25th SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)

National and International Space Policies and Programmes (1)

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INTERNATIONAL CODE OF CONDUCT FOR OUTER SPACE ACTIVITIES VIS A VIS OTHER SPACE SECURITY INITIATIVES

Abstract

The long-term sustainability of the outer space faces various risks. Ensuring that the space environment is safe and stable should be of high importance to the global community. The draft Code of Conduct for Outer Space Activities was published by the EU in 2008 with a revised draft released in September 2010. Among its concerns, the draft takes into account that space debris constitutes a threat to outer space activities and potentially limits the effective deployment and exploitation of associated space capabilities and strives for the formation of a set of best practices aimed at ensuring security in outer space could become a useful complement to international space law.

With more actors active in space activities and thus more objects in space some rules of the road will need to be established in order to protect the space assets so that they could benefit the human kind in a sustainable way. Space environment is very fragile and it is not a question if we should protect it but how we should do it. This paper will analyze the EU proposal for the International Code of Conduct for Outer Space Activities. It will examine its current status, aims, challenges, and the way forward in the context of several other international initiatives, which aim to assure the long term sustainability of the outer space.

SPACE ACTIVITIES – WHERE ARE WE NOW?

For a long time it has been assumed that only the reach and developed countries such as the United States, Soviet Union/Russia, and to some extent Europe could have access to space and benefit from it. However, in the recent years space activities have rapidly increased with government and private space operators having assets in space. Today, not only the developed world is participating in space activates. There are nine launching states and more than fifty countries and international organizations own or operate satellites of various sizes. In addition private companies, universities, and institutions own and launch small/cube/nano satellites, which to a certain respect makes them space actors as well. Space

programs and other related technologies are now becoming part of national strategies and policies of many emerging space states, which strive to strengthen their international status, security, and economic benefits. Currently it is estimated that there are about 994 operational satellites in orbit, 21 000 objects larger than 10cm (40% are satellites that are no longer operational and 55% are fragments of other objects). More than that, there are around 45000 objects between 1-10cm and estimated several million of pieces below 1cm.

Space environment is very fragile and since more actors are using space for an increasing variety of socioeconomic, security, and commercial benefits, space environment is becoming more crowded. Many of the activities utilize similar regions of Earth orbit, leading to potential problems such us signal interference or potential collisions. Unsafe or irresponsible actions by one actor can have long-term consequences for all.

It is becoming more event that some sort of rules of the road need to be developed by the international community in order to keep the space environment safe and sustainable - not to prevent beneficial use of space, but rather to ensure that it is done in such a way as to preserve the utility of Earth orbit for the long term. Fostering international cooperation, strengthening stability, and promoting responsible actions to help prevent mishaps, misperceptions, and mistrust are all key elements of space sustainability.

However, the growing importance of establishing some sort of best practices in space differs from the perception of the general public when it comes to the importance of space in today's society. After the launch of Sputnik, the ISS, Moon landings, various human and robotic space missions relatively few people are aware of the benefits of space technology today. During the Cold War space was somewhat a "hot topic" with glamorous achievements of putting the first satellite and a first man in space, landing on the Moon, preventing Star Wars, etc. The space sector of today has a different focus - more on science and technology - which has greatly enhanced human life but which hasn't produced much of news worthy excitement. Although space benefits are very much integrated into our daily life, most people do not give it a second thought.

Also threats and accomplishments seem to be of a different nature now than they were during the Cold War. Although, there is no record of weapons being deployed into the outer space so far, in February 2007 China had successfully testes an anti-satellite ballistic missile, which came as a shock to the international community. By shooting down one of its own satellites from the low-Earth orbit, China – a country, which has a majority population still living under a poverty line – demonstrated that ground base weapons can target objects in the Low Earth Orbit and that China is indeed a space power. In 2008 India successfully launched its own probe to the Moon. Around the globe increasing number of developing countries has begun to invest in space technologies, partners in various space projects, and builds its own satellites.

Since space does not belong to anyone in theory everyone should have an access to it and it should be used for the benefit of all human kind. At the beginning of the space age this notion was only theoretical as in reality very few could access space and benefit from it. However, as mentioned earlier, in recent years more and more actors of different kind engage in space activities. Currently there are attempts to not only utilize space for military or scientific reasons but also purely for leisure purposes. Space tourism has been on the agenda for some years and is slowly becoming a reality.

On one hand it is exciting that space is finally becoming relatively reachable for more and more people, companies and states. However, alongside the benefits there are costs that should not be neglected, as they bring many potential threats. There is an increased

need to guarantee sustainability of space activities. More actors translate into increased crowding in key orbits as well as increased amount of debris in space.

Raising awareness of benefits of space activities is very important. However, new space actors – public or private - should not just be encouraged to participate in space activities; they should also be educated on how to become a responsible actor. Capacity building is crucial because what is unique about the space environment that a mistake of one actor affects all actors. Piece of debris 10cm or larger can destroy or seriously damage a satellite. Potential consequences can be hazardous and very expensive, thus, it is in everyone's interest that new space players have a good understanding of space environment as well as proper policies in place.

VARIOUS INTERNATIONAL INITIATIVES

United Nations Committee on the Peaceful Uses of Outer Space has worked on and developed the Space Debris Mitigation Guidelines, which are a softer version of the IADC Space Debris Mitigation Guidelines. This is an example of an international initiative towards achieving the long term sustainability of the outer space – a step towards a right direction.

Currently there are several ongoing multilateral processes where norms of behavior are being addressed. The most interesting three are: the jointly proposed Chinese-Russian draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT), the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)'s Long-Term Sustainability of Space Activities (LTSSA) working group, and the EU proposed draft on the International Code of Conduct for Outer Space Activities.

Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT)

PPWT is an arms control treaty proposal introduced at the Conference on Disarmament (CD), which as a result of the UN General Assembly has become the single multilateral disarmament negotiation forum. Among other things it has a mandate to prevent an arms race in space. PPWT has not made much progress since it was introduced in 2008 for a many reasons. First, there has a bean a deadlock in the CD for the last 15 years; thus, nothing can really be accomplished. Second, many countries are simply not willing to sign in to another treaty and would prefer setting up the norms through less of a rigid outcome. China and Russia; however, have not given up on the idea of this treaty and they continue to promote it through various international forums.

It is important to highlight the different approaches and attitudes of the co-authors of this treaty towards the bigger picture of space sustainability. While Russia is willing to consider other options such as a code of conduct, which could be seen as a stepping stone towards a treaty; China is very reluctant to accept any other proposal outside of its own.

As any international proposal, PPWT has some strong points and some serious weaknesses. It calls for the outer space to be free of any military confrontation and that it shall only be use and explored for the peaceful purposes for the benefits of all human kind. At the same time the treaty does not specifically address the type of militarization of space where space objects could be used for war on Earth. In other words the treaty would ban "star wars" but we could still use space for conflicts on Earth.

The treaty acknowledges that there are already some arms control and disarmament agreements in place that are relevant to the outer space. However, it argues that those are not adequate to prevent the arms race in space;

hence, only a treaty such as PPWT could properly regulate outer space activities. However, the treaty does not address all aspect of space activities such as the dual use technologies for instance, which can be used for both – the civil and military purposes.

Another interesting aspect of the treaty is that it defines a space weapon. For a very long time there have been many debates about the fact that in order to ban weapons in space we first have to define what a weapon is. In theory everything could be a weapon. One satellite hitting another one could be classified as weapon, but no one plans to ban satellites in space. PPWT defines a space weapon as any devise places in space, based on any physical principle, especially produced and converted to eliminate, damage, or disrupt normal function of objects in outer space, on the Earth or in its air, as well as to eliminate population, components of biosphere critical to human existence or inflict damage to them[1]. However, while space weapons would be banned by the treaty the ground based weapons, which could potentially target space objects including ballistic ground-based missile defense systems would not be banned. Thus, although countries would not be allowed to put weapons in space they could still damage, destroy or interfere with space objects from Earth. Last but not least, the use of space weapons would of course be banned by the treaty but not the tests. Therefore, under the coverage of testing one could use space weapons in theory indefinitely.

Long-Term Sustainability of Space Activities (LTSSA) Working Group of the UN Committee on the Peaceful Uses of the Outer Space (COPUOS)

The LTSSA initiative is a non-binding international process, which, as the other initiatives, aims at putting in place some norms of behavior for space, but in this case in a non-binding manner. The LTSSA working group focuses on civil aspects of space activities and it was introduced to the UN COPUOS in 2008 by the delegation of France.

In 2010 The Scientific and Technical Subcommittee (STSC) of COPUOS recalled the importance of ensuring the safe and sustainable future use of outer space and noted that a working group should be established to support the preparation of a report on the long-term sustainability of outer space activities, the examination of measures that could enhance the long-term sustainability of such activities and the preparation of a set of voluntary guidelines focused on practical measures that could be implemented in a timely manner to enhance the long-term sustainability of space activities. Thus, the Working Group has been established with its four Expert Groups:

- EG A: Sustainable space utilization supporting sustainable development on Earth
- EG B: Space debris, space operations and tools to support collaborative space situational awareness
- EG C: Space weather
- EG D: Regulatory regimes; guidance for actors in the space arena

The Terms of Reference (TOR)[2], which define objectives, scope, and organization, the

[1] Makarow, Andrey. Draft PPWT: overview of key comments and suggestions. United Nations Institute for Disarmament Research. http://www.unidir.ch/pdf/conferences/pdf-conf105.pdf

[2] Report from the 54th session of UNCOPUOS to the 66th session of the UN General Assembly, Supplement No. 20 (A/66/20), 2011. Pp. 51-57.

Working Group will examine the long-term sustainability of space activities taking into consideration the sustainable development on Earth, as this was the wish of several delegations, mainly from the developing world. The Working Group will analyze current practices and procedures, technical standards, and policies relevant to space sustainability and safety. Its objectives are to identify areas of concern to space sustainability; examine and propose measures that could enhance all aspects of sustainability; and prepare a report containing a consolidated set of best practices that could be applied in a volunteer manner by States, international organizations, national non-governmental organizations, and the private sector. In addition to a focus on how space supports sustainable development on Earth, the TOR emphasizes equitable access to the space domain for all actors[3]. The Working Group has a four year work plan (2011-2014).

The LTSSA Working Group has been active for the past two years with all of its Expert Groups meeting regularly and working on their individual reports. However, there have been some issues with the involvement of the Permanent Observers of the UN COPUOS in the process. In most cases observers are encouraged to participate in the works of COPUOS, as they represent the academia, civil society, space agencies, industry, and more. In this case; however, some COPUOS Member States insisted on the State-centric format approach. Therefore, currently Permanent Observers can only participate through delegations of the states in which they can be incorporated (if they are invited).

One of the issues surrounding the Working Group is how it will fit with other similar international initiatives on space sustainability. The TOR state that the Working Group "should avoid duplicating the work being done within these various international activities and should identify areas of concern relating to the long-term sustainability of outer space activities that are not being covered by them."[4]

INTERNATIONAL CODE OF CONDUCT FOR OUTER SPACE ACTIVITIES (ICoC)

In 2008 the European Union (EU) under its French Presidency Published the Draft Code of Conduct for Outer Space Activities, which was later revised in 2010. The code calls on states to establish "policies and procedures to minimize the possibility of accidents … or any form of harmful interference with other States' right to the peaceful exploration and use of outer space."[5] It is based on three principles:

- Freedom of access to space for peaceful purposes
- Preservation of the security and integrity of space objects in orbit
- Due consideration for the legitimate defense interests of states

The code is not legally binding but rather a voluntary agreement among states with no formal enforcement mechanisms. The Draft proposes measures on space operations, debris control and mitigation, cooperative mechanisms, and organizational aspects for all signatories. The aim is to minimizing accidents in space, refraining from deliberate destruction of spacecraft unless in self-defense or to mitigate debris, promoting space safety and sustainability, pursuing strategic stability, and implementing the UNCOPUOS Debris Mitigation

[3] Secure World Foundation Fact Sheet on UN COPUOS Working Group on Long term Sustainability of Space Activities.

[4] Report from the 54th session of UNCOPUOS to the 66th session of the UN General Assembly, Supplement No. 20 (A/66/20), 2011. Pp. 55

[5] "Revised Draft Code of Conduct for Outer Space Activities," European Union (September 27, 2010).

Guidelines. The Code also lays out mechanisms for cooperation including notification of launch and risky re-entry, notification of maneuvers or collisions to those affected, sharing policies when appropriate, and avenues for consultation and investigation. Finally, the Code proposes the establishment of biennial meetings, consensus decision making, and a central point of contact and database for managing information.[6]

The ICoC has received mixed reactions from the international community. In February 2011, thirty-seven US Republicans noted that they were "deeply concerned" about the code because inadequate Obama administration briefings led to the mistaken belief that it could constrain missile defenses or antisatellite weapons. However, On February 17th, 2012 Hilary Clinton formally endorsed the code on behalf of the US. In addition Canada, Australia, Japan and India have also endorsed the code.

Many countries, however, felt that they have not been consulted properly and that their input has not been taken seriously by the EU. More the diplomatic process than the code itself has been heavily criticized, as it has not been running very smoothly and there have been many mistakes made along the way, which has turned some countries off. China for instance so far has not been at all interested in the code and is still pushing hard for the PPWT. Russia has been willing to work with the EU even though it is also not very pleased with the way things have been done. If Russia's feedback is incorporated they might consider the code, as they see it as a stepping stone towards a possible treaty (PPWT).

CONCLUSIONS

It is important to understand, though not legally binding, an international code would be the most significant normative step that captures the interests of almost all spacefaring countries while shaping and promoting sustainable outer space conduct. It might still not be the ideal solution but nevertheless it will be a step towards the right direction. Negotiations will require time and patience, as many states have understaffed space agencies or other higher priorities. However, given that the threat from space debris is increasing exponentially and could lead to a domain that is no longer reliable or safe for human use, such discussions cannot start soon enough.

Overall, there is a need to bring the international community together on how space security issues are dealt with in the future. Currently, there are a selection of initiatives being presented in the international community that attempt to deal with space security questions – some from the civil perspective, some from the disarmament perspective. The desirable goal would be for all of them to complement each other instead of compete. It is worth noting that all three processes - the ICoC, the LTSSA working group, the PPWT - are not completely isolated or distinct from each other. They overlap in many ways and they all work towards the same goal - to make space more secure and sustainable and as a result address many of the same issues. Given that space is so globalized, it is imperative that all space actors are engaged and invested in space security initiatives so that all could benefit from space applications and space technologies.

[6] Secure World Foundation Fact Sheet on UN COPUOS Working Group on Draft International Code of Conduct for Outer Space Activities.