability of outer-space activities and ensure that outer space is used for peaceful purposes and for the benefit of all States, irrespective of the degree of their social, economic or scientific development. NAM recognizes the common interest of all humankind and the inalienable legitimate sovereign rights of all States in the exploration and use of outer space for exclusively peaceful purposes. We also emphasize the paramount importance of strict compliance with existing arms limitation and disarmament agreements relevant to outer space, including bilateral agreements and the existing legal regime concerning the use of outer space.

NAM remains concerned about the developments related to anti-ballistic-missile systems and the threat of the weaponization and militarization of outer space. NAM reiterates its call for a start to negotiations in the Conference on Disarmament on a universal legally binding instrument on the prevention of an arms race in outer space, which remains a priority.

NAM continues to reaffirm the need for a universal, comprehensive and non-discriminatory multilateral approach towards the issue of missiles in all its aspects, negotiated multilaterally within the United Nations. Any initiative on the subject should take into account the security concerns of all States and their inherent right to peaceful uses of space technologies.

Mr. Amil (Pakistan): I would like to thank the co-Chairs and especially the panellists for their interesting and illuminating presentations. We welcome the initiative to hold today's joint panel discussion of the First and Fourth Committees on outer-space-related issues.

Pakistan shares the concerns about the increasing threat to the security and sustainability of outer space. It is imperative to prevent outer space from turning into a new realm of conflict and to preserve it for exclusively peaceful endeavours. We are committed to the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, which recognized that the exploration and use of outer space should be carried out for the benefit and in the interest of all countries and should be the province of all humankind.

Today, outer space is at risk of being weaponized. Anti-ballistic-missile systems and other advanced military technologies that are capable of being deployed in outer space are being developed. The current international legal regime governing the use of outer space cannot adequately address those risks. Those gaps must be plugged by concluding a treaty on the prevention of an arms race in outer space in the Conference on Disarmament. Transparency and confidence-building measures and other non-legally binding initiatives, such as the Code of Conduct for Outer Space Activities, are valuable for promoting trust and confidence among States. However, such voluntary measures cannot be a substitute for legally binding treaty-based obligations.

Pakistan has a modest but growing space programme. We are party to the five core multilateral treaties on outer space and also adheres to the five sets of principles on the exploration and use of outer space. Pakistan is a member of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). Along with a myriad other important issues, COPUOS is addressing the long-term sustainability of outer-space activities. That can best be achieved through a global and comprehensive legally binding governance regime. COPUOS also has an important role to play in capacity-building for developing countries. That requires ensuring access to space-derived data and information and its processing, as well as access to participation in related activities for all nations.

Let us also not forget that outer space is humankind's shared destiny. In our opinion, the panellists were spot on regarding the build-up of space debris, space junk and littering, which threaten not only the peaceful uses of outer space today, but also the safety of future generations, to whom we certainly have obligations.

Mr. Rivero Rosario (Cuba) (*spoke in Spanish*): The round table was very useful, and the presentations were very interesting. We hope that we can receive copies of them.

More than 50 years have passed since Sputnik orbited the Earth. Just a few months later, humankind achieved the goal of going into space and returning to Earth in the person of Yuri Gagarin. Those were unforgettable days. Nevertheless, scientific and technical advances, and many others, quickly led to a dangerous situation, with an unrestrained arms race that went beyond the Earth's limits.

Cuba would like to reiterate its position that the militarization of outer space would be an enormous threat to the future of humankind. Outer space must be preserved as the common patrimony of humankind. We call on the international community to ensure that we can prevent an arms race from occurring in outer space. That is the major security challenge that we must confront and conquer. The international community must act so that space technologies are used to prevent and mitigate disasters, protect the environment and ensure the safety of humankind.

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, which is 50 years old, is the standard for preventing arms in outer space, a goal that it and other existing international agreements have universally established as essential.

Our current international legislation is inadequate in many areas, but especially regarding the threat of the militarization of outer space. There are international legal instruments that specifically have to do with the placement of arms in space, especially nuclear weapons, which is the only way to prevent the threat of the militarization of outer space. We therefore urge all States to negotiate and adopt a treaty on the prevention and prohibition of the placement of weapons in outer space. The Russia-China initiative should be supported.

There are huge numbers of objects flying around space in the twenty-first century, including those related to research, communications and espionage. There is also debris and waste. We must ensure the long-term sustainability of activities in outer space. We must not forget that outer space is the shared patrimony of humankind. Exploring and using it peacefully is a right of all States. The capacity to use space should no

longer be a dream, and developing countries should also gain socioeconomic benefit from space activities.

There are other challenges to overcome. It will be vital to improve equality of access to space technology and its applications so that developing countries can also contribute to the success of the 2030 Agenda for Sustainable Development.

Mr. Gudnov (Russian Federation) (*spoke in Russian*): The Russian delegation welcomes the co-Chairs and believes firmly that their able guidance will make today's joint meeting of the First and Fourth Committees a useful one. We sincerely hope that we will have a serious and interesting discussion. The themes chosen for our discussion have a direct bearing on the very important task of ensuring security in outer space.

International outer space activities will objectively continue to provide new reasons for the two Committees to coordinate and integrate the goals and tasks they have before them in the context of seeking solutions to the problems of the security of activities in outer space. But we wonder if the various States actually share the same understanding of the problem, its constituent elements and the decisions that it demands. It should be frankly admitted that no such understanding has emerged so far. There are many factors and circumstances, including political ones, unfortunately, behind this absence of a united opinion. To give an example. Russia and the United States made important contributions to the drafting and adoption of the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189). Both States acknowledged the importance of the report's recommendations and expressed their intention to ensure that they would be implemented in practice. However, let us look at what actually happened. In the context of the negotiations in the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) on the development of a set of guidelines for the long-term sustainability of outer-space activities, the Russian Federation proposed giving a number of the recommendations regulatory functions, in order to ensure the security of space operations.

Judging by its statements and general approach in the negotiations, the United States preferred a different approach to implementing the recommendations of the Group of Governmental Experts, which envisaged taking appropriate measures only at the national level. It did not support the Russian idea of turning

the recommendations into international normative regulations. But in our view there are many issues that definitely should be regulated through a regime of reciprocal responsibilities.

It seems that we still cannot overcome the difficulties that we encountered in the COPUOS negotiations. The intersessional meeting of the Working Group on the Long-term Sustainability of Outer Space Activities held in Vienna last week quickly revealed that a fairly large group of States simply have no interest in or willingness to draft inclusive measures to ensure the security of outer-space activities, confining themselves to very general statements and expressions of intentions. We were frankly struck by the sudden appearance of a complete rejection of any sensible or meaningful regulation of a whole series of substantive problems. In particular, we were baffled by some delegations' position rejecting the importance of refraining from using certain ways and means with regard to space activities that could affect the space objects and activities of other participants.

If the problems of ensuring the security of operations in space are not resolved concretely and effectively, there is no way that we can call the end of these lengthy negotiations a victory. We will have lost a unique opportunity for establishing the prerequisites for ensuring that where activities in space are concerned, this will remain a secure and stable environment. We believe that the existence of a regulatory regime on the security of space operations could decisively determine the potential future development of both space activities and their regulation. In that regard, we have a question for the panellists. There was an interesting point in the statement by Ms. Daniela Genta of Airbus, when she said that

(spoke in English)

outer-space treaties do not necessarily need to be amended, but that national legislation and licensing are key.

(spoke in Russian)

We find that perplexing, and it gives rise to the question of whether the most recent changes in the national legislation of some States have resulted only in a lack of understanding that in our view could lead to further tensions in international relations with regard to various space activities, such as the research, development and use of space resources.

Another and perhaps even more important issue is the fact that strengthening the security regime on the basis of the 1967 Outer Space Treaty is simply unthinkable without a decision on the question of refraining from placing weapons of any kind in outer space or using force there. It will therefore be extremely important to reach mutual understanding about ways and means of doing that. In its 2014 updated version, the Russian-Chinese draft treaty on preventing the placement of weapons in outer space and the threat or use of force against space objects was extremely useful and functional in that regard. Regrettably, for political reasons some States not only worked to obstruct the draft treaty but proposed nothing themselves on this very important and relevant global issue.

As long as some important space Powers are not making any kind of attempt to develop a new regime for regulating security in space, that raises the very reasonable question as to the advisability of continuing these efforts within the framework of the United Nations, including in the context of the preparations for the fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space, UNISPACE+50, to promote the catchy slogan of "global space management"? We propose refraining from using it from now on, since in the current circumstances it is more likely to serve only some very specific interests related to space geopolitics.

Some well-known unilateral decisions, taken first in one and now in two jurisdictions, affecting the status of mineral resources in space, have led to unprecedented ambiguity on future compliance with the fundamental principle of international space law whereby outer space and celestial bodies should not be subject to national appropriation by any means, assuming that "national appropriation" implies the possibility of appropriation by State or private actors. The situation is unique in that a State has assigned rights to its own companies to develop resources that it does not itself own. We were surprised that only a few States have publicly voiced their views on this very arbitrary innovation. And to put it bluntly, the attitudes voiced by many in academia were conciliatory. We feel that it seems highly likely that we will see further inappropriate unilateral decisions. The big question is whether the international community and international security can benefit from this.

We should be extremely circumspect with regard to our obligations under the 1967 Outer Space Treaty.

It is our guarantee of institutional stability in every area of space activities. We therefore should not rely on the various so-called flexible interpretations of legal principles and norms aimed at furthering greedy national interests. The only real pathway to ensuring that we can fill the gaps in the international legal regulations reliably and consistently is to work together to clarify the issues where necessary, through dialogue. In other words, we should work through the Treaty, not around it, and in our opinion, that should be exclusively through the forum of the United Nations.

To give a specific example explaining our position, article IX of the 1967 Treaty includes an important norm on preventing harmful interference in space activities. There should be no doubts about its usefulness, if only because for the past 50 years it has succeeded in ensuring a generally operationally safe and stable environment in outer space. Are the provisions of article IX ideal? Certainly not, but it could become the basis for formulating a thorough understanding of how States should cooperate in mitigating harmful interference and responding to unforeseen contingencies in space, and what actions should be taken to ensure that contingency situations are manageable.

Self-defence in space is another example. Many States simply prefer not to bring up this issue, as they consider the very notion of norms on self-defence a threat to the peaceful exploration and use of outer space. But we have to consider the objective circumstances. Under the 1967 Outer Space Treaty, the Charter of the United Nations applies, and that includes Article 51. The main reason for raising this issue has to do with the fact that the instruments that some countries have adopted on operational activities in space increasingly treat self-defence not just as a norm in the Charter but as a kind of norm of customary law, and they often go well beyond the clear-cut criteria for resorting to self-defence provided for in Article 51. They include preventive measures based on assumptions of hostile intent. It is clear that this is a departure from the Charter. It is also obvious that subjective assumptions are becoming a determining factor in such decisions.

Russia has proposed that the Committee on the Peaceful Uses of Outer Space should address the legal grounds and modalities for resorting in a hypothetical case to the right to self-defence, in accordance with the Charter as it applies to outer space. We have made this proposal with the serious intention of discussing and defining what constitutes hostile actions or intentions

and how to recognize such hostility. If we succeed in agreeing on that, a mutual understanding of the concept of self-defence in space would have to be validated by the General Assembly and Security Council. In our view, that would be a practical step towards developing the transparency and confidence-building measures we have heard so much about.

Co-Chair Bahr Aluloom: The previous speaker's statement exceeded the stipulated time limits by more than 10 minutes. Before hearing from the next speaker, I would like to remind all speakers to kindly observe the three-minute time limit so as to enable us to hear as many speakers as possible in the limited time remaining.

Mr. Abbani (Algeria) (*spoke in Arabic*): At the outset, I would like to thank the co-Chairs for organizing today's joint meeting, which is a good opportunity to address the potential challenges to achieving the goal of sustainable security in outer space, as well as to improve coordination among the United Nations bodies and agencies that deal with outer space. I would also like to thank the representative of the Office of Disarmament Affairs, the Director of the Office for Outer Space Affairs and all the experts for their valuable statements.

My country's delegation aligns itself with the statements delivered by the representatives of Indonesia, on behalf of the Movement of Non-Aligned Countries, and Yemen, on behalf of the Group of Arab States.

There is no question that today outer space is playing a significant role in many sectors related to the socioeconomic and scientific lives of nations, given the advances in science and technology that now more than ever demand that we provide an environment conducive to security, transparency and confidence with regard to States' activities in outer space.

Like other countries, Algeria uses space to help meet its development needs in accordance with its Horizon 2020 space programme, which is our reference tool for national space policy and a means for supporting sustainable development in terms of capacity-building in industry and meeting our national needs in all sectors, as well as harnessing the relevant know-how and technology. Algeria follows with great interest all the relevant issues discussed in international multilateral forums, particularly the Committee on the Peaceful Uses of Outer Space, and along with other nations contributes to promoting peaceful and sustainable outer-space activities.

Outer space is the common heritage of mankind. Algeria therefore stresses the importance of confining the exploration and use of outer space to peaceful purposes in order to ensure its sustainability and maintain international peace, security and stability. To that end, international cooperation should be promoted in accordance with the relevant international principles and commitments, particularly the General Assembly's 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space and the 1967 Outer Space Treaty.

The militarization of outer space is a worrying issue, given the great risk of a new arms race with its serious potential ramifications for international peace and security, not to mention the possible negative socioeconomic effects. In order to address the challenges that might arise as we strive to achieve sustainable security in outer space, Algeria reiterates that all activities in outer space should be conducted under the umbrella of the United Nations, so that any effort to control and regulate such activities should take into account the interests of all nations and peoples, with the aim of not hindering those nations in the exercise of their inherent right to use outer space for peaceful purposes.

Algeria also underscores the importance of ensuring that outer space remains a peaceful global arena free of any conflicts, wars or possible arms races by prohibiting the placement of any weapons there. We should also consider developing binding international mechanisms to ban the placement or use of weapons in outer space. We welcome all initiatives aimed at achieving sustainability and security in outer space, as long as they ensure peace there and prevent it from being used as an arena for an arms race. In that context, we commend the Chinese and Russian initiative on refraining from placing weapons in outer space with the aim of promoting the existing legal regime for preventing an arms race there.

In conclusion, my country reiterates the importance of promoting international cooperation in the peaceful use of outer space and enabling developing countries to benefit from space activities and applications designed to meet their development needs and strengthen their capacity-building.

Mr. González Aninat (Chile) (*spoke in Spanish*): I would like to address a few of the main points being discussed today, keeping in mind that I do not think that

this is the right place to discuss certain initiatives that are already being considered in other United Nations forums. Instead, it would be better for us to try to develop some new ideas, based on the very intelligent statements by the panellists. For example, one of them referred to the issue of responsibility, saying that the liability regime should be changed considering the fact that there are now as many as 400 satellites orbiting the Earth. In my view, this is a very dangerous situation from a legal standpoint, since under the terms of the Convention on International Liability for Damage Caused by Space Objects, it could constitute or create an element that is destructive to the objective liability system and ultimately, without our realizing it, could shift it to another branch of international law completely distinct from aeronautical law.

In connection with what the representative of the Union of Concerned Scientists said with regard to observation satellites, I would say that the situation is actually the reverse. Countries that do not possess such satellite capability and are subject to such observation are far more exposed with every passing day and do not have access to all the data, knowledge and know-how, as UNESCO describes it, derived from observation satellites. There have been no negotiations for the past 11 years with regard to satellites that were built and launched under arrangements negotiated in the 1980s. However, these kinds of norms regarding observation satellites should be handled with a far more modern approach, one that has empirical scientific support but at the same time is based on various international norms and international law.

The other factor I would like to mention is that ultimately, and which we wanted to mix in with it somehow, is the acknowledgement that observation could lead to the crime of espionage. That concept does not exist. The 1907 Hague Convention respecting the Laws and Customs of War on Land says that espionage exists only when information is obtained clandestinely or on false pretences. The moment that the United States made no objection when the first satellite was launched resulted in a customary approach to this issue that no country in the world has questioned to this day. So there is no crime of espionage involved in this, but if we were able to investigate the issue properly, we should be able to categorize previously unregistered satellites as spy satellites that therefore do not comply with the general norms of international law and international space law.

Finally, we should make it clear here that the great flaw in the 1967 Outer Space Treaty is in the clause in article IV, on partial demilitarization, which prohibits the placement in orbit of atomic weapons only, not conventional ones. That is a huge problem that we must resolve, along with an operative point of view that is untenable, despite what some delegations maintain when they say that the Conference on Disarmament in Geneva has nothing to do with the Committee on the Peaceful Uses of Outer Space (COPUOS). COPUOS has done a huge amount of work on this issue, as has the Office for Outer Space Affairs, while the Conference on Disarmament, as far as I know, has had no agenda for many years. And it cannot be that two bodies that are ultimately dedicated to maintaining outer space for exclusively peaceful purposes, and which are mentioned as such by the Outer Space Treaty, are not collaborating in practice. I would therefore like to make an entirely informal suggestion, considering that we have already begun discussing it, that at least once a year we should hold a meeting that we could call bistructural between the Conference on Disarmament and the Office of Outer Space Affairs.

Lastly, I believe it is extremely important to call attention to what is established in the introduction to the Outer Space Treaty and the Preamble to the Charter of the United Nations, to which article III of the Treaty refers, and in the section of the purposes and principles of the Charter that refers to breaches of the peace and hostilities. What do we have from the legal point of view and that also has political and scientific support? What do we mean by breaches of the peace, which are nowhere defined, or by hostilities? That is to say, there are many loose factors in this that require a new, modern focus that they do not necessarily have. I am speaking in support here of various initiatives that have been proposed and that seem reasonable to me, but I have not had time to study them thoroughly.

I will confine myself to expressing my concerns, because what I am interested in is that these concerns can emerge and, for example, that I or any of us can meet with the representative of Airbus Defence and Space, who made an excellent presentation, and with her and all our other colleagues, and that we can have informal conversations any time, anywhere, but that at least from now on, they can give us the doctrinal elements and the presentations they have made so that we can create a climate of greater rapprochement and effective ways of to promote confidence in space, since those are some of

the basic goals contained and sustained in the principles of the observation of the Earth from satellites.

Co-Chair Bahr Aluloom: We have four speakers and 15 minutes left. If delegations do not respect the time limits we will not be able to hear from everyone.

Ms. Archinard (Switzerland): Switzerland welcomes the second joint meeting of the First and Fourth Committees and the effort that it represents to reinforce the dialogue between the space and disarmament communities. That important dialogue should be sustained in order to enable an in-depth exploration of the various challenges to space security and sustainability.

Switzerland is of the view that the international norms and global governance of space activities should be strengthened in order to enable us to address the new challenges arising in the quickly evolving space sector. Switzerland commends the work that is being done by the Committee on the Peaceful Uses of Outer Space (COPUOS), whose wide range of activities contributes decisively to peace and security in outer space. In this forum, the formulation of voluntary guidelines aimed at enhancing the long-term sustainability of outer-space activities is an important objective that should be concluded in 2018. The guidelines include transparency and confidence-building measures, and will contribute to the safety and security of outer space. As part of that effort, Switzerland believes that enhancing the exchange of information on space objects and events at the multilateral level will be key to reinforcing the safety and sustainability of space operations. By proposing a chair for a new working group on that thematic priority, Switzerland is committed to supporting the future work of COPUOS in that area.

Regarding the challenges that we are facing with respect to outer-space security, Switzerland has held a long-standing view that even if outer space is used for military purposes, it must not become an area for military confrontation. We all share an interest in ensuring that outer space remains free of any conflict. It should remain stable and usable for the long-term by all States. In that area, the development of legally and non-legally binding international instruments could go hand in hand. For instance, non-legally binding instruments could be gradual steps towards legally binding ones. Such an approach could make significant contributions. Switzerland would see great value in the development of principles for responsible

behaviour in outer space. Important work has been begun in that area and could be revisited.

On the prevention of an arms race in outer space, Switzerland remains ready to support the development of elements of a legally binding instrument, which should be a broad one. The prevention of the placement of weapons in outer space is one important aspect, but the challenges go beyond that, and the use of any kind of force against space systems must be discussed. Space must not become an area for military confrontation. It must remain free of any conflict for its long-term use by all States.

Mr. Mazzeo (Argentina) (*spoke in Spanish*): Argentina supports the joint work of the First and Fourth Committees to address issues closely related to the sustainability of outer-space activities. We are very grateful to the panellists for their presentations.

In the context of the fiftieth anniversary of the 1967 Outer Space Treaty, it is essential to take a comprehensive approach to article IV of the Treaty in discussing what each Committee can contribute within its purview in terms of ensuring the non-placement of weapons in outer space, the non-militarization of outer space and the prevention of an arms race in outer space, as well as issues relating to its peaceful use and the long-term sustainability of outer-space activities. We must bear in mind the limitations of article IV, which prohibits weapons of mass destruction and nuclear weapons but not conventional weapons or instruments and practices that could be used as weapons, such as terrestrial or inter-satellite interference with signals, anti-satellites or computer viruses.

Argentina continues to pay close attention to recent work on promoting the practical implementation of transparency and confidence-building measures in outer-space activities by the United Nations Disarmament Commission. We want to stress that an inability to prevent an arms race in outer space or the placement of weapons would be a serious threat to international peace and security. In that regard, we emphasize how important it is that we abide by the existing agreements and establish clear terminology on the non-legitimacy of placing weapons in outer space.

We welcome the progress made by the Working Group on the Long-term Sustainability of Outer Space Activities in relation to the peaceful uses of outer space. This study of the long-term sustainability of outer-space activities should under no circumstances become

an instrument enabling States that possess space technology to impose restrictions on other countries that have a legitimate right to develop and use space technology. The current state of technology means that private actors are increasingly involved and it is crucial that we consider new issues that have not yet been dealt with in the Committee on the Peaceful Uses of Outer Space. We must take a creative and responsible approach, promoting collaboration with the various forums that deal with these issues. I believe that the panel we held today is an excellent example of that.

Mr. Hodgkins (United States of America): I just have a couple of comments. First, if we are looking for cost-saving measures here in the Fourth Committee I suggest we eliminate the mechanism that makes the little red light flash on and off, as apparently Member States have decided to ignore it. I will therefore make my comments very brief.

We have made substantial progress in the Committee on the Peaceful Uses of Outer Space (COPUOS) on confidence-building measures and transparency, which is reflected in the report of the Committee (A/72/20) that all Member States have in front of them. Our Russian colleague raised a couple of points that we would like to respond to. First, we have indeed joined them in introducing a draft resolution on examining transparency and confidence-building measures here in the General Assembly and we welcome that initiative. The other proposals that we have made in the Fourth Committee and in COPUOS are all designed to add greater transparency to our space activities, and we believe that all Member States here should embrace that. We look forward to continuing our discussions on what we can do to make our space activities more transparent and to increasing the adherence of Member States to the Outer Space Treaty, the fiftieth anniversary of which we celebrate this year, as well as the other instruments that have been adopted in the United Nations following the adoption of the Outer Space Treaty. They include the Registration Convention, the Space Liability Convention and the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space and the subsequent non-binding principles on remote-sensing, the use of nuclear-power sources in space and the mitigation of orbital debris.

Finally, I would urge all Member States here to work diligently within COPUOS to bring closure to the consideration of the guidelines on the long-term

sustainability of space activities, which we hope to wrap up in 2018. If we do, this will be a monumental achievement for the United Nations and COPUOS in promoting international cooperation, transparency and confidence-building.

Mr. Varma (India): I shall be very brief. I have five points to make. First, I would like to thank all the panellists. My delegation has always supported enhancing the synergy between Vienna, Geneva and New York on outer-space issues and this is a good example to follow.

Secondly, we have heard today that there are no borders in outer space. There is no higher ground and no cloak for covering activities up. Unilateral actions aimed at enhancing security in space can therefore boomerang, and so we must work cooperatively in order to enhance space security for all spacefaring nations and space users. Thirdly, there are a large number of threats to space security. They do not come from one part of the spectrum alone and we must make sure that space is not weaponized along any technology track.

The fourth point I want to make is that the various forums working on space security — the United Nations Disarmament Commission, where we hope to have a new item on transparency and confidence-building measures in outer space; the Committee on the Peaceful

Uses of Outer Space, where valuable work is being done on long-term sustainability of outer space activity; the First Committee; the International Telecommunications Union and, above all, the Conference on Disarmament in Geneva — must all be used by Member States to further develop norms on outer-space activity and strengthen the existing international regime on outer space.

Finally, that brings me back to what is on the table this year. I think this is an important opportunity where we need to come together to prevent a wasteful arms race in outer space through action in the First Committee. In that regard, my delegation welcomes the possibility of beginning work on elements of an international instrument on the prevention of an arms race in outer space linking back to the work at the Conference on Disarmament, where outer space is a core agenda item.

Co-Chair Bahr Aluloom: We have exhausted the time available to us today. Before concluding our work this afternoon, I would like to thank all delegations and our panellists for their insightful statements on the subject and sub-themes of our joint panel discussion. I am also grateful for the cooperation and support extended to me and my colleague Ambassador Rafael Darío Ramírez Carreño, of the Bolivarian Republic of Venezuela, in our task as co-Chairs.

The meeting rose at 1 p.m.