Decoding the International Code of Conduct *for* Outer Space Activities

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Ajey Lele (Ed)

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NEW DELHI

PENTAGON SECURITY INTERNATIONAL
AN IMPRINT OF PENTAGON PRESS

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First Published in 2012

ISBN 978-81-8274-700-5

Published by
PENTAGON SECURITY INTERNATIONAL

An Imprint of
PENTAGON PRESS
206, Peacock Lane, Shahpur Jat,
New Delhi-110049
Phones: 011-64706243, 26491568
Telefax: 011-26490600
email: rajan@pentagonpress.in
website: www.pentagonpress.in

Printed at Syndicate Binders, A-20, Hosiery Complex, Phase II, Noida-201305

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Foreword

Discussions and dialogue on space security are expected to pick up when discussions on the EU supported International Code of Conduct (CoC) begin in New York in October 2012.

The European Union, after an effort of several years, introduced the CoC in 2008, followed by two revised drafts in 2010 and 2012. The CoC is voluntary and non-binding. It puts together a set of principles and best practices designed to promote responsible behaviour in space.

The concern about stability and security in space has been growing for many years. Space has become an integral part of our lives. Nearly a thousand satellites and numerous ground stations provide the backbone of economic prosperity and national security. Security of space assets is of paramount concern. Although space is being used for military purposes, it is of utmost importance to prevent weaponization of space.

Space has also become highly congested. Apart from satellites, over 30,000 pieces of debris are circulating in spatial orbits. Although space is big, usable spatial orbits are scarce. The floating debris creates danger of physical collision with functional satellites. In 2009, a US and a Russian satellite collided in space, creating over two thousand pieces of debris. The high-altitude ASAT test in 2007 created thousands of pieces of debris which will continue to float for centuries, posing dangers to existing and future satellites. The Chinese space behaviour did not contradict space law but was it responsible behaviour? This question has been nagging the analysts. The Chinese ASAT test gave a stimulus to calls for responsible behaviour in space. Space situational awareness, whereby the numerous space objects including space junk are tracked, has become an important source of space security.

Because space is integral now to the well-being of humankind, it is being treated as a global common. But there is growing realization that the existing

international space law consisting of five treaties and numerous UN resolutions is not enough to address space security concerns.

In the backdrop of growing concerns about space security and the inadequacy of excising space law, the European CoC is being projected as a soft space law which will be voluntary, non-binding and in the nature of best practices. It seeks to promote responsible space behaviour. The assumption underlying the European CoC is that since it would be difficult to agree on legally binding instruments, a voluntary Code of Conduct would be the next best option.

The CoC has been controversial mostly because of the way it was developed. Many countries, including leading space-faring ones, were kept out of the process. Though the US is sympathetic to the CoC, the Russians and the Chinese have been advocating a legally binding treaty, the Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT), to which many countries are at best lukewarm. Many non-space-faring nations, with interest in secure and stable space, have also been unhappy at having been kept out of the initial discussions.

On the substantive aspects, critics point out that the CoC does not add anything new to the existing space law. It will not stop conflicts in space. It will also not prevent weaponization of space. Its exhortations are mere declarations. The lack of enthusiasm by major space-faring nations does not help either.

Proponents of the CoC say that the voluntary and non-binding nature of the CoC is its strength. The best practices and responsible behaviour enshrined in it will put moral pressure on space-faring nations to behave responsibly in space. They point out that the CoC should be taken as soft law, which will have a positive impact on ensuring stability in space. They point out to the success of the Hague Code of Conduct on Ballistic Missiles and hope that the space CoC will also be similarly helpful. Some analysts have argued in favour of negotiating a "threshold" above which no ASAT should be allowed.

It appears that the opposition to the CoC is mostly on the grounds of its being too weak and on certain procedural issues. On the substantive side the CoC can hardly be faulted.

Space security being such a controversial subject, geopolitically, space-faring nations may interpret the CoC as restricting their freedom of action in space. The US will be cautious towards it. The Russians and the Chinese,

who want a stricter space treaty, will be sceptical too. India will also be cautious as the CoC might restrict its options on conducting an ASAT test. However, many non-space-faring nations will support it even while recognizing its limitations.

This book presents a collection of viewpoints of leading authors from diverse backgrounds. Being presented on the eve of the discussions and consultations which are scheduled to begin in October, it offers a variety of viewpoints. It examines the scope and limitations of the CoC against the background of developments in international space law and the evolving geopolitical situation.

I am hopeful that the book will be well received by the readers.

Aug 22, 2012

Arvind Gupta
Director General
IDSA

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Introduction

Over last few years the benefits of space technologies have infused our lives. Satellite technologies have become endemic for human survival in every aspect of life from education to military. Naturally, keeping the space assets secure has become a major necessity for the states. Any damage to such assets would lead to excruciating consequences. In order the ensure safety and security of these assets it is important to establish a mechanism for international cooperation relating to the activities in exploration and use of outer space. For this purpose the European Union (EU) had floated an idea of code of conduct for activities in outer space in 2008. Over last four years some discussions and deliberations on the draft circulated by the EU had taken place and certain modifications in their proposals have been carried out and accordingly the draft has been modified. Appreciating, the universality of this subject the EU has put forth this draft as an International Code of Conduct for Outer Space Activities for multilateral negotiations. This code essentially seeks consensuses on an idea of voluntary and nonbinding best practices and transparency and confidence-building measures in regards to various activities in outer space. The code expects the signatory states to declare their ongoing and proposed activities in space. This book debates a range of issues in regard to this code and presents a diversity of views from experts representing various parts of the world. These discussions involve largely the sociological, political, technological and legal interpretations of this draft.

For more than five decades, various space technologies have become critical to diverse human activities. Space technologies and space sciences have been increasingly aiding in such diverse fields as communication, education, navigation, and remote sensing, meteorology and disaster management. Rocket sciences and associated technologies need an extraordinary conglomeration of highly advanced scientific and technical skills and also significant amounts of investments. Only a few nation-states have succeeded in establishing independent space programmes. In the last few decades they

have used their expertise to gain diplomatic mileage and commercial rewards in the world community. Today, non-space-faring states are striving to own satellites or procure/purchase various satellite-derived products. In the next stage of evolution the private companies are also venturing into the space arena.

The journey into space has mostly been a state-sponsored endeavour, mainly because only states had the necessary capability and resources. Also, in view of the dual-use nature of space-related technologies, states wanted to keep them in control. Particularly since the 1991 Gulf War, states have been discovering the increasing utility of space assets for strategic roles both in peacetime and in war.

Interestingly, the current century is witnessing a mixed trend. The rapidly evolving technology, the encouragement given to private industry for investment, and the willingness of states to openly differentiate between military and non-military sectors is changing the trend of exclusive state investments. The role of private organisations in certain sectors of Outer Space is increasing. At the same time, the strategic significance of space technologies is also growing. The notion of Space War, which was discussed more as an academic construct after the Sputnik Era, is now exhibiting symptoms of becoming a reality. "Space" is currently being viewed as a fourth dimension of warfare. All this is making the space environment increasingly challenging for nation-states to handle. Apart from probable transnational threats, the various assets operational in space, irrespective of the country of their origin, are being threatened by orbital space debris, manmade or otherwise. There is also a gradual increase of diverse players with undeclared intentions. All this has fundamental implications for state security where safeguarding of various national space assets is concerned.

Appreciating the complexities involved in safely undertaking various activities in Outer Space, within the two decades of the Sputnik launch, five international space law treaty mechanisms were formulated under the aegis of the United Nations, as follows: Outer Space Treaty (1967), Rescue Agreement (1968), Liability Convention (1972), Registration Convention (1972), and the Moon Agreement (1979). These mechanisms mainly address various specific/peripheral issues. But on the whole, no credible mechanism is available which holistically addresses the core issues concerning space security.

In the last few decades, space activities and space technologies have expanded exponentially. Ben Baseley-Walker rightly argues that "assuring the security and sustainability of outer space is still an area in which preventative

diplomacy to secure a sustainable and stable environment is possible. For this purpose key steps need to be taken to create an international political climate that is conducive to progress."[1] Currently, no working system is in place to ensure future stability and safeguard the long-term utility of space. Some new ideas have been formulated in the last few years in this direction. The International Code of Conduct for Outer Space Activities (mostly cited as ICoC/CoC in this book) is one such idea.

Over the recent decades, in support of maintaining the global security balance, various arms control, disarmament and non-proliferation policy mechanisms have been formulated mainly under the United Nations umbrella. Complementing these efforts, various multilateral mechanisms have also found evolved in various fields. Various policy mechanisms either under the UN umbrella or otherwise have succeeded in eradicating various threats/making them dormant to a great extent. Formulations of such mechanisms have never been an easy process. The processes of negotiations normally cater for both technical and geopolitical challenges. The negotiations on the ICoC's text will start at the Multilateral Experts Meeting of October 2012. To a certain extent they could be based on the experiences of past negotiations.

Negotiations regarding nuclear, biological and chemical weapons proliferation and banning such weapons have been the cornerstone of the multifarious global disarmament efforts. These negotiations have clearly demonstrated that disarmament and arms control is a universally creditable goal; that states are keen to achieve this goal; but at the same time, that is not the only goal they have in mind. In the past, negotiating states were found to be extremely careful in primordially protecting—and boosting, if possible—their own security interests. The Nuclear Non-Proliferation Treaty (NPT), for example, may be said to have helped in arresting the likely proliferation of nuclear weapons: but the treaty mechanism itself is extremely biased, permitting only selected states to possess nuclear weapons. The Biological Weapons Convention may be viewed as a case of limited success: it lacks an effective mechanism for verification and compliance. Interestingly, the Chemical Weapons Convention, which has been touted as a "prefect" treaty, has actually suffered from "betrayal" by the United States and Russia, both of which are far from fulfilling their commitment of total destruction of chemical weapons from their inventory.

The forthcoming negotiations on the ICoC would have these experiences and a few others in the background in their proceedings. It would be of interest to observe whether the negotiations follow an established path, focusing more on ideological positions, or whether the states concerned take

realistic positions. The possibility also exists that the states involved could use this opportunity to play their moves on the great-power chessboard.

There is currently broad agreement on the utility and need for a mechanism as fine-tuned by the ICoC. The variety of states involved in the discussions understand that such a mechanism, if debated and accepted by the majority—which would imply addressing the major concerns of all participants—could have an enduring impact on space security. This mechanism would need to be transparent and allow a level playing field to all signatory states. Going by experience, it should also have provisions to address the issues arising from non-implementation. A compliance enforcement mechanism would make the participating states more serious about the obligations imposed by the code.

The variety of stakeholders in ensuring space security and sustainability include, among others, policymakers, diplomats, military, lawyers, academics, industry, and civil society. There has been growing frustration because of the lack of legal mechanisms to address the challenges in Outer Space. The launching of negotiations on the ICoC has given rise to hope that a useful mechanism could be worked out. In an exercise of this nature, there is obviously ample scope for a variety of opinions to begin with, all of which must be listened to. It will be seen from the presentations in this book that the field is wide open even for heresies. It needs to be mentioned that the views by various contributors are in their individual capacity and should not be attributed to the state or the organisation to which they belong.

Even though the ICoC has been in the public domain for some years, very limited discussion has taken place on it. We consider that the proposal is extremely important and deserves a far wider debate. With this objective, an attempt was made to contact individuals from different backgrounds, including lawyers, technologists, policymakers, academics, military officials and industry representatives. Contact was established with individuals and organisations, including space agencies, in various space-faring states and states having interests in space. The response in general was very good; a few individuals demurred, for varying reasons, including unclear state policy. A corollary observation in this exercise was that in non-space-faring states there is very limited acquaintance with the issue of space security in general, and the ICoC in particular. Exceptionally, scholars have made an effort to understand the subject, discuss with the respective space agencies officials, and form a view.

The space industry was found bit shy in its response, with some of the national space industries acknowledging the various reasons for their coyness.

Less amount of internal debate and no engagement by the state (on this issue) could be the reasons for this. It is also possible that the time provided to individuals to respond—30 to 45 days—was inadequate.

This book is divided into three main parts. The introductory section, Part I, captures the basic debate on ICoC. It presents two points of views on this subject. Both, the opinions agree in principle on the necessity of such mechanism but differ in regard to the mechanisms of implementation. Although this debate is bit India specific, it needs to be appreciated at a broader level as it represents the majority view prevalent in the ongoing global discourse. Part II highlights the important issues and sets the stage for the informed discussions by the experts. Specifically, the second part discusses the various existing legal mechanisms in respect of Outer Space with an aim to draw attention to the structures that are already put in place and operational and also confers the genesis of some recent initiatives proposed to ensure space security including the ICoC. This section highlights that the ICoC was not the only mechanism for discussion in the recent past. None of the other attempts reached the level of global negotiations; but, this does not detract from their importance. Certain formulations under these mechanisms could even provide scope for further deliberation in regard to strengthening the ICoC and hence this section of the book attempts to put them in perspective. Part III sketches the basic debate on the ICoC, giving a different set of contrasting views on this subject highlighting a variety of range of opinions. Finally, the conclusion captures the essence of the various opinions expressed in the book. A few relevant documents are appended for ready reference.

NOTE

1. Ben Baseley-Walker, "Outer space, Geneva and the Conference on Disarmament: Future directions", *Space Policy,* Vol. 28, 2012, p. 45.

PART I

DEBATE

Chapter 1

Space Code of Conduct: Inadequate Mechanism*

Ajey Lele

Imagine a day without mobile phone connectivity or a television blackout or an internet shutdown. Human life has become so much dependent on satellite technologies, which help in providing such services, that the smooth functioning of our world could be disrupted without them! Presently, outer space, known as a common heritage of humankind, is becoming increasingly crowded. Satellite technology also has a major military relevance. Hence, in order to safeguard the genuine interests of countries, a globally accepted legal architecture to undertake various activities in outer space is necessary.

For the last few decades various activities in outer space are being governed by a few globally acknowledged treaty mechanisms like the Outer Space Treaty (OST, 1967), Moon treaty (1979) as well as UN initiatives like the Prevention of Arms Race in Outer Space (PAROS) and the Committee on the Peaceful Uses of Outer Space (COPUOS). In 2008, the European Union (EU) suggested a more explicit Code of Conduct (CoC) to generate greater 'clarity' about space activities. This CoC was revised further in 2010. On June 6, 2012 the EU officially launched (in Vienna) a multilateral diplomatic process to discuss and negotiate an International CoC for Outer Space.

The CoC is aimed at providing a complementary mechanism to the existing framework regulating activities in outer space. It is a voluntary

*First published at http://idsa.in/idsacomments/SpaceCodeofConductInadequateMechanism_AjeyLele_180612, June 18, 2012

mechanism and seeks to codify new best practices. The CoC's main emphasis is on transparency and confidence-building measures (TCBM). In addition, it also prescribes measures on space debris control and mitigation and suggests a mechanism for notification of various activities that states propose to undertake in space. States are expected to remain committed to various existing legal mechanisms to outer space activities as well as to formulate and implement national policies in this regard. The basic purpose is to put together policies and procedures to achieve the security of space assets, thus minimising the likelihood of accidents and possible collisions of objects in space as well as restricting the accidental/intentional creation of space debris and attempts to interfere in the functioning of operational space systems.

Important space-faring countries like the US, Japan and India have, in principle, welcomed the idea of a CoC. While they are unlikely to agree to every fullstop and comma in this proposal, they are at least willing to debate the EU draft. On the other hand, Russia and China have put on the table during February 2008 the "Prevention of the Placement of Weapons in Outer Space Treaty" (PPWT) which would ban the weaponisation of space. However, the biggest drawback of the PPWT is that it is completely unverifiable. More importantly it is silent about ground based weapons which could damage/kill the satellites in space (China had used a Kinetic Kill Vehicle, KKV, to demonstrate its ASAT capability in January 2007).

The EU's CoC proposals are slowly gaining acceptability. However, it needs to be understood that the conceptualisation of this code is basically based on optimism that states are essentially ethical actors and that they understand their responsibilities and duties and are keen to bind themselves into following a mutually agreed upon set of rules. The proposed CoC is non-binding in nature and more in the form of transparency and confidence building measures. It could be compared with the arms control mechanism—the Hague Code of Conduct (HCoC), which is a voluntary and non-binding mechanism established to usher in transparency in the missile arena. Interestingly, most of the signatories to this mechanism have no missile capabilities!

In reality, mechanisms like HCoC or the proposed space CoC have extremely limited relevance and actually serve no purpose beyond offering a 'feel good' notion. It would be naive to think that states actually care for such non-binding mechanisms. On the other hand, any treaty mechanism like PPWT has serious limitations, given that there is no clarity with regard to defining what actually a space weapon is. It would be difficult to establish a verifiable mechanism in this regard. More importantly, the coming into

being of a treaty mechanism banning the weaponisation of space would have serious implications for missile defence programmes. In short, all existing proposals have limitations.

Now, the question is why a space CoC is being pushed so aggressively in spite of its serious limitations of this process? What is the use of forming so called rules of behaviour, principles, values and standards when there is no authority to punish? It has been seen in the past that even well established treaty mechanisms like the Biological Weapons Convection (BWC) have failed because of the absence of a verification protocol. If so, what is the use of pushing for an imperfect CoC? This CoC has been advertised as a mechanism to preserve the sustainability and security of space, but it is difficult to comprehend how a non-binding and voluntary mechanism could help in achieving this.

It is a reality that no progress would take place in the space arms control arena without US support. But, because of its missile defence compulsions, the US is unlikely to support any treaty mechanism in this regard. The issue therefore is whether the rest of the world should surrender to US hegemony and start negotiating a toothless mechanism like the CoC? Lobbying for a non-binding mechanism actually demonstrates the weakness of its advocates and indicates that they are giving up too early without even trying to debate possible stronger alternatives.

It appears that the US, which initially had reservations, is likely to support the CoC with certain amendments. Probably, it has understood the limitations of taking a leadership role in this field and wants to drive the agenda from behind the scenes. Since outer space has critical military relevance and its commercial utility is increasing rapidly, many other states are also probably not keen to become part of any binding treaty mechanism particularly at this stage when the space realm is witnessing a process of evolution. For them, the present situation is just ideal: their agenda gets served and the blame goes to either the US or China!

Presently, the 'context' of the space security debate is at a crossroads. The EU appears to have won step one by compelling other states to react to its proposal. Against this backdrop, three possible options can be identified:

Option 1: Join the international space CoC by suggesting amendments (if any). Everyone understands the element of 'hypocrisy' in the global arms control agenda. The best option is not to criticise the CoC but to join the bandwagon and demonstrate commitment towards global non-proliferation and disarmament regimes! On the positive side, irrespective of its limitations,

the CoC would help bring in more (some) transparency. From a state's point of view it will lose nothing since declarations are voluntary and it will not gain the reputation of being a 'spoiler'.

Option 2: PPWT in its present format is a bad option, but can it be fine-tuned? Why not debate this issue and push for a treaty mechanism (difficulties in this process are known but the challenge is to deal with them). It is important to note that once CoC is put in place no additional initiatives are likely to emerge in the near future. All this indicates that the world would live with a false sense of security about the outer space arena, even as the major powers actually have a 'field day'. It would be incorrect to divide space-faring countries into two groups, namely EU-US and China-Russia; even if inadvertently, the CoC should not be guilty of this crime.

Option 3: The ongoing debate on a space CoC has helped to bring to the fore the issue of space security and this opportunity should be used to widen the scope of the debate and try and formulate an option that has a binding mechanism. The CoC would thus become a first step towards preventing the eventual weaponisaton of space. However, diluting the CoC agenda with the belief that devising a strong mechanism is impossible is actually harmful to space security. There is a need to learn from the history of nuclear and climate change debates and allow a similar history to unfold in the space security arena as well.

Chapter 2

Space Code of Conduct: Inadequate Mechanism—A Response*

Michael Krepon

Ajey Lele's IDSA Comment on the Space Code of Conduct: Inadequate Mechanism encourages a deeper conversation about whether and how a space diplomacy initiative might best serve Indian and international interests. Major space diplomacy initiatives are extremely rare; the last one was the Outer Space Treaty over four decades ago. The proposed International Code of Conduct for responsible space-faring nations is not nearly as sweeping. Nor will it take the form of a treaty, which is one of Lele's concerns. In his view, the draft International Code of Conduct is "imperfect," and that something better ought to be pursued by the community of space-faring nations, ideally a legally binding instrument.

Regardless of our nationality, we have all had experience with "imperfect" laws. The back and forth of legislative initiatives and vote counting usually does not lend itself to perfection. Lele himself acknowledges that the alternatives to a code of conduct are also imperfect. We must therefore make hard choices about which less-than-perfect approach can best serve national and international security. Lele concludes that the best approach is a binding mechanism that would punish wrongdoers.

The Outer Space Treaty has no such provision, nor do the treaties dealing with nuclear, chemical and biological weapons. No amount of haggling over

*First published at http://idsa.in/idsacomments/SpaceCodeofConductInadequateMechanismAResponse_mkrepon_270612, on Jun 27, 2012.

a Code—in whatever form—is likely to produce a binding mechanism. India would not accept being bound by punishments meted out by others; nor would the United States or any other major space-faring nation. It is nonetheless possible to increase penalties for wrongdoing by other means, such as by UN sanctions, but this presupposes the existence of norms upon which sanctions or other penalties can be imposed. Without rules, there are no rule breakers. One essential test of whatever diplomatic instrument we might seek is whether it establishes or strengthens norms of responsible stewardship for this global commons.

The value of norms is crucial in international relations. They allow us to distinguish between responsible and irresponsible behaviour. They facilitate appropriate responses against rule breakers, and they provide the foundation, in due course, for legally binding agreements. It is easy to underestimate the value of norms, because we take them for granted after they become customary practice.

Lele argues that norms are insufficient, and that they should be backed up with verification and enforcement. But if enforcement provisions have to be integral to a legally-binding agreement, how many of these agreements would be negotiated? The key drafting issue is not about enforcement, but about whether monitoring provisions ought to be imbedded in an agreement. This has been the case for nuclear arms control and reduction treaties since the early 1970s. The Nuclear Nonproliferation Treaty, negotiated in 1968, does not have verification arrangements embedded in the treaty text, but incorporates them in corollary arrangements implemented by the International Atomic Energy Agency. Some treaties have no verification arrangements whatsoever. Lele argues that the Biological Weapons Convention has "failed" for this reason. By this standard, the Chemical Weapons Convention has "failed," as well. Both treaties have significant weaknesses, but they appear to have contributed to the remarkable absence of biological and chemical weapons' use over many decades. The reasons for this uncommon restraint are many and varied, but surely one significant reason has to do with the international opprobrium that would fall on the state initiating biological or chemical warfare.

This track record provides powerful testimony that norms matter. There is a definite absence of norms for outer space, particularly with respect to space traffic management and purposeful, harmful interference against satellites and other objects in space. There is an emerging international norm for space debris mitigation, having been affirmed by the Inter-Agency Space Debris Coordination Committee in 2002, and subsequently affirmed by the

United Nations. As is the case for newly established norms, this one is in need of strengthening.

An "imperfect" International Code of Conduct can help establish and strengthen norms for responsible space-faring nations. Is this approach better than a treaty? The answer depends on what the provisions of the treaty are, whether verification matters, and how long it would take for a treaty to be negotiated, ratified by the requisite number of states, and then enter into force.

Lele argues that the Code of Conduct is naively "based on optimism that states are essentially ethical actors." The same argument could be made against a space treaty. In my view, the opposite is true: there would be no need for an International Code of Conduct or a new treaty if space-faring nations would all be inclined to act responsibly. The reason why norms need to be established and strengthened for space operations is because a few space-faring nations might well behave dangerously and inappropriately. Rules are important, but there will still be rule breakers. The existence of rules helps a nation or a group of nations to pursue appropriate responses to their violation.

Supporters of an International Code of Conduct are not pursuing this initiative to "feel good," as Lele argues. Instead, they wish to strengthen norms because debris and traffic management problems are already threatening to make some orbits unusable for major powers as well as for rising powers. States with ambitions to utilize space, like India, have growing, vested interests in setting rules of the road for space so that they can realize those ambitions.

Lele suggests three options as to how India might react to the draft International Code of Conduct: to suggest amendments to the draft text, to "fine tune" a draft Russian and Chinese treaty that seeks to ban space weapons, or to "widen the scope of debate and try to formulate an option that has a binding mechanism."

How realistic is the pursuit of a "binding" space agreement? Would India, or any other major space-faring nation, be willing to set aside its sovereign rights and accept supranational enforcement? Would India be ready, willing and able to punish others?

Lele acknowledges that the second option, the draft Russian and Chinese treaty, is deeply flawed. It has no verification arrangements, and fails to define clearly what it attempts to ban. China's ground-based interceptor, which created the world's largest man-made debris hazard, endangering 400 satellites and manned space operations, may not be covered in the current text. Banning multi-purpose technologies that could be used as space weapons—including ballistic missiles, missile defence interceptors, and lasers—is not

feasible, and would be unacceptable to India. And because these latent space warfare capabilities will continue to exist, banning weapons "dedicated" to carry out anti-satellite attacks would be ineffectual. It is hard to see how a treaty this deeply flawed can be "fine tuned," no matter how many years are dedicated to this task.

Lele's remaining option is constructive Indian involvement in the drafting process for an International Code of Conduct. If this option is to be pursued, two questions appear paramount for India: What rules of the road for space best serve national interests? And what elements of an International Code of Conduct would be detrimental to national interests? Isn't this the heart of the matter, rather than whether an agreement is legally binding and has enforcement provisions?

There is a fourth option for India that Lele does not mention: to find fault with the drafting process and to refrain from joining an International Code of Conduct, without violating its provisions. If this approach were to be adopted, India will once again find itself betwixt and between, neither leading nor following.

India is a responsible space-faring nation with important national interests at stake in the use of space. So why not affirm these practices in a Code of Conduct?

Chapter 3

Deliberating the Space Code of Conduct*

Ajey Lele

Introduction

Activities in Outer Space are increasing, with a growing number of states either launching or keen to launch their own satellites. In view of such expanding Space activities, there is a need to strengthen the existing legal architecture to address various Space activities. Attempts are being made to devise a set of rules and practices to formulate globally accepted guidelines for the Space arena. In 2008, the European Union (EU), in its attempt to provide a complementary mechanism to the existing framework regulating Outer Space, had circulated a draft Code of Conduct (CoC) in this regard.[1] Recently, on June 6, 2012, the EU officially launched (in Vienna) a multilateral diplomatic process to discuss and negotiate an International CoC for Outer Space. Negotiations on the basis of this text are expected to start at the Multilateral Experts Meeting (October 2012) at New York amongst all United Nations (UN) member states aimed at adopting the Code in 2013.

Backdrop

Outer Space has been described as a "congested, contested, and competitive" medium. Nine (11 if Ukraine and Russia are included, over and above the erstwhile USSR) countries have Space launch capabilities and over 60 countries own and operate approximately 1,100 active satellites.[2] These Space systems belong to various categories like civil, military, and commercial satellites.

*First published at http://idsa.in/idsacomments/DeliberatingtheSpaceCodeofConduct_AjeyLele_290612 on June 29, 2012

Presently, various states in the world are depending significantly on Space technologies for the purposes of communication, remote sensing and navigation. Various assets in Space could encounter intentional or accidental collision with orbital Space debris resulting from human activities.

At present, various activities in Outer Space are governed by a few globally acknowledged treaty mechanisms like the Outer Space Treaty (OST, 1967)[3] and Moon Treaty (1979).[4] The agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue Agreement, 1968)[5] and other agreements such as the Convention on International Liability for Damage Caused by Space Objects (Space Liability Convention, 1972)[6] are two other important treaties in this regard. The UN has also undertaken various initiatives like the Committee on the Peaceful Uses of Outer Space (COPUOS, 1959)[7] and Prevention of an Arms Race in Outer Space (PAROS, 1982). The UN has produced various General Assembly Resolutions, Meetings, Conference on Disarmament (CD) working papers, etc., on the issue.

In recent times, apart from the EU-sponsored CoC, two other initiatives have come to the fore. One, a Model Code of Conduct prepared by the Stimson Center[8] was made available for discussion and debate during October 2007. Two, in February 2008, Russia and China put on the table a draft of the "Prevention of the Placement of Weapons in Outer Space Treaty" (PPWT),[9] an international, legally binding treaty that would ban the weaponisation of Space. Neither of these initiatives has generated much interest. Probably, the PPWT has been viewed as a Treaty that allows Russia and China to dominate international public diplomacy. The biggest shortcoming of this Treaty in that it is silent about ground-based missiles that can destroy satellites in Space. In addition, it is also being viewed as an attempt to put pressure on the US missile defence plans. The Stimson Center CoC, on the other hand, follows a very simplistic approach and not a traditional detailed approach.

Also, in 2009, a Working Paper on TCBMs for Space Security was presented by Canada to the CD.[10] The paper argues that the CD should consider security guarantees, such as a declaration of legal principles, a code of conduct, or a treaty banning the placement of weapons in Space in any form.

Amongst all these initiatives the EU-formulated International CoC for Outer Space has found more acceptability from the point of view of discussions. The EU has now officially begun the process of negotiations to take this process forward.

CoC for Outer Space Activities (2010)

The EU Code[11] is about measures to be undertaken towards enhancing the protection for various activities in Outer Space. It is aimed at endorsing best practices and undertaking confidence building measures through a series of voluntary disclosures about the Space agendas of states, as pursued by both governmental and non-governmental entities.

The subscribing states are expected to take appropriate measures to avoid accidents/collisions in Space between objects and also to avoid any form of harmful interference in legitimate activities undertaken in Space. States are also expected to remain committed towards limiting the creation of Space debris. The CoC expects member states to register Space objects and provide timely information with regard to their launch schedules, various proposed space manoeuvres, collisions/break-ups in orbit, re-entry events, Space environmental conditions, etc. In addition, states are required to share their Space policies and strategies. The code also has provisions like biennial meetings, creation of an electronic database and communication systems, etc.

Acceptability

The majority of countries with interests in Space, including Australia, Canada, and Japan, have supported this international code.[12] The most powerful Space-faring state, the United States, has decided to join the negotiations on the CoC. However, it does not propose to enter into any mechanism that in any way constrains its national security-related activities in Space or its ability to protect itself or its allies.[13] The US has announced that it would not subscribe to any code that would be legally binding.[14] It views the CoC as a good foundation focused on the use of voluntary and pragmatic Transparency and Confidence Building Measures (TCBMs) to help prevent mishaps, misperceptions and mistrust in Space.[15] The US military is also keen to join the Code because they feel that it would bring greater transparency into the system. According to them, the sheer volume of Space—from geosynchronous orbit down to the earth's surface—is about 73 trillion cubic miles. They do not have systems that could keep a tab on movement of every broken piece of old satellites, debris from collisions or explosions, and so on.[16] Hence, they view the CoC as an ideal instrument to deal with the issues related to Space debris and Space Situational Awareness (SSA)—a network of radars, telescopes and other instruments to trace Space debris.

Opposition to a CoC for Space is expected to arise probably from other major Space-faring states like Russia and China. These states have already

made their political and diplomatic posturing by proposing an international treaty—the PPWT—in 2008.

India is yet to present its position on this issue and has not made any statement either in support of or against the CoC. It is important to note that India has been following the UN Space Debris Mitigation Guidelines (2008) very systematically. India is against the weaponisation of Space.

By and large, various states have been taking part in the UN COPUOS discussions on the Long-term Sustainability of Outer Space Activities. Even though China conducted an Anti-satellite (ASAT) test in 2007, it is keen to form a treaty regime for Outer Space and is (overtly) against the idea of weaponisation of space. Both Russia and China have time and again expressed concerns about the US approach towards evolving space security mechanism. They understand that the development of any stringent space regime would go against the US missile defence programme, and hence the US is unlikely to support any legally binding mechanism on this issue.

Decoding the Code

The proposed draft of the Code has a preamble highlighting the importance of the issue and four major sections covering various requisite elements of the Code. They are:

1. Purpose, Scope and Core Principles
2. General Measures
3. Cooperation Mechanism
4. Organisational Aspects

Adherence to this Code is voluntary. The Code expects states to comply with various existing treaties and conventions on Outer Space activities (Article 3.1). Surprisingly, it also asks signatories to promise to follow the Comprehensive Nuclear Test Ban Treaty (CTBT, 1996), which actually does not serve any purpose. The CTBT is about banning nuclear explosions in all environments. Naturally, one of the environments is expected to be Outer Space. However, commitment to the OST, 1967, already caters for that and hence there is no need to include clauses involving controversial mechanisms like the CTBT. Alternatively, a more relevant treaty (formed under the UN aegis), the Moon Treaty (1979), has not been mentioned. Such an omission is obvious because no major Space-faring nation is a signatory to this Treaty (India has signed but not yet ratified this Treaty). With the increasing focus on Moon Missions in the 21st century by various states, it would be incorrect to believe that the Moon has no direct relevance to current Space activities.

Also, expecting loyalty to the International Code of Conduct (ICoC)/

The Hague Code of Conduct (HCoC) does not serve much purpose as this is not going to restrict the activities of states such as Iran and North Korea in any way.

Article 4.1 of the Code mentions states are expected to evolve their own policies and procedures to minimize the possibilities of accidents in Space. This is a valid suggestion. However, it is important to evolve a global strategy to reduce the chances of accidents in Space because satellites do not follow geographical boundaries as demarcated on Earth. Hence, addressing the issue in isolation (i.e., at the level of the individual state) may not be of much help.

The issues related to the notification of Outer Space activities are covered in Article 6. This segment is a part of the overall 'cooperation mechanisms' identified in this draft Code. This section could be viewed as the heart of this draft Code because it involves sharing of information on Outer Space activities.

As per Article 6.1, states are expected to report chances of collisions, break-ups in orbit, malfunctioning and predicted re-entry of Space objects. It is important to note that today increasing numbers of states are becoming owners of satellites systems; however, they all do not possess the technical and observational capabilities to anticipate such events. This brings the importance of space situational awareness (SSA) to the fore. It is important to establish a system for providing notification of such events at the global level.

Article 8.1 covers the sharing of information on Outer Space activities. One key demand of this article is that states should provide information on security- and defence-related activities in space. It is unlikely that all states would be keen to provide such information either on a voluntary basis or otherwise. Article 8.2 is about providing information on Space environmental conditions collected by SSA networks of the state. Presently, apart from the US, no other state has dedicated SSA infrastructure. Some states could receive some information on the Space environment (e.g., movement of debris) because of the presence of radar networks developed/established by them for strategic purposes. It may not be always possible for these states to disclose the information gathered because of the secrecy associated with the source of observation. This again highlights the need for a universal SSA architecture.

It is also important for the Code of Conduct to make provisions with regard to Space weather. "Space weather is of particular concern to the long term sustainability of our space activities. Besides the direct hazard it poses to earth-orbiting satellites, space weather events greatly complicates SSA and

collision prevention."[17] The draft Code has made provisions for the Outer Space activities database (Article 12, which could also maintain the record of the weather). Every state having satellite assets may not have the infrastructure for monitoring and forecasting Space weather. However, it is important to make this information available in time to everyone, and SSA architecture or a separate system under the World Meteorological Organisation (WMO) could be established for the same.

The basic limitation of this draft Code appears to be its inadequacy in addressing future issues. It is important to appreciate that, along with the number of existing challenges, the Code should also cater for impending issues. A simplistic approach to address such challenges (as and when they arise) is through the mechanism of biennial meetings of subscribing states (Article 10). However, there is a need to devise a minimum basic structure while formulating the Code. Mining of Asteroids and the Moon and Mars for exploiting raw materials and minerals is expected to become a reality. It is important to have clarity about the ownership of such resources. Furthermore, there are indications that along with space tourism in Low Earth Orbit (LEO), a possibility also exists for private travel in deep space region (Moon Mission). Technology is expected to develop in areas like Space elevators, Space solar power, and airborne lasers (for the boost phase kill of ICBMs), etc. The issue of Space-based weapons is dormant at this point in time but there are no guarantees for the future. Presently, no strict provisions are available in the Code to address issues like counter-Space abilities. While it would be incorrect to expect the Code to offer issue-specific solutions for likely future events, what is important is that the Code needs to be cognizant of these realities.

Options for India

It is important that India devises a policy based on its existing and proposed Space agenda, its security requirements and the interests of its Space industry. It is also important for India to consider the larger issue of Space security and the need to prevent Space weaponisation. Counter-Space systems are not the norm in present-day military hardware, but since Space is being visualised as a fourth dimension of warfare there are no guarantees for the future. India is yet to announce its official position with regard to the proposed draft Code. If India proposes to join the multilateral experts meeting of October 2012 in New York, then it could consider some of the contentions discussed here.

The debate on the Space CoC so far indicates that some states are in agreement about devising a voluntary and non-binding mechanism. However, the legitimacy of such provisions could always be questioned. The history of

non-binding mechanisms like the HCoC indicates that they have limited utility. It is important to appreciate that since the domain of Space offers a large number of benefits in civilian, commercial and military sectors, threats to the Space environment are likely to increase in the coming years. In view of this, there is a need to have a respectable agreement on Space issues and a regime should be evolved that offers a protection mechanism to guard against existing and emerging threats. Thus attempts such as the suggested CoC should be welcomed and provisions thereof should be debated.

For every state, its own interests—geostrategic and economic—are of paramount importance and they usually join multilateral arrangements mainly to serve their own interests. Multilateralism is all about universally-accepted obligations, which could be morally or legally binding. Over the years, it has been observed—in a broad sense—that provisions of international treaties and other similar mechanisms with conditions annexed, and having a penalty for non-fulfilment, generally give better results. A political agreement by a state to join a multilateral mechanism without any legal obligation suffers from various limitations; these are less trustworthy and non-serious arrangements. In certain cases, it could become difficult to devise a legally-binding proposal, probably because of technological and financial limitations. However, it is important to recognise that such difficulties could, at least, be partially overcome with more efforts.

Presently, the argument given with regard to the Outer Space CoC is that attaining binding status is not a realistic option (because of technical and geopolitical reasons), and, particularly, the US would only become a part of any mechanism that is non-binding in nature, and hence it would be unproductive to push for a binding mechanism.[18] Now, the question that India needs ask is: "Is the EU proposing a mechanism to suit the US interests or for the purposes of achieving space security?" It is not necessary that every (Space) non-proliferation regime should be inclusive to such extent that all major Space-faring nations should be part of it (this may be desirable but definitely not necessary and, more importantly, achievable). In the nuclear arena, too, not all nuclear weapon states are members of the Non-Proliferation Treaty (NPT).

The Outer Space CoC is about asking states to provide information about their ongoing and proposed space activities and future plans. It is done with a view to bring transparency into the system and guard against the eventual weaponisation of Space. The basic purpose behind CoC gets defeated if insufficient, inaccurate and irregular information is provided by states. Space is one arena where the presence of a satellite, once it is launched, usually cannot be hidden. However, for predicting the possibility of any likely Space

collision it is important to have knowledge of various parameters relating to that satellite such as orbit position, speed, any plans for increasing or decreasing the orbit altitude, etc. No state would like to share technical information which could be used to understand, and probe more deeply into, its scientific and technological capabilities.

A binding mechanism could help to institute a system of trust amongst the members and would also keep them responsible to the CoC mandate. Making states accountable to the CoC would have its own advantages. It would enhance its purpose and goals and would attract states having genuine interest in achieving Space security and could expose fence sitters. India, being an important player in the Space arena, needs to lobby for a transparent and binding CoC, which would eventually help in realising Space security.

Conclusion

The International CoC for Outer Space Activities is an important step towards making Outer Space more safe and secure for the conduct of various operations. The Code has correctly identified various issues for the notification of Outer Space activities by the states. This CoC has been written with the aim of ensuring the security, safety and sustainability of all Outer Space activities. This raises the question whether the CoC has the potential to fulfil this aim. It appears that, in its present *avatar*, the CoC is not capable of realising this dream fully. This is mainly because the Code lacks an accountability mechanism. Undertaking confidence-building measures through a series of voluntary disclosures is likely to have limited utility and would not help to identify the "bad sheep" and this, in the long run, could be detrimental to overall Space security. It is important to appreciate that creating an ineffective non-proliferation instrument is in nobody's interest.

Notes

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18. Based on author's interactions with experts.

PART II

GENESIS

Chapter 4

Europe's Space Diplomacy Initiative: The International Code of Conduct

Jana Robinson

Europe considers space systems to be strategic assets. Europe's space policy, jointly configured by the European Union (EU) member states, the European Space Agency (ESA), and the EU, is an increasingly essential component of broader domestic and foreign policy planning and decision-making. The Lisbon Treaty of 2009, which provided the EU with an explicit mandate to be involved in space matters as a competence to be exercised in parallel with its member states, enabled the EU to pursue and invigorate current space efforts for the benefit of humankind and Europe's overall global standing.

Promoting the draft Space Code of Conduct, introduced by the EU in 2008, 2010, and 2012, respectively, has been Europe's most significant space diplomacy initiative to date. The code was largely stimulated by the troubling display of non-transparency and insensitivity to the space environment shown by China in its 2007 anti-satellite (ASAT) test. A document, entitled "Food for Thought on a Possible Comprehensive Code of Conduct for Space Objects", was offered by Italy in the Conference on Disarmament (CD) in March 2007. The document highlighted a number of gaps in the existing transparency and confidence-building measures (TCBMs) and suggested that new measures would be necessary to strengthen compliance with, and the implementation of, binding and non-binding space security-related obligations. The EU endorsed this initiative under Title V of the EU Treaty Concerning the Common Foreign and Security Policy (CFSP), which was presented to the United Nations General Assembly (UNGA) as the European reaction to UNGA Resolution 61/75 on TCBMs.[1] Also in 2007, Germany

organised a workshop entitled "Security and Arms Control in Space and the Role of the EU" in Berlin as part of its effort to place space security formally on the EU agenda.

In the autumn of 2007, the Portuguese EU Presidency prepared the first version of a draft Code of Conduct, later updated by the Slovenian EU Presidency into "Best Practice Guidelines for/Code of Conduct on Outer Space Activities". By the summer of 2008, the first informal consultations were undertaken with key space-faring nations, including the US, China and Russia. The French EU Presidency, that began in July 2008, continued to promote the Code, which resulted in the official release of the first draft Code of Conduct by the EU Council in December 2008.[2] The EU Council Conclusions stated that the Code of Conduct includes "transparency and confidence-building measures as a basis for consultations with key third countries" involved, or interested in, Outer Space activities.[3]

The EU then introduced the Code to other nations as well as international bodies. The EU engaged in extensive bilateral discussions on the draft with a number of countries, including the US, China, Russia, Brazil, Canada, India, Indonesia, Israel, South Korea, South Africa and Ukraine.[4] These talks resulted in a revised version of the Code introduced in September 2010. During these negotiations, the EU encountered certain reservations concerning the process adopted to support the Code from a number of nations, including the US, Russia, China, India and Brazil.

The US announced on 17 January 2012 its readiness to support negotiations on an "international code of conduct", having earlier hesitated to support the European version. In addition to the US and Europe, Japan, Australia and several other countries expressed their support for this latest initiative. As a result, the EU officially introduced at the UNCOPUOS in Vienna a revised draft of the International Code of Conduct for Outer Space Activities in June 2012. The meeting's purpose was to prepare countries for the upcoming negotiations on the new draft proposal that will take place in October 2012.

By introducing the Code of Conduct, the EU supported the notion that voluntary rules of the road, grounded in "best practices" among space actors, offer the most promising approach to achieving space behavioural norms. The EU emphasised that the Code of Conduct represents a pragmatic and incremental process which can assist in achieving enhanced safety and security in space. The Code has a preventive focus, emphasising that activities undertaken in space should involve a high degree of care, due diligence, and transparency with the aim of building confidence and trust among space actors.

The perceived shortcomings of such initiatives, or global-level governance measures generally, include the lack of definition concerning which authority can effectively verify and enforce the agreed rules and procedures. Moreover, the general nature of the objectives stated in the Code leaves considerable room for differing, and even conflicting, interpretations. In this connection, the formulation of more concrete TCBMs could help reinforce formal initiatives such as the Code. Implementation of the Code will have, beyond political considerations, scientific, technological, industrial, financial and operational implications. Coordinated management by various space actors will be needed to make this European space diplomatic initiative viable.

In sum, the draft Code is the most serious proposal to date for a voluntary international agreement to enhance space security. It is also, in part, designed to serve as an alternative to binding treaty proposals that seek to prevent an arms race in Outer Space or ban weapons in space (e.g. the draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects, known as PPWT) and is currently being structured outside of traditional multilateral institutions like the UN and the CD. This top-down initiative is an effort on the part of the EU to play a normative role in space security through the "principled" identity it seeks to achieve.[5]

Notes

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Chapter 5

Origins of and Rationale for a Space Code of Conduct

Michael Krepon

The Henry L. Stimson Center began to promote a Code of Conduct for responsible space-faring nations in 2002, with grant support from The John D. and Catherine T. MacArthur Foundation. Space has long been used for various military purposes, but even during the cold war, the United States and the Soviet Union exercised uncommon restraint with respect to the testing and deployment of weapons in space. Back then, both superpowers possessed multiple ways to create havoc in space, but they flight-tested anti-satellite (ASAT) weapons relatively few times, and deployed rudimentary ASAT systems only for short periods before mothballing them. In effect, a low-cost, non-deployed form of deterrence of warfare in space existed throughout the cold war. Both superpowers knew that to open this Pandora's box would invite catastrophic consequences, since satellites were intimately tied to nuclear forces. The requirements for deterrence in space were remarkably minimal, compared to the requirements for nuclear deterrence.

After the cold war ended, this *modus vivendi* was called into question with the advent of the George W. Bush Administration. Concerns over the weaponisation of space were stoked by a US commission report chaired by Donald Rumsfeld, warning of a "space Pearl Harbor". This report appeared immediately prior to his second stint as Secretary of Defense. Concerns over the weaponisation of space were also heightened by the Bush Administration's decision to withdraw from the Anti-Ballistic Missile Treaty (ABM Treaty),

and by its refusal to engage in any diplomatic undertaking that could reduce the US military's freedom of action in space.

As a counterpoint to the pursuit of the weaponisation of space, the Stimson Center championed the concept of "space assurance". Satellites are vulnerable as well as invaluable. They save many lives every day, and they have become integral to national, international, economic, and personal security. The growing dependence on satellites by all major powers in a domain that cannot be "protected" by classical military means suggests that an uncommon level of interdependence is not only possible, but necessary. For example, long-lasting space debris, whether created by ASAT tests or other means, constitutes a threat to space objects regardless of nationality. Likewise, the absence of a space traffic management system raises hazards to space operations.

The goal of US space diplomacy, in the Stimson Center's view, ought to be the creation of global norms to promote safer practices in this global commons, so that the benefits of space operations could be more assured for all space-faring nations. In our analysis, the testing, deployment, and use of weapons in space would constitute threats to space assurance, and should be avoided, if possible. To clarify the costs and risks of engaging in destabilising activities in space, it seemed appropriate that the United States consider championing a policy of no further, purposeful, dangerous misuse of space. This would require rules of the road against purposeful, harmful interference against space objects, including kinetic-kill ASAT tests, as well as the evolution of an international traffic management system for space. Since some major space-faring nations or outlier states might not play by these rules of the road, national security requires being able to retaliate, as needed, if another state crosses unwelcome thresholds first. The maintenance of capabilities to defend national interests—a hedging strategy—would therefore be expected under a Code of Conduct. Because so many capabilities already exist to defend national interests in space, hedging strategies do not require dedicated ASAT tests or deployments. For example, states such as the United States, Russia, China and India could, in effect, demonstrate ASAT capabilities by means of ballistic missile defence tests. Consequently, major space-faring nations do not need to take destabilising and provocative actions in space in order to demonstrate hedging strategies.

Stimson championed the concept of a Code of Conduct because this diplomatic initiative can help set norms for responsible space-faring nations in the near term. In contrast, a space treaty could take many years to negotiate, and decades to enter into force. "Rules of the road" for space would be a far easier way to proceed, since customary practice can eventually become

the basis for international law. Rules of the road exist for other domains, but they are lacking in space. Granted, rules could be broken, but their existence could make rule-breaking less prevalent, while facilitating appropriate responses. Since a Code of Conduct would take the form of an executive agreement between the United States and other space-faring nations, it could bypass the Conference on Disarmament, which has not been able to agree upon a programme of work for more than a decade, as well as the harsh realities of Senate treaty ratification in a highly polarised US political environment.

Stimson convened a group of experts conversant with military space policy and international law to consider how these key elements might be worded in a draft Code of Conduct aimed at preventing destabilising military activities in space. These deliberations were held in October 2003 and December 2003. Stimson's project advisors suggested that the best way to develop rules of the road in space would be to work by analogy, mostly by applying and adapting provisions of the 1972 Incidents at Sea ("IncSea") Agreement and the 1988 Prevention of Dangerous Military Practices Agreement.

The initial Stimson draft of a Code of Conduct, released in May 2004, looked very much like a treaty, with a preamble, a section defining terms, and various articles. We sought at this early stage to ban space weapons, but we later had second thoughts about the utility of this approach. Since many technologies and military systems have multiple capabilities, banning only those "dedicated" to serve as space weapons would be insufficient, while banning all technologies and weapon systems that could serve as space weapons, such as ballistic missiles and missile defence interceptors, would be impractical.

While Stimson was trying to particularize and popularize the concept of a Code of Conduct, others offered more ambitious proposals. The Russian and Chinese governments were clearly inclined to endorse a far-encompassing, unverifiable space treaty, especially after the Bush Administration's withdrawal from the ABM Treaty in December 2001. The following June, Russia and China submitted a paper at the Conference on Disarmament entitled "Possible elements for a future international legal agreement on the prevention of the deployment of weapons in outer space, the threat or use of force against outer space objects". In February 2008, they tabled a draft treaty along these lines. In contrast, several European capitals were very receptive to the idea of a Space Code of Conduct, and resolved to pursue it as a European Union (EU) initiative. The EU's initial draft was released in December 2008.

International support for a Code of Conduct gained traction, partly in reaction to the Bush Administration's rejection of diplomacy and the infeasibility of the draft Russian-Chinese treaty. Stimson then decided to enlist the inputs of partnering NGOs from major space-faring nations to re-draft its model Code of Conduct. Efforts to enlist Indian and Brazilian NGOs with expertise in space to help produce a revised Code of Conduct were unsuccessful. Potential Indian partners with expertise in space-related matters politely declined for lack of staffing; others politely declined for lack of expertise. But Stimson did succeed in recruiting outstanding NGO partners from Canada, China, France, Japan, and Russia. Stimson convened two workshops, held in Washington in August 2006 and April 2007 with our NGO partners, to consider a revised draft Code of Conduct. In between these workshops, in November 2006, Stimson assembled a small group of US project advisors to receive their guidance during the re-drafting process. After exchanging several drafts and numerous email exchanges with our NGO partners, a revised draft Code of Conduct was released publicly by the Stimson Center and by our Canadian, French, Japanese, and Russian partners in October 2007. Our Chinese NGO partners, who made constructive inputs during the drafting process, chose not to endorse this text.

The revised Code of Conduct included language in the preambular section acknowledging the desire by many, including our Russian and Chinese colleagues, for a more ambitious diplomatic undertaking. None of the drafters viewed the Code of Conduct as an end state. Indeed, all of us were aware that the 1967 Outer Space Treaty was preceded by an October 1963 United Nations General Assembly Resolution on "Stationing Weapons of Mass Destruction in Outer Space" that laid out norms and principles for the peaceful uses of Outer Space that were later codified in treaty form. Treaties that codify norms are usually preceded by less formal arrangements, and we wished to provide impetus to a near-term, norm-setting initiative. The EU's initial draft Code of Conduct, released in December 2008, was similar in content and intent as the Stimson Center's initiative.

Toward the end of the Bush Administration, several events combined to clarify the utility of an International Code of Conduct for responsible space-faring nations. Over a twenty-five-month period, from January 2007 to February 2009, there were four wake-up calls attesting to the need for rules of the road in space, particularly with respect to debris mitigation and space traffic management. In January 2007, the People's Liberation Army conducted a kinetic energy ASAT test that produced the largest man-made debris field in the history of the space age. In February of that year, a Russian missile body orbiting Earth broke up, creating another large debris field. In February

2008, the United States shot down a non-functioning satellite in a way not to create persistent debris, ostensibly for safety reasons. In February 2009, a dead Russian satellite collided with a functioning US communication satellite, further compounding the debris problem in heavily trafficked areas of space.

Efforts to create norms for responsible space-faring nations are rare, and successes are rarer still. In the United States and Russia, nuclear negotiations always jump to the head of the queue, and on those rare occasions when Washington or Moscow engage in space diplomacy, one or both typically overreach. Beijing is starting from scratch with respect to space diplomacy, and is pursuing this issue with evident discomfort and hesitancy. New Delhi may well approach discussions on an International Code of Conduct in the same manner. India has previously stood at a distance from multilateral compacts related to military matters, seeking autonomy and finding fault with process—even when the proposed agreement is widely viewed as being consistent with Indian national security.

The Code of Conduct approach is gaining adherents, but it still faces formidable hurdles. The Obama Administration is enmeshed in deeply partisan domestic politics, and a newly elected Republican President might back away from this initiative. It is unclear whether the European Union can enlist the support of key states, like India and Brazil, who were peripheral to its drafting process. Russia and China continue to champion an unverifiable treaty of extremely broad scope. While Moscow appears to be more receptive to an International Code of Conduct than before, it is unclear whether Beijing can be brought on board. Far more effort is required to gain a working consensus among major space-faring nations to establish a Code of Conduct that sets norms of responsible behaviour. If agreement among them on an International Code of Conduct remains elusive, a rare opportunity will be missed.

Chapter 6

Transparency and Confidence-Building Measures for Space Security

Ram S. Jakhu

Introduction

During informal discussions on the prevention of an arms race in outer space (PAROS) in the Conference on Disarmament (CD) in 2009, Canada tabled a Working Paper on "The Merits of Certain Draft Transparency and Confidence Building Measures and Treaty Proposals for Space Security".[1] The rationale for this Paper, according to Canada's Ambassador Marius Grinius, was that "transparency and confidence-building measures (TCBMs) can serve as important instruments in their own right, as well as elements toward an eventual treaty." In order to adopt TCBMs in outer space, Canada argued that "the CD should consider security guarantees, such as a declaration of legal principles, a code of conduct, or a treaty, that would: (a) ban the placement of weapons in space, (b) prohibit the test and use of weapons on satellites so as to damage or destroy them, and (c) prohibit the use of satellites themselves as weapons. Agreement on robust security guarantees as a first step could help in laying the foundation and building the momentum for future legal protections."[2] Contrary to Canada's high hopes that this Working Paper would at least "contribute to the debate and discussions on how the CD can address the security challenges in outer space, in the context of a programme of work", nothing concrete came out of this proposal. This was partly because Canada itself did not actively pursue this issue or promote its proposal any further. Canada's Working Paper has been just one of several efforts and initiatives that have proposed TCBMs as a means of achieving

space security, either as standalone or supplementary mechanisms to other binding or non-binding measures.[3]

This brief paper outlines various initiatives and proposals related to TCBMs in outer space and the efforts so far made by the international community towards reaching consensus on TCBMs.

Role of TCBMs

TCBMs are actions and procedures undertaken within the context of policy, legal and/or institutional framework(s) for the purpose of enhancing openness and transparency, assuring mutual understanding and reducing misunderstandings, threats and tensions among States. The international community has long been advocating the use of TCBMs for the purpose of promoting peace and security among States. The major objectives of TCBMs, according to the UN Disarmament Commission, are "to reduce or even eliminate the causes of mistrust, fear, misunderstanding and miscalculation with regard to relevant military activities and intentions of other States, factors which may generate the perception of an impaired security and provide justification for the continuation of the global and regional arms build-up; … to reduce the risk of surprise attacks and of the outbreak of war by accident; and thereby, finally, to give effect and concrete expression to the solemn pledge of all nations to refrain from the threat or use of force in all its forms and to enhance [international] security and stability."[4]

To date, TCBMs have been adopted either as standalone actions or in combination with other means: (a) to complement legally binding treaties, particularly those that facilitate verification of arms limitation and disarmament agreements; (b) to lay the foundations, as a first step, that could build the momentum for future legal agreements or other binding instruments; and, (c) to reduce mistrust, fear, and misunderstanding in specific areas of human activity.

There is no standard and particular form or configuration for TCBMs in outer space. Some of the possible forms of TCBMs for outer space may include: (a) measures aimed at enhancing the transparency of the outer space programmes conducted by States; (b) measures aimed at improving and expanding the range of public information about objects in outer space; and, (c) measures related to the implementation of both binding or non-binding rules of conduct during outer space activities.[5] TCBMs for outer space may be adopted and implemented by States through formal exchange of information; unilateral notifications; bilateral or multilateral consultations; focused workshops, etc. For the purpose of maintaining or enhancing space

security, States may choose from, agree upon, subscribe to and implement, many individual or combinations of TCBMs in several forms (i.e. actions, procedures and measures). The following are some of the initiatives that underline the need for, and present various forms of, TCBMs related to space security.

Initiatives and Proposals

Since the dawn of space age in 1957, the United Nations Committee of Peaceful Uses of Outer Space (UNCOPUOS) has provided the main forum for the adoption of international principles and rules governing the conduct of outer space activities. Five international treaties, the last of which was concluded in 1979, have been successfully negotiated and adopted under the auspices of the UNCOPUOS.[6] Collectively, these treaties created a fairly successful international legal order. Since the early 1980's, the trend has been to adopt non-binding instruments, which are also known as 'soft law' mechanisms, in the form of declarations, resolutions and guidelines that complement the existing mandatory regulatory regime.[7] The latest of such mechanisms is the 2007 UNCOPUOS Space Debris Mitigation Guidelines that were endorsed by the UN General Assembly.[8] These Guidelines "are not legally binding under international law."[9] However, once implemented at the national level, they can be expected to "increase mutual understanding on acceptable activities in space, thus enhancing stability in space and decreasing the likelihood of friction and conflict."[10] They are important forms of TCBMs in outer space.

Pursuant to a recommendation by France, the UNCOPUOS recently established within its Scientific and Technical Subcommittee a new Working Group on the Long-Term Sustainability of Outer Space Activities, (LTSOSA) for the purpose of examining and proposing "measures to ensure the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries."[11] At its meeting held in February 2012, Working Group created four expert groups, namely: (a) sustainable space utilisation; (b) space debris, space operations; (c) space weather; and, (d) regulatory regimes. The scope of work of the Working Group is quite broad and, *inter alia*, includes topics such as: (a) collection, sharing and dissemination of data on functional and non-functional space objects; (b) re-entry notifications regarding substantial space objects, and also notifications on the re-entry of space objects with hazardous substances on board; (c) technical developments and possibilities regarding space debris removal; (d) collision avoidance processes and procedures; (e) pre-launch and manoeuvre notifications; (f) data centres for the storage and exchange of information on space objects and operational

information; (g) information-sharing procedures; etc.[12] These matters are essentially related to civilian and commercial uses of outer space but certainly have important implications for military space operations. In this regard, it should be noted that there is a widely-held belief that the mandate of the UNCOPUOS does not include military space activities. This view has persisted in spite of the fact that the provisions of the 1967 Outer Space Treaty, which was drafted by the UNCOPUOS, have enabled the partial de-weaponisation of outer space and the full demilitarisation of celestial bodies.[13] In any event, it is widely expected that the guidelines to be drafted by the Working Groups on LTSOSA would serve as TCBMs in outer space, when they are eventually endorsed by the UNCOPUOS and the United Nations General Assembly (UNGA). However, the drafting and adoption by consensus of such TCBMs will be a very tedious and time-consuming effort; thus one must not expect that any speedy and viable solutions to the issue of space security will emanate from the UNCOPUOS in the short term.

Since the conclusion of the Outer Space Treaty in 1967, the only specific and significant proposal for a binding treaty to ensure space security that has been put forward is the 2008 Chinese-Russian joint proposal of a draft "Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects" (PPWT).[14] Under Article II of the draft PPWT, States Parties would undertake "not to place in orbit around the Earth any objects carrying any kind of weapons, not to install such weapons on celestial bodies, and not to station such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects …" Without specifying any TCBMs, however, Article VI of the draft PPWT specifies that States Parties shall practice TCBMs on a voluntary basis, with a view to facilitate assurance of compliance with the Treaty. In general, there have been mixed reactions to the PPWT proposal, and the U.S. in particular has expressed serious concern about, and advanced detailed criticisms of, the PPWT.[15] Thus, neither the PPWT nor any of the possible TCBMs supplementing the proposed Treaty can be expected to have any potential for adoption in the near future.

It is interesting to note that China and Russia have been actively promoting the adoption of TCBMs for outer space. For example, in 2006 they jointly submitted to the CD the Working Paper on "Transparency and Confidence-Building Measures in Outer Space Activities and the Prevention of Placement of Weapons in Outer Space."[16] As noted above, both countries have indicated their shared preference for a binding international treaty to prevent an arms race in outer space and have thus presented a draft PPWT to the CD. However, in their view, TCBMs and binding agreements are two

different modes for achieving space security. China and Russia believe that "TCBMs are neither a substitute for the measures of arms control and disarmament, nor a precondition of implementation of such measures. Neither can TCBMs replace verification measures. However, TCBMs may facilitate work on disarmament commitments and measures of their verification."[17]

The U.S., on the other hand, has consistently opposed the adoption of any international agreement or arrangement that, in its opinion, would limit its freedom of action in outer space. Thus, not surprisingly, the U.S. has earnestly criticized the draft PPWT and has refrained from making a counter-proposal.

Against the backdrop of these two polarized positions, the European Union (EU) initiated its "Code of Conduct for Outer Space Activities," which has recently been revised and now is being promoted as an International Code of Conduct for Outer Space Activities, "as a means to achieve enhanced safety and security in outer space through the development and implementation of transparency and confidence-building measures."[18] The EU Code offers nothing significantly new and essentially reiterates certain arbitrarily selected commitments that are already included in some binding agreements and some other non-binding resolutions and guidelines. Like the PPWT, there have been mixed reactions to the EU Code. While Brazil, China, India, Russia and South Africa are not particularly favourable to the Code, countries like Australia, Canada, and Japan have expressed their support for it. For its part, the U.S. "has decided to join with the European Union and other nations to develop an International Code of Conduct for Outer Space Activities." However, the U.S. has made it clear that it "will not enter into a code of conduct that in any way constrains [its] national security-related activities in space or [its] ability to protect the United States and [its] allies."[19] Domestically, in the U.S. (particularly in the U.S. Congress), there is some strong opposition to any agreement or arrangement that will directly or indirectly restrict the freedom of action of the U.S. in outer space. Thus, the prospect that the U.S. will sign the Code in the near future, particularly in its current form, seems very limited. Moreover, the space-faring States that have not yet acquired their own capablity to protect their national security interests and space assets might not be willing, for the same reason as that of the U.S., to sign the Code believing that it would restrain their freedom of action in space. Consequently, global acceptance of the International Code of Conduct for Outer Space Activities as a form of TCBMs may appear to be gloomy, at least in the near future.

In the context of achieving a general and complete disarmament, the UNGA has regularly and consistently expressed serious concern about space security and the need to prevent an arms race in outer space. Over the last two decades, the General Assembly has adopted PAROS resolutions on an annual basis, the latest version of which was approved on 2 December 2011[20] by a vote of 176 in favour to none against, with 2 abstentions (Israel and the U.S.).[21] The UNGA recognizes that the "prevention of an arms race in outer space would avert a grave danger for international peace and security, [and that there is a] growing convergence of views on the elaboration of measures designed to strengthen transparency, confidence and security in the peaceful uses of outer space."[22] It should be noted that the U.S. and, to a good extent, Israel, are the only States that have often abstained and sometimes opposed a PAROS resolution at the General Assembly.

Additionally, the UNGA has also received various proposals related to TCBMs in outer space. In its resolutions 45/55 B of 4 December 1990 and 48/74 B of 16 December 1993, the UNGA emphasised the need for increased transparency and confirmed the importance of TCBMs "as a means conducive to ensuring the attainment of the objective of the prevention of an arms race in outer space." Between 2007 and 2010, the UN Secretary-General collected and compiled the views of UN Member States on TCBMs in outer space and issued three reports.[23] In 2009, a group of about sixty States presented a draft resolution on TCBMs in outer space activities and requested the Secretary-General to submit a report "containing concrete proposals from Member States on international outer space transparency and confidence-building measures."[24] Pursuant to these initiatives, the UNGA adopted a resolution (A/RES/65/68) on "Transparency and Confidence-building Measures in Outer Space Activities"[25] by a vote of 183 in favour to none against, with 1 abstention (U.S.).[26] The resolution requested the UN Secretary-General to establish a group of governmental experts (GGE) to conduct a study on outer space transparency and confidence-building measures, without prejudice to the on-going substantive discussions on the prevention of an arms race in outer space within the framework of the Conference on Disarmament.[27] Consequently, the UN Secretary-General created the GGE, which is composed of experts from 15 States.[28] The Group held its first meeting from 23 to 27 July 2012 under the chairmanship of Victor L. Vasiliev of the Russian Federation.[29] It is interesting to note that, although the U.S. abstained during the vote on resolution A/RES/65/68,[30] it has since nominated its expert to participate in the discussions of the GGE that has been established under the resolution. Moreover, Frank A. Rose, an official of the U.S. Department of State, has expressed the commitment of

the U.S. to work with other "international colleagues in a GGE that serves as a constructive mechanism to examine voluntary and pragmatic TCBMs that enhance stability and safety, and promote responsible operations in space."[31]

In its deliberations, the GGE has considered specific topics related to TCBMs, including: "Basic principles related to the use of outer space; Political measures related to rules of conduct; Information-sharing measures aimed at enhancing the transparency of activities in outer space; Operational measures aimed at enhancing the transparency of activities in outer space; and, Consultative mechanisms in connection with outer space" TCBMs.[32] Though official documents issued by the GGE do not expressly say so, a Press Release from the Russian Ministry of Foreign Affairs reports that, at the GGE's first meeting, the group also considered undertaking a review of TCBMs, including those "in the military" sphere.[33] The GGE intends to submit its study to the sixty-eighth (2013) session of the UN General Assembly and its next meeting is scheduled to take place from 1 to 5 April 2013 in Geneva.

Welcoming the progress made by the GGE at its first session, U.S. Ambassador Laura Kennedy expressed the view that the "program of work adopted by the GGE provides a solid framework for Experts to conduct a comprehensive review of the role of bilateral and multilateral mechanisms to strengthen stability in space… this GGE study provides a unique opportunity to explore opportunities for international cooperation on pragmatic, voluntary, effective, and timely TCBMs. By maintaining a focus on voluntary and non-legally binding measures, a consensus GGE report can contribute to substantive discussion on space security […] at the Conference on Disarmament."[34]

China believes that appropriate and practical TCBMs in outer space "can play a positive role in enhancing mutual-trust, reducing misjudgments and regulating space activities". In China's opinion, TCBMs "can be complementary to the negotiation of a legal instrument on PAROS …" However, China cautions that "when discussing TCBMs which are voluntary in nature [in the GGE], we should not selectively lose sight of the risks of weaponisation of, and arms race in outer space. Initiatives to promote TCBMs should not substitute PAROS process, or undermine the work carried out by the CD on the basis of the draft PPWT."[35]

If one takes the Chinese statement concerning the GGE's deliberations on TCBMs in a positive note, it may be concluded that some momentum is being gathered towards global discussion on TCBMs in outer space, although

the possibility of achieving a final agreement on any specific TCBMs still cannot be foreseen with any certainty.

Final Remarks

While all States are concerned about increasing threats to space security and agree on the need to resolve this problem, there is a clear division on the course of action that should be taken by the international community in this regard. One group of States, led mainly by China and Russia, prefer the adoption of a legally binding treaty to prevent an arms race in outer space while others argue in favour of voluntary, non-binding TCBMs.

With respect to a legally binding treaty, the Chinese-Russian draft PPWT is the only substantive proposal currently on the table. This notwithstanding, the proponents of this proposal have made no further attempt to take their proposal to any international forum other than the CD. Thus, at present, the option of negotiating a legally binding treaty for space security purposes seems to be stagnant at best and dead at worst. Hence, the only option left is non-binding TCBMs. However, as described above, the TCBM initiatives being pursued at present and the various fora in which they are being pursued indicate that there is broad consensus for discussions on TCBMs to continue, and lists of topics are being prepared for this purpose. Undoubtedly, these developments are very important positive steps, but the actual drafting of precise texts of any meaningful TCBMs and their acceptance by consensus would be very complex, time-consuming, and politically challenging. In this regard, one should be reminded of the fact the negotiations that culminated in the adoption of the 2007 UNCOPUOS Space Debris Mitigation Guidelines spanned a period of more than a decade.

It is difficult to predict the future. However, by examining publicly announced policies and initiatives being pursued by key players, one may be able to obtain some ideas about the future of TCBMs in outer space. Undoubtedly, much will depend upon the policy options followed by the U.S. Even if Barack Obama wins his second term as the President of the U.S., the dominance of the Republican Party in the Congress will not allow the U.S. to make any concessions on TCBMs, which might be perceived even indirectly as constraining freedom of U.S. action in outer space. It is well known that an international arrangement (guideline or recommendation) in its simplest form possesses the potential to place limits (though even trivial) on the freedom of action of the concerned States. To expect that the U.S. would agree to even non-binding TCBMs does not seem to be realistic in the near future. China and Russia seem to be leaning towards the adoption

of TCBMs, though they keep insisting on the need for a binding international treaty. The European-initiated International Code of Conduct for Outer Space Activities, if unexpectedly signed by the U.S., might be accepted by several States. However, even of this there is no guarantee, particularly since Code of Conduct is seen as a means of imposing restrictions on those space powers that prefer to achieve the technological capability to secure their national space assets. In this context, the conspicuously passive attitude adopted by India, a major space-faring State, in recent global discussions on space security initiatives is an enigma that could also shape the final outcome of negotiations on TCBMs in outer space. Can this flaccid approach of India be attributed to the fact that it has not yet equalled itself in anti-satellite capability with that of China?

It must be kept in mind that whether States sign a binding treaty or subscribe to a Code of Conduct or any other TCBM is based on a careful determination of whether the target treaty or TCBM would be in its national interest. In other words, one should not expect a State to negotiate or subscribe to a Code of Conduct or any TCBMs in outer space if that State would not derive any significant benefit by doing so. In addition, when its supreme interests are jeopardised, a State would not hesitate to withdraw from a binding treaty even though it might have been a party to that treaty for about thirty years. Therefore, in case a State's vital interests are at stake, it would readily take an action that is contrary to a non-binding TCBM to which it already subscribes.

Moreover, TCBMs are merely a means for achieving space security but their effectiveness highly depends upon their precise contents, pertinent scope, uniform and effective implementation, objective compliance monitoring and verification, and the presence of efficient dispute settlement mechanisms. Compliance with non-binding undertakings under TCBMs cannot be fully expected or guaranteed. It is well-known that neither the information sharing regime under the non-binding 2002 Hague Code of Conduct for Ballistic Missiles nor the registration of space objects under the binding 1969 Registration Convention are fully respected by the subscribing States. We should also be aware that there is always a possibility of an abuse of TCBMs, as for example there have been instances when 'violations' of the Missile Technology Control Regime—a form of TCBM—had been alleged against some States that were not subscribers to the Regime.

Irrespective of the good intentions and the abundance of possible means for preventing an arms race in outer space, the lack of political will, primarily on the part of major space-faring nations, has so far constrained any serious

progress in achieving space security. Only time will tell if the recent initiatives being undertaken by the international community on TCBMs in outer space will bear any fruit.

NOTES

1. CD/1865 (5 June 2009). Canada's interest in taking this initiative is based on its national policy; i.e. "As a space faring nation Canada has a strong role to play in ensuring continued open access to space, with the many tangible benefits it brings to Canadians' daily lives. [Canada is] working closely with [its] partners to ensure that the peaceful uses of outer space are not jeopardized by a potential arms race in space:" Canada, Foreign Affairs and International Trade, http://www.international.gc.ca/arms-armes/non_nuclear-non_nucleaire/index.aspx?view=d (accessed on: 11 August 2012).
2. http://www.unog.ch/80256EDD006B8954/(httpAssets)/354F156CA8A8D44FC1257585003D51EF/$file/1134_Canada_Space_E.pdf (accessed on 11: August 2012).
3. "Space security", according to Space Security Index, means "The secure and sustainable access to, and use of, space and freedom from space-based threats," SPACE SECURITY 2011, p. 7.
4. UN General Assembly, Special Report of the Disarmament Commission to the General Assembly at its Third Special Session Devoted to Disarmament, UN document A/S-15/3 (28 May 1988), p. 31.
5. CD/1778 (22 May 2006).
6. *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies* (hereinafter referred to as the Outer Space Treaty), entered into force on 10 October 1967; *The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, entered into force on 3 December 1968; *The Convention on International Liability for Damage Caused by Space Objects*, entered into force on 1 September 1972; *The Convention on Registration of Objects Launched into Outer Space*, entered into force on 15 September 1976; and *The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,* entered into force on 11 July 1984.
7. *The Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting*, adopted by the UN General Assembly on 10 December 1982; the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*, adopted by the UN General Assembly on 13 December 1963; *the Principles Relating to Remote Sensing of the Earth from Outer Space*, adopted by the UN General Assembly on 3 December 1986; *the Principles Relevant to the Use of Nuclear Power Sources In Outer Space*, adopted by the UN General Assembly on 14 December 1992; and *the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, adopted by the UN General Assembly on 13 December 1996.
8. *Official Records of the General Assembly, Sixty-second Session, Supplement No. 20* (A/62/20), paragraphs 117 and 118 and annex. Also see: United Nations General Assembly, Sixty-second session, Agenda item 31, Document A/RES/62/217 (10 January 2008), paragraph 26.
9. The 2007 UNCOPUOS Space Debris Mitigation Guidelines.
10. *Report of the Scientific and Technical Subcommittee on its forty-sixth session*, held in Vienna from 9 to 20 February 2009, A/AC.105/933 (6 March 2009), paragraph 68.

11. *Terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee,* Document A/AC.105/C.1/L.307/Rev.1 (28 February 2011), paragraph 11.
12. Ibid, paragraph 14.
13. Article IV of the 1967 Outer Space Treaty.
14. CD/1839 (29 February 2008): Letter dated 12 February 2008 from the Permanent Representative of the Russian Federation and the Permanent Representative of China regarding the draft PPWT.
15. CD/1847 (26 August 2008): Letter dated 19 August 2008 from the Permanent Representative of the U.S. regarding the draft PPWT.
16. CD/1778 (22 May 2006).
17. Ibid.
18. European Union, "EU launches negotiations on an International Code of Conduct for Outer Space Activities", Brussels, A 252/12 (6 June 2012).
19. Hillary Rodham Clinton, U.S. Secretary of State, International Code of Conduct for Outer Space Activities, Press Statement, Washington, DC, January 17, 2012.
20. Resolution adopted by the General Assembly, Prevention Of An Arms Race In Outer Space, A/RES/66/27 (12 January 2012).
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Chapter 7

PPWT: An Overview

Gunjan Singh

The draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT)[1] was submitted by Russia and China on 12 February 2008 before the plenary session of Conference on Disarmament (CD).[2] Its text was based on a Working Paper that was introduced before CD in 2002, titled "Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects".[3] Its primary argument is the need and urgency to prevent weaponisation of space.[4]

In August 2009, Russia and China separately submitted their working papers, which addressed the questions and comments raised on the initial draft treaty proposal.[5] They argued that the existing space regime and laws were inadequate to deal with the emerging situation. The PPWT does not talk about disarmament, but only about prevention of weaponisation of space.[6]

Turkey, Iran, Belarus, Republic of Korea and Kazakhstan have supported the draft PPWT and have stated that it can be a good model on which a universal space treaty can be framed.[7]

PPWT, going a step ahead of the Outer Space Treaty (OST), essentially argues that the state parties to it should not place any type of weapons in space. The OST essentially is not a treaty about space, but focuses on preventing testing of weapons of mass destruction in Outer Space.[8]

Criticizing the PPWT proposal, US Ambassador Christina Rocca reiterated on 19 August 2008, in a letter to the CD, Her country's opposition to "prohibitions on military or intelligence uses of space".[9] The United States further stated that the PPWT was unverifiable.[10]

Russia and China on 18 August 2009 jointly addressed the concerns highlighted by the CD members regarding the PPWT before the CD. The Russian Federation asserted the following. "The PPWT:

1. Prohibited the use or threat of force against Outer Space objects.
2. Did not prohibit the use or threat of force in Outer Space.
3. Did not alter the right to self-defence allowed under Article 51 of the UN Charter, so long as that weapon was not prohibited by international law and was not used against a signatory of the PPWT.
4. Did not prohibit the development, testing, and deployment of anti-satellite weapons (ASATs) so long as they did not meet the definition of "weapon in Outer Space" as defined by the PPWT.
5. Did not prohibit the development, testing and deployment of ground-based lasers and electronic suppression systems.
6. Did not address the issue of "dual-purpose" space technologies that could be employed both for peaceful or aggressive purposes.
7. Did not include any mechanism for verification."[11]

The Russian response did not, however, provide an explanation on the core issue of weaponisation of space, especially with respect to ASAT tests. Even though it addressed the issue of weapons in space, it failed to cover the issue of ground-based technologies which could be used against space assets. It also failed to come up with a sound verification mechanism.[12] It also fails to discuss the issues related to dual-use technologies.[13] Particularly, the Chinese ASAT test of 2007 exposed the limitations of PPWT. This test was conducted by using a kinetic kill vehicle, essentially by using a surface-to-air (space) missile. In sum, PPWT allows for space weaponisation and keeps the scenarios for space race open.

Russia and China nevertheless are keen to get their treaty mechanism more legitimacy. In June 2012, Wu Haitao, China's Permanent Representative to the CD, on Prevention of an Arms Race in Outer Space (PAROS), stated that Beijing was keen to start negotiations in the CD on the draft of PPWT.[14]

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SPACE REGIMES

Chapter 8

Space Treaty Mechanisms

Munish Sharma

Following the initial competition between the former Soviet Union and the United States as pre-eminent space-faring nations, the number of space-faring nations has grown, to include France, United Kingdom, India, Japan, China, Israel and Iran.

Space sciences and technologies have major utility for peaceful civilian purposes such as remote sensing, navigation, communication, and geological and meteorological information. Space is also being used for intelligence gathering, surveillance, reconnaissance and high-bandwidth military communication. Increasing fears have also been expressed about the likely weaponisation of Outer Space.

Over the years, various legal mechanisms have been set up to formulate rules to govern human activities in space. The United Nations has been in the forefront to identify the various challenges and, accordingly, to find remedial legal mechanisms. Figure 1 summarizes the overall UN architecture of agencies which directly or indirectly or jointly address space-related issues.

COPUOS

The UN General Assembly established an ad hoc COPUOS in 1958 shortly after the first artificial satellite, Sputnik-1, was launched in October 1958. In 1959, a permanent COPUOS was established with the following objectives: to review the scope for international cooperation in peaceful uses of Outer Space; to devise programmes; to encourage continued research; to disseminate information on Outer Space matters; and to study legal problems arising from

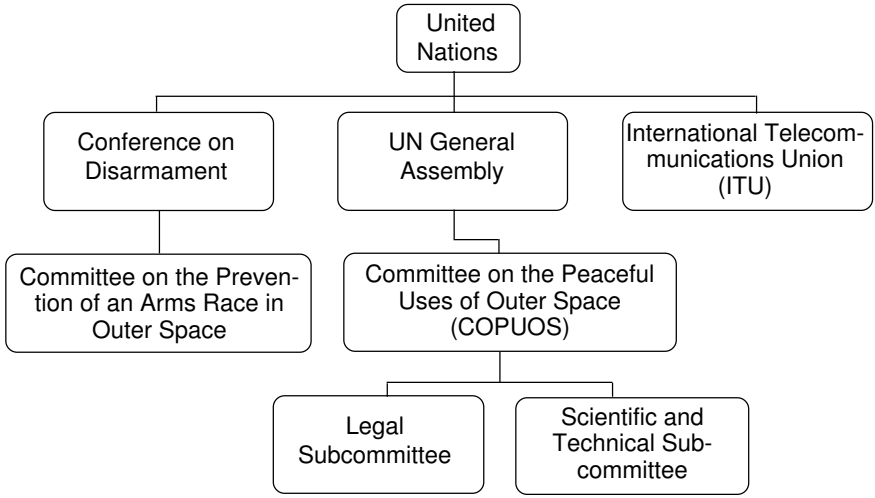

Figure 1: UN architecture to address space-related issues

the exploration of Outer Space.[1] In 1961, the mandate of COPUOS was extended to include the following: (i) maintain close contact with governmental and non-governmental organisations concerned with Outer Space matters; (ii) exchange information related to Outer Space activities; (iii) study measures to promote international cooperation in Outer Space activities; and (iv) maintain a public registry of objects launched by states into orbit or beyond.

COPUOS has addressed various issues over the years leading to a few "declarations" or "resolutions" by the General Assembly. They do not carry the same legal weight as international treaties, but they do carry political weight, because they seek to encourage a practice resulting from an in-depth collaboration within member states of COPUOS. These items include:

- 1963: Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space
- 1982: Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting
- 1986: Principles Relating to Remote Sensing of the Earth from Outer Space
- 1992: Principles Relevant to the Use of Nuclear Power Sources in Outer Space
- 1996: Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.[2]

Over the last four decades, COPUOS has come up with five treaties, legal principles on activities of the states in Outer Space, and a number of recommendations on space matters and UNGA resolutions. The five treaties transmitted by COPUOS for approval to the General Assembly for signature and ratification are as follows:

- 1967: Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty)
- 1968: Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Astronaut Rescue Agreement)
- 1972: Convention on International Liability for Damage Caused by Space Objects (Liability Convention)
- 1975: Convention on Registration of Objects Launched into Outer Space (Registration Convention)
- 1979: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement)

Table 1 offers a few details about these mechanisms.

Table 1: UN Treaty Mechanisms Regarding Space Activities

	Opened in	*Enforced in*	*Signatory Nations*	*Party Nations*	*Non-Party Nations*
Outer Space Treaty	1967	1967	26	101	68
Rescue Agreement	1968	1968	24	92	79
Liability Convention	1972	1975	23	90	82
Registration Convention	1974	1976	4	57	134
Moon Agreement	1979	1984	4	13	178

Source: UNOOSA.

Outer Space Treaty

The Outer Space Treaty (OST) was put forward by the Legal Subcommittee of COPUOS in 1966 and reached agreement in the same year. The treaty is based on the principles of international cooperation and peaceful exploration to carry out Outer Space exploration for the benefit and in the interest of humankind and all countries, irrespective of the degree of their economic or scientific development. It designates space as not a subject to national appropriation by claim of sovereignty, by means of use or occupation and free for exploration or use by all states.[3] Article IV of the treaty forbids states parties from placing nuclear weapons or other weapons of mass destruction

in orbit or on celestial bodies or stationing them in Outer Space. Furthermore, it forbids establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies. OST regards astronauts as envoys of humankind, while restricting the use of the Moon and celestial bodies for peaceful uses only. The treaty holds a state responsible for national space activities (whether carried out by governmental or non-governmental entities) and liable for damage caused by their space objects.[4]

OST formed a framework for the forthcoming treaties, which supplemented various articles of the treaty, such as Articles V, VII, VIII and XI.

OST has a provision to hold international consultation if a planned event might cause harmful interference to the activities of another state: this provision has not been used.[5] For instance, China did not hold any consultations prior to its anti-satellite (ASAT) test in 2007. After forty-five years of existence, the treaty needs revisions to address contemporary issues such as threats to the space environment, increasing rivalry between civil space programmes, an expanding role for space applications in regional conflicts, and the prospect of new technologies to threaten space-based assets.[6] The treaty mechanism puts a check on weaponisation of space, but militarisation of space has already taken place with the development of missile defence and early warning systems. An expanded OST could include, first and foremost, a prohibition on all weapons in space, both offensive and defensive, as they are not distinguishable.[7] The treaty would be put to the real test amidst the growing geo-strategic competition amongst nation-states (political, military and technology dimensions) and surge in the number of space-faring nations.

Rescue Agreement

The Rescue Agreement was negotiated by the Legal Subcommittee from 1962 to 1967. The agreement supplements Articles V and VIII of the OST. It ensures that states parties take all possible steps to rescue and assist astronauts in distress and promptly return them to the country of origin, and upon request, assist countries in recovering space objects that return to Earth outside the territory of the launching state.[8] Article I of the agreement has a provision for each contracting party to immediately notify the launching authority/the Secretary-General of the United Nations, when it receives information or discovers that the personnel of a spacecraft have suffered accident or are experiencing conditions of distress or have made an emergency or unintended landing in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any state.[9]

Liability Convention

The Liability Convention was negotiated by the Legal Subcommittee from 1963 to 1972. The Convention, elaborating on Article VII of the OST, makes the launching state absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft, and liable for damage due to its faults in space, and provides the procedures for the settlement of claims for damages.[10]

Registration Convention

The UN Secretariat has been maintaining a registry and information of objects launched into space since 1962. The Registration Convention entered into force in 1976. Another register of launchings has been established for information received from member states and intergovernmental organisations that are parties to the Convention.[11] The Convention requires the launching state to furnish information of each space object to the UN, such as its registration number, date and territory of launch, orbital parameters (nodal period, inclination, apogee, perigee) and general function. The inventory provides detailed and updated information about the objects/craft in space.[12]

The Moon Agreement

The Moon Agreement was considered and elaborated by the Legal Subcommittee from 1972 to 1979, adopted by the General Assembly in the same year but came into force in 1984 after Austria ratified it. The agreement elaborates on provisions of the OST, restricting the use and exploration of the Moon and other celestial bodies, exclusively for peaceful purposes in accordance with international law and the Charter of the UN. The agreement mandates states parties to inform the UN about the location and purpose of any station established on these bodies. In addition, it provides that the Moon and its natural resources are the common heritage of humankind and that an international regime should be established to govern the exploitation of such resources when such exploitation is about to become feasible.

Article III of the agreement prohibits any threat or use of force or any other hostile act or threat of hostile act on the Moon or use of the Moon to commit/engage in any such act related to the Earth, the Moon, spacecraft, and the personnel of spacecraft or man-made space objects. Furthermore, states parties should not place objects carrying nuclear weapons or weapons of mass destruction in orbit/other trajectory around the Moon or on the Moon and other celestial bodies. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on the Moon are prohibited.[13]

The Moon Agreement has drawn arguments for being ineffective, since none of the major space powers—US, Russia or China—is a party to it. Human activity on the Moon has been absent since the US-led Apollo programme of the late 1960s to early 1970s. The Moon Agreement would be put to the test in the coming years if the US plans to return to the Moon in 2018 are realised and if China, Russia, or the European Union decide to pursue manned lunar missions.[14]

All these treaty mechanisms could be viewed to have played an important role in achieving space security in a broad sense. However, there is no multilateral agreement available to ban the deployment of weapons other than weapons of mass destruction in Outer Space. This essentially highlights the inadequacy of the legal regime to ban space weapons. This gave rise to the Prevention of an Arms Race in Outer Space (PAROS) resolution, which reaffirms the fundamental principles of the OST and advocates a ban on the weaponisation of space.[15]

Prevention of an Arms Race in Outer Space (PAROS)

In order to address the contemporary and future challenges in space security the UNGA adopted the resolution on PAROS in 1981. In 1982, PAROS was added to the Agenda of the Conference on Disarmament (CD). On 29 March 1985 the CD agreed to establish an Ad Hoc Committee on PAROS.[16] During 1985-94, the PAROS committee held meetings; several recommendations for space-related confidence-building measures were made.[17] The CD faced a deadlock from 1998 onwards and was unable to address the PAROS mandate to develop an instrument related to space security and the weaponisation of space. Although the voting patterns demonstrated unanimous international support for the PAROS resolution, there was a significant shift in the PAROS debate, with the US and Israel in opposition of the resolution. US officials maintained a long-held position that there is no arms race in space and that the existing multilateral arms control regime adequately deals with the non-weaponisation of space.[18]

In 2002, Russia and China presented a working paper highlighting the possibility of an international legal instrument on prevention of deployment of weapons in Outer Space. The two states revised the original proposal and submitted a draft treaty on the Prevention of the Placement of Weapons in Outer Space in 2008. There has been lack of working paper contributions towards PAROS by the CD members. Moreover, the European Union took the initiative of coming up with a Code of Conduct for space activities, with the first draft in 2008 and a revised version in 2010, but kept it outside the purview of the CD.[19]

PAROS has been a primary subject of discussion for the last thirty years and features among the "core issues" on the CD agenda. The absence of contribution by members of CD and opposition by the US makes its future uncertain.

In conclusion, it may be said that the various mechanisms discussed above have played an important role towards ensuring space security. However, currently the world is witnessing a major change in the global space order. Also, there exists a possibility the existing geopolitical situation could eventually lead to space weaponisation is a significant fashion. Under these circumstances there is a need to evolve a robust legal architecture for Outer Space.

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Treaty Regimes

		COPUOS (1958)	*Outer Space Treaty (1967)*			*Rescue Agreement (1968)*			*Liability Convention (1972)*			*Registration Convention (1972)*			*Moon Agreement (1979)*		
		Members	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*
Space faring	France	1958	1967	1970				1975			1975	1975	1975		1980	—	—
	India	1958	1967	1982				1979			1979			1982	1982	—	—
	Iran	1958	1967	—		1968	1970		1972	1974		1975	—	—	—	—	—
	Israel	—	1967	1977		1968	1969				1977	—	—	—	—	—	—
	Japan	1958	1967	1967				1983			1983			1983	—	—	—
	People's Republic of China	1980			1983			1988			1988			1988	—	—	—
	Russia	1958	1967	1967		1968	1968		1972	1973		1975	1978		—	—	—
	Ukraine	1994	1967	1967		1968	1969		1972	1973		1975	1977		—	—	—
	United Kingdom	1958	1967	1967		1968	1968		1972	1973		1975	1978		—	—	—
	United States of America	1958	1967	1967		1968	1968		1972	1973		1975	1976		—	—	—

(*Contd.*)

		COPUOS (1958)	*Outer Space Treaty (1967)*			*Rescue Agreement (1968)*			*Liability Convention (1972)*			*Registration Convention (1972)*			*Moon Agreement (1979)*		
		Members	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*	*Signed*	*Ratified*	*Acceded*
Aspiring	Brazil	1958	1967	1967				1973	1972	1973				2006	—	—	—
	North Korea	—			2009	—	—	—	—	—	—			2009	—	—	—
	South Korea	2001	1967	1967		1968	1969		1972	1980				1981	—	—	—
	Canada	1958	1967	1967		1968	1975				1975	1975	1976		—	—	—
	Germany	1973	1967	1971		1968	1972				1975	1976	1979		—	—	—
	Indonesia	1973	1967	2002				2000			1996			1997	—	—	—
	Nigeria	1973			1967	1968	1973				2005		2009		—	—	—
	Pakistan	1973	1967	1968				1973	1972	1973		1975	1986				1986
	Saudi Arabia	2001			1976	—	—	—			1976	—	—	—	—	—	—
	United Arab Emirates	—			2000	—	—	—			2000			2000	—	—	—
	Viet Nam	—	1967	1980		1968	—	—	—	—	—	—	—	—	—	—	—

Legend: Year of Signature/Ratification/Accession/Member
— : Not Signed/Ratified/Acceded/Non-Party

Sources:

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Outer Space Treaty Rescue Agreement Liability Convention Registration Convention Moon Agreement	Treaty Signatures, http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do

Chapter 9

Outer Space: Multilateral Mechanisms

Munish Sharma

There have been various coordination mechanisms for research in space sciences and technologies at multilateral, regional and international levels. These focused groups, committees, institutions and forums have played a significant role in capacity building across different applications of space. The areas of cooperation that have been identified are, primarily, to increase the outreach of the benefits of space technology to a wider cross-section of society, spread across education, meteorology, disaster management, etc. These may be specifically categorised as arrangements made for space research and coordination, formulation of space laws, Earth observation satellites, astronautics, meteorology, and disaster management. The forums and expert committees are engrossed in providing consultancy to states and space agencies through discussions, capacity building and training. They have been advising the UN over various space-related technical and legal issues.

Space Research and Coordination

International Space Exploration Coordination Group (ISECG)

The International Space Exploration Coordination Group was established in 2007, as a response to "*The Global Exploration Strategy (GES): The Framework for Coordination*" developed by fourteen space agencies[1] for coordinated human and robotic space exploration focused on Solar System destinations where humans may one day live and work. The GES framework also identified the need to establish a voluntary, non-binding international coordination mechanism for space agencies to exchange information regarding their

interests, plans and activities in space exploration, and to collaborate for exploration programmes.[2]

Committee on Space Research (COSPAR)

The International Council of Scientific Unions (ICSU), now the International Council for Science, established its Committee on Space Research during an international meeting in London in 1958. COSPAR's first Space Science Symposium was organised in Nice in January 1960. COSPAR's objectives are to promote international-level scientific research in space, with emphasis on the exchange of results, information and opinions, and to provide a forum, open to all scientists, to discuss problems that may affect scientific space research. The committee is responsible for organising biennial Scientific Assemblies. Several path-breaking contributions are made at these assemblies, mostly by countries engaged in space research, to promote the use of space science for the benefit of humankind and for its adoption by developing countries and new space-faring nations; to advise the UN and other intergovernmental organisations on space research matters or on the assessment of scientific issues; and to promote an international-level research in space. COSPAR has played a central role in the development of new space disciplines such as life sciences or fundamental physics, by facilitating interaction between scientists in emergent space fields and senior space researchers.[3]

Formulation of Space Laws

International Institute of Space Law (IISL)

The International Institute of Space Law was founded by the International Astronautical Federation (IAF) in 1960 to foster cooperation among appropriate international organisations and national institutions in the field of space law, by holding meetings, colloquia and competitions on juridical and social science aspects of space activities, and by the preparation or commissioning of studies and reports and their publication. The IISL hosts annual Space Law Colloquia in conjunction with the International Astronautical Congress (IAC) in order to address topics of substantive interest to all space actors, and to involve them in the discussions. It is also consulted by international bodies such as the United Nations. Members of the IISL are designated as IISL observers to the sessions of the UN Committee on the Peaceful Uses of Outer Space (UN-COPUOS) and its Scientific and Technical and Legal Subcommittees.[4]

International Institute for the Unification of Private Law (UNIDROIT)

The International Institute for the Unification of Private Law was established in 1926 as an auxiliary organ of the League of Nations, and following the demise of the League, re-established in 1940. It is an independent intergovernmental organisation to study the needs and methods for modernizing, harmonizing and coordinating private and in particular commercial law as between states and groups of states and to formulate uniform law instruments, principles and rules to achieve those objectives. UNIDROIT has sixty-three member states representing a variety of legal, economic and political systems as well as different cultural backgrounds. UNIDROIT has over the years prepared over seventy studies and drafts, many of them resulting in international instruments.[5] The Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets was adopted at the Diplomatic Conference held in Berlin, March 2012. This Protocol seeks to extend the Cape Town regimen to commercial financing in Outer Space.[6]

Earth Observation Satellites

Global Earth Observation System of Systems (GEOSS)

In July 2003, the Earth Observation Summit brought together thirty-three nations along with the European Commission and many international organisations to adopt a declaration that signified a political commitment toward the development of a comprehensive, coordinated and sustained Earth Observation System to collect and disseminate improved data, information, and models to stakeholders and decision-makers.[7]

The GEOSS is a global network of content providers to administer a flexible decision-support tool to a wide array of users. It proactively links existing and planned observing systems, promotes common technical standards and offers a single internet access point for users seeking data, imagery and analytical software packages relevant to all parts of the globe. The GEOSS is simultaneously addressing nine areas of critical importance to people and society. It aims to empower the international community to protect itself against natural and human-induced disasters, understand the environmental sources of health hazards, manage energy resources, respond to climate change and its impacts, safeguard water resources, improve weather forecasts, manage ecosystems, promote sustainable agriculture and conserve biodiversity.[8]

Committee on Earth Observation Satellites (CEOS)

The Committee on Earth Observation Satellites was established in 1984 for space agencies to enhance international coordination and data exchange and to optimize societal benefit. It is comprised of national and international governmental organisations which are responsible for a civil space-borne Earth observations programme.[9] The objectives of CEOS are primarily: (a) to optimize the benefits of space-borne Earth observations through cooperation in mission planning and development of compatible data products, formats, services, applications and policies; (b) to serve as a focal point for international coordination of space-related Earth observation activities; (c) to exchange policy and technical information so as to encourage compatibility among space-borne Earth observation systems and the data received from them.[10]

Astronautics

International Astronautical Federation (IAF)

The International Astronautical Foundation was established in 1951 by scientists working in the field of space research.[11] The IAF has emerged as a worldwide federation of organisations active in space, with the largest worldwide networks of space experts and decision-makers; it also holds responsibility for the International Astronautical Congress. The federation advances the knowledge about space and the development and application of space assets for the benefit of humanity. It addresses all aspects of space–developments, activities, knowledge, experts and the future. It is the world's leading space advocacy organisation, with 226 members in 59 countries, including all leading agencies, space companies, societies, associations and institutes.[12] The IAF is networked with a number of partner organisations, including the United Nations Office for Outer Space Affairs (UN-OOSA) and the United Nations Committee for the Peaceful Uses of Outer Space (UN-COPUOS).[13]

International Academy of Astronautics

The International Academy of Astronautics was established in 1960 as an independent non-governmental organisation with the aims: (a) to foster the development of astronautics for peaceful purposes; (b) to recognize individuals who have distinguished themselves in a related branch of science or technology; (c) to provide a programme through which members may contribute to international endeavours; and (d) to foster cooperation in the advancement of aerospace science. The academy encourages international scientific cooperation through scientific symposia and meetings and the work

of six specialised commissions: Space Physical Sciences; Space Life Sciences; Space Technology and System Development; Space Systems Operations and Utilisation; Space Policy Law and Economy; Space and Society Culture and Education. A major initiative of the academy is the development of a series of "Cosmic Studies" and "Position Papers" dealing with the aspects of international cooperation endeavours in: the exploration and habitation of the solar system and beyond; space debris, small satellites, inexpensive scientific satellite missions, space traffic management, knowledge management in space activities, and cost-effective Earth Observation Missions.[14]

Meteorology

World Meteorological Organisation

The World Meteorological Organisation originated from the International Meteorological Organisation (IMO), which was founded in 1873. The WMO was established in 1950 and it became the specialised agency of the United Nations in 1951 for meteorology (weather and climate), operational hydrology and related geophysical sciences. WMO provides the international cooperation framework for development of meteorology and operational hydrology as well as to reap the benefits from their application. Under the framework of WMO programmes, national meteorological and hydrological services contribute substantially to the protection of life and property against natural disasters, to safeguard the environment and enhance the economic and social well-being of all sectors of society in areas such as food security, water resources and transport. Furthermore, it facilitates the free and unrestricted exchange of data and information, products and services in real or near-real time on matters relating to safety and security of society, economic welfare and the protection of the environment.[15]

The WMO's programmes provide vital information for advance warnings of weather-, climate- and water-related hazards to reduce damage to property and the environment. The WMO's objectives are: (a) to facilitate worldwide cooperation in the establishment of networks of stations for the making of meteorological observations as well as hydrological and other geophysical observations related to meteorology; (b) to promote the establishment and maintenance of systems for the rapid exchange of meteorological and related information; (c) to promote standardisation of meteorological and related observations and to ensure the uniform publication of observations and statistics; (d) to promote activities in operational hydrology and to further close cooperation between meteorological and hydrological services; (e) to further the application of meteorology to aviation, shipping, water problems,

agriculture and other human activities; (f) to encourage research and training in meteorology and, as appropriate, in related fields, and to assist in coordinating the international aspects of such research and training.[16]

Coordination Group for Meteorological Satellites (CGMS)

The Coordination Group for Meteorological Satellites (CGMS) came into being in 1972, when representatives of the European Space Research Organisation (since 1975 called the European Space Agency, ESA), Japan, the United States of America, observers from the World Meteorological Organisation (WMO) and the Joint Planning Staff for the Global Atmosphere Research Programme met in Washington to discuss questions of compatibility among geostationary meteorological satellites. CGMS provides an international forum for the exchange of technical information on geostationary and polar orbiting meteorological satellite systems.

The main objectives of CGMS are: (a) to have a clear focus on coordination of long-term and sustainable satellite systems relevant to weather and climate to which both operational and R&D agencies contribute; (b) to give a technical focus to the discussions handled by the group; (c) through a close interaction with WMO, to respond to requirements from WMO and related programmes.[17]

Disaster Management and Rescue

International Charter on Space and Major Disasters

The International Charter on Space and Major Disasters is an international agreement among space agencies to support with space-based data and information relief efforts in the event of emergencies caused by major disasters.[18] The Charter aims at providing a unified system of space data acquisition and delivery to those affected by natural or man-made disasters through Authorised Users. Each member agency has committed resources to support the provisions of the Charter and thus is helping to mitigate the effects of disasters[19] on human life and property.[20] In promoting cooperation between space agencies and space system operators in the use of space facilities as a contribution to the management of crises arising from natural or technological disasters, the Charter seeks to pursue the following objectives: (a) supply during periods of crisis, to states or communities whose population, activities or property are exposed to an imminent risk, or are already victims, of natural or technological disasters, data providing a basis for critical information for the anticipation and management of potential crises; (b) participation, by means of these data and of the information and services

resulting from the exploitation of space facilities, in the organisation of emergency assistance or reconstruction and subsequent operations.[21]

United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

The United Nations General Assembly established the United Nations Platform for Space-based Information for Disaster Management and Emergency Response—UN-SPIDER—in 2006, with the mandate to "Ensure that all countries and international and regional organisations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle". UN-SPIDER focuses on the need to ensure access to and use of such solutions during all phases of the disaster management cycle, including the risk reduction phase, which will significantly contribute to reducing the loss of lives and property. UN-SPIDER has been a gateway to space information for disaster management support, and serves as a bridge to connect disaster management and space communities and by being a facilitator of capacity-building and institutional strengthening, in particular for developing countries.

UN-SPIDER is being implemented as an open network of providers of space-based solutions to support disaster management activities. Besides Vienna (where UNOOSA is located), the programme also has an office in Bonn and will have an office in Beijing. Additionally, a network of Regional Support Offices multiplies the work of UN-SPIDER in the respective regions.

International Search and Rescue Advisory Group (INSARAG)

INSARAG is a global network of more than eighty countries and organisations under the United Nations auspices to deal with Urban Search and Rescue (USAR) related issues and establish minimum international standards for USAR teams and methodology for international coordination in earthquake response.[22] The advisory group was established in 1991 within the framework of existing humanitarian coordination. Its primary purpose is to facilitate coordination between the various international USAR teams who are available for deployment to countries experiencing devastating events of structural collapse, primarily due to earthquakes.[23] The mandate of INSARAG includes activities: (a) to render emergency preparedness and response activities; (b) to improve efficiency in cooperation among international USAR teams working in collapsed structures at a disaster site; (c) to develop internationally accepted procedures and systems for sustained cooperation between national USAR teams operating on the international scene; (d) to develop USAR

procedures, guidelines and best practices, and strengthen cooperation between interested organisations during the emergency relief phase.[24]

The governments and space agencies in the Asia-Pacific region have evolved multilateral forums to foster coordination amongst themselves on space-related issues. They have been proactively coordinating through conferences and symposia. Asia-Pacific Space Cooperation Organisation has set up such precedence for other regional organisations.

Asia-Pacific Space Cooperation Organisation (APSCO)

The Asia-Pacific Space Cooperation Organisation is an intergovernmental organisation to promote peaceful use of Outer Space in the Asia-Pacific Region. It leads cooperation in space science, space technology and applications such as Earth observation, disaster management and satellite communication, navigation and positioning. APSCO became operational in December 2008 and has been granted permanent observer status by UN-COPUOS since 2009.[25]

The idea of APSCO was born at the workshop on Multilateral Cooperation in Space Technology and its Applications (AP-MCSTA), which was held in November 1992 in Beijing. During the workshop, the initiative and institutionalisation of the mechanism was agreed upon by participants from sixteen Asia-Pacific countries. Since 1994, seven conferences on AP-MCSTA had been organised consecutively in Thailand, Pakistan, Republic of Korea, Bahrain, Iran and China. The text of the convention of APSCO was finalised in November 2003 and the convention was signed in October 2005 by eight countries in the Asia-Pacific Region, which included Bangladesh, China, Indonesia, Iran, Mongolia, Pakistan, Peru and Thailand.[26]

Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP)

The Centre for Space Science and Technology Education in Asia and the Pacific was established in India in 1995, following the recommendations of a UN General Assembly resolution on establishing Centres for Space Science and Technology Education in the developing countries. CSSTEAP is hosted by the Government of India with the Department of Space as the nodal agency. It has the mission of capacity building in space science and technology through excellence in education, training and research in the disciplines of remote sensing and geographic information system, satellite communications, and space and atmospheric science.[27]

CSSTEAP's major objectives are: (a) to develop the skills and knowledge

of university educators, environmental research scientists and project personnel in the design, development and application of space science and technology; (b) to develop skills for satellite communication in the areas of long distance education, delivery of health services, disaster mitigation, air and maritime navigation, etc.; and (c) to enhance regional and international cooperation in space science, technology and applications programmes.[28]

Asia-Pacific Regional Space Agency Forum (APRSAF)

The Asia-Pacific Regional Space Agency Forum was established in 1993 in response to the declaration adopted by the Asia-Pacific International Space Year Conference in 1992, to enhance space activities in the Asia-Pacific region. The APRSAF has emerged as the largest space-related conference in the Asia-Pacific region, by bringing space agencies, governmental bodies, international organisations, companies, universities and research institutes on a single platform. APRSAF currently organizes four working groups: Earth Observation (EO), Communication Satellite Applications (CSA), Space Education and Awareness (SEA), and Space Environment Utilisation (SEU), to share information about the activities and the future plans of each country and region in the respective areas. APRSAF also supports the establishment of international projects as solutions for common issues such as disasters and environmental protection.[29]

NOTES

1. ASI (Italy), BNSC (United Kingdom), CNES (France), CNSA (China), CSA (Canada), CSIRO (Australia), DLR (Germany), ESA (European Space Agency), ISRO (India), JAXA (Japan), KARI (Republic of Korea), NASA (United States of America), NSAU (Ukraine), Roscosmos (Russia).
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17. About CGMS, http://www.cgms-info.org/cgms/about-us.
18. International Charter "Space and Major Disasters", http://prezi.com/-qq9mtzf-wik/international-charter-space-and-major-disasters-official/
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20. http://www.disasterscharter.org/web/charter/home.
21. Article II – Purpose of Charter, http://www.disasterscharter.org/web/charter/charter.
22. http://www.insarag.org/
23. Background, http://www.insarag.org/en/about/background.html.
24. Mandate of INSARAG, http://www.insarag.org/en/about/mandate-of-insarag-leftmenu.html.
25. About APSCO: Secretariat, http://www.apsco.int/secretariat.aspx.
26. About APSCO: History, http://www.apsco.int/history.aspx.
27. Background, http://www.cssteap.org/background.html.
28. Objectives, http://www.cssteap.org/objectives.html.
29. About APRSAF, http://www.aprsaf.org/about.

PART III

GLOBAL OPINION

Chapter 10

Is There a Need for a Code of Conduct for Outer Space Activities?

Bhupendra Jasani

Introduction

On 23 March 2012, for the third time in the history of the International Space Station (ISS), astronauts aboard scrambled to their lifeboat capsules to brace for a possible collision with a flying orbital junk. The threat to spacecraft, astronauts and people back on the ground from orbiting debris has increased alarmingly in the decades since space exploration began. While there have not been any serious accidents with the ISS, on 12 February 2009, the US Iridium 33 and Russian Cosmos 2251 communications satellites collided at a relative speed of between 7 and 9 km/sec at approximately 788 km above the Earth's surface, generating additional debris. But the worst case of orbital junk was deliberate: on 11 January 2007, China purposely slammed a missile into its own Fengyun 1C weather satellite, adding, by the end of the year, some 2500 pieces of debris. Partly, this rapid growth in the population of space junk has been the rationale behind the proposal made by the European Union on 5 June 2012 for an International Code of Conduct for Outer Space Activities (The Code).[1]

The Code

The purpose of the Code is "to enhance the security, safety and sustainability of all outer space activities" by a voluntary commitment to refrain from intentionally harming space objects, measures to control and mitigate space

debris, and mechanisms for cooperation and consultation. Many of its suggestions have already been proposed or exist under the United Nations charter. For example, the 1967 Outer Space Treaty (OST) mentions that activities in Outer Space conducted by the states parties to the treaty will be carried out in the interest of maintaining international **peace and security** and promoting **international cooperation** and understanding (Article III). This is legally binding on over a hundred states, unlike the Code. As for confidence-building measures, states parties to the OST agree to inform the Secretary General of the UN as well as the public and the international community of their activities in Outer Space (Article XI).

In addition, the 1976 UN Convention on Registration of Objects Launched into Outer Space requires that

> ... the launching State shall register the space object by means of an entry into an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry. (Article II.1)

Under Article IV.1,

> Each State of registry shall furnish to the Secretary-General of the United Nations, as soon as practicable, the following information concerning each space object carried on its registry: *(a)* Name of launching State or States; *(b)* An appropriate designator of the space object or its registration number; *(c)* Date and territory or location of launch; *(d)* Basic orbital parameters, including: (i) Nodal period, (ii) Inclination, (iii) Apogee, and (iv) Perigee; *(e)* General function of the space object.

These obligations are mandatory, but by and large, provision *(e)* has not been fulfilled, since nearly three-quarters of the satellites launched serve military purposes and hardly any of them have been described to the UN Secretary-General as having a military use. Therefore, the Registration Convention has to be strengthened first by finding a way to determine how the international community is using Outer Space rather than creating a new Code. This is important, since according to the OST,

> A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space ..., would cause potentially harmful interference with activities in the peaceful exploration and use of outer space ..., may request consultation concerning the activity or experiment. (Article IX)

To the knowledge of the author, such requests have never been made although it is possible to learn, with some degree of accuracy, about the missions of various satellites by studying their orbital characteristics and by scanning numerous technical and military journals.

As for the non-interference, security, safety and integrity of space objects, a number of bilateral arms control treaties offer protection to certain types of satellites. For example, the SALT and START treaties contain pledges not to interfere with the national technical means (NTM) of verification. This means in effect that photographic, electronic and early warning satellites as well as some ocean-surveillance spacecraft are protected. The International Telecommunication Constitution and Convention (as revised in 2010) obligate parties to the Convention to avoid harmful interference with the radio services or communications of other parties providing protection to their satellite systems, though in reality unintentional and intentional (jamming) interference continue to increase. In effect, only military navigation, geodetic and meteorological satellites seem to be without any protection. But when devices to detect nuclear explosions are deployed on board navigation satellites, these might be classified under the category of NTM of verification and so be protected by some of the above mentioned treaties. Recently, even a multilateral treaty such as the 1970 Treaty on the Non-Proliferation of Nuclear Weapons (the NPT) has incorporated in its Additional Protocol to the safeguards procedures the use of commercial satellites; thus, effectively, a multilateral technical means (MTM) of verification tool has been created. In the Comprehensive Nuclear Test Ban Treaty (CTBT) of 1996, not yet formally entered into force, satellite observation as a verification tool has been recognised (Article IV.11). It is envisaged that civil remote sensing satellites will be used, thus, potentially providing protection to such satellites.

Two other issues are: (i) improved space traffic control, and (ii) orbital debris mitigation.

Improvement of Space Traffic Control

The current openly available catalogues are not very accurate for effective traffic control. It is not always easy to know with certainty the location of an object in orbit. Often, relevant agencies do not monitor activities in space continuously but use prediction techniques to know where various objects are. The actual locations are only determined occasionally to check the predictions. Clearly, this is not very satisfactory. A working group convened

by the four leading non-governmental organisations dealing with space issues—the American Institute of Aeronautics and Astronautics, the UN Office on Outer Space Affairs, the Confederation of European Aerospace Societies, and the International Academy of Astronautics—has suggested more extensive efforts to improve space traffic control procedures.

As a first step, an International Data Centre (IDC) could be established, for example, in Vienna, where data provided by participating countries on space objects in orbit would be collated and compiled. These data could be, for example, the telemetry emitted by satellites, their shape, size, designation, orbit and the launching countries. The data centres could also conduct routine analysis according to strictly defined procedures. The second step would be that the IDC could establish some equipment necessary to track objects in space. This would be to verify the Registration Convention and also data that might be available from various states on orbital debris. The latter information would be to check measures that may be used for orbital debris mitigation.

Orbital Debris Mitigation

To control the production of debris, the Inter-Agency Debris Coordinating Committee (IADC) consisting of space agencies from China, France, Germany, India, Italy, Japan, Russia, Ukraine, the United Kingdom and the United States, as well as the European Space Agency, has drawn up a set of guidelines. In addition, based on the Inter-Agency Standing Committee (IASC) Guidelines, the UN Committee on the Peaceful Uses of Outer Space (COPUOS) has adopted its own guidelines on space debris mitigation in 2007. However, none of these is legally binding. As a next step, the concerns of these two states should be seriously discussed in order to achieve their support. It might be suggested here that COPUOS adopts a possible "Convention on Limiting and Removal of Debris in Orbits (CLER)". The verification of such a convention could be carried out by the IDC, proposed above.

Some Conclusions

The foregoing observations may seem idealistic: some may feel that in practice additional measures such as the Code are necessary, since working through the UN can be too cumbersome and time consuming. Be that as it may, as the proposals in the Code, by and large, are not very different from those existing in the UN, it is difficult to see how states may sign up to the Code and not adhere to their legally binding obligations under the existing treaties

and respect other instruments adopted though various UN efforts. Moreover, the Code has no verification measure like some of the UN measures. It might be cost effective to strengthen the existing negotiated treaties and conventions with meaningful verification measures rather than propose new ones.

NOTE

1. *International Code of Conduct for Outer Space Activities*, Working document, Revised Draft, European Union, 5 June 2012.

Chapter 11

Space Code of Conduct: What is at Stake?

Isabelle Sourbès-Verger

National interest is the key phrase to understand the main features of any space policy, especially where security issues are concerned. The current debate about the European Union proposal of an international code of conduct for Outer Space (CoC) has to be considered from this perspective.

The concept of space control has appeared to be crucial for the United States as soon as a powerful satellites network became the infrastructure of its military superiority. This viewpoint is easy to understand and, to some extent, it can be shared by any state having significant space-faring activities. However, the fact is that only the US has such capabilities due to an outstanding financial investment leading to the development of matchless technological and industrial competences.

The United States must therefore develop all means to protect its space assets as far as they are tempting targets, whose destruction will entail a significant vulnerability. To be dependent on a trust mechanism represents an unacceptable risk; so also would be any attempt at restrictive factors that would not include ground systems and could not be monitored continuously. No current proposal is able to meet these US requirements, and hence the reservations in the Pentagon and Congress on the merits of joining a code of conduct.

The stakes are different for the other states whose vulnerability in space is not of the utmost importance. The 2008 PPWT proposal (Prevention of the Placement of Weapons in Outer Space Treaty) made by China and Russia to ban weaponisation of space has to be referred to the context of missile

defence and to the American initiative in that field. For its authors, its main objective is to constrain the US development: the initiative aims at postponing the need for them to engage in an expensive and inadequate race in order to restore a kind of strategic balance with the US. Independently of the geopolitical issues, this proposal cannot be supported by many states, because it does not take into account the ground systems, which represent a significant potential threat to space assets.

From this point of view, the national situations are quite different. The 2007 ASAT test has demonstrated China's willpower to master such a capability; otherwise it is difficult to understand it fully. The Chinese decision was fraught with consequences. It has opened the way to other states for similar experiments, and even the United States took advantage of it. For their part, Europe, Japan and India have decided not to test their potential ASAT competence, but the temptation may exist and newcomers could have a different position. Even if the dramatic effect of the Chinese experience may have made possible candidates aware of the threats associated with the production of space debris, ASAT tests still apply to this broader issue, which corresponds to the second part of the space security dimension.

From this perspective, the European position is quite understandable. The European space systems are mainly civilian, even if dual use is growing, but the increasing risk of collision is a true preoccupation for public and private actors since the space situation awareness ability remains incomplete. The desire to promote a multilateral approach and to play a role in the international arena contributes to the involvement of the European Union in this tricky topic. Some internal reasons, including the ambition to be recognised as a political actor, have also had an effect. The result is that the European proposal looks like a lowest common denominator by affirming a few general principles. These may not threaten American freedom, but make it sensitive to the concrete disadvantages of testing, of which benefits remain to be demonstrated.

More than illustrating an idealist philosophy, as one can say with reference to the principle of voluntarism, the European proposal must also be seen as a manifestation of realism. These are a couple of principles, good in themselves and for all, which allow going beyond the current deadlock. The EU code proposal solves basically nothing since it has no binding provision, but it would seek a soft consensus. It is less obvious to interpret it as a tool of discrimination that would protect states already having, at least potentially, deterrent ASAT capabilities, and limit access to new skills for others. If such an intention exists, justified by a desire to limit international instability factors,

it will be done more through the control of technology transfers and the use of the MTCR or any other way of pressure.

Are there alternatives? The question is worth asking, especially for countries that do not really fit into the logics at the origin of the current proposals. It is true that support for the EU code may freeze any other initiative. To some extent, it is a positive point for the United States and its allies, but it is a worrying one for the participants in quest of a safe environment. It is also true that the proposal of PPWT cannot really be sustained since its shortcomings cannot be mitigated. The third option is straight and narrow. It should not pose a threat to US national security—this limits its binding provisions—but at the same time it should prevent reinforcing the current gap. In parallel, it should provide real guarantees to all direct and indirect users of space resources.

Promoting greater transparency is efficient only if the system guarantees real interdependence and thus promotes everyone's interest to participate. The establishment of a global space surveillance network, combining different sources of information on a regional scale, is feasible if sensitive data may be secured. This raises the issue of verification of the data made available. But even if we assume a possible non-declaration, comparison of the results acquired by the different systems in case of problems could have a deterrent effect on potential violators. A first step might well include the provision of information on special requests; or where there are threats automatically detected, according to clear principles and procedures accepted by all participants. This will respect the secret of orbitography for military satellites but will help to develop confidence-building measures.

This proposal involves the acquisition of a range of space systems awareness, even incomplete but complementary, and has the advantage of ensuring public and private uses of space. It could be a basic condition for negotiation of the CoC by third states.

Chapter 12

Treaty vs Resolution

Armel Kerrest

It is an open secret that in the field of Outer Space, despite the necessity of cooperation, it is quite difficult to get states to accept some clear and precise obligations. The debate will continue whether it is better to try to propose a treaty—which is difficult to get ratified—or a resolution.

Necessity of Regulation

The current development of space activities makes regulation absolutely necessary. Regulation would involve space traffic management, mitigation of space debris, regulation of military activities and weaponisation of Outer Space.

Most or even all space-faring states are very reluctant to accept any limitation to their freedom of using Outer Space. But it is not possible to go on without some rules: it is necessary to set efficient and practical regulations. In the field of space debris, a Code of Conduct has been accepted and recognised by the UN General Assembly. The result seems rather limited, not only because it is presented as non-binding, as shown by the fact that the text was not discussed within the COPUOS legal subcommittee but also because the rules themselves are not precise enough and lack "normativity". In the fields of disarmament and weaponisation, cooperation and some effective and controlled rules such as at least prohibition of some weapons are very much needed.

Source of Law to be Used

The point here is, whether a treaty is preferable for use between states or a

code of conduct. A treaty has the great advantage of being written and being compulsory for the states that have accepted it. The shortcoming is that states must ratify it. The ratification process is most of the time long and usually subject to authorisation by Parliament. A state that does not ratify a treaty has no obligation towards it.

If a UN resolution is used, it may, in certain conditions, be transformed as a customary rule by a practice accepted as being law. In that case, the rule is compulsory for all states. The fact that the resolution is accepted by consensus is one of the conditions which helps the normative mechanism. There is no ratification process and no submission to parliaments.

In some cases, it may be more efficient to use a UN General Assembly resolution instead of a treaty. Let us take the Moon agreement as an example. This agreement was drafted under the leadership of the US delegation within the UN COPUOS legal subcommittee and Committee. With some modifications, it was accepted by consensus within the UN General Assembly. It was then open to signature and ratification by states. In the end, it failed because of political reasons (election of President Reagan and action of lobbies). If, instead of a draft treaty, we had a UN resolution adopted by consensus, most of the proposed rules and principles would have currently been accepted and compulsory as customary law. Consequently, discussions about the possibility of appropriating the resources of the Moon would have been clearly unacceptable.

This example may be a one off affair, but it may be remarked that in this field, despite the necessity of cooperation, it is quite difficult to get states to accept some clear and precise obligations.

Another example of interest of a resolution compared with a treaty is in remote sensing from Outer Space. We have currently a UN General Assembly resolution of limited scope on remote sensing. For some years, the learned delegation of Brazil to COPUOS has proposed to transform it into a treaty in order to improve the legal framework of this activity. It has been wisely argued by others that the solution is not to change the legal nature of the rule to compulsory treaty but to extend the scope of application of the resolution and to consider its implementation. A treaty is applicable only to states that have ratified it. A change from a largely accepted UN resolution to a non-ratified treaty is not a step forward: instead it might diminish the efficiency of the current legal framework.

Instead of focusing on the legal value of the text it may be more efficient to try to build a cooperation mechanism, for instance to create an International Space Organisation which could work on these subjects, as

ICAO does in air activities. An international organisation, because it creates a cooperation mechanism, is often a good way to influence the creation of a legal framework when it is needed because of the international character of an activity. Examples are: aircraft and ICAO; ships and other maritime activities and IMO; radio frequencies and ITU; international trade and WTO; etc.

Possible Indirect Legal Effect of a Code of Conduct: The Example of a Code of Conduct for Space Debris

If damage occurs on Earth, the absolute liability of the liability convention applies, but space debris damages are more likely to occur in Outer Space. There, a fault must be proven to get compensation. What is a fault? It is not the creation of debris by itself: it is the behaviour which led to the creation of the debris. The consideration of a behaviour is much more difficult than the proof of a fact.

The nineteenth-century "civil code", when considering liability uses the notion of "bon père de famille", "bonus paterfamilias" or "good father of a family". If damage occurs, the judge will consider the actual behaviour in comparison with the theoretical behaviour of this theoretical model of "bonus paterfamilias". If damage occurs in Outer Space, for a fault to be proven, the judge will have to compare the actual behaviour of the space actor which has caused damage and "normal" good behaviour of a "good launching state". He needs to know what is the behaviour of a good launching state. In my view, the code of conduct may be used for that purpose.

Even if the code of conduct is not compulsory and the operator cannot be sued for any violation, if damage occurs, the code may be considered as the standard of behaviour of a "good launching state" and put the operator at fault in case of a violation.

There are some conditions to that effect: in particular the code must be precise and clear enough to characterize the action of the operator as good or faulty.

To conclude, it is necessary to have some efficient and well-implemented rules to organize the use of Outer Space. A treaty would be a good solution if it is ratified by every space-faring state. If, as it seems to be, this is not foreseeable, an agreement on a code of conduct may be a useful first step: the creation of an International/World Space Organisation may greatly help.

Chapter 13

Why States should Sign the Code of Conduct for Outer Space Activities?

Stefan A. Kaiser

The Council of the European Union has submitted a revised Code of Conduct for Outer Space Activities[1] for consideration and adoption by all UN member states. A Multilateral Experts Meeting is scheduled for October 2012 in New York. This comment highlights three areas which are crucial for the understanding of this code: its non-binding nature, its content and purpose, and its implications, given the current political and diplomatic situation.

Non-Binding Nature

Treaty law is an archetypal source of international law. In the world of idealists, states sign up to binding treaties, which clearly and comprehensively detail the signatories' rights and obligations.

In the real world, states sign up to binding treaties only if there is a compelling need to do so. States weigh their national interests and sovereign powers against possible treaty obligations. Often, treaties are not comprehensive and their wording consists of intentional and creative ambiguity. Often, states do not sign treaties at all, because no consensus can be found that leaves enough room for national interests.

However, also in situations of apparent non-regulation, practices evolve in one way or another. Practices, custom and general principles of law fill the vacuum not covered by international treaty law.

In today's highly technical world, technical standards and practices emerge quickly. Technical standards are reduced to writing by non-governmental

bodies. Typically, they are drafted by technicians. They do not have the force of national or international law. Yet, they have a huge impact on worldwide industrial practices and form an important ingredient of international commerce.

In space law, the great era of treaty law was the 1960s and 1970s. The five space treaties, most notably the Outer Space Treaty of 1967, were negotiated and signed during the cold war and the space race. The USA and the Soviet Union were the dominating space powers. At that time two sets of interests stimulated states, which fell into two categories, to conclude the space treaties: (i) The two dominating space-faring nations wanted to ensure they did not lose legally and politically, in case they did not win the space and Moon race. (ii) The other states wanted to ensure their (future) access to space, their participation in space benefits, and they wanted to be protected against the detrimental effects resulting from others' space activities.

Once their space race was over, the USA and the Soviet Union had no interest in concluding other space law treaties. The increasing number of space-faring nations and those interested in space activities did not facilitate consensus building either. Since then, no legally binding international space law instrument has evolved.

But this does not diminish the importance of non-binding space law instruments like the principles and declarations adopted by the United Nations General Assembly.[2] Non-binding instruments pave the way for coherent international practice. Sometimes they restate existing practice. And they have the potential of becoming the crystallisation points for emerging customary law. No doubt, non-binding legal instruments leave a broader margin for their acceptance than hard law instruments and they take longer to solidify. But they have a political meaning, which can unfold with legal effect at a later point of time. The significance of non-binding instruments is neither muted by the lack of their enforcement, just as the significance of international law is not diminished by the absence of enforcement mechanisms.

A non-binding Code of Conduct for Outer Space Activities is not meaningless. Although it does not impose new rules and mechanisms, it emphasizes the importance of best practices, transparency and confidence-building measures, national procedures, information exchange and cooperation. The principal space actors do not wish to commit to new legally binding instruments. Their space race is over and they do not see a compelling need to commit beyond what is determined by the existing space treaties. A code of conduct is a tool to determine among states what was left out in the

space treaties and how they can perceive to go ahead. Time will tell the rest of the story.

However, there is one crucial prerequisite for the success of the code of conduct. It needs to reflect a broad consensus among the space-faring nations. All major space-faring nations need to sign. Therefore effort needs to be undertaken that the code is acceptable for such space heavyweights as the USA, Russia and China.

Content and Purpose

The purpose of the code is to ensure security, safety and sustainability of space activities (sec. 1.1). What are the intentions behind these concepts? In short, the main concerns are space debris and the use of weapons in and from space, especially anti-satellite (ASAT) tests.

Space Debris

The problem of space debris becomes increasingly pressing. The debris population is rising and appears to have reached a point where it continues to rise because of collisions alone, even without any additional launches (Kessler Syndrome). The problem of space debris is not reflected in the five existing space treaties. All space-faring nations are similarly concerned. In addition, two incidents have elevated the awareness about space debris: the debris clouds caused by the Chinese ASAT test in 2007 and the Iridium-Cosmos collision in 2009.

The issue of space debris is a cornerstone of the code of conduct. In general terms, space debris prevention and mitigation is covered by the general concept of the prevention and minimising the risk of *harmful interference* with space objects (secs. 2. Third hyphen, 4.1). More specifically, the minimising of accidents and collision risks (including the damage and destruction of space objects) is addressed (secs. 4.1, 4.2, 4.3). In even more detail the code spells out measures on space debris control and mitigation (sec. 5.). But that is not all. In combination, the sections on notification (sec. 6.) and consultation (sec. 9) pave a regulatory path for future cooperative mechanisms like space situational awareness and space traffic management.

With these measures and procedures relating to space debris, the code is an important step forward.

Use of Weapons in and from Outer Space

Military uses of Outer Space are a traditional issue of space activities. The

underlying legal issue concerns the concept of *peaceful purposes*, which has remained vague.

Admittedly, the code does not refine the concept of *peaceful purposes*. This is an intentional ambiguity and seems to be the price the drafters are willing to pay for the code to gain broad acceptance. In broad terms, the code uses the term (prevention of) *harmful interference* (sec. 2, third hyphen). *Harmful interference* is not only a term of space safety, as in the context of space debris, but also of space security. In terms of space security, it warrants the (physical and operational) integrity of space objects against politically motivated interference by other states. In addition, the code picks up concepts used in the UN Conference of Disarmament, namely the Prevention of an Arms Race in Outer Space (PAROS) and preventing Outer Space from becoming an area of conflict (secs. 4.5, 2. fourth hyphen).

However, key to the understanding of *peaceful purposes* in the context of the code is the restatement of the *inherent right of individual or collective self-defence* (secs. 2, second hyphen, 4.2). It underscores the interpretation that the concept of *peaceful purposes*, as mentioned in Art. IV of the Outer Space Treaty, means non-aggressive acts. Thus the code does not reach as far as the draft treaty submitted in 2008 by Russia and China on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects (PPWT). It also remains silent on ASAT tests.

ASAT Tests Causing Space Debris

A crucial point is kinetic ASAT tests. The Chinese test of January 2007, by which a defunct Chinese satellite was destroyed by a Chinese kinetic kill vehicle, produced a large debris cloud in Low Earth Orbit (LEO). This case was a clear demonstration how security interests, like weapon tests, are interlinked with space safety—the safe use of LEO by the international community.

The code does not strive to prohibit or limit kinetic ASAT tests. It rather aims at limiting the effects of such ASAT tests. This is a result of the concept of the prevention of harmful interference (sec. 2, third hyphen), and the qualifier of sec. 5, first hyphen, that the intentional destruction of any in-orbit space object or other activities is to be refrained from, when it *generates long-lived space debris*.

This reflects the US understanding of its intentional destruction of the satellite USA 193 in LEO in 2008. The US government claims that this act did not cause any long-lasting space debris, although for a period of at least nine months there was an increased collision risk in LEO that affected also

the International Space Station.[3] The USA will likely interpret the code of conduct to allow the intentional destructions or kinetic ASAT tests, as long as no long-lasting space debris is generated, the international community is appropriately notified (see also sec. 6), and any other necessary steps are taken to prevent harmful interference (for example danger areas are established over affected portions of the high sea).

The Current Political and Diplomatic Situation

The code has the potential of becoming a leading instrument on space security, safety and sustainability, but only if all major space-faring nations adopt it. At the moment, it appears that the vast majority would be inclined to do so. As proponents of the code, the states of the European Union will sign it. Also Australia, Canada and Japan are positive about it. The situation is more complex with the USA, China and Russia, who all have tested kinetic ASAT weapons in Outer Space and are engaged in manned space flight.

USA

The Obama administration is willing to cooperate in space affairs (see also the National Space Policy of the United States of America, 28 June 2010), as opposed to the so-called Bush doctrine of the former President, who preferred unilateral acts instead of international coordination and cooperation. The USA is concerned about space debris and wishes to bind others, if possible, to avoid and mitigate debris. The code is a welcome tool for that purpose.

However, the US government is not willing to give up the possibility of undertaking kinetic ASAT tests or using weapons against space targets as a measure of self-defence. The Soviet Union and the USA were the two states which extensively tested ASAT weapons in the 1980s. A voluntary moratorium of these tests was broken after more than twenty years by the Chinese ASAT test in 2007. The USA reacted one year later with the intentional destruction of satellite USA 193.

The embedded self-defence concept is a *conditio sine qua non* for the USA's acceptance of the code. As long as the current Presidential Space Policy prevails, there is a window of opportunity that the USA will sign it. But two conditions need to be met: a methodology for internationally tackling the space debris problem, and maintaining the freedom of action for self-defence and ASAT tests with limited generation of space debris.

China

There can be no doubt about China's interest in avoiding and mitigating

space debris. China has an ambitious national space programme, including manned space missions in LEO. Together with Russia, China was one of the proponents of the PPWT. The Chinese ASAT test contradicted the intentions of this draft treaty and puzzled the international community. The code could be an opportunity for China to emphasize its ambitions to limit the generation of space debris and to realign its international position after the irritations caused by its ASAT test.

Russia

Like other space-faring nations, debris avoidance and mitigation is an essential concern for Russia. But in regard to the use of weapons in space, the code falls short of the intentions of the PPWT as proposed by Russia. This could be the greatest stumbling block for Russia to support the code. Russia needs to balance its interests as put forward in the draft PPWT with the trimmed down version of the achievable. The international support of the code seems broad. If Russia does not sign, it isolates itself. This is not an attractive option either.

Despite its non-binding nature and the limited clarification of the concept of *peaceful purposes,* the code is an opportunity for further developing the regulatory regime on Outer Space. It appears possible that a broad consensus will be reached among many states, including the principal space actors. The prospect of such a consensus is a rare chance of international diplomacy, given the steadily increasing number of UN member states. Therefore it can only be recommended that as many states as possible sign this code.

NOTES

1. Council of the European Union, Brussels, 11 October 2010, 14455/10.
2. See e.g. UNGA Res. 1962 (XVIII), (1963), UNGA Res. 47/68 (1992), UNGA Res. 51/122 (1996), UNGA Res. 62/101(2007).
3. See European Space Agency, Space Debris, http://www.esa.int/esaMI/Space_Debris/SEM2D7WX3RF_0.htmlhttp://www.esa.int/esaMI/Space_Debris/SEM2D7WX3RF_0.html

Chapter 14

Japan, Space Security and Code of Conduct

Kazuto Suzuki

Japanese space policy is undergoing dynamic change. The Diet has enacted a law to establish a Cabinet Office to set up a new Space Strategy Office (SSO) and JAXA (Japan Aerospace Exploration Agency). As a result, space will no longer be dealt with by the Ministry of Education, Science and Technology (MEXT) but will be directly controlled by the Prime Minister. The Ministry of Foreign Affairs (MoFA) has created an Office on Space as contact point for international partners and to develop Japanese strategy for taking leadership in Asian space activities.

For Japan, this is a remarkable initiative in the sphere of space development. For a long time, Japanese space policy focused heavily on technological development, without investment in military and security issues. The Diet resolution of 1969 prevented the Japanese Self-Defense Forces from owning, developing, operating, and using space assets. The Accord of 1990 with the United States, which forces public procurement of non-R&D satellites to be open to international competition, also made the Japanese space programme more R&D oriented.

Since most of the Japanese spacecraft were R&D-oriented and not operational, little attention was paid to the orbital environment. Because Japanese spacecraft were not in military or public operations, the risks of colliding with space debris or being targeted by hostile parties were considered minimum. In other words, the damage resulting from losing these satellites was not considered significantly important since the objective of developing them was to test and demonstrate Japanese engineering capability.

But the situation is changing. JAXA, which has strongly emphasised technical development, has begun to recognize the increasing risks of space debris. Also, the launch of information-gathering satellites (IGS) in 2002 made the government aware of the importance and effectiveness of space utilisation. The mission of IGS, operationally first launched in 1990, was surveillance of the potential threat to Japan, namely North Korean missile sites. It is easy to gauge that maintaining a safe space environment to secure IGS operations is important for the government.

The Basic Space Law, passed in 2008, encouraged the government to enhance the scope of space activities from R&D orientation to utilisation orientation, including space use for security purposes. This new legal framework allows the government to participate in negotiations on space security issues, marking a changeover from the Diet resolution of 1969, which disallowed the government from such activity.

On the Code of Conduct proposed by the European Union, Japan has not taken an explicit stance since the United States, Japan's major ally, has not expressed its position on it. The US national space policy, published in 2006 during the Bush Jr. administration, explicitly rejected any international agreement that limited the freedom of American space activities. Although the Code assumed voluntary participation, commitment to it would constrain US space policy.

Nevertheless, Japan views the Code as very suitable for the world after the 2007 ASAT test by China. Its voluntary nature is designed to increase membership. The Code would not be ideal if it created a dividing line among space-faring nations, China and Russia in particular, and it should be accepted as an international norm. Of course, the Code would be much more effective if it is legally binding; but in order to include countries such as China and Russia, it needs to be based on voluntary participation, at least in the beginning.

The reminder of the right of individual and collective self-defence is not a big issue in Japan, primarily because the issue is stated in the Charter of the United Nations, and also because it would deter future potential aggression against space assets.

For a long time, Japan has developed technologies to use space environment responsibly, such as controlled re-entry of upper stages and fairings of Japanese rockets. So, it welcomes the explicit statement that "the responsibility of States … to take all appropriate measures to prevent outer space from becoming an area of conflict" and the necessity to comply with the Space Debris Mitigation Guidelines.

The most important clause from the Japanese point of view is Clause 4.3, which states that "when executing manoeuvres of space objects in outer space, for example to supply space stations, repair space objects, mitigate debris, or reposition space objects, the Subscribing States confirm their intention to take all reasonable measures to minimize the risks of collision". This allows Japan to invest in the development of technologies to remove space debris. JAXA in particular is very interested in developing debris mitigation and removal technology, but it is well known that this technology can be used as space weapons. Hence, it is extremely important that the Code explicitly allows debris removal activities with good intention.

When the Obama administration decided to launch a negotiation on the EU-proposed International Code of Conduct, the Japanese government immediately responded to the call by the United States to join the international framework together with Australia. For Japan, the US initiative was a welcome one because US objection was the only obstacle for Japan to participate in the Code.

Participation in the negotiation on the International Code of Conduct will be the first task that the new administrative body in the Cabinet Office, SSO, and the Space Office in MoFA have to deal with. It is not yet clear how much Japan can contribute to the International Code, but it is certain that Japan is strongly committed.

Chapter 15

EU Code of Conduct on Activities in Outer Space: Issues that Matter

Jessica Los Banos

The successful landing of the $2.5 billion worth Mars Science Laboratory and Curiosity rover by the United States on Mars on 5 August 2012 is the latest testament of the exponential growth and progress of humankind's continuing foray into Outer Space. The domain of space is widely accepted as a global commons. There is also general consensus that the inherent freedom of exploration of space and its use should not only redound to the benefit of powerful space-faring nations and those with resources to undertake them, and that to guarantee such freedom, a new and enhanced global system to equitably govern the conduct of Outer Space activities is imperative. In this regard, the initiative of the European Union to introduce an International Code of Conduct for Outer Space Activities (CoC) is a timely opportunity for both space-faring and non-space-faring nations to renew their commitment to promote the free use of Outer Space for peaceful purposes while fully respecting the security, safety and integrity of space objects in orbit. This is a shared paradigm that aims to sustain humankind's ability to harness the infinite potential of Outer Space for the common benefit and preservation of humankind well into the future.

The forthcoming negotiations at the UN Multilateral Experts Meeting in New York in October 2012 are expected to intensify and underscore conflicting self-interests and positions of states on the scope and limitations on the conduct of Outer Space activities. There is therefore a need to focus the ensuing debates on what really matters. Deliberations must not be overshadowed by highly contentious geopolitical issues such as those arising

from defence and military uses of Outer Space. More important and pressing are the economic, socio-cultural, developmental, and environmental concerns affecting ordinary people whose lives are inestimably impacted on a daily basis by the conduct of activities in Outer Space. Therefore, any discussion on the adoption of a code of conduct on Outer Space must centre on three relevant issues: (a) subscription vis-à-vis adequacy of the code; (b) Outer Space environment protection; and (c) conformity and compliance.

Subscribing to the Code

It has long been recognised in international relations and practice that governments enter into legally non-binding agreements to communicate state policies or intentions. The CoC is one such instrument. As a non-binding instrument, there is nothing pioneering or ground-breaking in it that cannot be found in the existing framework regulating Outer Space activities. This minimizes the scope for any controversy regarding the CoC proposal and the possibility that states are discouraged from subscribing to it.

First, the code is pragmatic. It aims to enhance the safety, security and predictability of the use of Outer Space, to contribute to transparency and confidence-building measures, and to complement the existing regulatory framework. Second, it bypasses controversial issues such as weaponisation or nuclear use of space. Third, it acknowledges clearly the legitimate defence interests of states, recognising the right to use Outer Space for military purposes subject only to limitations imposed by international law and to prevent Outer Space from becoming an area of conflict. Fourth, measures are designed to protect the physical space environment by minimising the possibility of accidents, collisions, or any form of harmful interference in the right to the peaceful exploration and use of Outer Space and to limit the creation and reduce the impact of space debris in Outer Space. Finally, cooperation and organisational mechanisms such as the use of orbital parameters, registration of space objects, and notification and consultations are subject to the standards of good faith and equitable balance of interests.

Some states may argue that the CoC is therefore redundant, unnecessary, weak, open to interpretation, or even abuse. The consultations are an appropriate venue to refine the wording of the text to enhance its adequacy. Be that as it may, since it is legally non-binding, the code should be valued for itself, particularly for its simplicity as a practicable roadmap for action and change. It encourages voluntary positive behaviour and sends the message that states are not politically or even morally free to act as if no obligations exist for them under international law. The code is not contrary to the

freedom of use of Outer Space; hence it is for the best interest of humankind that it is now enacted and adhered to by states.

Protecting the Viability of the Outer Space Environment

The reluctance of some states to subscribe to the code generally stems from a fear of possible operational implications and impact on activities, particularly in delimiting and constraining military uses of Outer Space. However, this mindset is counter-intuitive. The code does not prohibit the use of Outer Space for military purposes and even leaves open the possibility of weaponisation of space and nuclear use. The disinclination of states against the code is rooted in their rational self-interested behaviour regarding the concept of global commons and use of resources. One way to address this dilemma is through collective action by way of the proposed code of conduct. To appreciate the necessity of enacting the code, one must be familiar with the environmental context of Outer Space.

At present, the increased exploration and use of Outer Space has made the space environment hazardous. Space-situational-awareness technologies and systems currently track more than 20,000 items in space from satellite and mission launches, including components of launch vehicles, disabled satellites, dead batteries, and even refuse from human missions. As travel in space is significantly magnified, even flecks of paint could potentially damage manned or unmanned spacecraft. Space debris creation is exponential as per the Kessler effect syndrome. If the escalating growth of space debris is not halted, Outer Space might needlessly become a high-risk environment.

From a functional perspective, satellites and missions play a significant role in ensuring protection and sustainability of the Earth's environment and sustainable development. They relay information on climate change, extreme weather events, rising sea levels, retreating glaciers, loss of biodiversity, population growth, human migration, and disaster monitoring, emergency, and assessment services, among others. The remote sensing capabilities of satellites are also increasingly being used in commercial activities including media, farming, shipping, real estate management, urban and regional planning, retail marketing, resource assessment, and tourism and recreation.

Therefore, the debates must focus attention on balancing scientific, military and commercial uses of Outer Space. Geopolitical issues must take a back seat to common global concerns such as sustainable development and environmental protection, which can only be guaranteed if the environment of Outer Space is regulated.

Conformity and Compliance

States are also reluctant to enact a code of conduct on account of the lack of accountability and enforcement mechanisms inherent in a non-legally binding agreement. Adherence to it being voluntary, the code will not necessarily enunciate rules to force compliance of commitments by states. However, as we are embarking on new and uncharted frontiers of exploration, travel and even human habitation in space, the absence of conformity and compliance provisos in the present text should not be a deterrent for avant-garde states to subscribe to the code. Moreover, as it contains a section on organisational aspects, the conduct of regular meetings and consensus decision-making will increase the likelihood that such a mechanism may be established in the future. In any case, the forthcoming consultations are again the appropriate venue to revisit the issue whether or not subscribing states should in fact provide for such a mechanism and incorporate it in the code accordingly.

Conclusion

The proposed EU code of conduct is one way to challenge the existing law of Outer Space without necessarily requiring states to enter into legally binding commitments. It is a viable means of marshalling common positions on both contentious and practical policy issues and intended courses of action on mutual concerns. It is also an opportunity for facilitating political commitments on the conduct of activities in Outer Space, which would be difficult in a multilateral or even a bilateral treaty arrangement setting. Admittedly, the present code of conduct is an insufficient vehicle to enforce compliance of obligations, but it is an essential normative instrument to harmonize the interests of space-faring and non-space-faring countries. While shaping and promoting sustainable conduct of Outer Space activities, it will lay the groundwork to transform commitments into legally binding obligations either through the enactment of a treaty or their crystallisation into customary law in the future. Negotiations on the CoC will of course require time and patience; but it may be the best strategy and option currently acceptable to most states involved in the conduct of Outer Space activities.

Chapter 16

Space Code of Conduct: Right Step Forward Although not Perfect

Park Won-hwa

Certainly, sovereign states are not willing to see their inherent rights of sovereignty infringed in the least. Nevertheless, all states strive for international cooperation, a euphemism for selective cooperation whereby the national interest is promoted or least impaired. The seemingly paranoid approach of some states in certain cases is often real in the domain of national security, perhaps due to the strong power exercised by the military people in the history of humanity rather than to its proper primordial importance.

The Code of Conduct is not binding and is open to all states. However, it introduces a consultation mechanism with options of creating ad hoc fact-finding missions. Besides, a Central Point of Contact is foreseen as the permanent structure to receive information, maintain electronic database, serve the secretariat role, and carry out other tasks. I shall explore each of them briefly.

It is certainly desirable that we have a solid and legally binding instrument to fill the gap of a certain legal order of Outer Space. We failed to do so after the conclusion of the Moon Treaty in 1979, about whose significance I am very doubtful. Because of different views of space powers even a soft touch to deal with matters in Outer Space has been hard to come by in recent years. There are many organisations, including the OECD (Organisation for Economic Cooperation and Development), where peer reviews play a substantial role of pushing and restraining member states to be on the right

track, despite lack of any document of a binding character. Even in the United Nations, where numerous treaties have been adopted, adopting important guidelines in the form of resolutions has been the norm. The resolutions represented the values of the time, although some of them can eventually be reformulated into hard law according to the necessity of the time. One such case is the UN General Assembly Resolution 1962 on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted in 1963, later being transformed into a few different treaties of Outer Space.

Even though the soft law type of document, i.e. UN resolution, is not the same as the hard law treaty, it does not lose its value. This is exemplified in the UN resolution on the Universal Declaration on Human Rights adopted in 1948. That is why we need not overemphasize binding character, but rather accept it as the reality of the current time with possible change of legal character in future.

Consultation is a wise and practical approach whenever there are concerns of states regarding the activities of other states in an area subject to no one's jurisdiction. The Outer Space Treaty of 1967 and Antarctic Treaty of 1959 are examples where state parties can resort to consultation. UN General Assembly Resolution 41/65 on the Principles Relating to Remote Sensing of the Earth from Outer Space, adopted in 1986, is another such instrument where, through consultation, potential conflicts are discouraged from escalating. Having the effect of peer pressure, it plays a useful role in keeping the peaceful order of the world.

An accident or incident is much easier to resolve if the real facts of the case are known. In most cases, this does not happen; all the more so when the case has international implications. Establishing a fact-finding mission is an effective way of dealing with disputes arising from an accident or incident as long as the states involved agree to it. As regards the Central Contact Point (CCP), many states will possibly voice their opposition when the occasion arises in an advanced stage of discussion because it requires new funds and staff. A solution can be found by adopting the Code as the UN Resolution to entrust the role of CCP to the COPUOS (Committee on Peaceful Uses of Outer Space), which may need only one or two more staff members in addition to the current structure to conduct the mission. With the adoption of UN General Assembly Resolution 1721 B in 1961, the COPUOS is keeping a record of launching objects separate from the one in accordance with the Registration Convention of 1975.

As regards a more critical aspect of the fate of the Space Code of Conduct,

although the preliminary positive reaction of the USA was sounded out, it is not clear whether America will be accommodating to the Code with certain amendments to suit its unique interests without impairing the fundamental character of the Code. We are aware of its strong concerns for freedom in Outer Space, where it believes it has strategic security advantages over other states. Its longstanding concerns have been clearly manifested in its lonely and eye-catching opposition to adopting resolutions on PAROS (Prevention of Arms Race in Outer Space) every year in the UN General Assembly. The same holds for the definition and delimitation of Outer Space and the discussion of a comprehensive treaty on Outer Space that Russia and China proposed and refreshed with another name, PPWT (Prevention of the Placement of Weapons in Outer Space), in 2008.

It remains to be seen whether both EU and America can agree to the Code with certain amendments acceptable to both sides, but keeping it meaningful without losing its substance and universality. If America puts the spirit of cooperation before its security-beholden perception, unique in current international relations, there is a great chance of having a new instrument useful to govern Outer Space, which is ever more likely to be congested and riskier unless a certain order is in place. What if America adamantly holds on to its paranoid concept of security? At this juncture, I recall the history of the Convention on Climate Change adopted in 1992 to save the Earth from global warming from emissions of gases like carbon dioxide (CO_2) and thus rendering the Earth unfit for animals and humans to live on. To implement the Convention, the world community adopted the Kyoto Protocol in 1997, whereby the rich states committed themselves to reduce their global warming gases in the five-year period that ends in 2012; but America soon opted out on the pretext of protecting its enterprises.

I think it will be another contribution on the part of Europe, following its leading role in the Kyoto Protocol, to propose a Space Code of Conduct because there has been no significant movement of norms-making to govern space activities in recent years. There are great chances for it to be successfully accepted by all the space-faring states. Since it would be such a meaningful instrument, even if a strong space power rejects it betraying the expectation of the rest of the world, we had better proceed along it as another positive milestone for humankind.

Chapter 17

EU Draft Code of Conduct for Outer Space Activities: Space Debris and Liability Convention

Doo Hwan Kim

The Context

In December 2008 the EU adopted a Draft Code of Conduct (EU Draft CoC) for Outer Space activities. In September 2010 the EU came out with a revised version of it. The Code, a politically and not legally binding document, aims to establish some rules of good conduct for Outer Space activities. Now the European Union will have to try to muster enough adoption of the Code, at the international level, to make it an effective "soft law" tool for space governance.[1]

Some experts look at the Hague Code of Conduct against Ballistic Missiles Proliferation (HCoC) as a successful example of how "soft law" can be implemented and play a concrete role in an international security context. HCoC has reached in less than six years an important number of adhesions: 130 countries including the United States and Russia, which are the most active actors in terms of the development and launch of ballistic missiles and space launch vehicles. Significant countries are, however, still absent from the HCoC, such as active actors like DPRK (North Korea), Iran, China and emerging actors in the space sector like Brazil, Mexico and Saudi Arabia. Most of the countries located in the region extending from the North of Africa to Eastern Asia do not participate in the HCoC.[2]

The main aspects considered here include the universalisation of the EU

Draft CoC and its chances to motivate a larger participation in it, its effective implementation by adhering states and the scope of the Code. In many respects, the Code provisions are hardly controversial, and reflect commonsense practices for operating in orbit. This aspect stands out particularly when compared with a more restrictive proposed space arms control treaty, known by the acronym PPWT (Prevention of the Placement of Weapons in Outer Space), supported by China and Russia.

At present, various activities in Outer Space are governed by a few globally acknowledged treaty mechanisms like the Outer Space Treaty (OST, 1967) and the Moon Treaty (1979). Other important treaties in this regard include the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue Agreement, 1968) and the Convention on International Liability for Damage Caused by Space Objects (Space Liability Convention, 1972).

The UN has also undertaken various initiatives like the Committee on the Peaceful Uses of Outer Space (COPUOS, 1959) and Prevention of an Arms Race in Outer Space (PAROS, 1982). The UN has produced various General Assembly Resolutions, Meetings, Conference on Disarmament (CD) working papers, etc., on the issue.

The measures on space debris control and mitigation adopted by the EU Draft CoC are as follows:

> 5. *Measures on space debris control and mitigation*. In order to limit the creation of space debris and reduce its impact in outer space, the Subscribing States commit to:
>
> – refrain from the intentional destruction of any on-orbit space object or other activities which may generate long-lived space debris;
> – adopt and implement, in accordance with their own internal processes, the appropriate policies and procedures or other effective measures in order to implement the Space Debris Mitigation Guidelines of the United Nations Committee for the Peaceful Uses of Outer Space as endorsed by UNGA Resolution 62/217.[3]

Space Debris and Liability Convention

Concerns about the harm caused by intentional or accidental events to orbiting space objects have increased in recent years, following two episodes that caused damage to satellites and an impressive amount of debris (Chinese anti-satellite missile test, held on January 2007 and the collision between

Iridium 33 satellite (US) and Cosmos 2251 satellite (Russia) in February 2009). This document is intended as a proposal for a non-legally binding consensus ranging from security of space assets to the mitigation of space debris. It calls upon countries to refrain from actions that would damage or destroy other satellites or interfere with their communications, and to minimize the risk of collisions, as well as limit the creation of orbital debris, among other measures. Space debris has become an official enemy of humankind. Space debris has also brought grave potential threats for human activities in Outer Space.

The 1972 Liability Convention has not regulated the scope and limits of compensation for damage caused by space debris. A new framework is required for innovation on the damage caused by space debris as well as amendment of the Liability Convention. The space debris problem can only be effectively solved by international cooperation.

Consultations between space agencies are taking place with increasing frequency. Meanwhile, states have to keep in mind that the exploration and use of Outer Space is for the benefit and in the interest of all countries. We should try to reach an international agreement, binding on all space-using nations, which encompasses the need to protect space and the Earth environment.

The Space Law Committee of ILA sent its recommendation to the UN COPUOS for further action. After the committee of space-faring nations has reached consensus on the basic steps to be taken, and has presented its findings to the Scientific and Technical Subcommittee of the COPUOS, it may be appropriate for the Legal Subcommittee of COPUOS to take up the matter, in order to debate and resolve the definition, jurisdiction and control, liability, and other legal issues that many legal experts consider need addressing in the preparation of an international agreement.

It is necessary for us to exchange information and views among the countries on the damage caused by space debris and to establish an integrated monitoring system for preventing and mitigating the damage caused by space debris as a special and affiliated organisation under the United Nations. First of all, I would propose the establishment of a new Asia-Pacific International and Environmental Monitoring Organisation. It is also necessary for us to enact independently a new Draft for the International Instrument on the Protection of the Earth Environment from Damage Caused by Space Debris as well as to amend some articles of the 1972 Liability Convention in order to protect victims in the case of accidents caused by space debris.

NOTES

1. Valerio Briani, *The EU as a force for stability in space – The EU Code of Conduct for Outer Space Activities,* European Security and Defence Forum Workshop, 11 November 2010, http://www.chathamhouse.org.uk
2. Lucia Marta, *The Hague Code of Conduct Against Ballistic Missile Proliferation: "Lessons Learned" for the European Union Draft Code of Conduct for Outer Space Activities,* ESPI (European Space Policy Institute) No. 34, *Perspectives*, June 2010, p. 3.
3. UN General Assembly, Sixty-second session Agenda item 31, 62/217 International cooperation in the peaceful uses of outer space, 1 February 2008.

Chapter 18

Securing Space: Will Code of Conduct Discussions Help? A Perspective from Australia

Brett Biddington

Since 1957 the objects of human origin orbiting Earth have grown from one to a very large, unknown number. The US Air Force has characterised and routinely tracks in the order of 20,000 or so of these objects, many of which are in highly inclined Low Earth Orbits (LEO). Most of these objects are space junk—satellites that are no longer working, rocket casings, some intact and some in pieces, and a miscellany of other items. They all represent a collision risk to the operational satellites in the LEO domain.

Space-faring nations and the international community more broadly, have come to understand that some parts of LEO space in particular have become increasingly congested to the point that new approaches are needed to preserve the LEO space environment as a safe and secure domain in which satellites may operate as intended, performing a range of missions including Earth observation, communications, astronomy and space weather monitoring and research.

In the past decade there have been growing calls for "rules of the road" and "codes of conduct" to be developed, which space-faring nations will agree to embrace or abide by in future, to ensure that LEO space remains open, accessible and safe to all potential users. These calls conform to the aspirations of the Outer Space Treaty and associated documents, which state the principle of space being part of the "common heritage of humans" and "a global

commons". Such idealism and aspiration may be a useful place to start; however, the reality tells a different story.

National security and military advantage, in the past, today and into the future, are the fundamental drivers for human investment in space activities. Space remains the high ground for diplomacy and war and the almost exclusive preserve of the world's most powerful nations. In the view of this writer, this situation is unlikely to change until ways of reaching space and returning from it cheaply, reliably and repeatedly are developed. Some governments will tolerate limited entrepreneurial activity in the margins but only to the extent that core security values and requirements are not compromised.

Certainly, the national security landscape has become much more complex as an increasingly tightly coupled global economy has emerged, largely as a consequence of the internet and associated technologies which, coupled with cheap and reliable air transportation, have brought almost all nations on Earth only milliseconds away from each other electronically, and only a day away at most, to the traveller. Almost six decades of Earth observation from space has provided scientists, policymakers and broader audiences a holistic view of Earth as a single ecosystem which needs careful stewardship if life on Earth is to be sustained *ad infinitum*. The ecosystem does not respect national borders; and the health of the atmosphere and the oceans, irrespective of how nations enforce their sovereign rights to airspace and territorial seas, is of concern to all. Satellites provide a unique view of the Earth's environment and the changes that would seem to be occurring to it, perhaps at an accelerating pace in response to human impact.

The Australian government has known from the beginning of the Space Age that national security is the critical driver for space investment and space activity. Australia's approach to space has always proceeded from this starting point. It explains why, in the 1950s, Australia permitted the United Kingdom to develop and test rockets at Woomera as the means to deliver atomic weapons, also developed and tested in Australia, until the British realised that they could not afford to build and maintain such expensive capabilities on their own. Since the 1960s, Australia has hosted facilities such as the satellite ground station at Pine Gap near Alice Springs which supports US intelligence-gathering satellites that also perform critical Nuclear Non-Proliferation Treaty (NPT) monitoring and verification missions.

To summarize, since the beginning of the Space Age, Australia's vital national interests in space have been met as a direct consequence of the nation's most important alliance relationship—initially with the United

Kingdom and later, and more fundamentally, with the United States. More importantly, for a nation with a small population and modest tax base, this has been provided at virtually no direct dollar cost to successive Australian governments. Space security has come as a free good which has been shrouded in secrecy.

None of the above has been explained clearly or carefully to the broader Australian community, which has led to confusion, disappointment and even anger amongst investors, researchers and enthusiasts who puzzle why a seemingly wealthy nation, the geography of which, *prima facie*, lends itself to all sorts of clever uses of space, seems to be so uninterested in a public space programme. This is beginning to change and the Australian government is working towards agreeing upon and releasing a national space policy by the end of 2012.

The government, through its own research and experience and the efforts of progressively well-informed, reasoned and persistent public advocacy has come to understand just how dependent are so many sectors of the economy and broader social activities on assured and secure access to the three space-based utilities—communications, precision timing and navigation and Earth observation. The security of the space environment, in order that these space-based services may be delivered with high levels of assurance, is expected to be the key tenet of the forthcoming national space policy, which is anticipated to indicate measures open to the government to positively influence the debate and the desired outcome.

The Australian response to improving the security of the future space environment, with particular reference to the physical domain of LEO space, is likely to contain four elements.

- *Diplomacy.* Australia will participate actively in the international diplomatic efforts to recast the laws, policies and norms that regulate space activities. Australia is likely to take the view that any discussion is better than none and, having already committed to support in principle the international code of conduct being promoted by the European Union, will seek to use such leverage as it has to bring the divergent views of the space-faring nations closer together. A safe and secure space environment is intimately and inextricably tied to questions about reducing the likelihood of weapons of mass destruction (WMD) being used in any future conflict. International law in the space domain, as in any other, is ultimately limited by the extent to which nation states agree to be bound by treaties, conventions and similar instruments and by the behavioural norms and consultative and

cooperative processes that develop around such documents.
Australia is well placed to become an advocate in the international councils of the world for the space dispossessed nations and peoples—those which have no capacity or ambition to operate satellites of their own but which have a direct and immediate interest in making sure that they have access to the space-based utilities operated by others.

- *Investment in Space Situational Awareness (SSA)*. Since 2009 Australia has made a succession of public announcements about the importance of space security and has committed itself to working with the United States and the United Kingdom to strengthen global SSA by developing national capability and capacity and by hosting ground-based SSA sensors in Australia. The 2009 Defence White Paper made a series of declaratory statements about the importance of space security overall and placed particular emphasis on SSA. The government having acknowledged that the recommendations of this White Paper are unaffordable, a new white paper, to be released in 2013, is now being prepared. Space security is likely to figure prominently in this document.
- *Support for Research*. The Australian government funds long-term collaborative research between universities, other research organisations and industry through the Cooperative Research Centre (CRC) Program. In the round to be funded from July 2013, for which applications closed in June 2012, one of the nine applications submitted is for a Space Environment Management CRC. If this application succeeds, there will be a funded research and development programme that builds on existing industry and research capabilities to develop technologies and processes by which the rate at which space debris proliferates may be reduced and, in time, the overall volume of debris may be reduced as well. If the application fails, the research is likely to proceed but at a slower pace.
- *Alliance Management*. Much of what Australia does is likely to be framed, initially at least, by its alliance relationship with the United States, which is likely to remain the most space-capable nation in the world for the next twenty to thirty years at least. China and India are making enormous strides and they, together with the United States, Russia, Europe and Japan, stand to dwarf the efforts of others with the ability to build, launch and operate their own satellites. Somewhat in anticipation of the broader changes and challenges that the shifting global power balance means for Australia, the government is understood to be reviewing the policy by which other nations and commercial entities may locate and operate ground stations in Australia. The

> principle of "full knowledge and concurrence" is currently applied and is likely to remain. Implementation is the tricky piece because it can involve a requirement to place Australian officials in control centres in other countries.

Looking ahead, this writer concludes that the mature space-faring nations will, at some point, agree amongst themselves to restrict new entrants to the global space club to reduce the pressure on the Low Earth Orbits in particular. They will learn to work in a domain that might be described as a complex Mexican stand-off, in which each has a gun at the head of the others. The regime will be a multilateral version of the mutually assured destruction (MAD) logic that tempered the behaviour of both the United States and the USSR during the cold war. In such a regime, new entrants will be actively discouraged by a mixture of inducements and sanctions which the space-faring nations will enforce in their own mutual interest.

Discussion about a code of conduct provides a framework for nations to decide what can be done quickly and cooperatively to mitigate the proliferation of space debris. It also permits empirical data to be gathered and valued and for models to be developed and tested. Such negotiations are likely to expose areas that are contentious and that will need more time and effort before acceptable solutions can be reached. This is a vexed area where national interests and global imperatives intersect and where no simple way forward is apparent. The overwhelmingly important point is that dialogue has begun.

Chapter 19

International Code of Conduct for Outer Space Activities: An Important Stepping Stone

Cesar Jaramillo

Recent debate about the prospect of a multilateral governance mechanism for Outer Space activities tends to blur the distinction between the need for a code of conduct for Outer Space activities and the merits and shortcomings of the draft International Code of Conduct for Outer Space Activities (CoC) put forth by the European Union. Likewise, the real or perceived limitations of the proposed ban on space weapons put forth by Russia and China—known as the PPWT—have to some extent overshadowed legitimate discussions regarding the necessity of an arms control regime for Outer Space more generally.

It is thus important to first assess whether the existing normative framework for space does in fact require complementary policy instruments that reflect the current and foreseeable dynamics of Outer Space activities. If so, one can then evaluate the value, problem areas, and likelihood of widespread adoption of the specific proposals currently on the table for the consideration of space-faring actors.

The need to update the valuable, yet insufficient, multilateral governance regime for Outer Space activities—epitomized by the 1967 Outer Space Treaty—has become increasingly apparent. Despite the rapid advancement and expansion of space activities, or precisely because of it, the normative architecture for Outer Space has become inadequate to address current trends of access to and use of space.

In this context, the EU's CoC proposal constitutes a welcome development, irrespective of the outcome of the ongoing international consultation process. Essentially a mechanism to codify a set of transparency and confidence-building measures for Outer Space activities, the code aims to reduce misperceptions and miscommunications among space actors and to spell out the sort of behaviour that will contribute to a sustainable space environment—such as that which limits the further creation of space debris.

In 2011 it seemed probable that the US might support the code with only minor amendments to the draft text, but it was later clarified that the country would instead join the EU and other space actors to jointly develop an International Code of Conduct. And although it was always the intent of the drafters of the code to galvanize wide international support for this initiative, the adequacy of the process to draft the document and seek feedback from space-faring nations has been called into question by various space stakeholders. It remains to be seen whether the latest stage of consultations, launched on the margins of the 55th COPUOS plenary in 2012 with a renewed emphasis on the code's international scope, will allay such misgivings.

Various concerns have been raised about the effectiveness of a voluntary policy instrument which is not legally binding. While valid, however, these can easily be overstated. The adoption of any multilateral arrangement that sets norms of acceptable behaviour—whether legally or politically binding—is always a voluntary undertaking. Further, politically binding may be a more accurate description of the code than non-binding. Even if it is not officially a treaty, the adoption of the code would no doubt entail a well-publicized international commitment by its signatories to adhere to its precepts. Space-faring nations will likely sign up to the code only if they determine that they are prepared to comply with its provisions.

The lack of enforcement mechanisms to make sure the signatories live up to their obligations has also triggered criticisms of the code. Since it is not legally binding, goes the argument, it contains no provisions to ensure compliance. But even full-fledged international treaties with legally binding provisions often lack enforcement mechanisms. In the event of non-compliance, it is up to other states parties to the treaty in question to formulate adequate responses that are not necessarily specified in the letter of the treaty, as has been the case, for example, with the Nuclear Non-Proliferation Treaty (NPT). So while it may be true that the proposed code is neither legally binding nor readily enforceable, these conditions do not

necessarily strip it of its value as an important step toward enhanced Outer Space governance.

Another notably contentious aspect of the code has to do not with what it covers, but rather what it leaves out. Addressing the issue of space weapons and the concomitant prevention of an arms race in Outer Space was not the intent of the drafters, and it is so reflected in the focus given to issues such as debris mitigation, collision avoidance and data sharing—all of which are important in their own right.

However, in the space domain, not every space actor has the same priorities and concerns. Given the disparity among space-faring nations in their extant capabilities, their reliance on space-based applications, the type of information they would not want to disclose, and the extent to which their space assets are vulnerable to deliberate or accidental harmful interference, there are different areas that space-faring nations want to see addressed by, or excluded from, such a code.

For some space actors, it is orbital debris that should command the most urgent attention due to the indiscriminate nature and immediacy of the threat. Others continue to see the prevention of an arms race in Outer Space as the most important issue to tackle, given the destabilising effect that space weapons would have for all space-faring actors. Space stakeholders would do well to dismiss neither out of hand.

While the importance of orbital debris mitigation has been for the most part undisputed, the real or perceived need for arms control has been a far more contentious matter. In certain quarters the mantra has recently been that space sustainability discussions should shift away from arms control to focus on matters such as debris mitigation, data sharing and avoidance of harmful interference. But it is also important to acknowledge that this view is not universally held and there are those, including major space actors, who believe that their concerns regarding space weapons remain valid and should be addressed by the international community.

At this point it seems unlikely that the PPWT will galvanize the necessary support, notably from the US, to become a widely adopted arms control measure—at least not in its current form. But the potential problem areas that several states and observers have identified in it should not be taken as an indication that arms control in space is an illusory or misguided proposition. The PPWT should at the very least encourage a conscientious debate on the likelihood and implications of an arms race in Outer Space, and the consequences of inaction.

Space actors should acknowledge that the code can stand on its own merits and still make an important contribution to Outer Space governance, even if its provisions are not legally binding and it skirts the issue of space weaponisation. The challenges facing the space domain are multifaceted, and there need not be an expectation that they all be covered by a single initiative. The relative worth of a space policy proposal should not be a function of its capacity to effectively address all challenges to the sustainability of Outer Space—from environmental, to commercial, military. The code, despite its limitations, can make a concrete contribution to space governance. One hopes that its adoption is not taken as an end goal that would jeopardize the pursuit of further complementary initiatives.

Chapter 20

Russian Approaches Towards Ensuring Security in Space*

Russia's foreign policy priority in ensuring security in space is the prevention of an arms race in outer space (PAROS) and the adoption of a legally binding Treaty on Prevention of the Placement of Weapons in Outer Space (PPWT).

The time that has passed since Russia and China presented the draft PPWT at the Conference on Disarmament (CD) in February 2008 proved the topicality and importance of our efforts. The international community now more clearly realizes possible negative consequences of placement of weapons in outer space. Several states, including India, have made remarks and suggestions to the draft PPWT and now stand for an early start of the respective negotiations at the CD in Geneva. Today the main practical objective is to unblock the negotiation process at the Conference and to adopt its balanced programme of work.

We consider interesting the long-standing Indian proposal to impose a moratorium on the placement of weapons in space. Russian and Indian approaches to the issue coincide. As early as 2004 Russia committed itself not to place weapons in outer space first and now calls upon other states to follow suit.

Developing the Outer Space Transparency and Confidence-Building Measures (TCBMs) is an integral part of Russia's PPW approach. Given the

*This article is presented by the Department for Security Affairs and Disarmament, Ministry of Foreign Affairs of the Russian Federation.

constantly growing dependence of all countries on the results of space activities, it becomes even more critical to ensure the predictable strategic situation in outer space, security in space and safety of space property. TCBMs are directly related to developing common rules of conduct in outer space.

Since 2005, following the Russia-China initiative, the UNGA has been annually adopting resolutions on TCBMs that have always enjoyed India's support. On the basis of the UNGA Resolution, adopted during the 65th Session of the UNGA, the Group of Governmental Experts (GGE) was formed and commenced its work on TCBMs (three working sessions have been scheduled for 2012-13). Russia intends to interact closely with India on the GGE issues. In Russia's opinion, a coordinated «package» of TCBMs and recommendations on their introduction into the international practice can become an outcome of the GGE work.

On a parallel track work is being done on the draft Code of Conduct for Outer Space Activities (CoC). This draft emerged as an EU answer to the 61st Session of the UNGA Resolution on TCBMs. Originally, along with other provisions it outlined PAROS as the most important factor of strengthening strategic stability and developing international cooperation. Later the EU significantly reviewed its CoC concept and departed from direct connection with TCBMs. In this respect, at the Russia-EU expert consultations the Sides agreed to differentiate between the subject and the legal basis of the drafts PPWT and CoC. Russia insists that this should be clearly stated in the preamble of the draft CoC. The draft CoC is viewed as an eventual code of norms of voluntary implementation, targeted at ensuring the security of all types of outer space activities. However, it does not touch upon the issues of PAROS (the subject of the legally binding PPWT). The Russian Federation believes that the only way to work out a truly feasible Code is the transparent international discussion of the draft CoC and taking into account the positions of all spacefaring nations. An important point—the CoC drafting must not undermine our efforts aimed at elaborating the PPWT.

Russia and India traditionally share common interests in keeping the space free of arms. Russia highly values the position of India, which together with us opposes the arms race in space and promotes liable and transparent conduct in space. Russia is ready to expand such cooperation in all dimensions, including the BRICS framework.

Chapter 21

The Future of the International Code of Conduct for Outer Space Activities: From Mission Impossible to Mission Sustainable?

Li Juqian

In less than four years, the EU has made three major efforts to promote its document on Outer Space activities. The newest version was released on 5 June 2012, after the updated version of 2010 based on the 2008 draft. As a document with general rules regulating space activities, the International Code of Conduct for Outer Space Activities (the CoC) looks like providing some base for a future treaty on the sustainability of space activities. But on closer scrutiny, a treaty in this area is a mission impossible, and the international society needs to do more to facilitate the sustainability of space activities.

This is an issue that cannot be ignored by humankind when we enjoy the advantage and convenience brought by the development of space technology and space activity. As consumers of GPS and mobile phones, people may not know that there are more than 20,000 pieces of space debris each bigger than a baseball; but people must know that the vast sky is so crowded that a Russian and an American satellite collided in the sky. We have to face this inconvenient truth if we are to protect the Earth from the land, the sea, and now the sky.

Confronting this truth, the UN put the sustainability of space activity on COPUOS's agenda, and it has been a topic discussed frequently both in international and domestic fora. The legal framework regulating space activity has been established for more than thirty years, if we calculate from the Moon

Treaty of 1979. The first UN treaty on Outer Space can be traced back to 1967, when even satellite mobile phones did not exist.

The rapid development of space technology and space activity in recent decades has inevitably enlarged the discrepancy between the rules and the reality. The leading space-faring countries have sent all kinds of satellites into the sky. The USA alone has more than four hundred satellites in orbit. Though international cooperation is a legal principle clearly provided in the Outer Space Treaty of 1967, no mechanism exists for information exchange relating to mitigation of space debris.

The CoC is a useful attempt against the background that both legal rules and international cooperation are inadequate. The 2012 version of the CoC has progressed at least on three aspects:

1. It recognizes the sustainability of space activity, which means that it takes notice of the discussions in the UN on this issue.
2. The cooperation mechanisms and mitigation of space debris are stressed more clearly. The principles of international cooperation must be described in detail as rules so that they can be followed with a clear understanding. Mitigation of space debris is a smaller issue compared to the sustainability of space activity, but it is an important issue for the sustainability.
3. The CoC recognizes and reaffirms the existing legal framework and internationally accepted practices in space activity. This gives it a wide base for acceptance or adoption.

Confident of the strengths of the CoC, the European Council has allocated 1.49 million Euros for its promotion and discussion. The CoC would be discussed in October in New York, with expectations of its being implemented next year.

There are, however, two big obstacles for the CoC being universally accepted:

1. It is not a treaty and has no legal binding force. As the European Council has no power to pass laws, the CoC has no legal binding force even in the EU.
2. As such, if the CoC is to have any effect, it has to get a favourable consensus from the key space-faring nations. After all, the efficiency of rules is measured basically by the actions of the key actors. For example, the USA does not support it, and Russia and China have been lukewarm to it. How can the CoC be easily agreed to in domestic law-making procedure while the USA still emphasizes its right to free access to space and keep testing space weapons?

Under above circumstance the future implementations and effectiveness of CoC appears to be a mission impossible.

The future of the CoC is not, however, entirely pessimistic. In international law, soft law such as the CoC may not compare with a treaty in terms of legal binding force, but it may stand for the common practices accepted internationally, and has a major influence on state actors. When a state acts contrary to a good practice widely accepted in the international society, it faces pressure to justify its act.

States generally adopt good practices developed or accepted in the international society. For example, China has an industrial standard for mitigation of space debris, which is adapted to the international principles in the UN document with the same purpose.

To sum up, the future of the CoC as a soft law is positive, and is more feasible than a treaty. It has the potential to stimulate the international society to develop the relevant rules, and gives a reason for states to make their own relevant rules. All in all, the future of the CoC is a mission sustainable, and not mission impossible.

Chapter 22

CoC: Need for a Holistic Approach

Ciro Arévalo Yepes

A draft International Code of Conduct on Outer Space (CoC) for devising a voluntary international agreement to enhance space security is currently being structured outside of United Nations arrangements. As a former Chairman of the Committee on the Peaceful Uses of Outer Space (COPUOS, 2008-9) I feel it necessary to offer some broad comments about how best the United Nations system could be used to address issues related to space security. My views expressed in the following paragraphs are based on my working paper presented to COPUOS during its fifty-third session at Vienna (June 2010). A modified version of this paper is available as conference room paper A/AC.105/2009/CRP.12.

The space environment is changing rapidly, with a growing number of states seeking to develop or extend their space capabilities. A variety of non-state actors are also extending their involvement in space activities. A private company successfully launching a robotic spacecraft is an example of this. All this indicates the need to have a better management of activities in Outer Space. For four to five decades the United Nations has made various efforts in this direction. The COPUOS was established by the General Assembly in 1959 to review the scope of international cooperation in peaceful uses of Outer Space, to devise programmes in this field to be undertaken under United Nations auspices, to encourage continued research and the dissemination of information on Outer Space matters, and to study legal problems arising from the exploration of Outer Space. Five multilateral treaties have been devised under the United Nations authority which address specific issues related to space administration.

Even today, the United Nations remains a principal intergovernmental forum to deal with various space-related issues. The United Nations system itself has become increasingly reliant on space systems for its day-to-day operations. In order for the United Nations to play its necessary role in the space arena, it will need to be supported by a space policy. A United Nations space policy could provide overarching guidance on space activities for United Nations stakeholders, inform United Nations participation in space activities, and promote improved coordination and cooperative governance of Outer Space activities. A world without a common United Nations space policy will not be able to respond to the rapidly evolving Outer Space challenges. Basically, a holistic approach is necessary to promote and strengthen the use of space technology and its applications in the United Nations system.

In view of the current evolution of the space arena in terms of diversification and multiplication of actors, threats and challenges, there is a growing need for the United Nations to take actions providing overall stewardship of space activities for the following reasons.

(a) Stable order in orbit
(b) Integrated approach to the use of space
(c) Need to establish a supportive environment for new space users and space-faring countries
(d) Utilisation of space for the benefit of all humankind

The principles and practices of a United Nations space policy cannot be realised without appropriate and adequate means. At the moment, neither COPUOS nor other international organisations have sufficient budgets or institutions to implement a United Nations space policy. These means could be achieved if the United Nations were to:

(a) Encourage member states to cooperate in the establishment of regional space cooperation forums and agencies for developing regional space programmes.
(b) Strengthen the function of regulating the orbital environment for the fair and responsible use of space.
(c) Promote dialogue between space-faring states, space-user states and other organisations.
(d) Develop a forum of space-faring states and a forum of space-user states.

In the new space era that is unfolding, the United Nations cannot afford to miss the opportunity to develop its own long-overdue space policy. A world without a United Nations space policy would be lacking a key element to face the future with confidence, to improve current mechanisms for the exploration and uses of Outer Space and to ensure the long-term sustainability

of space activities. Moreover, the United Nations needs to find a new way of thinking about its role in the world, and space is a crucial element in this context.

Over the years much effort has been spent at different fora in the United Nations to address the issues related to space security. Suggestions like developing a CoC that is non-binding and voluntary in nature have been discussed. This may not be a perfect solution, but it is still an important step in the correct direction. There is therefore a need to have a detailed debate on this issue. The various points mentioned above do have direct or indirect bearing on the proposed draft CoC. Specifically, in regard to CoC the following points need to be taken into account:

- Global space governance should avoid top-down approaches that risk making the proposal inadequate.
- In the perception of developing countries, CoC preliminary negotiations were extremely "selective" and lacked sufficient transparency.
- Access to GEO, space application sustainable approaches and interrelation with main global agenda issues needs to be restructured within the CoC.
- Experience has demonstrated that regional initiatives need to be validated by multilateral UN fora such as COPUOS if the intention is to be successful. CoC came in an already "mature" stage of consultations, creating confusion with the proposal of space sustainability.
- The superposition of issues in the Legal Subcommittee risks the debate becoming extremely complicated.
- Formal interrelation with PPWT is to be reinforced.
- A High Level Panel of Experts (such as G15 in COPUOS) under the UN framework has to deal with the compatibility of this main proposal.
- A holistic approach is needed.

Chapter 23

The International Normative System and a Code of Conduct for Outer Space Activities

Tare Brisibe

Maintaining Peace and Security

To commemorate several milestones during the year 2011, including the fiftieth anniversary of human space flight, the fiftieth anniversary of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), and the fiftieth session of its Legal Subcommittee, the UN General Assembly adopted the 50th Anniversary Declaration. In this declaration, annexed to Resolution 66/71, the Assembly recalls the first meeting of the Permanent COPUOS, convened on 27 November 1961, which facilitated the adoption of Resolution 1721 (XVI), "International Cooperation in the Peaceful Uses of Outer Space". By Resolution 1721 A, the following principles were commended to states for their guidance in space activities: that international law, including the Charter of the United Nations, applies to Outer Space and celestial bodies; and that Outer Space and celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation. In Resolution 1721 B the Assembly, amongst other things, expressed its belief that the United Nations should provide a focal point for international cooperation in the peaceful uses of Outer Space, and stipulated the first mandate for the registration of objects launched into Outer Space.

These principles found further expression in Resolution 1962 (XVIII), "Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space", adopted at the same time as Resolution

1884 (XVIII), "Question of General and Complete Disarmament". Resolution 1962 (XVIII) details nine principles, arguably universally accepted and obligatory, stipulating that: Outer Space should be explored and used for the benefit and in the interests of all humankind; Outer Space is free for exploration and use by all states; Outer Space is not subject to national appropriation; activities in Outer Space should be carried out in accordance with international law; states bear responsibility for national activities in Outer Space; in the exploration and use of Outer Space, states should be guided by the principle of cooperation and mutual assistance; states should retain jurisdiction and control over space objects which they have registered; states should be internationally liable for damage caused by their space objects; and states should regard astronauts as envoys of humankind in Outer Space, and should render them all possible assistance. Resolution 1884 (XVIII) called upon all states to, amongst other things, refrain from placing in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, installing such weapons on celestial bodies, or stationing such weapons in Outer Space in any other manner.

The principles established in these resolutions remain highly relevant fifty years after their adoption, and amongst numerous truly impressive achievements, it can be said that the Committee and the Legal Subcommittee have been instrumental in developing the international legal regime governing the activities of states in the exploration and use of Outer Space, consisting of treaties,[1] declarations[2] and principles[3] on Outer Space activities being the legal foundation for space activities today. It is not surprising that in the 50th Anniversary Declaration, the Assembly whilst reaffirming the importance of international cooperation towards developing the rule of law, including the relevant norms of space law, and of the widest possible adherence to the international treaties that promote peaceful uses of Outer Space, recalls the entry into force of the 1967 Outer Space Treaty that codified the fundamental principles of international space law. In the context of this paper, two observations should be highlighted.

First, it is expected that activities in Outer Space shall be conducted for "peaceful purposes"; but though certain specific prohibitions apply to the Moon and celestial bodies, a universally accepted definition of the phrase "peaceful purposes" does not currently exist, given that it could be construed to mean non-aggressive or even non-military. Although this phrase can be found in various multilateral instruments,[4] an appraisal reveals that it is interpreted or construed separately and uniquely, distinct from one instrument to another. It would seem that this phrase, which features in the Outer Space Treaty, the Moon Agreement, as well as in the preambular provisions of both

the Liability and Registration Conventions, constitutes a convenient alternative to the more familiar use of the terms "demilitarisation" and "neutralisation" as is traditional in arms and armament affairs.

Secondly, Outer Space activities are never undertaken in a legal vacuum: it has been firmly established that international law, including the Charter of the United Nations, is applicable to activities in Outer Space. Accordingly, states are expected to carry out activities in the exploration and use of Outer Space in the interest of maintaining international peace and security and promoting international cooperation and understanding. There is unanimity regarding the applicability of certain Charter provisions; but disagreement regarding the right to self-defence in Outer Space and regarding other obligations of international law, some of which could be deemed applicable to activities in Outer Space; such as, in the context of this paper, the general principles of international law concerning the regulation of the use of force by states, the *jus ad bellum.*

Evolving Structure and Content of Outer Space Endeavours

In its 50th Anniversary Declaration, the UN General Assembly acknowledges that significant changes have occurred in the structure and content of space endeavour, reflected in the emergence of new technologies and the increasing number of actors at all levels. It is necessary to elaborate on some of these occurrences. For instance, recent reports indicate evidence of growing and systematic jamming, by deliberate and repeated harmful interference, being caused to uplink signals of some satellite television and radio networks. Amongst various methods of settling international disputes (including inquiry, mediation, conciliation, arbitration, judicial settlement, and resort to regional arrangements or agencies or other peaceful means of the parties' own choice), negotiations and consultations are usually the first, and appear to constitute the principal technique. But dispute settlement plays an even greater role for non-governmental entities, which have no direct recourse to diplomatic and political means, and seek binding judgments based on commercial contracts rather than treaty obligations. There are of course longstanding issues applicable to Outer Space activities to which universally acceptable solutions have not been found. The definition of political and territorial limits in Outer Space vis-à-vis jurisdiction applicable thereto is one of several.

Testing conventional weapons and/or missiles remains lawful in Outer Space, just as it is lawful on the high seas and in the superjacent airspace. Added to the longstanding recognition of space technology either in the form of weapons, surveillance, or support systems being possible catalysts for an

arms race, is the growing realisation that long-term threats to global security will also come from natural or artificial changes to the space environment. Recent events, intentional and accidental, have resulted in massive debris fallout, giving impetus to proposals for debris removal procedures. Related legal questions border on issues of registration, jurisdiction and control of space objects on the one hand, to rules of delict and tort for harmful consequences arising from extra-hazardous activities. Just as space science and technology applications, including Earth observation systems have become most relevant to critical areas of global concern, such as climate change, food security, global health, sustainable use of natural resources, economic development, and natural disasters, one is hard pressed to enquire whether certain principles, pertaining to remote sensing of the Earth from Outer Space, intended to promote protection of the Earth's natural environment and humankind from natural disaster, have not already become universally binding.

Enhancing Peace and Security

Commencing in the late 1970s through the early '80s and more recently in the year 2008, various initiatives have been put forward proposing means and modalities for addressing the question of arms and armament in Outer Space, including the threat or use of force. Some proposals have even recommended a Protocol, amending demilitarisation provisions of the Outer Space Treaty that will include reference to conventional weapons and missiles along with reciprocal rights to inspection whilst extending peaceful purposes to Outer Space. Others have proposed amending the definition of the crime of Aggression to include reference to space forces quite like the armed land, naval and air forces of states. What seem to be at the heart of an inability to reach consensus are, amongst others, the technologies of ballistic missile defence and anti-satellite weapons, and it can thus be argued that the real questions lie beyond the law and in fact concern scientific progress, military strategy and national policy. But in the interest of maintaining peace and security, alongside the Registration Convention, are currently existing procedures providing guidance for registration[5] of space objects with possibilities for notification and/or provision of information regarding ballistic missile and space launch vehicle programmes.

There are laws and practices from which immediate and reliable analogies can be drawn, such as those concerning the civil responsibility of states for breaches of international law and appropriate remedies, noting that an aspect of the liability regime applicable to Outer Space activities is an exception to the general reluctance of states towards rules imposing strict liability, whilst

other aspects of liability and responsibility for injurious consequences of Outer Space activities depend on the establishment of fault. As a consequence of which, regimes on liability deriving from other environmental agreements[6] and international law principles[7] are instructive, given that they inspire and illustrate the benefits of adopting binding rules of conduct[8] concerning Outer Space activities, against which legal obligations can be established to take appropriate measures preventing harm, perhaps by reference or inclusion of such binding rules of conduct in national legislation.

With respect to principles and modalities governing the peaceful settlement of disputes, the aforementioned framework on international space law provides states with various mechanisms within the framework of the United Nations and in accordance with the Charter, to resolve, by peaceful means, problems which may arise in relation to the objective of, or in the application of, the provisions of the agreements and principles. In response to a perceived need for specialised dispute resolution mechanisms in the rapidly evolving field of Outer Space activities, it is noteworthy that on 6 December 2011 the Administrative Council of the Permanent Court of Arbitration (the "PCA") adopted the "PCA Optional Rules for the Arbitration of Disputes Relating to Outer Space Activities", based on text developed by the International Bureau of the PCA, in conjunction with an Advisory Group[9] of leading experts in air and space law. These Optional Rules, which are voluntary and applicable only with the consent of parties, are open to states, intergovernmental organisations and non-governmental entities. Along with provisions on confidentiality, amongst others, the Optional Rules can be modified by parties, and offer the choice of appointing Arbitrators, in order to secure final and binding decisions leading to internationally recognised and enforceable awards.

It is also noteworthy that the Legal Subcommittee at its fifty-first session in 2012 agreed to include on its agenda "Review of the international mechanisms for cooperation in the peaceful exploration and use of outer space", proposed by China, Ecuador, Japan, Peru, Saudi Arabia and the United States, as an item under a five-year work plan. The results of this effort, based on the Committee and its Legal Subcommittee's tradition of decision-making by consensus, shall identify legal issues commonly addressed in existing agreements relevant to international space cooperation, based upon submissions by member states, additional research and consultation with member states.

Concluding Remarks

In regulating Outer Space activities, draftsmen of the corpus of international space law recognised the relationship between military and non-military aspects. Inasmuch as the ultimate test of any activity in Outer Space turns on whether it is consistent with the United Nations Charter and other obligations of international law, states are equally obliged and expected to carry out activities in the exploration and use of Outer Space in the interest of maintaining international peace and security and promoting international cooperation and understanding. It is especially to the latter obligations of international law that efforts of the international community should ideally be focused, in order to reinforce the notion that the main object and purpose of the basic principles of contemporary international law is to maintain peace and security by pacific means. Rules exist which apply to activities in Outer Space, although the precise manner of their application could be debated, given that one is dealing with the progressive development of law and not merely refining existing rules. More so, because instruments and mechanisms devised to control arms or enable disarmament are intrinsically political by nature and driven by security policy as to whether the testing, production, possession, or stationing of certain armaments should be limited or even prohibited in order to achieve the desired military-technical balance of power. A holistic and comprehensive approach to maintaining peace and security regarding Outer Space activities should envisage, at the barest minimum, a clear and predictable regime[10] of responsibility and liability for intentional and/or accidental harm, including uniform indemnification policies applicable to injurious consequences arising from acts not prohibited by international law in Outer Space; binding rules of conduct; an enabling mechanism with procedures for broad-based international cooperation in space situational awareness; and effective disarmament and arms control measures.

Without prejudice to the sanctity and preservation of United Nations treaties, declarations and principles forming the corpus of international space law, after fifty years of constant and uniform practice of states, there are strong arguments in favour of the proposal that an examination and review of the nine international legal principles declared in Resolution 1962 (XVIII) has become necessary, as humankind enters the next semi-centennial period of conducting activities in Outer Space. One should certainly take into account the critical role of custom in the progressive development of international law. This author has argued, for instance, that a customary international rule prohibiting changes to the Outer Space environment which are manifestly superfluous, over and beyond what is militarily necessary, needs to be added to the principles enshrined in Resolution 1962 (XVIII). Based on what ought

to be a holistic and comprehensive approach at maintaining peace and security, an appropriately drafted Code of Conduct should aspire to strengthen, and add demonstrable value to the law as it is, by constituting an enduring platform for the law as it should be. The Code of Conduct as currently worded can only constitute a pragmatic part of comprehensive arrangements which should involve treaties, custom, and general principles of law, fostering international cooperation, as the foundation and catalyst towards guaranteeing continued use of Outer Space for peaceful purposes. In meeting these considerations, the initiative for an effective international Code of Conduct should attract the support it deserves in order to achieve its stated objective of enhancing the security, safety and sustainability of all Outer Space activities. The Committee and its Legal Subcommittee should play a key role in this initiative, given their pioneering and longstanding efforts at furthering international cooperation in the peaceful exploration and use of Outer Space by consensus.

NOTES

1. "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies", 610 UNTS 205; "Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space", 672 UNTS 119; "Convention on International Liability for Damage Caused by Space Objects", 961 UNTS, 187; "Convention on Registration of Objects Launched into Outer Space", 1023 UNTS, 15 and "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies", 1363 UNTS 21.
2. UNGA Res. 51/122, "Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries".
3. UNGA Res. 37/92, "Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting"; UNGA Res. 41/65, "Principles Relating to Remote Sensing of the Earth from Outer Space"; UNGA Res. 47/68, "Principles Relevant to the Use of Nuclear Power Sources in Outer Space".
4. Antarctic Treaty, 402 UNTS 71; "Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean", 634 UNTS 326; "Treaty on the Non-Proliferation of Nuclear Weapons", 729 UNTS 161; "Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor", 955 UNTS 115; "Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxic Weapons and Their Destruction", 1015 UNTS 163; "Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques", 16 ILM 90; "United Nations Convention on the Law of the Sea", 1833 UNTS 3; "South Pacific Nuclear Free Zone Treaty", 1445 UNTS 177; "Protocol on Environmental Protection to the Antarctic Treaty", 30 ILM 145; "Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction", 1974 UNTS 45.
5. See UNGA Res. 59/91, "Hague Code of Conduct against Ballistic Missile Proliferation",

and UN Doc A/57/724; See also UNGA Res. 62/101, "Recommendations on enhancing the practice of States and international intergovernmental organisations in registering space objects".

6. See, for instance, Annex VI, "Liability arising from Environmental Emergencies", "Protocol on Environmental Protection to the Antarctic Treaty", 30 ILM 145.
7. See Draft Report of the International Law Commission on the Work of its Fifty-Eighth Session, Chapter V: "International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law" (International Liability in Case of Loss from Transboundary Harm Arising out of Hazardous Activities), UN Doc. A/CN.4/L.693/Add.1, 9 June 2006.
8. See, for instance, "Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space", endorsed by UNGA Res. 62/217, "International cooperation in the peaceful uses of outer space".
9. This author is a member of the Permanent Court of Arbitration – Advisory Group on Optional Rules for Arbitration of Disputes Relating to Outer Space Activities.
10. Comparable to hazardous activities such as Nuclear Liability and Marine Pollution.

Chapter 24

Space Code of Conduct: Need to Re-analyse

Zahid Imroz

The revised version of the apparently comprehensive International Outer Space Code of Conduct seems more an EU effort than international. It does not satisfy all space-faring nations. Its text demands a commitment to previous Outer Space treaties and regulations like OST (1967), Moon Treaty (1979), Space Liability Convention (1972), COPUOS (1959), PAROS (1982), Treaty Banning Nuclear Weapon Tests in the Atmosphere in Outer Space and under Water (1963), and Comprehensive Nuclear Test Ban Treaty (1996). It also proposes some new points to be followed by subscribing nations behaving as ethical actors. Subscribing states should adopt the policies voluntarily to implement transparency and confidence-building measures (TCBMs), space debris control and its mitigation, etc. It expects subscribing nations to refrain from any kind of harmful actions like destruction of in-orbit space objects which may create long-lived space debris. Subscribing states should commit to notify:

- scheduled manoeuvres which may result in dangerous proximity to space objects;
- orbital changes and re-entries, as well as other relevant orbital parameters;
- collisions or accidents that have taken place;
- the malfunctioning of orbiting space objects with significant risk of re-entry into the atmosphere or of orbital collision.

There are many useful proposals in the CoC which can help avoid catastrophes and ensure safety in Outer Space, but many dimensions still need

to be debated. US officials have said that the Obama administration would not subscribe to the CoC if it constrains the right of individual or collective self-defence systems and capabilities, although the US will work together with the EU to make a better international code of conduct that will ensure the safety, security and interests of the United States and its allies.

In February 2008, China and Russia proposed a treaty, "Prevention of the Placement of Weapons in Outer Space" (PPWT), in the Conference on Disarmament (CD), which faced strong criticism from the US and its allies. PPTW has serious flaws, such as that it is unverifiable and does not include ground-based weapons that are capable of damaging satellites in space. Annoyed by such criticism, the Chinese Council on Foreign Relations has officially stated that China will be absent from CoC negotiations in October. The Chinese stance is understandable because PPTW is based on a top-down approach and China is unlikely to move from it.

The CoC, on the other hand, is based on a bottom-up approach. US efforts to address Outer Space issues via TCBMs are counter to China's approach. They can derail PPWT and the position in the UN that China is currently enjoying because of its proposed treaty. Russia is not opposed to TCBMs: it has been practising them in the past and has sometimes unilaterally followed them, but as far as CoC is concerned, it seems that it will also have the same position as China because of the responses it received from the US on PPWT.

India has concerns with the non-binding status of the CoC. A common concern of Brazil and India is that they were not invited to participate in drafting the CoC. Several other emerging powers have also expressed their reservations about not being involved in the process. They also have a few issues with the text of the code.

Though the CoC has several useful points and workable proposals, it suffers from vague terminology and lack of definitions. There are some concerns regarding its legal and political binding nature. It seems that the CoC would limit the freedom of action in space for military and intelligence activities.

States have shown an interest in and guarded support to the CoC. They appreciate the effort to protect Outer Space from irresponsible action by space-faring nations. But they are not ready to sign the present CoC draft. The history of treaties tells us that states abide by rules and regulations as long as they provide some political and strategic benefits. States do not refrain from destructive acts when they consider these necessary for their security

and stability. Acceptance of codes such as the CoC by states that have no nuclear, missile or space capability does not make a big difference until the major space powers accept the limitations and adopt the measures. States do not take seriously codes that have no binding mechanism and verification protocols. So there is a need to review this CoC in detail by involving all countries concerned to get the maximum benefit from it.

Chapter 25

ICoC: Need of the Hour

Victoria Samson

The draft International Code of Conduct for Outer Space Activities (ICoC) is a non-legally binding and voluntary set of guidelines intended to highlight what the international community generally agrees to be responsible behaviour in space. No matter what is the outcome from negotiations surrounding the ICoC, the mere fact of discussing what the international community perceives to be responsible space behaviour can only enhance the security and sustainability of the space environment.

The main purposes of the ICoC as listed in the document are the enhancement of the security, safety, and sustainability of Outer Space activities; endorsement of best practices; and reaffirmation of existing international law, like the 1967 Outer Space Treaty. Its guiding principles include: freedom of access to space for peaceful purposes; preservation of the security and integrity of objects in space orbit, and the responsibility of countries to refrain from harmful interference with each other's assets; and the inherent right of all states to individual and collective self-defence.

There has been a lot of criticism of the ICoC, both of its content (which is largely unwarranted) and even more so on its process (which unfortunately does have some merit). In terms of how the ICoC was presented to the non-Western world, there have definitely been missteps. While the European Union consulted the United States and a few other countries as it drafted its first version of the ICoC, it failed to consult other space-faring nations until the Code had taken on a much more concrete shape, making those states feel that they were being left out of the process. While it makes a certain amount of sense that the United States would have been consulted in the

early stages by its close allies on the issue of responsible space behaviour, the fact of the matter is that other major space-faring nations should have been brought into the process earlier than they were. It is hoped that as negotiations move forward on the ICoC, this oversight will be rectified and that all major space stakeholders will feel that they are crucial parts of the discussion, which they truly are.

Internationally, there is also a concern that the Code will follow the model of the 1968 Nuclear Non-Proliferation Treaty (NPT) in terms of preserving the status quo at a snapshot in time, arbitrarily dividing countries into haves and have-nots. This would not be the case for the ICoC, in any of its current iterations, as it does not attempt to prevent anyone from utilizing space for peaceful purposes; rather, it focuses on making sure that this is done in a responsible and sustainable manner.

Another criticism of the ICoC is that it is toothless because it is not a legally binding treaty and lacks verification mechanisms. The 2002 Hague Code of Conduct Against Ballistic Missile Proliferation (HCoC) is often cited as another international agreement that lacked power because of its non-binding status, while the 1972 Biological Weapons Convention (BWC) is used as an example of a treaty that could not accomplish much because it did not have a verification mechanism in its by-laws. However, an ICoC without a verification mechanism is not automatically a liability nor an ineffectual document. There is value in putting an international stamp of approval behind certain best practices. In fact, it can be argued that an ICoC is not the place to start treading new ground, as it should be a collection of internationally agreed upon norms, or at the least, the very minimum as to what should be perceived as responsible space behaviour. The United States stepped up its HCoC commitments when it announced in May 2011 that it would start pre-launch notifications of its ballistic missile tests and space launches as prescribed by the HCoC; it could be argued that much of this decision could be traced to internal discussions within the US government about the space ICoC, which does call for pre-notification when possible of space object launches.

The BWC merits further discussion, as it has been repeatedly highlighted as a treaty that failed primarily because of an absent verification mechanism. True, it does not have one, but most of its signatories have still complied with the dictates of the treaty. The BWC established a norm against biological weapons, one that is almost universally hewed to today at the state level. During the review conferences held every five years after the treaty was signed, negotiators did try to add on a verification process, but failed to agree on one. Instead, in recent years, the focus has shifted to improving coordination

on national implementation of the BWC, efforts which have been much more successful. Domesticating international agreements—incorporating them into effective national legislation and regulation—has always been a challenge, perhaps even more so than getting an international agreement signed in the first place. However, how participating countries carry out the terms of an agreement is really how that agreement's legacy lives on and determines whether or not it accomplishes the goals set out by its negotiators.

A legally binding treaty does have more standing in the international system. However, at times, it is more convenient to have a non-legally binding document that still establishes expectations of the international political community on a certain issue. Furthermore, we should not let the lure of perfection stand in the way of good enough. In this case, this means that major space stakeholders can lay out expectations of behaviour, which can then be used as a foundation for more sophisticated confidence-building measures and even create the possibility for future cooperative agreements. It is important to identify progress in how the international community handles this issue, because otherwise it is far too easy to become bogged down in discussions and feel that little can be done to enhance space sustainability and security. Moreover, going through the process of negotiating the ICoC is helpful, no matter the outcome.

The US position is that a treaty is not needed if responsible space behaviour can be created through another mechanism. Much of its wariness about new space treaties has to do with concerns about limiting freedom of action for future US space capabilities. However, the United States is not alone in resisting potential restraints: several major space powers have not even developed official national space policies because they do not want limits placed on how they utilize space in the future.

A non-binding ICoC is emblematic of how the international community has changed the way it intends to manage potential security threats to the space environment. Traditionally, security threats were identified and then banned in legally binding treaties. However, because of the dual nature of space assets, this method cannot be applied to space, as it would mean that either everything would be deemed a space security threat, or nothing would be. Instead, policymakers are focusing on behaviour and trying to minimize the amount of damage that irresponsible activities in space could cause. Looking at it through that context, an ICoC fits in nicely with how the international community is increasingly deciding to handle space security threats.

For an ICoC to be successful, some have said that there must be universal

compliance. While that would be ideal, it is not necessary; instead, what is needed is the agreement of key space stakeholders that the guidelines set down in a code of conduct are for the best. It comes down to identifying the goal of international negotiations on the issue of space security and sustainability—is it to have a treaty at any cost? Not every treaty has universal compliance or even credibility. Or is the goal a stable, reliable, and sustainable space environment? Once the international community has decided what it wants to achieve, the method in how to go about doing so may become more apparent and perhaps less controversial.

Chapter 26

Supporting an International Code of Conduct for Space

Joan Johnson-Freese

At a recent workshop pertaining to sustaining the space environment, I found myself arguing against a colleague who felt that an International Code of Conduct (COC) for Space should not be supported, because only a treaty would fend off threats to sustainability. When he animatedly asked me "why not" a treaty rather than a COC—two adages came to mind as relevant: "Politics is the art of the possible", and "The perfect is the enemy of the good". Perhaps a treaty would be the best option, but it is not a politically viable option, and in the meantime, it is in the national interest of all countries to assure the protection of space assets and the sustainability of the environment. If a COC is even a step forward in that direction, then it should be supported.

States act in their own interests. While it is laudable—and true—to say that space is the heritage of all humankind, or that space is a global commons, that is not what will motivate countries to act. The Global Positioning System (GPS) is, with the Internet, a global utility. All countries rely on it for tasks ranging from guiding international civilian airliners to their destinations, to guiding local ambulances in emergencies, and facilitating a wide range of communications functions. It is in the interest of all countries to make sure that it is not incapacitated by an accident, or intent. In a globalised world, satellites facilitating financial transactions, voice communications, or any kind of large data streams are critical to national security in its broadest sense. Hence it is in the national interest of countries individually and collectively to protect their national security.

The United States, China and Russia are the three countries with the most space assets in orbit, and thereby at risk. Therefore, what is politically possible for them matters to the success of any effort to minimize risk, and promote sustainability. The United States has not, for many years, been amendable to multilateral treaties in general. It signed but did not ratify either the 1982 Law of the Sea Treaty and the 1997 Kyoto Protocol on Climate Change, and did not even sign the 1997 Ottawa Treaty or Land Mine Treaty. Whether a function of the political partisanship that has gripped Washington since the 1980s or a general disdain for multilateralism being the only post-cold war superpower, the result is the same; a space treaty is not a viable political option if US participation is critical—and it is.

In fact, the political feasibility of a space-related treaty is perhaps even less than usual because of verifiability issues. It is important to remember that the vast majority (>90%) of space technology is dual-use; space hardware has value to both civil and military communities, and for military purposes it is difficult to distinguish whether for offensive or defensive purposes. While there have been efforts[1] to set forth parameters for verification in space, those efforts have largely not satisfied US government officials, with little indication that given the nature of dual-use technology it would ever be possible to do so. Nevertheless, issues remain that must be addressed.

Recent history has shown that space is becoming an increasingly crowded environment. There are almost one thousand operational satellites in orbit as of 2012. Collisions thought statistically improbable, if not impossible, have already occurred; in 2009 a defunct Kosmos satellite collided with an operational Iridium satellite, resulting in the creation of an estimated 1000 pieces of debris 10 cm or larger, as well as numerous smaller ones. A 2007 Chinese test of an anti-satellite (ASAT) weapon created 2317 debris pieces over 10 cm and an estimated additional 35,000 pieces larger than 1 cm, making it the largest single debris-creating event on record. That means that there are more than 21,000 pieces of orbital debris larger than 10 cm known to exist and an estimated population of 500,000 particles between 1 and 10 cm in diameter. Spacecraft owners are now almost routinely warned about possible collisions with debris so that they might manoeuvre out of the way. Debris is a practical, near-term issue where mitigation and management must include both clean-up efforts and avoiding the creation of more debris.

While the COC will not deal with specifics in many areas, including space debris mitigation and management, what it will do is set out voluntary best practices for all countries to follow—practices that are in their best interests. It will also inherently require and facilitate dialogue between

countries on space-related issues that for too long have been held hostage to other security-related issues. A COC would be a first step forward in what is perhaps one of the greatest drawbacks to breaking space-related security dilemmas, giving a better understanding of not just *what* countries are doing in space, but *why* and *how* decisions are made.

While some space-faring nations (particularly the United States) have been concerned that they do not want their actions in space restricted, and others do not want to have to reveal what they feel is sensitive national-security-related information about space assets (particularly China), both realize that a Wild West free-for-all in space benefits no one. A COC provides the opportunity for all countries to show their good intentions, and for countries and regions that have aspired for a more prominent role in space relations—India, Europe, Russia, and developing countries which will be increasingly dependent on space technology to link to the global system—to show their good intentions and lead or at least encourage the facilitation of an effective, useful and voluntary document that could lead to codification in the future.

A COC will not inherently solve all space-related issues between and among countries. But it will indicate recognition of the importance of the topic, and a need to proactively address issues rather than simply wait until something really bad happens and then do so in a far less favourable environment. Countries should want to endorse a COC for Space because it is the right thing to do for everyone—but they must endorse it because it is the right thing to do for themselves.

Notes

1. The Eisenhower Center for Space & Defense issued a two-volume report in 2010, http://swfound.org/media/37101/Space%20and%20Verification%20Vol%201%20-%20Policy%20Implications.pdf; The Secure World Foundation held a Verification Workshop in Brussels in 2011: swfound.org/events/2011/space-verification-building-common-understanding

Chapter 27

The Code of Conduct: A Useful First Step

James Clay Moltz

Space in the twenty-first century is an increasingly important environment for advancing science, commerce, and military support activities. But it is governed by a set of treaties and other agreements crafted almost exclusively during the cold war, an era when just two countries conducted almost all space activity. Today, the context of space activity is changing, as more and more countries and private companies become involved. As a result, various popular orbits are becoming crowded and there is a higher demand for coordination in areas that include the allocation of the radio frequency spectrum, space traffic control, and military systems testing.

Unfortunately, within the current regulatory framework for space, numerous types of harmful activities are still allowed in orbit. This includes kinetic weapon tests, even though they can affect the ability of others to operate safely in space and can pose a lethal risk to humans in orbit. For these reasons, all nations share an interest in strengthening dialogue regarding space security, identifying mutually beneficial norms of safe behaviour, and improving transparency to prevent collisions and identify harmful debris. The logical venue to conduct discussions on space security should be the UN Conference on Disarmament (CD) in Geneva. But dysfunctional consensus rules at the CD have allowed individual countries to block discussions since 1995. This deafening silence has prevented much-needed space negotiations at a time of dynamic change.

The proposed international Code of Conduct is one means of facilitating

such talks. It is not a panacea, but it is a start. What exactly are the major benefits of the code? First, the code would be helpful in starting a *process* for bringing countries together to identify areas of common concern and to suggest possible remedies. Second, if enacted, it would build a basis of shared information about space situational awareness that would promote greater safety in space operations, establish national points of contact, and strengthen preventive mechanisms in case of possible conflicts. Third, it would encourage countries to refrain from dangerous activities in space through explicit guidelines within the code itself and via principles that might be established during consultative meetings among the states parties that will take place every two years. In many ways, the code would begin to implement the important goals of Article IX of the Outer Space Treaty, which calls upon countries to engage in discussions *prior* to the conduct of any harmful activities.

Does the code have drawbacks and limitations? Yes, it does. Given its voluntary nature, the code will rely largely on political and moral suasion to accomplish its objectives of safer and more predictable space behaviour. But, in the words of US Ambassador to the CD Laura Kennedy, it will be "politically binding" on the signatories (see her speech at the CD on 5 June 2012). This means that while it will not *prohibit* harmful behaviour, it will impose costs related to national reputation, perhaps leading to other sanctions. These costs could be significant in an increasingly globalised world.

Critics of the code in the United States typically argue that it is too much like a treaty and could limit US freedom of action in space. Critics outside of the United States complain that it is not enough like a treaty, because it will not be legally binding on its members. Both criticisms are off target.

First, critics who argue that the code is too strong fail to understand that the absence of rules in space poses a greater problem than creating a strong set of expectations for good behaviour. Lacking any international guidelines, countries are more likely to behave badly, harming the interests of especially the more established space powers.

Second, critics who argue that the code is too weak fail to consider that the code is not standing in the way of some "perfect" treaty for space. Indeed, no such proposal exists at present (or is even on the horizon) and the code could help facilitate stronger, consensual measures in the future, possibly including treaties. What the code would do would be to begin a *process* of consultations, thereby helping countries identify issues that might require future, legally binding regulations.

Regretfully, there is a deficit of international trust and transparency in regard to national space policies. This gap needs to be addressed if there is

ever to be an adequate foundation for a new multilateral space treaty that might close certain dangerous loopholes in existing agreements. For this reason, the code is a useful and much-needed first step. However, it should not be the last one taken by the international space community.

Follow-on steps might include efforts to protect position, navigation, and timing systems as global utilities, prohibit testing of kinetic ASAT systems against space objects (particularly those in altitudes that would create long-lasting debris, such as any tests above 200 miles), and forbidding interference with military early warning and treaty verification satellites, which could be misunderstood as a precursor attack to nuclear war.

In the end, countries need to recognize that the road to conflict is paved by international mistrust, secrecy, and a failure to understand the perspectives of others. These conditions largely characterize space relations today. Through positive engagement and discussion, we are more likely to successfully avoid space conflicts.

Like all institutions in human affairs, the code of conduct is imperfect. But we would be far better off with it as a foundation for more stable and informed space relations, than we would be by rejecting what it has to offer in hopes of some perfect agreement—which is today unattainable.

Chapter 28

International Code of Conduct for Outer Space: An Industry Perspective

K.R. Sridhara Murthi

Since the end of the cold war, there has been a sea-change in the global landscape of exploration and uses of Outer Space. Of particular interest is the increasing role played by the private sector, whose combined revenues from activities on space infrastructure and services have far exceeded government expenditures globally for several years. Outer Space activities demand high investments. They are also highly risky. In view of the principle of state responsibility and the need for continuous supervision by the state under international law, collaborative arrangements by industry in the field of Outer Space at the international level are complex and are subject to uncertainties. Apart from issues of heavy interventions by governments and the existing diversity of national legislation on space matters, space industry has been commonly exposed to increasing level of risks from orbital debris and has need for assured international measures to enhance the safety, security and sustainability of its space activities. While consolidation and integration are imperatives of the space industry, they often conflict with the goals of building local capacities and equitable access to space, even as nation actors in space have vastly increased. Finally, military space activities have been the growth engines of space industry and a balanced policy and regulatory environment recognizing legitimate military activities in space have been long overdue.

On the other side, since the conclusion of the Moon Treaty, international law-making in the field of exploration and peaceful uses of Outer Space has been tardy. No further international treaty has evolved since the establishment

of the UN Committee on Peaceful Uses of Outer Space (UNCOPUOS), the body responsible for evolving the legal instruments in the field of exploration and peaceful uses of Outer Space, through its legal subcommittee. On many outstanding questions such as exploitation of resources in Outer Space, no clarity could emerge regarding the legal aspects. Many legal hurdles are still present in finding effective risk mitigation measures by and improving the competitive environment or transfer of knowledge.

Against this backdrop, the proposal for adopting a common code of conduct as complementary to the existing body of international law relating to Outer Space deserves to be welcomed and the initiative taken by the European Union in this direction is to be lauded.

To emerge as a progressive further step to aid international law relating to Outer Space, the code should satisfy the following principles:

1. It should strongly and consistently reinforce the principle of freedom of activities in Outer Space, as enshrined in relevant UN treaties.
2. Wherever natural resources relating to Outer Space are limited and commonly accessed and used (like orbit spectrum), it should promote rules of the road approach to avoid mutual interference and conflicts and respect institutions serving such purposes and sustain them, for example, ITU. The principles of justice or equity as per international law should be integral to such rules of the road.
3. Wherever space activities cause damage to the environment (like space debris), there should be limits and negative consequences to the actors. There could even be a ban where the consequences are severe.

Although the code is voluntary, these three principles should be well integrated into it. From the perspective of these principles and criteria, there are still gaps in the code evolved so far.

A Few Other Observations

The code explicitly recognizes the principle of state responsibility. This should be welcome to industry. Though voluntary, the code will serve to promote best practices. However, in matters that seriously affect common interests and the concerns of all, like testing of ASAT weapons, the code should spell out consequences: there could be prescriptive norms universally applicable. Over a period, state practice of voluntary compliance can help. For example, although the Space Debris guidelines worked out by IADC and subsequently debated and adopted in UNCOPUOS are voluntary, they are widely practised by space agencies perhaps because of their engagement in their formulation and also because of the consequences common to all.

The code recognizes scientific, commercial and military activities that states can undertake in a responsible manner (to promote the peaceful exploration and use of Outer Space) under the freedom of access to space. However, it is necessary to define "military" activities and "peaceful exploration and use" to avoid conflicting interpretations. Can testing a weapon in space be construed as legitimate military activity? It is also necessary to specify that wherever there is conflict between existing treaties and the code, the treaties will have to take precedence. Under the general principles, the code also stipulates that states will assume responsibility to take all the appropriate measures and cooperate in good faith to prevent harmful interference in Outer Space activities. It will augur well to stress that the measures taken by states and their cooperation will be as per international law in addition to good faith.

The code legitimately forbids states from any action which may bring about, directly or indirectly, damage or destruction of Outer Space objects. Exceptions, if any, should be well defined, especially terms like imperative safety consideration. The code also elaborates well the conditions under which states should notify the potentially affected states. Here too it will be fitting to define precisely, in specific terms, terms like dangerous proximity.

One important aspect that the code should consider in the context of sharing information about space activities is addressing whether the information provided can serve the intended purpose and how right information can be enabled.

Apart from such specific issues and broader principles, the multilateral process initiated has been a step in the right direction, and it may be hoped that the impasse that has ruled the field of development of further regulations relating to Outer Space will find new pathways to progress.

Chapter 29

International Code of Conduct for Outer Space Activities

Ranjana Kaul and V. Siddhartha

The US-supported International Code of Conduct for Outer Space Activities (CoC) is likely to set an international "norm" for how activities in Outer Space will, or can, be conducted in the future. For the first time, the matter of preventing or mitigating further addition of space debris into Earth orbits is sought to be coalesced with a restriction/prohibition on development of an ASAT capability. Clearly, the impact of space debris on the safety and security of existing space assets and its challenge to the sustainability of space activities is a serious and legitimate concern which requires urgent international cooperation. Clear too is the fact that the CoC will, by implication, prohibit or restrict the sovereign right of countries to develop or use means that are designed to incapacitate or destroy satellites that, in their sovereign assessment, threaten their national security.

Arguably, the urgency to discuss ways to curtail or minimize the threat of debris to human space activities was triggered as a consequence of the 2007 Chinese ASAT test which added over 2000 trackable pieces of long-persistence debris through the destruction of China's own satellite. This test, conducted at a height of about 850 km, has ensured that the debris it created will continue to threaten for several hundred years the safe operation of space assets of countries engaged in benign activities in Outer Space. China is now the third country, after the US and Russia (former USSR), to possess demonstrated ASAT capability. Needless to reiterate, China was member of UNCOPUOS and IADC at the relevant time, as it is also at the present time.

It is clear from the reaction and response of UN members to the matter of "space debris mitigation" that the issue has brought both convergence and conflict to the negotiating table. Convergence in international acceptance that without adoption of realistic collective space debris mitigation measures, the survival is threatened of the right assured by the 1967 Outer Space Treaty to the "safe, assured and sustainable use and exploitation" of Outer Space and of the "global commons". Conflict because every country has the sovereign right to protect its national security and also that of its friends and allies.

What should be India's stance on the CoC? The answer can be found in the US condition for support to the European Code of Conduct for Activities in Outer Space. US support was hinged on whether EU would agree to a metamorphosis of the EU Code into a list of "best practices" to be adopted internationally to minimize the creation of further space debris and the acceptance that the US would retain its sovereign right to carry out such actions as it considers necessary to secure its national security and that of its allies and friends. A caveat may also derive from the use by the US Navy on 14 February 2008 of the ship-based missile launched from a group of three ships in the Northern Pacific to destroy the failed American satellite USA 193 in LEO at an altitude of about 240 km, shortly before its re-entry into the atmosphere, stating that the intention was to "reduce the danger to human beings" due to the release of toxic hydrazine fuel carried onboard the satellite.

Is there any way to configure a CoC—even adding the prefix "Interim" if necessary to achieve consensus—that preserves the Space Commons for benign use by all space-faring nations, without infringing on the right of states to protect their national security?

Two treaties on the testing of nuclear weapons provide precedents and pointers towards how such a Code, or "Interim Treaty on Mitigation of Space Debris", may be configured: The first is the Limited Test Ban Treaty of 1963, which recognised and addressed the incapacity of the commons of the Atmosphere, Outer Space and the Oceans to bear repeated nuclear insult, by banning nuclear weapon tests in those commons. All states, including India, which are capable of conducting nuclear tests in those environments, have signed that treaty. The second is the Threshold Test Ban Treaty (TTBT) of 1974 and its elaborate protocol signed between the United States and the former USSR that placed a limit of 150 kilotons on underground nuclear tests.

If a consensus could be reached on a "threshold" altitude above which no ASAT tests may be conducted, then—following the precedents set by the above mentioned treaties—perhaps an "Interim Treaty on Mitigation of Space

Debris" can be negotiated to provide an achievable set of "best practices" acceptable to all countries, the active space-faring nations in particular. To establish such a "threshold" altitude, the space-faring nations could jointly conduct confirmatory experiments, following on from the Japanese HITEN Spacecraft Aerobrake Experiment of March 1991, which provided substantial experimental evidence to sustain a threshold altitude of "not more than 100 km".[1]

NOTE

1. For further details see Forden, Geoffrey, After China's Test: Time for a Limited Ban on Anti-Satellite Weapons, Arms Control Today, April, 2007.

Chapter 30

Space Code of Conduct: An Indian Perspective

Rajeswari Pillai Rajagopalan

The idea of establishing a set of rules on space that will guide the behaviour of states has been gaining momentum in recent years. This has gained particular relevance in the backdrop of the European Union (EU) making last-minute efforts to muster support for the code of conduct on space initiated by it. The EU decision of 29 May 2012 to sign the document officially and strengthen bilateral and multilateral negotiations will bring pressure on India and other space-faring nations to sign it also.

In this regard, the EU has set out three specific initiatives: outreach activities in order to promote the proposal for an international code of conduct; holding up to three multilateral experts meetings to discuss the proposal; and the coordination of a consortium of non-governmental experts. Technical implementation of the three initiatives will be undertaken by the United Nations Institute for Disarmament Research (UNIDIR).

The EU's decision to bring UNIDIR into the picture seeks to give the EU initiative a larger support base beyond Europe. This does not, however, yet ensure support from a majority of the space-faring powers, who have already raised serious objections, particularly about the code-formulating procedure.

India is all for institutionalizing a set of norms on space. But it also has interests in being acknowledged as one of the major space-faring powers, with an important voice in their formation. India has a particular interest in this normative exercise if it will put certain restraints on China's otherwise

unrestrained space activities. India's interests have also to do with the fact that it has made significant investment in a predominantly civilian space programme that now seems to be under threat due to issues such as space debris and potential weaponisation in space. Given the expanding nature of space utilities, India's interests would also be to curb some of the potential norms that may become counterproductive to its objectives in exploiting Outer Space.

India has been debating this issue at Track II levels with several objectives. Such engagement can generate an internal debate on these issues, both about the utility of a code and to help identify the principles that should guide the new rules. India could then become a full partner rather than coming to the international negotiations with reactive positions to others' proposals. India clearly does not want to free-ride on its major-space-faring-nation status without taking on the additional responsibilities that come along with the status. The internal debates and the objections raised in this debate to others' proposals should not be seen as a spoiler but of an engaged nation that wants to frame rules that are comprehensive, inclusive and durable. As India's geopolitical weight increases and its reach goes beyond Asia, it cannot afford to be simply a naysayer. It wants to play the role of a constructive actor in the international norm creation exercises.

Having discussed the Indian interests in a code, it is also important to understand the importance of the politics of international norm creation. India sees a huge geopolitical mileage in this exercise. While a code goes through several stages, including technical, legal and political clearances before it gets institutionalized, the political exercise is critical for several reasons. An ideal instrument should be as broad-based as possible to include issues of concern to multiple parties and stakeholders, including space debris, arms race in space and space weaponisation. The political support that such an instrument musters will have a huge impact on the longevity and effectiveness of the instrument.

As in other arenas such as nuclear, the biggest challenge in the space domain is the crisis of decision-making among the major powers. Even while they understand and acknowledge, to some extent, the current and potential challenges, the failure to reach a consensus is a big handicap. Therefore, it is of utmost importance for the EU to adopt a more flexible and inclusive approach if it seeks a universally acceptable code. In the absence of such an approach, one could potentially see a repeat of the H-COC experience, which has 128 countries as signatories, but these do not include some of the critical players in Asia such as China, Pakistan, Iran and North Korea. It is not only

important to have numerous countries as signatories, but equally important to have the critical actors on board. In sum, the new instrument should look for both "critical mass and critical actors".

If India were to formulate a code of conduct, it may not be significantly different in its content from the EU initiative. But India attaches importance to laying out concrete action plans, including a verification mechanism and legal obligations. While the current EU code is voluntary, states that become party to it are expected to institute certain measures at the domestic level, which in a sense binds them to the global rules. In other words, under the EU code, one is talking about a loose set of rules at the global level with stringent legislation at the country level. This approach may run into problems, given that there exists no mechanism to verify adherence to the rules laid out in the code. Lack of clarity as to who would administer these rules creates both ambiguity and wariness. The question whether Europe has the ability to push such measures, given the new geopolitical realities, also needs to be considered. However, if the EU were to institute consultative mechanisms in the coming months, particularly with the major space-faring countries, it might be in a position to fix some of the gaps that exist in its current approach.

In conclusion, the EU should address some of these issues, including the need for an inclusive approach and the need for a legally binding verification mechanism. It might also be important for the EU to consider a grouping of major space-faring countries similar to the P5 nuclear weapon countries, such as that recognised by the Nuclear Non-Proliferation Treaty (NPT) as nuclear weapon states. Such a group of countries may actually be keen on addressing these issues and pushing for an actionable agenda, given the vulnerabilities that they face. Lastly, if space traffic management is a critical issue, one could consider newer initiatives and organisations along the lines of the International Civil Aviation Organisation (ICAO). Also, establishing a panel of experts on the model of the IPCC (Intergovernmental Panel on Climate Change), given that space debris and arms race in space are problems that are global in nature, might be worth the effort.

Chapter 31

Should India Conduct an ASAT Test Now?*

Ajey Lele

India's successful test of the Agni V missile two months ago also indirectly demonstrated the theoretical capacity to undertake an ASAT (anti-satellite) test, if required. However, possessing technological ability should not be the only reason for undertaking such a test; it is more important to analyses the political necessity of carrying it out. Presently, only three countries, namely the US, Russia and China, have demonstrated this capability. Is the time ripe for India to undertake an ASAT test?

Is debating an ASAT test without any major provocation (assuming that the 2007 Chinese ASAT test was not a provocation) justifiable? Here, it is important to note that the security policy of a state is not only about responding to the prevailing geopolitical situation but also to cater for its long-term interests. It is not only about reacting to a major event but also about influencing global events to favour the state's agenda either through diplomacy or through actions that would force others to take notice of its concerns.

For the last few years the European Union (EU) has initiated a debate on the need to introduce transparency and confidence-building measures in outer space activities (TCBMs). In this regard, it has also prepared a draft code of conduct (CoC) for others to consider. In October 2012 global negotiations for an International Code of Conduct (CoC) for Outer Space would commence in New York. There is a possibility that a CoC mechanism

*First published at http://idsa.in/idsacomments/ShouldIndiaConductanASATTestNow_alele_110712 on July 11, 2012

would be in place by 2013. This multilateral diplomatic process to discuss and negotiate an International CoC for Outer Space is the first serious step towards negotiating on outer space issues after the launch of the first satellite Sputnik in 1957.

Against this backdrop, it is important to discuss various issues concerning space security, and ASAT is one of them. There is a need to undertake a detailed appreciation of this issue by assessing various geostrategic, geopolitical and technological factors.

The first question which India needs to ask itself is: would the states with proven ASAT capability be in a position of strength to undertake the CoC negotiations than other powers? And, if so, should India undertake such potency demonstrations before setting out for negotiations?

The second question that India must ask itself is: what is the history of non-proliferation negotiations with regard to states having an advantage if they have proven technological superiority over others? The experience in global negotiations on nuclear weapons shows that the Nuclear Non-proliferation Treaty (NPT) is essentially about a group of five nuclear weapons states coming together and deciding the policies for the rest of the world. A hypothetical scenario exists that in future states with ASAT capability could come together and device a treaty mechanism which could prove biased like the NPT. If India does not become an ASAT power by that time, then it could be part of a discriminated group of nations once again. In the field of chemical weapons as well, it has been seen that only the US and Russia are missing the deadline for destruction of their weapon stockpile and that too, as per the current estimates, by around 10 years. The reasons given for such lapses are technological and economic limitations and the rest of the world has meekly accepted this.

The third question for India in this regard is: would India's ASAT start the process of space weaponisation and arms race in the region? The regional geopolitical landscape does indicate the possibility of a knee-jerk reaction from Pakistan or China. However, China has already demonstrated its ASAT capabilities and its investments and achievements in the space arena supersede those of India. Pakistan being a non-space-faring nation does not belong to the same category as that of India and China. However, it is important to note that a non-space-faring nation too can develop an ASAT capability if it is a missile power. Also, knowledge of rocket science is not essential to develop jamming capabilities.

The fourth question for India is: what is the nature of the threat to India's space assets and which actors pose a probable threat? For any adversary, India's

remote sensing satellites like Cartographic satellites or Radar satellites could become prime targets. China has proven capability to undertake such attacks.

The fifth question is: if India were to decide to demonstrate its ASAT capabilities, then which technology trajectory should it follow? Broadly, there are two technological routes in this regard. One, the Kinetic Kill Vehicle (KKV) method, where a missile with a metal warhead (without any munitions) is fired from the ground towards the target and the target gets disintegrated by the impact. The other option is to use jamming technologies ("softer" methods). However, jamming may not be an 'impact' weapon'. With regard to KKV, it is important to note that accurate engagement of the target is critical for success. China had used a similar technology to demonstrate its ASAT potential in January 2007 and various reports suggest that China succeeded only in its third or fourth attempt.

The sixth question is: should India behave as an irresponsible nation and increase space debris by undertaking an ASAT test the way China did? The obvious answer to this is no. Is it possible to demonstrate ASAT capability without creating debris? For this purpose India could conduct a test in the lower part of atmosphere (say in the range of 150 to 250 km altitude) where the created debris would enter the earth's atmosphere and burn off. For such a demonstration, India first would have to launch a dummy satellite as a target.

The seventh question is: "what could be the global reaction to such a demonstrative test by India? Globally, two major tests have been conducted (by China and the US) during the last five years. The Chinese test has been criticized vociferously mainly because it ended up creating massive debris, while the US test was conducted under the garb of 'transparency' and was announced beforehand. The US test was done in lower altitudes thus avoiding any major injection of debris in space. It appears that the hidden motive behind both these states was successfully achieved. Since no proper legal regime exists in the space arena, technically neither test violated any global norm. Hypothetically, if India were to conduct such a test (without creating any debris) then it should be viewed as a technology demonstrator.

These are some basic questions that India needs to ask itself. A decision to conduct an ASAT test has to be a nuanced one considering the strategic advantages such a test could offer and the diplomatic elbow room that it would give during negotiations on a space arms control mechanism.

Conclusion

This book has presented a wide range of views on the proposed International Space Code of Conduct (ICoC) for Outer Space as proposed by the European Union. The views have come from a vast range of experts from various countries, including Australia, Canada, China, Colombia, France, Germany, Japan, India, Pakistan, Nigeria, Philippines, Russia, South Korea, United Kingdom and United States. They are personal and non-official opinions.

This book is simply about a sense about what various individuals from different states think about ICoC, and to highlight the recent thinking on this issue. While seeking contributions, no formal questionnaire was provided, except to highlight a broad idea about the central purpose, which was to generate a wider debate on this subject.

On the whole, many contributors are in agreement to the idea of devising an ICoC; that this may not be a perfect solution, but it is still an important step in the right direction. The need for ICoC arises because despite the rapid advances in space technologies no corresponding normative architecture has been put in place till date.

Alternatively, it has been suggested that the existing UN efforts need to be strengthened. This is because the UN system offers a provision for legally binding obligations and it could be incorrect to try finding a solution outside the UN mandate. Also, a need for meaningful verification measures has been emphasised.

Interesting views on treaty versus ICoC issues have been set forth. It has been argued that the ICoC proposal could find more acceptability than the treaty mechanism, the former being a soft law. Also, a treaty is successful only when it gets ratified by the political setup in the respective states. Experience in the arms control and disarmament area shows that this entire process from treaty formation to ratification is extremely time-consuming.

The challenges in Outer Space, particularly the issues related to space debris, demand immediate attention. Hence it could be prudent to opt for a code of conduct as the first step. Support for designing a separate treaty for Outer Space issues at this point in time is limited.

The issue about lack of transparency in designing the present and previous ICoC drafts and various procedural inadequacies has been highlighted mainly by developing countries. They believe that the CoC's preliminary negotiations were extremely selective. They want the future negotiations to be transparent. A concern has been expressed about the present draft of ICoC which gives an impression of a mechanism consisting of a loose set of rules at the global level with expectations of stringent legislation at the state level. Appreciating the limitations of achieving consensus during the upcoming negotiations it has also been suggested that the prefix "Interim" could be used before the existing mechanism in order to achieve consensus that preserves the Space Commons for benign use, without infringing the right of states to protect their national security.

The efficacy of developing an ICoC that is non-binding and voluntary in nature has been discussed at length. Opposition to the idea is mainly on two counts. One, the non-binding and voluntary nature of the code makes it an ineffectual mechanism. The purpose behind ICoC would not be satisfied since there are no checks and balances in the systems devised. The other argument is that once a non-binding mechanism becomes a reality, it is little likely that in future efforts would be made to shape any stronger mechanism. On the other hand, the supporters are of the opinion that since negotiating a binding mechanism in all probability is not likely to reach any results, a more realistic view needs to be taken. It has also been argued by a few that since the UN Space Debris Mitigation Guidelines, which are also voluntary in nature, are being followed earnestly by states, the same logic could be applicable to the ICoC too. However, the declarations for the ICoC also demand providing information related to the strategic domain: it is unlikely that states could follow a perfect model of transparency in such cases.

There are suggestions that an inclusive approach and legally binding verification mechanisms are essential. There is also an argument that a space policy proposal need not have the capacity to effectively address every issue. ICoC, despite its limitations, is capable of making a concrete contribution to space governance. It has also been stated that the ICoC has the potential to stimulate the international society to develop relevant rules, and gives a reason for states to make their own relevant rules. By and large it appears that the non-binding nature of ICoC is more acceptable to the Western world and their allies in Asia.

There are differing regional perceptions about space security challenges, based on the nature of investments made by the individual states. The European states view space systems mainly as civilian assets, even if their dual use is growing. For them the main concern is about the increasing risk of collisions in space due to debris. That may be why they remain satisfied with the ICoC proposal aiming at achieving the lowest common denominator by affirming a few general principles. For the other space-faring nations, issues related to space weaponisation are equally important. For better appreciation of the existing ICoC text, it is necessary to define "military activities" and "peaceful exploration and use of Outer Space" clearly to avoid any ambiguity.

Also, a concern has been raised mainly learning from the experiences of the NPT (Nuclear Non-proliferation Treaty) that the states with proven ASAT capabilities could "bargain" from a position of strength during ICoC negotiations. Against this backdrop the possibility of ASAT-capable states conducting an ASAT test without creating space debris has been discussed.

Diverse points of view have been expressed comparing ICoC with other arrangements like The Hague Code of Conduct (HCoC) and Biological Weapons Convention (BWC). There is a view that HCoC lacks power because of its non-binding status and the BWC treaty could not accomplish much because it did not have a verification mechanism in its by-laws. On similar lines, ICoC could emerge as an inadequate arrangement. A counter view is that even though a legally binding treaty does have more standing in the international system, at times, it is more convenient to have a non-legally binding document that still establishes expectations of the international political community on a certain issue.

There is consensus in regard to the need for establishment of a global space surveillance network for the purposes of Space Situational Awareness (SSA), combining different sources of information on a regional scale. There is a requirement for such global network for the purposes of debris tracing. At the same time, there is a caveat that such arrangement is sustainable provided a secure system for handling sensitive data is made available.

Various experts have essentially argued in favour of a mechanism to address issues related to space sustainability and security. A small section is of the opinion that it could be prudent to strengthen the existing UN mechanism instead of negotiating for the ICoC. All supporters of ICoC are not found on the same plane. There are reservations about the format of the ICoC document placed for negotiations. The key point of contention is in regard to the non-binding and voluntary nature of the existing draft.

No article-by-article assessment has been made by the contributors in

respect of the ICoC draft. Such assessment could have helped understand their acceptance/apprehension of various proposals in greater detail. Since the debate on this issue is still in primary stages it may have been thought prudent to first highlight the core argument that it is better to have an imperfect agreement than no agreement. Hence, the main effort has been towards popularizing the idea. Two important issues which are not part of the existing draft but require attention during the negotiations have been highlighted. They are the need for a policy for the management of natural resources in Outer Space and the need to consider newer initiatives and organisations along the lines of the International Civil Aviation Organisation (ICAO) for space traffic management. Also, it has been suggested that for challenges like space debris and arms race in space there is a need to establish a panel of experts on the model of the IPCC (Intergovernmental Panel on Climate Change).

The essence of various arguments and counterarguments leads to a reflection that the Code of Conduct as currently worded can only constitute a pragmatic part of comprehensive arrangements which should involve treaties, custom, and general principles of law, fostering international cooperation, as the foundation and catalyst towards guaranteeing continued use of Outer Space for peaceful purposes. The need of the hour is to get all the parties having stakes in space arena together and formulate a commonly agreeable ICoC to make the mission sustainable.

APPENDIX 1

Text of International Code of Conduct for Outer Space Activities (2010)

COUNCIL OF THE EUROPEAN UNION

Delegations will find attached the Conclusions adopted by the Council on 27 September 2010, together with the revised draft for a Code of Conduct for Outer Space Activities, which has been endorsed as a basis for consultations with third countries.

The Council recalls that the European Union is aiming at strengthening the security of activities in outer space in the context of expanding space activities that contribute to the development and security of states. The European Union's space policy can contribute towards this objective.

The Council invites the High Representative to pursue consultations with third countries on the basis of the annexed revised draft for a Code of Conduct for Outer Space Activities, which has been established in the light of wide consultations with space faring nations. All States will be invited to adhere on a voluntary basis to the Code, which includes transparency and confidence-building measures.

In the upcoming consultations, the High Representative will engage with third countries that have an interest in outer space activities, with the aim of establishing a text that is acceptable to the greatest number of countries and of adopting the Code of Conduct at an ad-hoc diplomatic conference.

Preamble

The Subscribing States

Noting that all States should actively contribute to the promotion and strengthening of international cooperation relating to the activities in the exploration and use of outer space for peaceful purposes;

Considering that these activities play a growing role in economic, social and cultural development of nations, preservation of the environment, promotion

of international cooperation, strengthening of national security and sustaining international peace;

Recognizing the need for the widest possible adherence to relevant existing international instruments that promote the peaceful uses of outer space in order to meet emerging new challenges;

Further recognising that space capabilities - including associated ground and space segments and supporting links - are vital to national security and to the maintenance of international peace and security;

Recalling the initiatives aiming at promoting a peaceful, safe and secure outer space environment, through international cooperation;

Recalling the importance of developing transparency and confidence-building measures for activities in outer space;

Taking into account that space debris constitutes a threat to outer space activities and potentially limits the effective deployment and exploitation of associated space capabilities;

Stressing that the growing use of outer space increases the need for greater transparency and better information exchange among all actors conducting outer space activities ;

Convinced that the formation of a set of best practices aimed at ensuring security in outer space could become a useful complement to international space law;

Noting that such best practices could apply to all types of outer space activities;

Reaffirming their commitment to resolve any conflict concerning actions in space by peaceful means;

Recognising that a comprehensive approach to safety and security in outer space should be guided by the following principles: (i) freedom of access to space for peaceful purposes, (ii) preservation of the security and integrity of space objects in orbit, (iii) due consideration for the legitimate defence interests of States;

Conscious that a comprehensive code, including transparency and confidence-building measures could contribute to promoting common and precise understandings;

Adopt the following Code of conduct for outer space activities (hereinafter referred to as "the Code").

I. PURPOSE, SCOPE AND CORE PRINCIPLES

1. Purpose and Scope

1.1. The purpose of this Code is to enhance the security, safety and sustainability of all outer space activities.

1.2. The present Code is applicable to all outer space activities conducted by a Subscribing States or jointly with other States(s) or by non-governmental entities under the jurisdiction of a Subscribing State, including those activities conducted within the framework of international intergovernmental organisations.

1.3. This Code, in endorsing best practices, contributes to transparency and confidence-building measures and is complementary to the existing framework regulating outer space activities.

1.4. Adherence to this Code and to the measures contained in it is voluntary and open to all States.

2. General Principles

The Subscribing States resolve to abide by the following principles:

- the freedom for all States to access, to explore, and to use outer space and to exploit space objects for peaceful purposes without interference, fully respecting the security, safety and integrity of space objects in orbit consistent with international law and security, safety and integrity standards;
- the inherent right of individual or collective self-defence in accordance with the United Nations Charter;
- the responsibility of States to take all the appropriate measures and cooperate in good faith to prevent harmful interference in outer space activities; and
- the responsibility of States, in the conduct of scientific, commercial and military activities, to promote the peaceful exploration and use of outer space and to take all appropriate measures to prevent outer space from becoming an area of conflict.

3. Compliance with and Promotion of Treaties, Conventions and other Commitments Relating to Outer Space Activities

3.1. The Subscribing States reaffirm their commitment to:

- the existing legal framework relating to outer space activities;
- making progress towards adherence to, and implementation of:
  (a) the existing framework regulating outer space activities, inter alia:

- the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967);
- the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968);
- the Convention on International Liability for Damage Caused by Space Objects (1972);
- the Convention on Registration of Objects Launched into Outer Space (1975);
- the Constitution and Convention of the International Telecommunications Union and its Radio Regulations (1995), as amended;
- the Treaty banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water (1963) and the Comprehensive Nuclear Test Ban Treaty (1996); and
- the International Code of Conduct against Ballistic Missile Proliferation (2002).

(b) Declarations and Principles, inter alia:

- the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space as adopted by UNGA Resolution 1962 (XVIII), (1963);
- the Principles Relevant to the Use of Nuclear Power Sources in Outer Space as adopted by UNGA Resolution 47/68 (1992);
- the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries as adopted by UNGA Resolution 51/122 (1996); and
- the Recommendations on the Practice of States and International Organisations in Registering Space Objects as stated in UNGA Resolution 62/101 (2007);

3.2. The Subscribing States also reiterate their support to encouraging coordinated efforts in order to promote universal adoption of, and full adherence to, the above mentioned instruments.

II. GENERAL MEASURES

4. Measures on Space Operations

4.1. The Subscribing States are committed to establishing and implementing their policies and procedures to minimise the possibility of accidents in space, collisions between space objects or any form of harmful interference with other States' right to the peaceful exploration and use of outer space.

4.2. The Subscribing States, commit in conducting outer space activities, to:
- refrain from any action which intends to bring about, directly or indirectly, damage, or destruction, of outer space objects unless such action is conducted to reduce the creation of outer space debris and/or is justified by the inherent right of individual or collective self-defence in accordance with the United Nations Charter or imperative safety considerations;
- take appropriate measures to minimize the risk of collision; and
- abide by and implement all International Telecommunications Union recommendations and regulations on allocation of radio spectra and orbital assignments.

4.3. When executing manoeuvres of space objects in outer space, for example to supply space stations, repair space objects, mitigate debris, or reposition space objects, the Subscribing States confirm their intention to take all reasonable measures to minimise the risks of collision.

4.4. The Subscribing States resolve to promote the development of guidelines for space operations within the appropriate fora for the purpose of protecting the safety of space operations and the long-term sustainability of outer space activities.

4.5. The Subscribing States resolve to promote further security guarantees within the appropriate fora for the purposes of enhancing the security of outer space activities by all States and the prevention of an arms race in outer space.

5. Measures on Space Debris Control and Mitigation

In order to limit the creation of space debris and reduce its impact in outer space, the Subscribing States commit to:
- refrain from the intentional destruction of any on-orbit space object or other activities which may generate long-lived space debris;
- adopt and implement, in accordance with their own internal processes, the appropriate policies and procedures or other effective measures in order to implement the Space Debris Mitigation Guidelines of the United Nations Committee for the Peaceful Uses of Outer Space as endorsed by UNGA Resolution 62/217.

III. COOPERATION MECHANISMS

6. Notification of Outer Space Activities

6.1. The Subscribing States commit to notify, in a timely manner, to the greatest extent feasible and practicable, all potentially affected

Subscribing States on the outer space activities conducted which are relevant for the purposes of this Code, inter alia:

- scheduled manoeuvres which may result in dangerous proximity to the space objects of both Subscribing and non-Subscribing States;
- pre-notification of launch of space objects;
- collisions, break-ups in orbit, and any other destruction of space objects generating measurable orbital debris which have taken place;
- predicted high-risk re-entry events in which the re-entering object or residual material from the re-entering object either likely would survive to cause potential significant damage, or might cause radioactive contamination; and
- malfunctioning of orbiting space objects which could result in a significantly increased probability of a high risk re-entry event or a collision between space objects in orbit.

6.2. The Subscribing States commit to provide the notifications described above through diplomatic channels, or by any other method as may be mutually agreed.

7. Registration of Space Objects

The Subscribing States commit to register space objects in accordance with the Convention on Registration of Objects launched to Outer Space and to provide the United Nations Secretary-General with the relevant data as set forth in this Convention and in the Recommendations on the Practice of States and International Organisations in Registering Space Objects, as adopted by UNGA Resolution 62/101.

8. Information on Outer Space Activities

8.1. The Subscribing States resolve to share, on an annual basis, where available and appropriate information on:

- their space policies and strategies, including basic objectives for security and defence related activities in outer space;
- their space policies and procedures to prevent and minimise the possibility of accidents, collisions or other forms of harmful interference;
- their space policies and procedures to minimise the creation of space debris; and
- efforts taken in order to promote universal adherence to legal and political regulatory instruments concerning outer space activities;

8.2. The Subscribing States may also consider providing timely information on space environmental conditions and forecasts to the governmental agencies and the relevant nongovernmental entities of all space faring nations, collected through their space situational awareness capabilities.

9. Consultation Mechanism

9.1. Without prejudice to existing consultation mechanisms provided for in Article IX of the Outer Space Treaty of 1967 and in Article 56 of the ITU Constitution, the Subscribing States have decided on the creation of the following consultation mechanism:

- A Subscribing States that may be directly affected by certain outer space activities conducted by one or more Subscribing State(s) and has reason to believe that those activities are, or may be contrary to the core purposes of the Code may request consultations with a view to achieving mutually acceptable solutions regarding measures to be adopted in order to prevent or minimise the inherent risks of damage to persons or property, or of potentially harmful interference to a Subscribing State's outer space activities.
- The Subscribing States involved in a consultation process commit to:
  - consulting through diplomatic channels or by other methods as may be mutually determined; and
  - working jointly and cooperatively in a timeframe sufficiently urgent to mitigate or eliminate the identified risk initially triggering the consultations.
- Any other Subscribing State(s) which has reason to believe that its space activities would be affected by the identified risk and requests to take part in the consultations is entitled to take part, with the consent of the Subscribing State(s) which requested consultations and the Subscribing State(s) which received the request.
- The Subscribing States participating in the consultations are to seek mutually acceptable solutions in accordance with international law.

9.2. In addition, the Subscribing States may propose, on a voluntary basis, to create a mechanism to investigate proven incidents affecting space objects and to collect reliable and objective information facilitating their assessment. The mechanism, to be determined at a later stage, should utilize information provided on a voluntary basis by the Subscribing States, subject to national laws and regulations, and a roster of internationally recognised experts to undertake an investigation. The findings and any recommendations of these experts are to be advisory, and are not binding upon the Subscribing States involved in the incident that is the subject of the investigation.

IV. ORGANISATIONAL ASPECTS

10. Biennial meeting of Subscribing [States] [Parties]

10.1. The Subscribing States decide to hold meetings biennially or as

otherwise agreed by Subscribing States, to define, review and further develop this Code and ensure its effective implementation. The agenda for such biennial meetings could include: (i) review of the implementation of the Code, (ii) evolution of the Code and (iii) additional measures which appear necessary, including those due to advances in the development of space technologies and their application.

10.2. The decisions at such meetings will be taken by consensus of the Subscribing States present.

10.3. The results of the meeting will be brought to the attention of relevant international fora including the United Nations Committee on Peaceful Uses of Outer Space (COPUOS) and the Conference on Disarmament (CD) in an appropriate manner.

11. Central point of contact

A central point of contact should be nominated by Subscribing States to:

- receive and announce the subscription of additional States;
- maintain the electronic information-sharing system;
- serve as secretariat at the meetings of Subscribing States; and
- carry out other tasks as determined by the Subscribing States.

12. Outer Space Activities Database

The Subscribing States commit to creating an electronic database and communications system, which should be used exclusively for their benefit in order to:

- collect and disseminate notifications and information submitted in accordance with the provisions of this Code; and
- serve as a mechanism to channel requests for consultations.

13. Participation by Regional Integration Organisations and International Intergovernmental Organisations

In this Code, references to Subscribing States shall be deemed to apply to the following:

- To the European Union in view of its competences over matters covered by the present code, without prejudice to the competences of its member States.
- With the exception of articles 10 to 12 inclusive: To any regional integration organisation or international intergovernmental organisation which conducts outer-space activities if a majority of the States members of the organisation are Subscribing States to this Code.

Source: http://www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf

Appendix 2

EU Launches Negotiations on an International Code of Conduct for Outer Space Activities: Press Note

Brussels, 6 June 2012

The European Union officially launched on Tuesday in Vienna the multilateral diplomatic process to discuss and negotiate its initiative for an International Code of Conduct for Outer Space Activities. Under the chairmanship of Maciej Popowski, Deputy Secretary General of the European External Action Service, 110 participants from more than 40 countries gathered for this multilateral meeting, at which the European Union introduced a revised version of its draft Code, based on comments received in bilateral meetings with various partners. Substantial negotiations on the basis of this text will start at the Multilateral Experts Meeting of October 2012 in New York, which will be open to the participation of all UN Member States, with a view to adopt the Code in 2013.

Space activities are expanding and their importance is crucial. Space is a resource for all countries in the world, and those which do not yet have space activities will have them in the future. Therefore the EU considers necessary to ensure greater security in outer space and believes a pragmatic and incremental process can assist in achieving this goal. The EU initiative for an International Code of Conduct for Outer Space Activities was launched at the end of 2008 as a means to achieve enhanced safety and security in outer space through the development and implementation of transparency and confidence-building measures.

The proposed Code would be applicable to all outer space activities conducted by States or nongovernmental entities, and would lay down the basic rules to be observed by space faring nations in both civil and defence space activities. This initiative is already supported by a number of spacefaring nations, among them the US, Japan and India.

At the meeting, the UN Institute for Disarmament Research (UNIDIR) officially launched its project "Facilitating the Process for the Development of an international Code of Conduct for Outer Space Activities", which—in parallel with the diplomatic process—aims to facilitate information dissemination and exchange of views on the concept of this Code of Conduct.

APPENDIX 3

Text of the CoC Initiative by Henry L. Stimson Center

MODEL CODE OF CONDUCT

Central Objective of this Code of Conduct

To preserve and advance the peaceful exploration and use of outer space.

Preamble

We the undersigned;

Recognizing the common interest of all humankind in achieving progress in the exploration and use of outer space for peaceful purposes;

Reaffirming the crucial importance of outer space for global economic progress, commercial advancement, scientific research, sustainable development, as well as national, regional and international security;

Desiring to prevent conflict in outer space;

Reaffirming our commitment to the United Nations Charter;

Taking into consideration the salience of Article 2(4) of the Charter, which obliges all members to refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations;

Taking special account of Article 42 of the Charter, under which the United Nations Security Council may mandate action by air, sea, or land forces as may be necessary to maintain or restore international peace and security;

Recognizing the inherent right of self-defense of all states under Article 51 of the Charter;

Reinforcing the principles of the Outer Space Treaty of 1967, including:

- the exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries,

- outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law,
- outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means, in the exploration and use of outer space, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space with due regard to the corresponding interests of all other States Parties to the Treaty;
- State Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying weapons of mass destruction;
- the moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes.

Recalling the importance of space assets for non-proliferation, disarmament and arms control treaties, conventions and regimes;

Recognizing that harmful actions against space objects would have injurious consequences for international peace, security and stability;

Encouraging signature, ratification, accession, and adherence to all legal instruments governing outer space, including:

- 1967 Outer Space Treaty
- 1968 Rescue Agreement
- 1972 Liability Convention
- 1976 Registration Convention
- 1984 Moon Agreement

Recognizing the value of mechanisms currently in place related to outer space, including the 1994 Constitution of International Telecommunications Union; the 1963 Partial Test Ban Treaty; the 1988 Intermediate-Range Nuclear Forces Treaty; the 1994 Strategic Arms Reduction Treaty; and the 2003 Treaty on Strategic Offensive Reductions.

Recognizing the dangers posed by space debris for safe space operations and recognizing the importance of the 2007 Space Debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space;

Recognizing the importance of a space traffic management system to assist in the safe and orderly operation of outer space activities;

Believing that universal adherence to this Code of Conduct does not in any way diminish the need for additional international legal instruments that

preserve, advance and guarantee the exploration and use of outer space for peaceful purposes;

Declare the following rights and responsibilities:

Rights of Space-Faring States

1. The right of access to space for exploration or other peaceful purposes.
2. The right of safe and interference-free space operations, including military support functions.
3. The right of self-defense as enumerated in the Charter of the United Nations.
4. The right to be informed on matters pertaining to the objectives and purposes of this Code of Conduct.
5. The right of consultation on matters of concern and the proper implementation of this Code of Conduct.

Responsibilities of Space-Faring States

1. The responsibility to respect the rights of other space-faring states and legitimate stakeholders.
2. The responsibility to regulate stakeholders that operate within their territory or that use their space launch services in conformity with the objectives and purposes of this Code of Conduct.
3. Each state has the responsibility to regulate the behavior of its nationals in conformity with the objectives and purposes of this Code of Conduct, wherever those actions occur.
4. The responsibility to develop and abide by rules of safe space operation and traffic management.
5. The responsibility to share information related to safe space operations and traffic management and to enhance cooperation on space situational awareness.
6. The responsibility to mitigate and minimize space debris in accordance with the best practices established by the international community in such agreements as the Inter-Agency Debris Coordination Committee guidelines and guidelines of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space.
7. The responsibility to refrain from harmful interference against space objects.
8. The responsibility to consult with other space-faring states regarding activities of concern in space and to enhance cooperation to advance the objectives and purposes of this Code of Conduct.
9. The responsibility to establish consultative procedures to address and resolve questions relating to compliance with this Code of Conduct, and

to agree upon such additional measures as may be necessary to improve the viability and effectiveness of this Code of Conduct.

The Model Code of Conduct was completed by experts from NGOs in Canada, France, Japan, Russia and the United States in October 2007. The group included Setsuko Aoki of Keio University, Alexei Arbatov of the Carnegie Moscow Center, Vladimir Dvorkin of the Center for Policy Studies in Russia, Trevor Findlay of the Canadian Centre for Treaty Compliance, Katsuhisa Furukawa of the Japan Science and Technology Agency, Scott Lofquist-Morgan of the Canadian Centre for Treaty Compliance, Laurence Nardon of the French Institute of International Relations, and Sergei Oznobistchev of the Institute of Strategic Studies and Analysis. NGO participants worked on this project in a personal capacity. Their support for the model Code of Conduct therefore does not reflect endorsements by their institutions or governments.

Sourece: http://www.stimson.org/research-pages/model-code-of-conduct/

APPENDIX 4

Canada Working Paper Presented to CD (Jun 5, 2009)

On the Merits of Certain Draft Transparency and
Confidence-Building Measures and
Treaty Proposalsfor Space Security

1. Transparency and confidence-building measures (TCBMs) in the non-proliferation, arms control and disarmament field are instruments that are often used to make progress when the international community is unable to attain consensus that would be necessary for the negotiation of relevant treaties. Sometimes they serve as a precursor to what will hopefully follow. The best known example of that is the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,* adopted on 13 December 1963 (resolution 1962 (XVIII)). Reading that document again, one is struck by how closely it predicted the text of the Outer Space Treaty of 1967.[1] Looking back, one must conclude that the authors of these legal principles had in mind the end result of the Outer Space Treaty when they first set pen to paper. A relevant question for us today is should we do the same again for space security and start with a Code of Conduct to address the issues that were left unresolved in the Outer Space Treaty, or, should we launch directly into the negotiation of a new relevant treaty?
2. The Outer Space Treaty represents the best that could have been accomplished for space security during that era of the Cold War. It successfully banned the placement of weapons of mass destruction in outer space. It also banned the military use of the Moon and other celestial bodies, but permitted the military use of outer space for peaceful purposes. Space objects were granted freedom from harmful interference for peaceful purposes—a phrase that came to be interpreted as "non-aggressive." To deal with the potential for the aggressive behaviour of space objects, the Outer Space Treaty referenced the United Nations Charter to ensure that a state's legitimate right to self-defence would also apply in relation to its activities in outer space. We must remember that the Outer Space Treaty was drafted at a time when nuclear weapons were the only way to successfully attack satellites, following the Limited Test Ban Treaty of 1963,[2] which prohibited the carrying out of nuclear weapon test explosions or any other nuclear explosion in outer space.

3. In January 2007, we witnessed a return to anti-satellite weapon testing based on physical effects kill-mechanisms generated by the continuous advance of conventional weapons technology. The amount of space debris produced by this most recent test again demonstrated why in 1985 the then Soviet and American governments both unilaterally ceased the testing of such class of weapons. The international community's continued safe and sustainable use of outer space cannot endure the production of space debris through further anti-satellite testing, let alone recover from the wide scale, debilitating effects of fighting humanity's first war in outer space with such destructive and indiscriminate weapons. Indeed, even collisions among existing space objects could begin to limit our safe and sustainable use of outer space for peaceful purposes. Causing or leaving derelicts in outer space could also risk the further production of space debris when active or inactive satellites subsequently collide. The most recent Iridium and Cosmos satellite incident is a stark reminder of this possibility.
4. The continuous march of science and technology has also set several states on a course to develop ballistic missile defence interceptors to engage the re-entry vehicles and rocket bodies of ballistic missiles using conventional hit-to-kill mechanisms. In many ways, the international community's struggle to prevent nuclear weapons proliferation and their means of delivery, and the continued possession of nuclear weapons by a number of states, is now spilling over into the space security issue.
5. Canada's goals for space security can be found in the juxtaposition of the right of safe passage of space objects for peaceful purposes with the right of self-defence in the Outer Space Treaty and the UN Charter, informed by the technological prowess that now permits conventional weapons to successfully engage objects in outer space. Herein lies the unfinished work of the Outer Space Treaty. These new rules of behaviour must address space activities in peace as well as when the use of force consistent with the United Nations Charter occurs. We can argue that security guarantees should presage safe passage guarantees for space objects. Don't believe it? Ask yourself a simple question, "Should the world's first space-based weapon[3] be granted safe passage or freedom from harmful interference in outer space?"
6. Consider, for example, Article IPs undertaking in Russia-China's draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects (PPWT),[4] "not to resort to the threat or use of force against outer space objects." Notice how this undertaking follows one that would ban the placement of weapons in outer space. Some have argued that the no force provision in this draft treaty would not have prohibited the anti-satellite weapon test of 2007 on China's own satellite.

7. The European Union (EU) has since proposed a draft Code of Conduct for Outer Space Activities[5] outside of this forum but circulated to all CD members on 12 February, defining what it considers to be acceptable rules of behaviour to enhance the safety, security and predictability of outer space activities for all. It undertook these efforts within the context of the prior US Administration's reluctance to enter into any legally-binding instrument that would constrain America's freedom of action in outer space. Article 4.2 of the EU's draft Code of Conduct calls for Subscribing States to: refrain from any intentional action which will or might bring about, directly or indirectly, the damage or destruction of outer space objects unless such action is conducted to minimise outer space debris and/or justified by imperative safety considerations;
   This draft Code of Conduct was made public many months after the United States successfully modified a ballistic missile defence interceptor to engage a decaying satellite at a low altitude for the minimization of the production of space debris, an engagement that was undertaken for the protection of public safety.
8. Two issues arise from the EU's proposed safety guarantee. The first is that a national security prerogative is not an expressly authorised reason for the production of space debris. Some states might not accept this restriction on their national security when confronted with the possibility of a competitor's deployment of a constellation of a significant number of space-based weapons. The second issue with the proposal, is that it allows for a proliferation path for anti-satellite weapons that ought to be closed when judged against other possible or viable proposals for a more robust security guarantee.
9. Given that the means to ensure the safe burn-up of satellites during re-entry of the Earth's atmosphere can also be designed into the satellite beforehand, it can be argued that a better security guarantee than both the EU's draft Code of Conduct and the Chinese-Russian draft PPWT, would be for the international community to agree or accede to a ban or a pledge such as:
10. State [Parties]/[Signatories] to the [Treaty]/[Code of Conduct] [shall]/[should] not test or use a weapon against any satellite so as to damage or destroy it.
11. Note that such an undertaking would again need to be done in conjunction with a prohibition on the placement of weapons in outer space, lest we inadvertently provide a sanctuary for space-based weapons. Furthermore, a prohibition on the test or use of any satellite itself as a weapon capable of inflicting damage or destruction on any other object, would address the residual threat of a benign dual-use satellite serving as a weapon. Taken together, these three rules would prohibit armed conflict in outer space based on the application of physical force.

12. Interestingly, these rules can be crafted without the need to define a weapon, a satellite or even outer space, since the effects of the weapon are included within the proposed prohibitions, a satellite is a object that orbits round the Earth or other celestial body, and the prohibition on the placement of any weapon in outer space can be modelled on the language of Article IV of the Outer Space Treaty. To aid in the verification of a treaty or the compliance monitoring of a code of conduct, the definition of test could also be modelled on the following: where "test" means "to flight or field test in a manner observable to the national or multinational technical means of [verification]/[compLiance monitoring] available to a State [Party]/[Signatory]."
13. The above security proposal would also obtain a concomitant safety guarantee preventing the production of space debris or derelicts that could result in the production of space debris during subsequent collisions. This proposed security guarantee therefore helps ensure the sustainability of outer space for the future, The risk to the international community of settling for a weaker proposal is that we will endorse a proliferation path for the test of specially designed or modified devices, to serve as anti-satellite weapons capable of producing indiscriminate effects through the production of space debris, or we will close an avenue for needed self-defence measures against the future prospect of space-based weapons.
14. This intervention should demonstrate how great care must be exercised when we depart from the familiar foundations of the Outer Space Treaty. It also speaks to the need for any new rules concerning a state's activities in outer space to be negotiated in an appropriate forum. Obtaining practical safety and sustainability measures for space activities should not inhibit the collective desire to achieve robust security guarantees for those activities in outer space currently accepted by the international community. And yet, most states recognize that going into the future, new rules of behaviour for outer space activities must be crafted in order to obtain its secure, safe and sustainable use in full consideration of the advances that have been made in conventional weapons technology. In this regard, Canada argues for security guarantees to be considered by the Conference on Disarmament (CD) and practical safety and sustainability measures for space activities to be considered in the Committee on the Peaceful Uses of Outer Space (COPUOS). To ensure that these forums do not work at odds with one another, increased co-ordination of the CD and COPUOS ought to be given favourable consideration by the Member States of both international bodies.
15. Most recently, the new US Administration has announced its intention to resume its leadership on space issues with a "worldwide ban on weapons that interfere with military and commercial satellites."[6] We believe that this advance signal should bode well for our current

discussions of space security within the Conference on Disarmament. We also welcome the new US Administration's pronouncements on addressing nuclear non-proliferation and nuclear disarmament issues and hope that these too will help us make progress on the space security file. A new found policy approach by a significant space actor should also inform our attempts to collectively define additional acceptable behaviours for the conduct of activities in outer space within the Conference on Disarmament.

16. As we move forward on this important matter, let us recall the earlier collective experience with the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space* and keep in our minds from the outset, the new legal protections we would all prefer to govern our activities in outer space. Drafting hard security guarantees first, as a soft declaration of legal principles, might just provide the international community with a third answer to the two questions posited at the beginning of this paper.

Source: http://www.unog.ch/80256EDD006B8954/(httpAssets)/C40D0B92E5F37A9CC12575FC003BCE37/$file/CD_1865_E.pdf

Notes

1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 601 U.N.T.S. 206 (1967).
2. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 480 U.N.T.S. 43 (1963).
3. For example, a space-based ballistic missile defence interceptor, a space-based anti-satellite weapon or an orbital bombardment system.
4. Letter dated 12 February 2008 from the Permanent Representative of the Russian Federation and the Permanent Representative of China to the Conference on Disarmament addressed to the Secretary General of the Conference transmitting the Russian and Chinese texts of the draft "Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT)" introduced by the Russian Federation and China, CD/1839, 29 February 2008.
5 Draft Code of Conduct for Outer Space Activities, as approved by the Council on 8-9 December 2008, Council of the European Union, Brussels, 17 December 2008, No. 17175/08, PESC1697,CODUN61.
6. Available on www.whitehouse. gov under the heading of "Ensure Freedom of Space" as at 18 February 2009.

APPENDIX 5

Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects

The States Parties to this Treaty,

Reaffirming that outer space plays an ever-increasing role in the future development of humankind,

Emphasizing the rights to explore and use outer space freely for peaceful purposes,

Interested in keeping outer space from turning into an arena for military confrontation, in assuring security in outer space and safe functioning of space objects,

Recognizing that prevention of the placement of weapons and of an arms race in outer space would avert a grave danger for international peace and security,

Designing to keep outer space as a sphere where no weapon of any kind is placed,

Noting that the existing agreements on arms control and disarmament relevant to outer space, including the bilateral ones, and the existing legal regimes concerning the use of outer space play a positive role in exploration of outer space and in regulating outer space activities, and should be strictly complied with; although they are unable to effectively prevent the placement of weapons and an arms race in outer space,

Recalling the resolutions of the General Assembly of the United Nations "Prevention of an arms race in outer space", where, inter alia, a conviction was expressed in the need for examination of further measures in the search for effective and verifiable bilateral and multilateral agreements in order to prevent an arms race in outer space,

Have agreed on the following:

Article I

For the purpose of this Treaty:

(a) the term "outer space" means space beyond the elevation of approximately 100 km above ocean level of the Earth;
(b) the term "outer space object" means any device, designed for functioning in outer space, being launched into an orbit around any celestial body, or being in the orbit around any celestial body, or on any celestial body except the Earth, or leaving the orbit around any celestial body towards this celestial body, or moving from any celestial body towards another celestial body, or placed in outer space by any other means;
(c) the term "weapons in outer space" means any device placed in outer space, based on any physical principle, specially produced or 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;
(d) a weapon will be considered as "placed" in outer space if it orbits the Earth at least once, or follows a section of such an orbit before leaving this orbit, or is stationed on a permanent basis somewhere in outer space;
(e) the "use of force" or "threat of force" mean any hostile actions against outer space objects including, *inter alia*, those aimed at their destruction, damage, temporarily or permanently injuring normal functioning, deliberate alteration of the parameters of their orbit, or the threat of these actions.

Article II

States Parties undertake not to place in orbit around the Earth any objects carrying any kind of weapons, not to install such weapons on celestial bodies, and not to station such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects; not to assist or encourage other states, groups of states or international organizations to participate in activities prohibited by the Treaty.

Article III

Each State Party shall take all necessary measures to prevent any activity prohibited by the Treaty on its territory or in any other place under its jurisdiction or control.

Article IV

Nothing in this Treaty can be interpreted as impeding the rights of the States Parties to explore and use outer space for peaceful purposes in accordance with international law, which include but are not limited to the Charter of the United Nations and the Outer Space Treaty.

Article V

Nothing in this Treaty can be construed as impeding the realization by the States Parties of the sovereign right for self-defense in accordance with Article 51 of the Charter of the United Nations.

Article VI

With a view to facilitate assurance of compliance with the Treaty provisions and to promote transparency and confidence-building in outer space activities, the States Parties shall practice on a voluntary basis, unless agreed otherwise, agreed confidence-building measures.

Measures of verification of compliance with the Treaty may be the subject of an additional protocol.

Article VII

When a dispute arises between States Parties concerning the application or the interpretation of this Treaty, the parties concerned shall first consult together with a view to settling the dispute by negotiation and cooperation.

When the parties concerned do not come to an agreement after consultation, the disputed situation that has arisen may be referred to the Executive organization of the Treaty along with provision of the relevant argumentation.

Each State Party shall undertake to cooperate in the settlement of the disputed situation that has arisen with the Executive organization of the Treaty.

Article VIII

To promote the implementation of the objectives and the provisions of the Treaty, States Parties shall establish the Executive organization of the Treaty which shall:

(a) receive for consideration inquiries by any State Party or a group of States Parties related to the grounds that have arisen to believe that the violation of the Treaty by any State Party is taking place;

(b) consider matters concerning the compliance with the obligations taken by States Parties;
(c) organize and conduct consultations with the State Parties with the view to settle down the situation that has arisen in connection with the violation of a State Party of the Treaty;
(d) take measures to put an end to the violation of the Treaty by any State Party.

The title, status, specific functions and forms of work of the Executive organization of the Treaty shall be the subject of an additional protocol to the Treaty.

Article IX

International intergovernmental organizations may take part in the Treaty. Provisions defining variants and modalities of their participation in the Treaty shall be the subject of an additional protocol to the Treaty.

Article X

Any State Party may propose amendments to the Treaty. The text of any proposed amendment shall be submitted to the Depository who shall promptly circulate it to all States Parties. Upon the request of at least one third of the States Parties shall be invited to consider the proposed amendment.

Any amendment to the Treaty shall be approved by a majority of the votes of the States Parties. The amendment shall enter into force for all the States Parties in accordance with the procedures of the entry into force of the Treaty.

Article XI

The Treaty shall be of unlimited duration.

Each State Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall notify the Depository in written form of the decision taken six months in advance of the withdrawal from the Treaty.

Article XII

The Treaty shall be opened for signature by all States at the United Nations headquarters in New York. Any State which did not sign the Treaty before its entry into force may accede to it at any time.

The Treaty shall be subject to ratification by signatory States in accordance with their constitutional norms. Instruments of ratification or accession shall be deposited with the Secretary-General of the United Nations, who is hereby designated the Depository of the Treaty.

Article XIII

The Treaty shall enter into force upon the deposit of instruments of ratification by twenty States, including all Permanent Member States of the United Nations Security Council.

For States whose instruments of ratification or accession are deposited after the entry into force of the Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

Article XIV

The Treaty, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send duly certified copies thereof to all signatory and acceding States.

Source: http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/jkxw/t408634.htm

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