



European Space Policy Institute

# SPACE SECURITY

## A FORMATIVE ROLE AND PRINCIPLED IDENTITY FOR EUROPE

Report 16, January 2009

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Short Title: ESPI Report 16, January 2009

Ref.: P22-C20490-03

Editor, Publisher: ESPI European Space Policy Institute  
A-1030 Vienna, Schwarzenbergplatz 6, Austria

<http://www.espi.or.at>

Tel.: +43 1 718 11 18 - 0 Fax - 99

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This report was funded, in part, through a contract with the EUROPEAN SPACE AGENCY (ESA).

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Price: 11,00 EUR

Printed by ESA/ESTEC

Layout and Design: M. A. Jakob/ESPI and Panthera.cc

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# Executive Summary

Modern societies have become heavily dependent on space and its applications. As a consequence, the issue of security in space is increasingly being recognised as critical for mankind. This development is reinforced by events like the Chinese ASAT test in January 2007. Various alternatives to support the peaceful uses of space, to promote international cooperation and to prevent an arms race in outer space are under discussion. These attempts occasionally lack support by space actors that emphasise the right to act freely when national security concerns are at stake. Possible routes forward include legally binding treaties, confidence building measures and soft law such as codes of conduct or "rules of the road".

The respective efforts cannot be seen isolated from the political boundary conditions like existing national space security doctrines. To devise recommendations for action, this background needs to be taken into account. Europe will have to decide upon its own position, to come up with a distinct strategy and to find suitable ways of implementing its approach to space security. While identifying distinct elements of a possible European doctrine, this study puts Europe in the context of the existing doctrines of other space-faring countries. In doing so it goes beyond the mere provision of an internal view, providing a detailed analysis of the legal framework and current proposals under negotiations. Taking on the one hand a political sciences approach by using international relations theories to explain differences in doctrines, the study on the other hand offers concrete recommendations addressed to policy makers. It aims at showing how Europe should position itself on the international scene.

## Existing National Space Security Doctrines

Doctrines, be they implicit or explicit, demonstrate national goals and security objectives. Different strategies can be chosen to achieve these aims. To prevent an arms race, the possible reasons for the development of an arms race have to be analysed. Theories offering explanations can be subdivided into theories focussing on

**external or on internal factors**, i.e. factors that lie outside or inside the States participating in an arms race.

The **U.S.** is the only space-faring country with an explicit space policy. Its plans are evidenced by the **national space policies**, the latest one dating from 2006, as well as by other documents, such as the **Space Command's "Vision 2020"** or the **National Security Strategy**. In the Cold War era the U.S. saw space as a sanctuary, i.e. as a surveillance medium and strived for space control – not on a permanent basis, but in case of conflict. In the Reagan area, there was a move towards considering space as another area for military operations. After 9/11, security aspects of space were emphasised over civil and scientific ones. While still pursuing the concept of space control, which may well go beyond the right of self-defence, and asserting a "specific right" for itself, the U.S. also stresses the importance of compliance to the existing international legal framework. However, the fact that the U.S. opposes legal regimes that might infringe on its right of using and accessing outer space has impacts on the process of preventing an arms race in space. It remains to be seen, which approach the Obama administration will take.

**Russia** does not have an explicit space doctrine. One of the main rationales for Russian space activities is national security, though. In the early 1970s, the former Soviet Union had refrained from multilateral efforts to prohibit the development or deployment of space weapons. In that period, it had developed space weapons such as ASATs. At the beginning of the 1980s the Soviet Union shifted its policy and proposed a multilateral treaty banning space weapons in the framework of the UN. It also called for a total demilitarisation of outer space. Russia continues this trend, calling for unhindered space exploration and preservation of space as a sanctuary. At the same time it has expressed concerns that attacks on its early warning systems would represent a direct threat to its security.

While **China**'s space objectives are stated openly, its military space doctrine is not published. Thus, there is no explicit space policy doctrine. The Standing Committee of the National People's Congress and the

Central Military Commission define national and strategic objectives, and policies and doctrines are clarified by the relevant bureaucratic actors through speeches, white papers and other instruments. The 2006 White Paper on Space Activities states national security as a main objective, besides the utilisation of space for peaceful purposes. The principle of independence is also declared a fundamental policy. Further indications on its space doctrine can be found in China's White Papers on National Defense. China emphasises the importance of securing information dominance. To avoid vulnerability, it refrains from increasing military reliance on space assets. Concerns about China's real space intentions were raised by its ASAT activity in 2007. At the international stage, the official Chinese position is that space security will be undermined by the weaponisation of space. Consequently, China is one of the key proponents of negotiating a multilateral arms control treaty within the PAROS talks at the CD. In this context, it lines up with Russia. There are different political theories to explain this alliance.

## *Towards a European Space Security Identity*

Europe as a whole has only recently been regarding space as a strategic asset. Looking at existing space policy documents, it is only possible to distinguish **elements of a European space security identity**. Space activities in Europe are carried out by multiple actors at different levels:

- (1) the overall European level with the EU;
- (2) the intergovernmental organisations , e.g. ESA and EUMETSAT; and
- (3) the Member States' level with the national space actors.

The European Union (EU) as the central political authority at European level has begun to get involved. The European Space Agency (ESA) is the Space Agency of Europe. The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) provides its members and cooperating states with Earth observation data and weather information. A major part of its data goes to defence-related institutions. Other European organisations and bodies relevant for space and security exist as well. All these institutions are complemented by national projects that are sometimes carried out in bi- or multilateral cooperation outside the official European

structures. A key role is played by the Member States and their space policies.

A number of documents show the ongoing process of developing a European approach to space security. In this regard, the Three Wise Men Report of 2000 stated that the European Security and Defence Policy (ESDP) is incomplete without a space component. The EU-ESA Framework agreement in 2004 called on both sides to take into account the security dimension of space technologies and infrastructures. The Council of the EU in 2004 and 2005 called for a roadmap for the development of effective and coherent space capabilities necessary for ESDP and specified the steps needed therefore. The European Space Policy of 2007 contained a distinct chapter on security and defence and called for protection of space infrastructure. The 2008 von Wogau Report adopted by the European Parliament insists that European space policy must not contribute to militarisation or weaponisation of space. The European Union is also involved in setting up a Code of Conduct for sustainable space activities, as mentioned above. In the long run, Europe will have to come up with a Europeans Space Security Strategy (E3S) that has already been called for by IFSH and ESPI. Such a strategy can contribute to shaping a European identity in space security, which should comprise a corresponding doctrine as well.

## *Current Negotiations*

Several proposals have been made to negotiate a space weapons ban with Canada, China and Russia taking the lead and the U.S. as a major space-faring nation being involved in the debate. These main players link their position in this domain to their larger strategic positions, relationships and their national space security doctrine. Current proposals can broadly be divided into **three categories**:

- (1) the treaty approach,
- (2) the Code of Conduct approach and
- (3) alternative ideas, including Transparency and Confidence Building Measures and the proposal for a comprehensive Space Traffic Management.

China and Russia have been strong advocates of a **treaty** on the peaceful use of outer space in the past. Apart from negotiating a legally binding treaty there is the option of adopting a **Code of Conduct** (CoC), which can be regarded as a single instrument or an

interim solution, i.e. elemental to a future treaty. Alternatively, one of the often referred to ***all-encompassing solutions*** is the proposal of a ***comprehensive space traffic management*** (STM) regime with the most prominent proponent being the International Academy of Astronautics (IAA). Thereafter, space traffic management is “a set of technical and regulatory provisions for guaranteeing safe access to outer space, operation in outer space and return from outer space to Earth free from physical or radio-frequency interference”. STM is not tackling single issues, but regards the regulation of space activities as a comprehensive concept and is thus often compared to a “big bang” approach. A Space Traffic Management could be complementary to existing or future legal regulations, solving the existing deadlock in the CD.

## *Assessing a Role for Europe on the International Scene*

The situation described above leaves room for several options to move forward. Accordingly, one could simply neglect the threat of an arms race and avoid any action. Another option would be to amend the existing legal structure. A third possibility is to introduce confidence-building measures and a code of conduct. A fourth way is the negotiation of a legally binding treaty. Given these options in general terms, the question arises in more specific terms which road the EU should take. Conceptualising Europe’s

international role does not mean outlining a single role or route Europe does adopt or might follow. Considerations can be broken down into ***three possible scenarios*** for Europe:

- (1) Europe as a participant in an arms race,
- (2) Europe as a passive player and
- (3) Europe as a normative power advocating the prevention of an arms race.

The discussion above showed the future possibilities and roads for the EU to take. The introduction of the CoC might already indicate a certain future direction. It increases the EU’s position in the space debate by indicating its willingness and ability to deal with sensitive questions even in the face of opposition from key partners. In the further course of action, Europe needs to shape its identity in space security. This identity has to correspond to the values, goals and policies of the EU.

All in all, the ***role*** that Europe takes will need to be ***formative***, i.e. it will have to actively influence the situation of space security by normative action instead of just handling or administrating the given status quo that has been set by others. Europe should pursue certain goals in this regard. Such goals follow from values that have been laid down in various documents like the European Security Strategy. They include multilateralism, emphasising international cooperation and diplomacy, combining civilian and military means, and promoting the rule of law. An

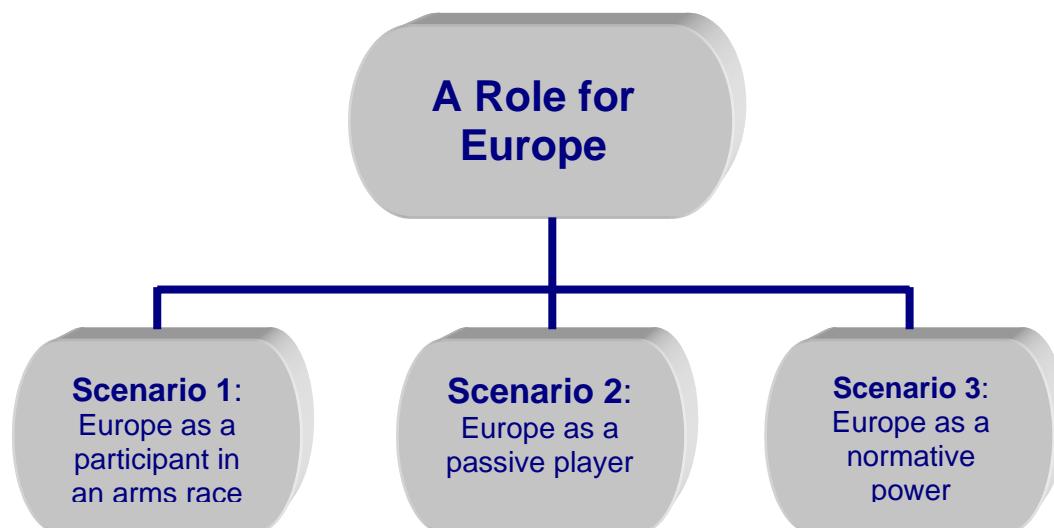


Figure 1: Three Scenarios for Europe's Role on the International Scene

**identity** formed by these underlying values is a **principled** one. Based on such an approach, Europe should take into consideration the following policy recommendations:

- formulate a strategy and develop a space identity in line with the European Security Strategy, corresponding to the values, goals and policies of the EU,
- decide on the policy-making and decision-making process and introduce key mechanisms to oversee the European Space Policy,
- clarify the organisational and institutional questions relating to space and CFSP / ESDP, e.g. in regard to ESA and EDA,
- establish a European Space Situational Awareness (SSA) System,
- increase investments for space programmes, research and development,
- move away from a purely State focussed actor perception,
- establish a coordinated space dialogue with international partners.



# 1. Introduction

*The single most important debate of the early 21<sup>st</sup> century is the future status of activities in outer space.<sup>1</sup>*

Notwithstanding the fact that the international community has referred to the use of "space for peaceful purposes" ever since the start of space missions, the military use of space has continuously expanded over the years. The issue of security in space is increasingly being recognised as being critical for mankind. Several factors have contributed to this development. Modern societies have come to depend heavily on space and its applications like telecommunication, navigation and Earth observation. Absence of these space based services would not only have detrimental effects on economy, but would also severely degrade everyday life – even in areas that are not usually associated with space, like financial transactions or the provision of electric energy.

The civilian aspect of space utilisation is complemented by its security-related and military dimension. Crisis management operations and peace-keeping or peace-enforcing missions rely on space as well. Non-availability of space based services would mean increased vulnerability and decreased ability for decision and guidance. Such non-availability can result from a variety of mechanisms, as will be discussed below.

Due to the facts stated above, both civilian and military entities are concerned about loss of their respective space based capabilities, which often co-exist without mutual interaction. Capability loss can be caused in many ways: Satellite services can be disrupted, degraded or denied and hardware assets (i.e. spacecraft) can be damaged or destroyed. There are two kinds of threats that can induce negative effects – unintentional and intentional ones. Unintentional threats originate from natural effects linked to space weather or from space

<sup>1</sup> Moltz, James Clay. "Future Security in Space: Commercial, Military, and Arms Control Trade-Offs." Occasional Paper No.10. Southampton: Center for Nonproliferation Studies, 2002.1.

debris, whose amount has risen significantly over the last years. Intentional threats originate from individuals by criminal or terrorist action and from States by military aggression.

Most recently one can observe a renewed interest among the international community in the discussion of a space arms treaty or some "rules of the road" among the international community.<sup>2</sup> To minimise the risk of loss of space-based capabilities, several options to avoid weaponisation of space are currently under debate. Various factors have highlighted the issue of space security. The problem of space debris has been brought back to the agenda as a result of the Chinese anti-satellite test of January 2007. Furthermore, the evolution of new technologies and types of actors has led to a search for new regulatory approaches.<sup>3</sup> Apart from this, concerns about the growing U.S.' interest in space and anti-satellite weapons as well as the increasing dependency on satellites drive the discussion most.<sup>4</sup>

While space-faring States' national space policies consistently emphasise international cooperation and the peaceful uses of outer space,<sup>5</sup> the technological revolution in

<sup>2</sup> Hitchens, Theresa. Future Security in Space- Charting a Cooperative Course. Center for Defense Information, Washington D.C.: 2004. 74.

<sup>3</sup> Schrogl, Kai-Uwe. "Space Traffic Management – The new comprehensive approach for regulating the use of outer space." Flash Report #3. Vienna: European Space Policy Institute, 2007. 1; Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 9.

<sup>4</sup> Tyson, Rhianna. "Advancing a Cooperative Security Regime in outer Space." Policy Brief May 2007. New York: Global Security Institute, 2007. 2. 8 Aug. 2008. <[http://www.gsisinstitute.org/gsi/pubs/05\\_07\\_space\\_brief.pdf](http://www.gsisinstitute.org/gsi/pubs/05_07_space_brief.pdf)>; Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 11; Hitchens. op. cit. 74; Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 11; Couchoud, Rosine. "EU proposal for a code of conduct for outer space activities." IFRI seminar – The French Presidency of the EU and the dynamics of European space. 2 July 2008.

<<http://www.ifri.org/files/Espace/Couchoud.pdf>>.

<sup>5</sup> For example the European Space Policy highlights European independence and civil-military synergies within a context of peaceful uses of outer space and China's five-year Space Development Plan reaffirms the importance of commercial development and national strength within a

military affairs has led to an emphasis on the use of space systems to support national security. This development has been flanked by military doctrines of a growing number of actors (like the U.S., Russia, China and key European States) that see space as a critical national security infrastructure.<sup>6</sup>

As a result of globalisation, nations are more intertwined with each other in terms of economy, politics and defence. Accordingly, they need to cooperate to strengthen collective security. Since intentional negative impact on satellites can lead to diplomatic crises and in the worst case to armed conflicts, possibly with the use of nuclear weapons, there is a potential contradiction between attempts to achieve sustainable development as a result of space based applications like environmental monitoring, resource management, or disaster mitigation and prevention on the one hand and plans to develop and deploy space-based and anti-satellite weapons on the other hand.<sup>7</sup>

The need to strengthen the security of space activities is also recognised in international forums. In 2007 the chairman of the United Nations' Committee on Peaceful Uses of Outer Space (UNCOPUOS) Gérard Brachet underlined that "A safe environment for space activities is no longer a given, if one takes a long term view"<sup>8</sup>. There have been several international initiatives (i.e. UNGA resolutions 61/75 December 2006 and 62/43 January 2008) calling for international transparency and confidence building measures (CBM). Concrete proposals for a treaty for prevention of the placement of weapons in outer space were made as well, for example by Russia and China. However, States' opinions on key space security resolutions at the UN General Assembly remain divided. While UNCOPUOS addressed the Registration Convention and Space Debris Mitigation Guidelines and discussed future activities aimed at peaceful uses and sustainability in 2007, one can also observe a renewed effort towards resumption of

substantive work in the Conference on Disarmament (CD).<sup>9</sup>

In this regard one can distinguish two opposing approaches: the first one calling for international cooperation regulated through a legally binding treaty (China and Russia) or a voluntary code of conduct (EU and NGOs), and the second one calling for freedom of military action in order to secure national interests in space, considering the existing legal framework as sufficient (e.g. the U.S.). An alternative scheme of differentiating these is to distinguish between top-down and bottom-up approaches. Academic accounts compare the current state of space development to the period of the first railroads, when the administrative challenges required new and more sophisticated forms of management. Based on this appraisal, they call for "rules of the road" for space.<sup>10</sup> Proponents of this concept often refer to the Hague Code of Conduct for Missile Proliferation and the Incidents at Sea and Prevention of Dangerous Military Activities Agreement as successful precedents.<sup>11</sup> In the same vein, the global space industry calls for new "rules of the road" for space operations in order to ensure a level playing field and to resolve some of today's shortcomings in international law.<sup>12</sup> The French EU Presidency announced an update of the European Security Strategy (ESS) by December 2008 as part of their Presidency Work Programme.<sup>13</sup> While there is no explicit reference to space in this document, the French delegation has made clear that it aims at advancing the EU's Code of Conduct proposal.<sup>14</sup> Lately, even in U.S. military space circles there is consideration of how some "rules of the road" might help to avoid threats to space assets.<sup>15</sup>

Given the status quo as described above, this study aims at advising the European Union the right "road", taking into account the existing national security doctrines of the three big players in this discussion - the U.S., China and Russia. It specifically addresses objectives and instruments. It is of particular relevance specifically in the light of the recently published EU "Report on the

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context of peaceful uses of outer space, cf. Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 11.

<sup>6</sup> Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 11.

<sup>7</sup> Tyson, Rhianna. op. cit.; Axworthy, Lloyd. "Prevention of an arms race in outer space." A Disarmament Agenda for the 21st Century DDA Occasional Papers. No. 6 (October 2002). 105.

<sup>8</sup> Couchoud, Rosine. "EU proposal for a code of conduct for outer space activities." IFRI seminar – The French Presidency of the EU and the dynamics of European space. 2 July 2008.  
<http://www.ifri.org/files/Espace/Couchoud.pdf>.

<sup>9</sup> Space Security Summary 2008. Ontario: Project Ploughshares, 2008. 9 - 10.

<sup>10</sup> Moltz, James Clay. op. cit. 124-5.

<sup>11</sup> Tyson, Rhianna. op. cit.

<sup>12</sup> Hitchens. op. cit. 73.

<sup>13</sup> French Presidency of the Council of the European Union. "Europe Taking Action to Meet Today's Challenges." Work Programme. 1 July – 31 Dec 2008. 23.

<sup>14</sup> cf. Couchoud, Rosine. op. cit.; Selding, Peter B., de, "France to keep Pushing for Ambitious New EU Space Policy." Space News 5 July 2008.

<sup>15</sup> Hitchens. op. cit. 73.

Implementation of the European Security Strategy"<sup>16</sup>, which concluded that Europe needs to become more strategic and more effective and visible in the world. Similar to this account, the French Presidency concluded its determination to give a fresh impetus to the European Security and Defence Policy.

To provide relevant background information, the first part of this study evaluates the existing legal framework, indicating inefficiencies and shortcomings from today's perspective. The second part outlines the national space security doctrines of the United States, China and Russia as well as elements of a EU one. The third part compares the proposals currently under discussion, evaluating their possible success by taking into account the national space security doctrines as presented in the second part. The last part provides policy recommendations, particularly on the course Europe should take and the strategy it should follow at the international level.

It should be kept in mind that security can be defined in a very wide sense, including both civilian and military elements. This study emphasises the military aspects of security, since these are the ones relevant for the prevention of a weaponisation of space. Space security is understood to consist of security in space, i.e. the integrity and unharmed operation of space assets. This excludes aspects of terrestrial security that are affected by space.

While identifying distinct elements of a possible European doctrine, this study puts Europe in the context of the existing doctrines of other space-faring countries. In doing so it goes beyond the mere provision of an internal view, providing a detailed analysis of the legal framework and current proposals under negotiations. Taking on the one hand a political sciences approach by using international relations theories to explain differences in doctrines, the study on the other hand offers concrete recommendations addressed to policy makers. It aims at showing how Europe should position itself on the international scene.

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<sup>16</sup> Council of the European Union. "Report on the Implementation of the European Security Strategy – Providing Security in a Changing World." S407/08. Brussels, 11 Dec. 2008.



## 2. The Status Quo: The Existing Legal Structure for Space Security

This section outlines the existing international laws and regulations<sup>17</sup>, being applicable to outer space. Subdivided into three categories, i.e. treaties, bilateral agreements and relevant United Nations General Assembly Resolutions in chronological order, this section will first of all give an overview of the relevant provisions contained in the documents. In order to provide a background for the next chapters, it will continue by pointing to the main lacunae and problems in both the single documents under discussions and the overall existing legal structure.

### 2.1 The United Nations Charter

The very basic framework codifying norms of conduct among States is the **United Nations Charter** (in the following: the Charter) which entered into force on 24 October 1945. **Article 1 (1)** defines the purpose of the Charter as to maintaining international peace and security through "effective collective measures for the prevention and removal of threat". In this regard **Article 2 (4)** obliges all UN Member States to refrain from the threat or use of force "against the territorial integrity or political independence of any state" and commits all Member States to "settl[ing] their international disputes by peaceful means" so as to not endanger international peace, security and justice (**Article 2 (3)**). Moreover, the United Nations Charter establishes *inter alia* that "armed forces shall not be used" unless in accordance with the common interest of the State Parties. This obligation is, however, qualified by Article 51 which codifies the inherent right of self-defence of all States.<sup>18</sup>

<sup>17</sup> For a short introduction on the relevant basic legal framework, see: Kries, von, Wulf, Bernhard Schmidt-Tedd and Kai-Uwe Schrogel. "Grundzüge des Raumfahrtrechts-Rahmenbestimmungen und Anwendungsgebiete." München: C. H. Beck, 2002. 3-15.

<sup>18</sup> Alves, P.G. Prevention of an Arms Race in Outer Space: A Guide to the Discussions in the Conference on Disarmament. Geneva: United Nations Institute for Disarmament Research, 1991. 56-7; Kodachi, Yukiko. "The Possibility of Soft Law in the Field of Arms Control in Outer Space – Focusing on the ASAT Code of Conduct."

The applicability of the United Nations Charter to outer space has been questioned in the past. While it does not explicitly refer to outer space, it does not *verbis expressis* exclude it either. While the question on its applicability remains open, the very existence of an extensive body of law covering outer space can be taken as a proof of the insufficiency of the Charter alone to prevent an arms race in outer space.<sup>19</sup>

### 2.2 First Steps: The UN Discussion - Using Space for Peaceful Purposes

Apart from the general legal framework contained in the United Nations Charter, the question on the "peaceful use" of outer space entered the UN discussion separately. Various delegations called for complementary and more explicit legal guidelines. Already in 1958, the United States' President Eisenhower called for the "principle of using space for peaceful purposes"<sup>20</sup> and was thus the first to call upon States to refrain from using space in any other manner than peacefully.

While both the United States and the Soviet Union engaged in negotiations over step-by-step plans for comprehensive and complete disarmament, the United Nations were the first to take concrete steps towards creating an international order for the peaceful use of outer space in 1958. Following a U.S.' proposal the United Nations General Assembly (UNGA) decided in 1958 to set up an ad hoc Committee on the Peaceful Uses of Outer Space. The latter came to emphasise the importance of outer space as being in "the common interest of mankind" already in its very first report. This principle became later known as "the mankind clause".

Hamamatsu, Presentation at the 26<sup>th</sup> ISTS, 3 June 2008, Hamamatsu, Japan.

<sup>19</sup> Alves, P.G. op.cit.. 57-8.

<sup>20</sup> Estabrooks, Sarah. "Preventing the weaponization of space: options for moving forward." Peace Magazine (July-Sep 2003).

Recognising the importance of the discussion on the peaceful use of outer space to the international community as a whole, the United Nations changed the ad hoc Committee to a permanent Committee in 1959 (COPOUS).<sup>21</sup>

## 2.3 The Outer Space Treaty

Being preceded by **Resolution 1962** entitled "*Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*" (also known as the "**Principles Declaration**"), the Outer Space Treaty is often said to provide the basic framework. Already in the Preamble (para. 2 and para. 4) the principle of the "peaceful use of Outer Space" is codified by emphasising the importance of "the common interest of all mankind" (para. 2) as well as the importance of contributing "to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes" (para. 4).<sup>22</sup>

**Article 1** refers to the exploration and use, and freedom of scientific investigation in outer space including the Moon and other celestial bodies. Article 3 can be understood as to clarifying the question of the applicability of the UN Charter to outer space as it establishes the applicability of international law to outer space. Moreover Article 3 and refers to the maintenance of "international peace and security" and the promotion of "international cooperation and understanding" as the objective of the Treaty. Its vague formulation, however, leaves room for interpreting it in favour of space-based military support operations to enhance deterrence.<sup>23</sup>

**Article 4** explicitly prohibits the placing in orbit around the Earth of "any objects carrying nuclear weapons or other weapons of mass destruction as well as it prohibits the testing and the deployment of any kind of weapon on the Moon or other celestial bodies". While providing for partial non-militarisation, it does not refer to conventional weapons in orbit, sending

ballistic missiles with nuclear warheads through space, or deploying most types of anti-satellite weapons.<sup>24</sup> It also does not specifically refer to space objects which only transit through outer space. While the whole Treaty in its entity is supposed to cover outer space as a whole, Article 4 only refers to the Moon and other celestial bodies and hence leads to two legal regimes, one for outer space and one for the Moon and other celestial bodies.<sup>25</sup>

Moreover, according to the OST **Article 7** Treaty Parties launching objects into outer space can be held liable for damage caused to the property of another Treaty Party. In the same vein, **Article 9** provides for consultations in the case of potentially harmful interference with activities in the peaceful exploration and use of outer space.<sup>26</sup> These provisions are reinforced by the possibility of the UNGA to request by majority vote an Advisory Opinion from the International Court of Justice on these two articles as well as on the peaceful uses language of the Treaty. The question however remains, however, how to define the term "harmful interference" and whether it is meant to cover military activities in outer space or not.<sup>27</sup>

**Article 10** stipulates that the Member States should consider on the basis of equality "any requests for permission to observe the flight of space objects they launch into space". **Article 12** provides for space installations (i.e. "the Moon and other celestial bodies") to be visited "following an honouring request on the *basis of reciprocity*" [emphasis added]. While being intended to provide a first step towards verification mechanisms, one cannot overlook "that the space powers have been able to validate *de facto* their dominating position in space"<sup>28</sup>. In this regard, the right to inspection, being possible only "on a basis of reciprocity", excludes non-space powers from exercising this right.<sup>29</sup> The effectiveness of Article 10 and Article 12 is enforced by

<sup>21</sup> Wolter, Detlev. Common Security in Outer Space and International Law. Geneva: United Nations Institute for Disarmament Research, 2005. 11.

<sup>22</sup> 98 states ratified the OST and another 27 signed it. Cf. Schlaedelbach, Marcus. "40 Jahre Weltraumvertrag." *Neue Zeitschrift für Verwaltungsrecht* Heft 2 (2008): 54.

<sup>23</sup> Dean, Jonathan. "Future Security in Space. Treaty Issues." INESAP Information Bulletin 20 (2002). 21 July 2008 <[www.inesap.org/bulletin20/bul20art03.htm](http://www.inesap.org/bulletin20/bul20art03.htm)>; Gallagher, Nancy and John D. Steinbrunner. Reconsidering the Rules for Space Security. Cambridge: American Academy for Arts and Sciences, 2008. 10.

<sup>24</sup> Wolter, Detlev. op. cit. 11; Dean, Jonathan. op.cit.; Gallagher, Nancy and John D. Steinbrunner. Reconsidering the Rules for Space Security. Cambridge: American Academy for Arts and Sciences, 2008. 10; Kodachi, Yukiko. "The Possibility of Soft Law in the field of Arms control in Outer Space – Focusing on the ASAT Code of Conduct." Presentation at the 26<sup>th</sup> ISTS, 3 June 2008, Hamamatsu, Japan.

<sup>25</sup> Alves, P.G. op. cit. 61. for a more detailed discussion on Art. 4, particularly its historic context as well as precisions to its wording, see: Schrogl, Kai-Uwe and Julia Neumann. "Article IV – Military use of outer space." (forthcoming).

<sup>26</sup> Dean, Jonathan. op. cit.

<sup>27</sup> Alves, P.G. op. cit.. 62; Dean, Jonathan. op. cit.

<sup>28</sup> Wolter, Detlev. op. cit. 19.

<sup>29</sup> Ibid.

**Article 11** requiring space-faring nations to provide appropriate information about space activities to the Secretary-General of the UN. While some scholars argue that these verification mechanisms also work towards preventing an arms race in outer space, their non-mandatory character and their incompleteness<sup>30</sup> led to a frequent call by the international community for the establishment of mandatory verification procedures or a mechanism separated from the UN. Moreover, the OST fails to define the relevant terms and does not go beyond the existing legal framework.<sup>31</sup> Thus, in a historical context, it can be seen as having a psychological impact more than providing new legal provisions.

Already in the above discussion in the drafting process of the OST, the diverging national security doctrines became visible.<sup>32</sup> While the delegate of the Soviet Union declared in the Legal Subcommittee of COPUOS that "the USSR (...) is in favour of a complete *prohibition* of the use of outer space for military purposes" [emphasis added], the White House used a rather vague formulation by merely reiterating the importance of assuring "that the sending of objects into outer space shall be *exclusively for peaceful and scientific purposes*" [emphasis added], thereby clearly avoiding any use of the wording "prohibition".

Particularly the U.S. claimed that outer space, unlike air space, should be free for access and peaceful use without the permission of other States. Hence, the only partial provision referring to non-militarisation as contained in Article 4 is a result of the United States attempt to ensure that no provisions of the OST would infringe on their plans to allow for limited military uses of outer space.<sup>34</sup> For the U.S. the so-called "support activities" for military

<sup>30</sup> The verification mechanisms do not seem to cover all possible military uses of outer space nor do they seem to cover all potential components of the space environment, as only the Moon and other celestial bodies are referred to while there is no reference to stations, installations, equipment and space vehicles orbiting in outer space itself. cf. Alves, P.G. op. cit. 63.

<sup>31</sup> Schladebach, Marcus. op. cit. 54; Takaya-Umehara, Yuri. op. cit. 18; Enforcing the Verification Mechanism of the Registry for Space Arms Control." Reston VA: American Institute of Aeronautics and Astronautics, 2005. 7; Preston, Bob et al. Space Weapons, Earth Wars. Santa Monica: RAND Corporation, 2002. 18; Alves P.G. op. cit. 56.

<sup>32</sup> N.B. this paragraph highlights the national space security doctrines in the historic context. Those should not be confused with today's as presented in section 3 and 4.

<sup>33</sup> Wolter, Detlev. op. cit. 18.

<sup>34</sup> Wolter, Detlev. op. cit. 17; Gallagher, Nancy and John D. Steinbrunner. op. cit. 9.

purposes, i.e. using satellites for reconnaissance, navigations and surveillance, had a stabilising effect on international peace and security (through early warning) and were thus understood as part of a strategy of nuclear deterrence.<sup>35</sup> The so-called "freedom-of-use-principle" becomes even more obvious, in the following statement by Senator Johnson:

*We of the United States do not acknowledge that there are landlords of outer space who can presume to bargain with the nations of the Earth on the price of access to this domain.*<sup>36</sup>

**Article 9** and **Article 7**, however, limit the "freedom-of-use-principle" by providing "that one country's use of space should neither interfere with other countries' current space activities nor degrade the space environment for future users" while also establishing the liability principle. Hence, in order to gain the right to launch reconnaissance satellites over countries without their specific permission, the U.S. agreed to a package deal. It can thus be argued that the OST's sections addressing military activities, balanced the general interest of the peaceful uses of outer space with the U.S.' particular aspirations. As a result, arms control verification early warning and crisis management were generally accepted as peaceful national security space activities.<sup>37</sup>

## 2.4 Additional Treaties

In the course of the development of international space law, the OST became supplemented by other agreements, mostly dealing more extensively with issues which the OST had already touched upon.

The **Partial Test Ban Treaty (PTBT)**<sup>38</sup> of 1963 is chronologically speaking the first international law on arms limitation in outer space, as it provided the first formal differentiation between permitted terrestrial military activities and prohibited activities in the atmosphere and in outer space.<sup>39</sup> Accordingly, nuclear tests (and any other

<sup>35</sup> The same idea came to be eventually endorsed in the Strategic Arms Limitation Treaty (SALT I) of 1972. See Wolter, Detlev. op. cit. 18.

<sup>36</sup> Gallagher, Nancy and John D. Steinbrunner. op. cit. 10.

<sup>37</sup> Ibid.

<sup>38</sup> N.B. The PTBT is also referred to as the Limited Test Ban Treaty (LTBT).

<sup>39</sup> Krepon, Michael and Christopher Clary. Space Assurance or Space Dominance? The Case Against Weaponizing Space. Washington D. C.: The Henry L. Stimson Center, 2003. 94.

nuclear explosions) in the atmosphere or in outer space are prohibited. This can be said to be an activity-specific instrument that does not prohibit the placing or use of weapons in outer space *per se* but refers to the testing of a specific type of payload material in selected physical environments (Article 1). The PTBT is often criticised for not covering and thus not prohibiting the testing in an underground environment. The latter is only prohibited if it causes radioactive debris outside the territorial limits of the State conducting the test. Article 4 of the Partial Test Ban Treaty gives States the right to withdraw with a period of notice of three months in case of "extra-ordinary events" from the provisions of this Treaty. Lacking any definition on the term "extra-ordinary event", the State withdrawing from PTBT remains the sole judge. Moreover, the PTBT does not contain any procedure to verify compliance with the obligations included, leading to a generally regarded weak legal status of the Treaty as a whole. The obligation of refraining from "placing in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction..." in the PTBT was reiterated by the Resolution 1884 of 17 October 1963 entitled "General and complete disarmament" (also known as "No-Bombs-in-Orbit").<sup>40</sup>

The **Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among States** in Accordance with the Charter of the United Nations of 24 October 1970 reiterates the basic principles laid down in the UN Charter by establishing that States Parties "shall refrain from any action, which may aggravate the situation so as to endanger the maintenance of international peace and security, and shall act in accordance with the purposes and principles of the United Nations".

The **Environmental Modification Convention (ENMOD)** of 1977 establishes a norm to curb the use of new means of warfare and thereby contributes to avoiding an arms race. While the United Kingdom largely criticised the ENMOD as being too theoretical, this view is not shared by the majority of Member States of the Conference on Disarmament (CD).<sup>41</sup>

Focussing on giving assistance to astronauts in danger, the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space

<sup>40</sup> Alves, P.G. op. cit. 70-1; Wolter, Detlev. op. cit. 15.  
<sup>41</sup> Alves, P.G. op. cit. 71-2.

of 3 December 1968 (often referred to as the "**Rescue Agreement**"), provides for the recovery and return of space objects to the responsible launching authority and thus adds content and specificity to the Outer Space Treaty.

Both the Convention on International Liability for Damage Caused by Space Objects (the "**Liability Convention**") of 1 September 1972 as well as the Convention on Registration of Objects Launched into Outer Space (the "**Registration Convention**") of 15 September 1976 have an indirect bearing on the prevention of an arms race in outer space discussion. By establishing that launching States (as defined by Art. 1) are responsible for damage caused to another State by their space objects, the Liability Convention is relevant to military activity in space. Going a step further than merely codifying liability as in Article VII of the OST, the Liability Convention also provides for a compensation procedure. It also accounts for States claiming their right of self-defence, to offset liability claims by the State launching in the first instance. Furthermore, it clarifies that "absolute liability" (ref. Article II) can be exonerated if damage resulted "either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant state" (Article VI). A linkage between space object and launching States as to guarantee liability is ensured by the **Registration Convention**, obliging launching States to register space objects with a national or institutional registry as well as the United Nation Registry. Accordingly States have to provide: the name of the launching State or States, an appropriate designator of the space object or its registration numbers, the date and territory or location of launch, basic orbital parameters, including nodal period, inclination, apogee, perigee and general function of the space object.<sup>42</sup>

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the "**Moon Agreement**") of 11 July 1984 extends the principle of peaceful purposes to the Moon. The Treaty<sup>43</sup> goes a

<sup>42</sup> For a more detailed discussion on the Registration Convention and the Registration Practice, see: Benkő, Marietta and Kai-Uwe Schrogli. "The UN Committee on the Peaceful Uses of Outer Space. Adoption of the Resolution on Enhancing Registration Practice and of the UNCOPUOS Space Debris Mitigation Guidelines." German Journal for Air and Space Law 57.3 (2008). 335-353.

<sup>43</sup> For a detailed discussion on the effectiveness of the Moon Agreement in the 21<sup>st</sup> century cf. Bini, Antonella. "The Moon Treaty: Its effectiveness in the 21<sup>st</sup> century." ESPI Perspective No.14.

step further than mere reiteration of the existing provisions as laid down in the OST and should thus be understood as a further attempt to prevent the Moon and other celestial bodies from becoming areas of international conflict.<sup>44</sup> Accordingly, any threat, use of force, any other hostile act and threat of hostile act on the Moon are prohibited. This also means that the Moon cannot be used to commit any such act. Moreover, it is prohibited to engage in any such threat in relation to the Earth, the Moon, spacecrafts, and the personnel of spacecraft or man-made space objects (Art. 3 para. 1-3). Additionally, it is forbidden to establish military bases, installations and fortifications, to test any types of weapons and to conduct military manoeuvres on the Moon (Art.3 para.4) but specifically allows the use of military personnel for scientific research or any other peaceful purposes as well as the use of any equipment, facility necessary for peaceful exploration and use of the Moon. Given that most of the space-capable countries and the permanent members of the Security Council still have to ratify it, is often considered as a significant element in ascertaining the role of the Moon Agreement in the legal regime of outer space.<sup>45</sup> Additionally, it uses rather vague formulations such as "use of force" and "hostile act" and thus leaves room for possible controversies over definitional issues.<sup>46</sup> While Article 15 paragraph 1 allows for any State party to visit space vehicles, equipment, facilities, stations and installations on the Moon "under reasonable advance notice", paragraph 2 allows requests to be made for consultations in the case of suspected non compliance or of interference with the right of State Parties to monitor compliance. Paragraph 3 allows mediators to be introduced into consultations. Verification procedures however remain limited as the Treaty lacks provisions covering facilities and other platforms orbiting in outer space and thus give rise to calls for the establishment of verification procedures. The provisions contained are often in comparison with the Antarctic Treaty criticised for not being as open.<sup>47</sup>

**The Chemical Weapons Convention (CWC)** of 1993 contains provision for inspections of suspect sites. Being originally intended as to provide for inspections "anywhere, any time", the CWC became

<[http://www.espi.or.at/images/stories/dokumente/Perspektive/espri\\_%20perspectives\\_14.pdf](http://www.espi.or.at/images/stories/dokumente/Perspektive/espri_%20perspectives_14.pdf)>.

<sup>44</sup> Alves, P.G. op. cit. 75.

<sup>45</sup> Alves, P.G. op. cit. 55.

<sup>46</sup> Alves, P.G. op. cit. 74.

<sup>47</sup> Alves, P.G. op. cit. 56 & 73-4.

restricted by national conditions being attached to ratification or through watered-down implementation guidelines. It is often argued that serious efforts to reinvigorate the CWC's implementation could significantly contribute to providing building blocks for a space assurance regime, by providing intrusive monitoring and thus solving the verification problem.<sup>48</sup> The **1989 Nice Constitution of the International Telecommunication Union (ITU)**<sup>49</sup> establishes the framework for the use of the radio-frequency spectrum of geostationary and other satellite orbits by Member States. While Article 48 provides that "member states retain their entire freedom with regard to military radio installations" (para. 1), Article 45 (para. 1) obliges State Parties to abide to the principle of "no harmful interference":

*All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations.*

and in paragraph 3:

*Further, the Member States recognize the necessity of taking all practicable steps to prevent the operation of electrical apparatus and installations of all kinds from causing harmful interference to the radio services or communications mentioned in No. 197 [para. 1] above.*

Similar provisions concerning military radio installations are contained in Article 38 paragraph 2:

*Nevertheless, these installations must, so far as possible, observe statutory provisions relative to giving assistance in case of distress and to the measures to be taken to prevent harmful interference, and the provisions of the Administrative Regulations concerning the types of emission and the frequencies to be used, according to the*

<sup>48</sup> Krepon, Michael and Christopher Clary. op. cit. 93.

<sup>49</sup> International Telecommunication Union. "Constitution of ITU: Chapter VII – Special Provisions for Radio". 8 Aug. 2008 <[www.itu.int/net/about/basic-texts/constitution/chaptervii.aspx](http://www.itu.int/net/about/basic-texts/constitution/chaptervii.aspx)>. For the table of content of the ITU Convention cf. <<http://www.itu.int/net/about/basic-texts/index.aspx>>.

*nature of the service performed by such installations.*

In this regard the **ITU Constitution** also provides a definition for the term "harmful interference":

*Interference which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communication service operating in accordance with the Radio Regulations.<sup>50</sup>*

The **Comprehensive Nuclear-Test-Ban Treaty (CTBT)** bans all nuclear explosions in all environments, for military or civilian purposes. Having been opened for signature since 24<sup>th</sup> September 1996, the CTBT ratification has been rejected by the U.S. Senate in 1999 (despite the signature by the U.S. government).

The **International Code of Conduct against Ballistic Missile Proliferation (ICOC)** also known as the **Hague Code of Conduct (HCOC)** brought into effect in November 2002, aims to stop ballistic missile proliferation. Subscribing States agree not to assist ballistic missile programmes in countries suspected of developing nuclear, biological or chemical weapons. The HCOC additionally asks for "the necessary vigilance" in assisting other countries' space-launch programmes, which could be used to disguise ballistic missile programmes. Moreover, it establishes transparency and confidence building measures by asking subscribing States to submit an annual declaration providing an outline of their Ballistic Missile policies as well as of their space-launch policies.<sup>51</sup> It also foresees an exchange of pre-launch notifications on ballistic missile and space launch vehicle launches and test flights including information on "the generic class of the Ballistic Missile or Space launch Vehicle, the planned launch notification window, the launch area and the planned direction."<sup>52</sup> The HCOC is voluntary in nature and thus neither a treaty nor legally binding but nonetheless has political force.<sup>53</sup> It does not include any formal consequences for noncompliance. It has been negotiated

outside the UN framework and has today more subscribing States than the OST.<sup>54</sup>

## 2.5 Bilateral Agreements

There are a number of bilateral agreements which stipulate arms limitation or disarmament measures and thereby reinforce the centrality and utility of objects in space for risk reduction. It has been observed that while being bilateral in character these agreements had the potential to become multilateral or become customary in space law among the international community as whole.<sup>55</sup>

The **Hotline Agreement of 1963**, utilising two satellite circuits to maintain a constantly open channel between the U.S. and Soviet leaders, is often neglected in the list of bilateral agreements relating to space security. It most importantly required both parties to refrain from interfering with these satellite operations and came to be the basis for provisions contained in the bilateral Soviet Union / U.S. Agreement to Reduce the Risk of Outbreak of Nuclear War of 1971. Under the latter, each party undertakes to notify the other in the event of an accidental or unauthorised incident which might cause a nuclear war. Particularly, Article 4 requires advanced notice of planned launches, going beyond national territory of the launching party and in direction of the other Party. This was to be done via Hotline. Given the technological advance of that period, Article 3, by referring to "warning systems" can be understood as implicitly legitimising military satellite systems. The Agreement on Measures to Improve the Direct Communication link reiterates these two principles. In the same vein, the 1987 Soviet Union / U.S. Nuclear Risk Reduction Centres Agreement codifies the use of satellite communication in the interest of mutual security.

The **1988 Notifications of Ballistic Missile Launches Agreement** provides for each Party to notify no less than 24 hours in advance, of the planned date, launch area and area of impact for any launch of a

<sup>50</sup> Annex 1003

<sup>51</sup> Kerr, Paul. "Code of Conduct Aims to Stop Ballistic Missile Proliferation." Arms Control Association 17 Nov. 2008 <[www.armscontrol.org/print/1186](http://www.armscontrol.org/print/1186)>.

<sup>52</sup> Art.4 iii.

<sup>53</sup> Schrogl, Kai-Uwe and Julia Neumann. op. cit.

<sup>54</sup> While 130 States are subscribed to the HCOC as of May 2008, 125 are subscribed to the OST as of January 2008. For a list of all HCOC-subscribing States, see: <[http://www.bmeia.gv.at/fileadmin/user\\_upload/bmeia/media/2-Aussenpolitik\\_Zentrale/HCOC\\_Subscribing\\_States\\_01.pdf](http://www.bmeia.gv.at/fileadmin/user_upload/bmeia/media/2-Aussenpolitik_Zentrale/HCOC_Subscribing_States_01.pdf)>.

<sup>55</sup> This section on bilateral agreements is mainly based on the relevant discussion in Alves, P.G. op. cit. 63-9; Krepon, Michael and Christopher Clary. op. cit. 91-9.

strategic ballistic missile and the geographical coordinates for the planned impact area or areas of the re-entry vehicles. The specific provision of "no less than 24 hours in advance" goes beyond the provisions as contained in the Registry Convention, which obliges States to register space objects only "as soon as practicable".

The **1989 Prevention of Dangerous Military Activities Agreement** defines terms such as lasers' and Interference with command and control networks. Moreover, it provides for Parties to prevent the use of lasers in peacetime.

Having laid down the basic principles for the peaceful use of outer space already in 1963 (or even 1953) already, it was not until 1972 that the U.S. and the Soviet Union took concrete legal steps to reinforce the partial demilitarisation of space by concluding the bilateral ABM Treaty, which was negotiated as part of the **Strategic Arms Limitation Talks (SALT I)** of 1972.<sup>56</sup> Aiming at a limitation of the two countries' stocks of nuclear weapons, SALT I froze the number of strategic ballistic missile launches at existing level. Moreover, during the talks the United States and the Soviet Union agreed not to attack the other's "national technical means of verification"<sup>57</sup>. Negotiations were brought to an end when both the Soviet Union and the United States signed **the anti-ballistic missile (ABM) Treaty** in 1972.

Containing important prohibitions on deploying and testing of anti-ballistic missile systems in space and on interfering with national technical means (NTM) (mainly spy satellites), the ABM Treaty is deemed void following U.S.' withdrawal in June 2002. While being originally primarily intended to restrain the arms race between the Soviet Union and the U.S. in the area of defence systems against ballistic missiles, it also had an impact on international space law by averting an arms race with this specific type of weapon in outer space and the earth environment and by establishing norms on the use of NTMs for verification purposes. While legal interpretation of the ABM Treaty had even before the U.S. withdrawal led to controversies with two opposing groups, the

traditional, restrictive or narrow interpretation and the broad interpretation or reinterpretation, opposing each other, it can be said that there is no longer a treaty prohibition against testing or deploying weapons in space other than weapons of mass destruction since the U.S. withdrawal.<sup>58</sup>

The principle of non-interference with NTM as enshrined in the ABM Treaty was additionally incorporated in the 1987 Intermediate Nuclear Forces (INF) Treaty and the Strategic Arms Limitation Talks II (SALT II from 1972 – 1979) as well as the Strategic Arms Reduction Treaty (START).

The **SALT II Treaty** (which never entered into force) contains an endorsement of Article 4 of the OST as Article 9 (para. 1(c)) prohibits the development, testing or deployment of systems for placing into Earth orbits nuclear weapons or any other kind of weapons of mass destruction, including fractional orbital missiles. The SALT II Treaty contains an extension of the NTM provisions as contained in SALT I. Moreover, SALT II obliged both parties to provide telemetric information as to ensure verification and compliance. When the U.S. withdrew from the Treaty<sup>59</sup> subsequent discussions took place under the Strategic Arms Reduction Treaty (START I) and the Comprehensive Test Ban Treaty (CTBT). **START I** was originally designed to reduce the number of deployed strategic offensive arms maintained by the U.S. and the Soviet Union. Building on previous arms control treaties, it reiterated the provisions contained in Article 9 of SALT II Treaty,<sup>60</sup> thereby also endorsing Article 4 of the OST. Moreover, it also provided transparency and confidence-building measures as it reinforced the provisions of the 1988 Ballistic Missile Launch Notification Agreement, by "providing for advance launch notification of ballistic missiles used as boosters to put objects into the upper atmosphere or space". Additionally, it restricts the use of intercontinental ballistic missiles (ICBMs) or submarine-launched ballistic missiles (SLBMs) through restricting the number, type and location of ICBMS and

<sup>56</sup> Dean, Jonathan. op. cit.; Johnson, Rebecca. op. cit. 58; Hitchens, Theresa. op. cit. 83.

<sup>57</sup> SALT II Treaty was never ratified by the United States after discovering Soviet armed forces in Cuba. Being however honoured by both sides until 1968, the United States withdrew from SALT II after accusing the Soviet Union of violating the pact. (Wikipedia)

<sup>58</sup> Hays, Peter L. "Military Space Cooperation.: Opportunities and Challenges." Occasional Paper 10. Future Security in Space: Commercial, Military, and Arms Control Trade-Offs. Ed. James Clay Moltz. South Hampton: Center for Nonproliferation studies, 2002. 36; Johnson, Rebecca. op. cit. 58.

<sup>56</sup> Negotiations started in Helsinki in 1969 and first results were achieved in May 1971 when an agreement could be reached over ABM systems. Further discussions brought the negotiations to an end and resulted in the signing of the ABM Treaty in 1972.

<sup>57</sup> Institute of Air and Space Law. "Background Paper: "Peaceful" and Military Uses of Outer Space: Law and Policy." Montreal: Institute for Air and Space Law, Faculty of Law, McGill University, 2005. 5.

SLBMS and limiting the number and location of space-launch facilities used to support such launches.<sup>61</sup> Accordingly, launched objects are subject to telemetry requirements. The Treaty also requires the party conducting any peacetime launch of an ICBM or SLBM to make onboard technical measurements, broadcast all telemetric information obtained from such measurements in a way that allows full access to the information, and then provide a recording and analysis of that data to the other party. By extending existing on-site inspection provisions (cf. 1987 Intermediate-Range Nuclear Forces Treaty (INF)), START I ensures compliance through extensive on-site verification protocols.<sup>62</sup> Being initially only agreed upon on a bilateral basis, START I was made multilateral by the **Conventional Armed Forces in Europe (CFE) Treaty**, which has NATO and East European participants and is of unlimited duration. START II, the follow-up to START I, has become void, when Russia declared that as a consequence of the U.S.' withdrawal from the ABM Treaty it would no longer consider itself bound by the START provisions.<sup>64</sup> START II has officially been bypassed by the Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions (SORT) (also known as the "Moscow Treaty"), which can be seen as the latest in a long line of treaties and negotiations on mutual nuclear disarmament<sup>65</sup>. Treaty protections of NTM to monitor agreed treaty obligations are also embedded in the 1974 Threshold Test Ban Treaty the 1976 Peaceful Nuclear Explosions Treaty, the 1987 Intermediate Range Nuclear Forces Treaty and the 1992 CFE Treaty. However, there are legal experts and scholars who argue that the protection and legitimisation of spy satellites by these treaties remains limited and international law remains ambiguous regarding ASAT testing.<sup>66</sup>

In addition to the agreements covering notification discussed above, the U.S. and Russia agreed to establish a joint data exchange centre (JDEC) to share early warning information on missile and space launches. This way the two countries will exchange information obtained from their ground- and space-based early warning

systems "including time of launch, generic missile class, geographic area of the launch, and launch azimuth".<sup>67</sup> In 2000, the two States additionally established a Pre- and Post-Launch Notification System (PLNS) for launches of ballistic missiles and space launch vehicles, "identifying launch window, time of launch, generic missile class, geographic area of the launch, and launch azimuth".<sup>68</sup>

The **1989 Prevention of Dangerous Military Activities Agreement (PDMA)** between the U.S. and USSR aimed at preventing dangerous activities of "personnel and equipment of the other party during peacetime". Hence, it is relevant to establish principles for avoiding accidents and provocative military activities in space. As a part of its objective it aimed at preventing misunderstandings between the two militaries during peacetime exercises and normal operations. The agreement has been duplicated in bilateral accords between other nations.<sup>69</sup>

Control of arms race and weaponisation of outer space through bilateral treaties were effective in the cold war era, when the only two countries being technologically capable to develop such capability were USSR and U.S. The end of the cold war changed geopolitics.<sup>70</sup> As a result there is a renewed need for appropriate legal measures with the threat of weaponisation of space persisting and more and more States engaging in space.

## 2.6 Relevant General Assembly Resolutions

The **UNGA Resolution 1721** of December 1961 entitled "International co-operation in the peaceful uses of outer space" established the application of general international law, particularly the UN Charter, to outer space. Moreover, it codified the prohibition of national appropriation of parts of outer space and its resources as the two leading principles of the exploration and use of outer space. Furthermore, by providing for States to register space objects with UNCOPUOS, it can be seen as a first step towards a legal regime with liability obligations in outer space.

<sup>61</sup> Hays, Peter L. op. cit. 35.

<sup>62</sup> Hays, Peter L. op. cit. 35-6.

<sup>63</sup> Dean, Jonathan. op. cit.

<sup>64</sup> Hays, Peter L. op. cit. 35.

<sup>65</sup> SALT I (1969-1972), ABM Treaty (1972), SALT II (1972-1979), INF Treaty (1987), START I (1991), START II (1993) and START III (no longer discusses because of being linked to START II).

<sup>66</sup> Hitchens, Theresa. op. cit. 84.

<sup>67</sup> Hays, Peter L. op. cit. 37.

<sup>68</sup> Ibid.

<sup>69</sup> Hitchens, Theresa. op. cit. 84.

<sup>70</sup> Agarwal, Abhyudaya, Kaushika Vuppala and Ramanuj Mukherjee. "Controlling Ballistic Missile Defense and Anti-Satellite Missiles: Should we look elsewhere or rather amend Art. IV OST?" Proceedings of the IAC, International Astronautical Congress, 2008 IAC-08-E8.2.10.

**Resolution 1802**, entitled “International Cooperation in the Peaceful uses of Outer Space” reiterates the obligation to inform of all space programmes (Art.b2.1) and tasks UNCOPUOS with the negotiation of a comprehensive legal principle governing the peaceful use of outer space (Art. 1.2).<sup>71</sup>

**Resolution 1962** “Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space” (also known as the “Principles Declaration”) provides for basic legal principles for space activities. Besides reiterating the mankind clause and calling upon States to incorporate outer space into arms control regimes from an early stage, it was the first resolution to consider the interests of developing countries in the framework of the mankind clause. As it establishes all of the main principles of space arms control that were later to be included in the OST, it can be seen as the most important precedent of the Outer Space Treaty.<sup>72</sup>

When in the 1980s bilateral U.S.-Soviet arms control negotiations came to a standstill, the Soviet Union called upon the UN in August 1981 to put the question of an international agreement on banning *space weapons* on the agenda of the UNGA. While previously UN discussions were centred around the “peaceful use” discussion and only implicitly covered the prevention of an arms race in outer space, in 1981 with the tabling of the UNGA draft Resolution entitled “Prevention of an Arms Race in Outer Space” (PAROS) the discussion explicitly appeared on the UNGA agenda.<sup>73</sup> Introduced by Italy on behalf of the Western States group, it called upon the Disarmament Committee (now: the Conference on Disarmament) “to consider as a matter of priority the question of negotiating effective and verifiable agreements (...) preventing an arms race in outer space” and to prohibit anti-satellite systems. In clearer terms than ever before the UNGA expressed its view that military use of outer space is contrary to the OST<sup>74</sup> (cf. A/RES/36/97 Chapter C).

**Resolution 37/92** entitled “The Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting” of 10 December 1982 provides the rules for use of satellites in direct television broadcasting. Article 1 reiterates

the principle of non-intervention. The applicability of international law to activities in the field of international direct television broadcasting by satellite are established by Article 4. Moreover, the resolution stresses the importance of international cooperation (Art. 6) and emphasises that all States have equal rights to conduct activities in this field (Art. 5). By recalling the importance of friendly relations among States and the existence of mutual understanding (Art. 2), the resolution also calls upon States to settle any international disputes through established procedures (Art. 7) and thus contributes to the prevention of an arms race in outer space.<sup>75</sup>

**Resolution 41/65** entitled “The Principles Relating to Remote Sensing of the Earth from Outer Space” of 3 December 1986 might contribute to the international cooperation in the prevention of an arms race in outer space by laying down the principles relating to satellite-based remote sensing activities of the earth’s surface.<sup>76</sup> In this regard some of the basic terms such as “remote sensing”, “primary data”, “processed data”, “analysed information” and “remote sensing activities” are defined, thus leaving few room for speculation and interpretation (Art. 1). Apart from reiterating the applicability of international law and the OST, it establishes “the protection of mankind from natural disasters” (Art. X) as the objective of Remote Sensing activities. While clearly laying down peaceful means as an objective, the resolution again does not explicitly exclude military activities.

**Resolution 47/68** entitled “The Principles Relevant to the Use of Nuclear Power Sources in Outer Space” of 14 December 1992 contributes to the prevention of an arms race in outer space by providing guidelines and criteria for safe use, aiming at minimising the quantity of radioactive material in space and the risks involved (principle 3) and dealing with limiting exposure in the “crash landing of nuclear-powered satellites and the liability for such accidents”.<sup>77</sup>

**Resolution 51/122** entitled “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” of 13 December 1996 calls upon all space faring nations to contribute to

<sup>71</sup> Wolter, Detlev. op. cit. 12.

<sup>72</sup> Wolter, Detlev. op. cit. 13; Johnson, Rebecca. op. cit.

<sup>57.</sup>

<sup>73</sup> Wolter, Detlev. op. cit. 57; Estabrooks, Sarah. op. cit.; Axworthy, Lloyd. op. cit. 106.

<sup>74</sup> Wolter, Detlev. op. cit. 57.

<sup>75</sup> Dean, Jonathan. op.cit.

<sup>76</sup> Brachet, Gérard. “Space for security and security in space” (forthcoming).

<sup>77</sup> Union of Concerned Scientists. op. cit.

international cooperation (Art. 3). However, it also recalls that "states are free to determine all aspects of their participation in international cooperation in the exploration and use of outer space on an equitable and mutually acceptable basis" (Art. 2) thus leaving the degree of international cooperation up to the individual States to decide. The use of Conditional I in the whole text, gives it a rather vague and weak meaning.<sup>78</sup>

## 2.7 The PAROS Discussion

The UNGA has been passing an annual resolution since 1981, calling for the continued peaceful use of space and the prevention of an arms race in space. The resolution calls upon all States to refrain from actions contrary to the peaceful use of outer space. It recognises the need for consolidation and reinforcement of the legal regime applicable to outer space in order to enhance its effectiveness.<sup>79</sup> Additionally, it reiterates the primary role of the Conference on Disarmament as the single multilateral disarmament-negotiating forum. In the most recent version adopted by the UNGA in late 2008, there were 177 votes in favour. For the fourth year in a row, the U.S. opposed the resolution and Israel abstained.<sup>80</sup>

PAROS talks have been at a standstill since 1995.<sup>81</sup> Although always a contentious subject the CD made some progress on a draft treaty on the prevention of an arms race in outer space until disagreement between China and the U.S. in 1995 prevented consensus on the creation of the Ad Hoc committee to continue negotiations: the CD had been negotiating a Fissile Material Control Treaty (FMCT), which was near completion when China insisted that it would only support that item if PAROS was considered at the same time. The U.S. however had consistently argued that there is no space race, and therefore also no need to negotiate PAROS.<sup>82</sup> China's insistence on linking the items and the U.S. opposition to

<sup>78</sup> For a more detailed discussion on the development of the Resolution 51/122, see: Benkő, Marietta and Kai-Uwe Schrögl. "History and impact of the 1996 UN Declaration on 'Space Benefits'." Space Policy 13.2 (1997): 139-43.

<sup>79</sup> Union of Concerned Scientists. op. cit.; Estabrooks, Sarah. op. cit; Axworthy, Lloyd. op. cit. 106.

<sup>80</sup> Reaching Critical Will."Voting Results Chart for the First Committee and General Assembly 2008." 10 Dec. 2008 <<http://www.reachingcriticalwill.org/political/1com/1com08/votechartSC.html>>.

<sup>81</sup> Hitchens, Theresa. op. cit. 74.

<sup>82</sup> Johnson, Rebecca. "Security without weapons in space. Challenges and options." Disarmament Forum one (2003). 54-55; Lloyd. op. cit. 109.

PAROS blocked action on both items and the CD had been effectively paralysed since 1995.<sup>83</sup> The Conference on Disarmament has addressed PAROS over the years, with Sri Lanka and Egypt playing leading roles traditionally.<sup>84</sup> The U.S. opposition to new legal regimes governing use of outer space as enshrined in its 2006 National Space Policy is evident.<sup>85</sup>

While the European Union voted in favour of the resolution it criticised it for not taking into account recent developments in the CD "namely the constructive, structured and substantive discussions that have taken place during the first part of this year's session on all items of the CD agenda"<sup>86</sup> in a statement after the vote. Accordingly, the EU "would have liked to see the resolution supporting the work by the CD membership and its efforts this year to come closer to resuming substantive discussions on this issue."<sup>87</sup>

## 2.8 Transparency and Confidence-Building Measures in Outer Space Activities

**Resolution UNGA 62/43** entitled "Transparency and confidence-building measures in outer space activities" merely reiterates the report submitted by the Secretary-General, with an annex containing concrete proposals submitted by member States on transparency and confidence building measures with reference to the prevention of an arms race in outer space. In the most recent version adopted by the UNGA, there were 179 votes in favour. As in previous years, the U.S. opposed the resolution and Israel abstained. The U.S. delegation tried to work with Russia to revise the text in order to be able to vote for the resolution, but could eventually not agree to the linkage between confidence-building measures and prevention of an arms race in outer space. According to The Acronym Institute, Russia is pursuing a step-

<sup>83</sup> Estabrooks, Sarah. op. cit.

<sup>84</sup> Axworthy, Lloyd. op. cit. 109.

<sup>85</sup> Johnson, Rebecca. op. cit. 54-55; The Acronym Institute. "2007 First Committee Resolutions – Outer Space and Disarmament Aspects." Disarmament Diplomacy 87 (2008). <<http://www.acronym.org.uk/dd/dd87/87unos.htm>>.

<sup>86</sup> Gomes, José Júlio Pereira. "Explanation of vote On the draft resolution A/C.1/62/L.34 'Prevention of an Arms Race in Outer Space' ". New York: United Nations First Committee, 30 Oct 2007. 2. <<http://www.eu2007.pt/NR/rdonlyres/DEC0C4E8-F06A-4199-98A3-8CFD7AE246C4/0/20071220PAROSEoV.pdf>>.

<sup>87</sup> Ibid.

by step approach towards eventual establishment of another group of governmental experts providing proposals.<sup>88</sup>

The EU had unanimously voted in favour of the resolution and mentioned in a statement as part of the First Committee cluster discussion on Other Weapons of Mass Destruction that it "forwarded its joint reply ..., which contains concrete proposals in the interest of maintaining international peace and security and promote international cooperation on space issues".<sup>89</sup> According to the Portuguese EU Presidency, "[t]he almost universal support shows (...) the willingness to develop confidence building measures based on the principle of non-interference with non-aggressive activities in space and drawing up a "code of conduct" and "rules of behaviour" in space".<sup>90</sup>

The discussion above proves (notwithstanding the U.S.' opposition) that there is a trend towards opposing the weaponisation of space and supporting the creation of a legal instrument banning the placement of weapons in outer space.<sup>91</sup> In this regard the annual UNGA resolution, calling for a prevention of an arms race in outer space, proves the emergence of a "powerful norm (...) against the weaponisation of space".<sup>92</sup> It also shows that the present legal regime falls short in that it fails not only to make explicit reference to ASAT and conventional weapons but also to incorporate the whole spectrum of space-based objects. Bilateral agreements establish a limited regime, which seeks to protect satellites identified to perform a specific function and a limited and particular goal between Russia and the U.S..<sup>93</sup> Since the potential for a universal groundswell is there, the recognition of the real urgency seem to have been missing so far.<sup>94</sup>

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<sup>88</sup> The Acronym Institute. "2007 First Committee Resolutions – Outer Space and Disarmament Aspects." *Disarmament Diplomacy* 87 (2008). <<http://www.acronym.org.uk/dd/dd87/87unos.htm>>.

<sup>89</sup> Gomes, José Júlio Pereira. "First Committee Thematic Discussion on Other Weapons of Mass Destruction - Statement by H.E. Ambassador José Júlio Pereira Gomes, Portugal on behalf of the European Union." New York: United Nations First Committee, 19 Oct 2007. 5. <<http://www.eu2007.pt/NR/rdonlyres/DA084DD2-9C10-4DF5-BE15-F2071633C8C5/0/UNGAOWMD27set2007.pdf>>.

<sup>90</sup> Ibid.

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<sup>91</sup> Estabrooks, Sarah. op. cit.

<sup>92</sup> Dean, Jonathan. op. cit.; Johnson, Rebecca. op. cit. 57; Hitchens, Theresa. op. cit. 84.

<sup>93</sup> Alves, P.G. op. cit. 69 & 81.

<sup>94</sup> Axworthy, Lloyd. op. cit. 109.



### 3. Existing National Space Security Doctrines

This section provides an overview of the national space doctrines of the main space-faring nations, the U.S., China, Russia and the EU, thus placing the emphasis on the factors relating to security. In order to explain varieties in the space policy as well as in order to be able to indicate under what conditions an arms race in space might develop, various theories will be used to examine relevant factors and conditions inside and outside the state. As any theoretical approach will only be able to explain part of the story, theories should be understood as lenses.

#### 3.1 Definitional and Theoretical Aspects

The English Dictionary Longman explains the term "doctrine" as "a formal statement by a government about its future plans".<sup>95</sup> The political dictionary defines the term "doctrine" (lat.: body of teaching, theory) in international relations as the publicly announced principle of a State or a government, which is decisive for its (future) political strategy of action (e.g. Hallstein-Doctrine).<sup>96</sup> The purpose can be described as to provide "the underlying rationale for the development, deployment, and employment of military forces".<sup>97</sup> United States' Col. Dennis Drew summarises it as "what we believe about the best way to conduct military affairs".<sup>98</sup> As a "doctrine" includes a framework of objectives serving the national interest, it reflects national goals and national security objectives.<sup>99</sup> One can distinguish

<sup>95</sup> Dictionary of Contemporary English "Doctrine." Essex: Pearson Education Limited, 2003.

<sup>96</sup> Schubert, Klaus and Martina Klein. "Das Politiklexikon". Bonn: Dietz 2006. 3 Nov. 2008 <http://www.bpb.de/wissen/H75VXG,,.html?wis\_search\_action=search&wis\_search\_alltext=Doktrin&wis\_pocketpolitik=4&wis\_pocketeuropa=64&wis\_schubertklein=1&wis\_wirtschaft=8&wis\_islam=16&wis\_fischer=32&wis\_dudenrecht=128&wis\_search\_type\_buchstaben=4>.

<sup>97</sup> Petersen, Steven R. "Space Control and the Role of Antisatellite Weapons." Research Report No.AU-ARI-90-7. May 1991. 3 Nov. 2008 <http://www.fas.org/spp/military/petersen.pdf>.

<sup>98</sup> Col Dennis Drew qtd. in Petersen, Steven R. op. cit. <sup>99</sup> World Security Institute. "United States Policy & Doctrine." 24 July 2008

between six different levels of warfare that are included in a doctrine:

- **technical level:** choice of weapons
- **tactical level:** how best to combine weapons and army in combat
- **operational level:** how should battles and moving forward be combined to win a certain section of a war
- **theatre level:** how should operations work together as to win the battle in one limited location
- **strategic level:** the best way to combine operations as to win the overall war
- **grand strategy:** how should military and non-military means be combined to best achieve the political goals of a state<sup>100</sup>

States have the choice between offensive and defensive strategy when deciding upon their military strategy whereby offensive and defensive strategy can be subjectively interpreted.<sup>101</sup> The choice of a doctrine depends on objective factors such as geographic position, relative power relation and armament technology; subjective factors like ideology, tradition and experience in warfare as well as organisational factors, i.e. the relation between civil and military lead as well as organisational interests of the military.<sup>102</sup> While doctrines as stated above can take the form of a policy document entitled "doctrine", they can also be implied in "authoritative national policy statements regarding the principles and objectives of space actors with respect to the access to and use of space" as to provide the context within which national civil, commercial and military space actors operate. Military

<<http://www.wsichina.org/space/subprogram.cfm?subprogramid=4&charid=1>>.

<sup>100</sup> Müller, Harald and Niklas Schörning. "Rüstungsdynamik und Rüstungskontrolle – Eine exemplarische Einführung in die Internationalen Beziehungen." Baden-Baden: Nomos, 2006. 71.

<sup>101</sup> Finel Bernard I. "Taking Offense at Offense-Defense Theory." International Security 23.3 (1999): 179-206.

<sup>102</sup> For a more detailed discussion on the sources of military doctrine, see: Evera, van, Stephan. "Offense, Defense and the Causes of War." International Security 22.4 (1998): 5-43; Posen, Barry R. The Sources of Military Doctrine – France, Britain and Germany between the World Wars. London: Cornell University Press, 1984.

doctrines that rely heavily on space can lead to the development of protection and negation capabilities to safeguard valuable space systems.<sup>103</sup>

### 3.1.1 Theories Focussing on External Factors

The theoretical background regarding factors and conditions leading to an arms race will eventually serve to provide necessary policy recommendations for the European Union to avoid this. One can broadly distinguish between two categories of theories: (1) theories focussing on external factors, i.e. factors lying outside the State, having an impact on armament<sup>104</sup> and (2) theories focussing on factors lying within a State leading to a favour for armament. These will be discussed separately.

According to this category of theories, States react rationally to external *stimuli* (e.g. behaviour of other States). "Rational" in this regard can be understood as the best possible means to achieve a certain aim. The most basic model in this regard is the "Action-Reaction Model".

Accordingly, two States opposing each other in a political conflict, which rival or whose relationship is characterised by suspicion, observe the defence policy of the other carefully as to react to armament decisions immediately. In such a relationship superiority is not admitted. There will always be either a balance (which is suboptimal for the actor) or the pursuit of advantage and more power. The result is a circle of action and reaction, with every reaction being the initiation of a new action (s. figure 2).

With reference to game theory one can say that both States are caught in the so-called "Prisoners' Dilemma" (s. figure 2). Two people having been imprisoned for

conducting a crime together, who can only be convicted on the basis of the testimony of the respectively other, will always confess due to mistrust. Given that none of the imprisoned knows what the other will say, it is safer to confess than to deny (dominant strategy), as denying in the case of the other one's accusation would lead to a worse penalty. The best possible outcome for both would be to deny, which will not happen due to mistrust, which is fundamental to any relationship. Interestingly this mistrust can not be changed even if communication between the two prisoners was possible.

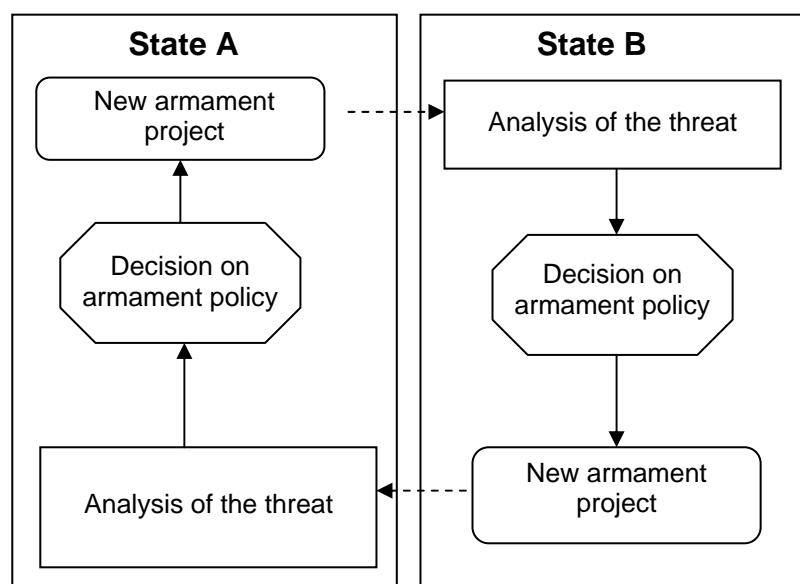


Figure 2: Action and Reaction Cycle<sup>105</sup>

<sup>103</sup> Governance Group for the Space Security Index. "Space Security 2007." Montreal: Project Ploughshares, 2007. 39-40.

<sup>104</sup> The following discussion of theories is to a large degree derive from: Müller, Harald and Niklas Schörning. "Rüstungsdynamik und Rüstungskontrolle – Eine exemplarische Einführung in die Internationalen Beziehungen." Baden-Baden: Nomos, 2006. 38-9.

<sup>105</sup> Müller, Harald and Niklas Schörning. "Rüstungsdynamik und Rüstungskontrolle – Eine exemplarische Einführung in die Internationalen Beziehungen." Baden-Baden: Nomos, 2006. 40.



		Prisoner B	
		confess	deny
Prisoner A	confess	5 yrs., 5 yrs.	0 yrs., 10 yrs.
	deny	10 yrs., 0 yrs	1 yr., 1 yr.

Figure 3: The Prisoners' Dilemma  
– Resulting Penalties for both Prisoners<sup>106</sup>

The underlying idea is that while a rationale strategy would provide both parties with a better outcome, they will none the less chose for the dominant strategy, because of lack of communication or traditional mistrust. In foreign policy this translates to the option of not arming (rationale strategy) and arming (dominant strategy). Despite the possibility of communication, mistrust and intransparency of the other party's action, both States will decide for arming (dominant strategy). Thus, the underlying problem is the insecurity about the action of the opponent or second player. Hence, if one cannot be sure about the other party's cooperation one better arms, even if only secretly. Given that one can never be really sure about the cooperation of the other party, the worst case scenario seems appealing. Hence armament becomes unpreventable. An increase in one State's security will lead to a decrease in the other State's security. This phenomenon is known as the "security dilemma".<sup>107</sup>

These models can be taken a step further by formulating a mathematic model of a bilateral arms race with the objective of answering the central question when an arms race between two actors comes to an end i.e. when do States no longer have the incentive to raise their level of armament. This is known as the Richardson-Model. It follows that the incentive by one State to raise investment in arms is always linked to the other State. This means a balance in arming cannot be achieved by one State alone but always depends on the other one as well. Apparently, there is the need to cooperate but given the persistence of mistrust cooperation is not feasible or will not lead to

trust. Thus Richardson concludes that an arms race sooner or later has to lead to war.

According to Realism, one of the main International Relations (IR) Theories, States' strive constantly for dominance and power. Given that weapons are the main instrument and indicator for power, the main reason for armament is power-maximisation. Classical Realism assumes that insecurity has its origin in human nature and the lust for power, which make State strive for supremacy. Offensive Realism on the contrary advocates that maintaining the status quo is central to state interests. Offensive Realism assumes that States strive for survival in an anarchic system with power maximisation being the only way. According to both Realism and Neo-Realism, international relations are in a State of anarchy, or lack of hierarchy, which forces States to self help. In anarchy, politics are dominated by military considerations and by the fragility of trust and cooperation, making war always possible.<sup>108</sup> Accordingly, there are four factors influencing an arms race or armament stagnation:

- insecurity and uncertainty about the intentions of the other States
- insufficient or absence of transparency;
- insufficient measurement of balance
- geostrategic factors (threat perception as derived from geo-strategic factors).

According to Realism there are four possibilities of how to react to a threat: (1) balancing against the threat<sup>109</sup>, (2) making friends with the winner (bandwagoning), (3) waiting for other States to control the threatening States (buck-passing) or (4) building an alliance with a great power patron, thereby combining bandwagoning and balancing. Furthermore, one can distinguish between satisfied States, favouring the status quo and unsatisfied States, calling for revision. Offensive Realism even goes as far as saying that States will never be satisfied as great powers live in constant fear and thus always strive for more power. Reasons for variations in State behaviour can be found in (1) the power position in the system (i.e. power as the main factor influencing foreign policy), (2) the geopolitical location and the resulting threat perception (i.e. which neighbours? What sphere of influence?), (3)

<sup>106</sup> Müller, Harald and Niklas Schörning. op. cit. 41.

<sup>107</sup> Jervis, Robert. "Cooperation under the Security Dilemma." *World Politics* 30.2 (1978):167-214. 186.

<sup>108</sup> Andreatta, Filippo. "Theory and the European Union's International Relations." *International Relations and the European Union*. Eds. Christopher Hill and Michael E. Smith. Oxford: Oxford University Press, 2005. 23.

<sup>109</sup> For Kenneth Waltz balancing is the most likely outcome that international relations theory suggests. Waltz, Kenneth. *Theory of International Politics*. New York. McGraw-Hill, 1979.

the level of military technology and (4) the State's cohesion. Realists, in line with the prisoners' and the security dilemma, are pessimistic about cooperation because of its dependence on trust. Furthermore, even if all States cooperate, one could benefit more, thus making the balance shift, leading to further instability. Thus cooperation is only possible, when a hegemon imposes a set of rules.

In line with Realism and Neo-Realism Barry Buzan's technological imperative<sup>110</sup> assumes that the international system is in a state of anarchy but in comparison concludes that the dynamic to arm, has its source in the inherent strive of modern technology for innovation. The consequent research in the military use of these innovations with the aim of taking the lead is the main source for armament.

These theoretical accounts are criticised by Constructivism. States are not caught in a system without being able to change it, rather "anarchy is what we make of it."<sup>111</sup> Accordingly, the "security dilemma" presupposes a history of interaction in which actors have acquired identities and interests, as the first action (the "social act", i.e. signalling, interpreting and responding) creates the identities and perceptions of both actors. Thus, inter States relations are not started in a security dilemma but the security dilemma and the consequent system of self-help become institutionalised in the first State interactions. If States find themselves in this situation it is because their practices made it that way. Once institutionalised however they are hard to change. Only a change in practice can change the system.<sup>112</sup> Systemic change could only happen if States accept an "other-help system", in which "security of each is perceived as the responsibility of all"<sup>113</sup>.

### 3.1.2 Theories Focussing on Internal Factors

Having surveyed conditions leading to armament lying outside the State, this section focuses on those lying inside the

State or relate to its political system. Liberalism holds that States have shared interests, which lead to cooperation and common rules, allowing all to gain. There are new threats, which can only be fought by working together. Thus, according to this theory shared interest in space security and the protection of valuable assets will eventually lead to international cooperation in the peaceful use of outer space. Moreover, economic interdependence makes States unlikely to fight. The most prominent account in this regard is the Democratic-Peace-Theory (cf. Immanuel Kant), holding that "democracies don't fight each other".<sup>114</sup> The theory explains the involvement of democracies in conflicts with the aggressive predisposition of non-democratic countries. Accordingly, democracies arm in order to be prepared for an attack by non-democratic countries. Liberalism advocates that international institutions are essential for enhancing cooperation.

Another theory looking for the source of armament within the State is the idea of the "Military-Industrial Complex" (MIC) (cf. Eisenhower). Accordingly, the armament industry, relevant research institutions and think tanks as well as related departments within the defence ministry are well organised un-countered powers. They are thus in a position to push for their very focussed interest. They only face opposition once they involving critical resources, leading to an excess of the pain threshold of a multiplicity of actors.

After the end of the Cold War another school of thought dealing with internal factors developed. The basic idea of this so-called Critical theory is that "security" has become both broadened and deepened and goes beyond relations between power-maximisers. Similar to Constructivism, it does not accept the current situation as a given but rather advocates that a State's history, culture and identity determines its military doctrine.<sup>115</sup> Hence, domestic factors are as important as international factors in determining the approach to security.

<sup>110</sup> cf. Buzan Barry. "An introduction to strategic studies : military technology and international relations." Hounds Mills / London: Macmillian, 1987. Buzan, Barry and Eric Herring. "The Arms Dynamic in World Politics." London: Lynne Rienner Publishers, 1998.

<sup>111</sup> Wendt, Alexander. "Anarchy is what states make of it: the social construction of power politics." International Organization 46.2 (1992): 391-424.

<sup>112</sup> Wendt, Alexander. op. cit. 402; 405; 407.

<sup>113</sup> "We created it. We can change it." Wendt, Alexander. op. cit. 400.

<sup>114</sup> Rose, Gideon. "Neoclassical Realism and Theories of Foreign Policy." World Politics 51.1 (1998): 144-172. 148.

<sup>115</sup> Katzenstein and Lipschutz are the main proponents of this approach.

## 3.2 The United States' National Space Security Doctrine

*"We are not prepared to negotiate on the so-called arms race in outer space. We just don't see that as a worthwhile enterprise."*<sup>116</sup>

*"There is no – repeat, no – problem in outer space for arms control to solve."*<sup>117</sup>

*"This is a case where no arms control is better than bad arms control."*<sup>118</sup>

The United States is the only space-faring country with an explicit space policy. The current U.S. plans are revealed in several documents. Being most explicitly incorporated in the U.S. 2006 Space Policy, elements also appear in the U.S. Space Command report of 1996 entitled "Vision 2020".<sup>119</sup> The U.S. space doctrine was however not always dominated by strategic considerations. Meaning that in the early years of the Cold War, the U.S. administration viewed space as a "sanctuary".<sup>120</sup> The concept of "space control" doctrine goes back to an idea by the US' Air Force in 1963. Accordingly, the U.S. needed to develop and maintain the capability to control outer space and to secure its advantage and dominance.<sup>121</sup> This however was not intended to mean permanent control of space but rather having the capability to exert "space control" in case of conflict. One can observe a shift in the U.S.' space policy doctrine during the Reagan administration in the 1980s from

viewing space as a sanctuary, i.e. as a surveillance medium, to exploring the feasibility of using space for strategic defence.<sup>122</sup> The U.S.' Strategic Defense Initiative (SDI) of 1983, which aims at achieving factual military "space control"<sup>123</sup> as well as the Challenger disaster of January 1986 led to a revised U.S.' space policy in January 1988 with the four new pillars being:

- *deterring or defending against enemy attack;*
- *assured U.S.' space access;*
- *negating hostile space systems;*
- *enhancing operation of U.S. and allied forces.*<sup>124</sup>

In this regard the Reagan administration moved away from space as a sanctuary to considering it as another arena for military operations. The Clinton administration continued this trend and issued the first post-Cold War statement of national space policy, the 1996 U.S. National Space Policy. In the same vein, the National Security Strategy (NSS) of December 1999 recognised the increasing importance of space by declaring the free access to space as a vital national interest.<sup>125</sup> This policy trend was continued by the report of the Space Commission which declared:

- *the U.S.' dependence on space and the consequent vulnerability;*
- *the importance of the U.S. national space programme for peace and stability*
- *the need of the U.S. to deter and defend against hostile acts in and from space*
- *the need for investment in science and technology resources to remain the world's leading space-faring nation.*<sup>126</sup>

<sup>116</sup> John R. Bolton, Undersecretary of State for Arms Control and International Security qtd. in Michael Krepon. "Weapons in the Heavens: A Radical and Reckless Option." Arms Control Association. 8 Aug. 2008 <<http://www.armscontrol.org/node/1689>>.

<sup>117</sup> Reaching Critical Will. "Outer Space and the United Nations – A backgrounder on what is being done to prevent an arms race in outer space at the UN." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/pars/wgroup/PAROS-UN-factsheet.pdf>>.

<sup>118</sup> Under Secretary of State for Arms Control and International Security Robert G. Joseph, "Remarks on the President's National Space Policy – Assuring America's Vital Interests". 11 January 2007. 6 Nov. 2008. <<http://www.state.gov/t/us/rm/78679.htm>>.

<sup>119</sup> Modeshar, Sa'id. "Outer Space: Arena for War or Peace." Proceedings of the IAC, International Astronautical Congress, 2008. IAC-08-E8.3.2.

<sup>120</sup> Kries, Wulf von. "Die militärische Nutzung des Weltraums." Handbuch des Weltraumrechts. Ed. Karl-Heinz Böckstieg. Cologne: Carl Heymanns Verlag KG, 1991. 321.

<sup>121</sup> Kries, Wulf von. op. cit. 324.

The Bush administration's National Security Strategy of September 2002 remained consistent with the policy transition began during the Reagan administration. Given that the 1996 U.S. Space Policy reflected the Cold-War security considerations, there was a

<sup>122</sup> Hayden, Dale L. "The International Development of Space and its impact on U.S. National Space Policy." Cambridge (U.S.): Waterhead Center for International Affairs, 2003. <<http://www.stormingmedia.us/30/3022/A302224.html>>.

<sup>123</sup> 14.

<sup>124</sup> Kries, Wulf von. op. cit. 324.

<sup>125</sup> Hayden, Dale L. op. cit. 16.

<sup>126</sup> Ibid.

<sup>126</sup> Commission to Assess United States National Security. "Report of the Commission to Assess United States National Security Space Management and Organization." May 2001. 21 Nov. 2008. <<http://www.fas.org/spp/military/commission/report.htm>>.

need to update the U.S. Space Policy as to account for the post-Cold War and post-9/11 situation. Published on August 31, 2006 it replaces the Clinton National Space Policy of 1996. It identifies the overarching principles, goals, and guidelines for U.S. space activities.<sup>127</sup> While the language remains rather vague, priorities have been rearranged with national security aspects being emphasised over the civil and scientific aspects.<sup>128</sup> With regard to security it reaffirms the critical dependency of the U.S. upon space capabilities, considering space capabilities "vital to its national interests". A stated goal of that policy is "to advance and protect U.S. national security and foreign policy interests by maintaining the nation's leadership in remote sensing space activities and by sustaining and enhancing the U.S. remote sensing industry."<sup>129</sup> According to the top priority principles (Art. 2), the U.S. "rejects any claims to sovereignty by any nation over outer space or celestial bodies, or any portion thereof, and rejects any limitations of the fundamental right of the United States to operate in and acquire data from space". On the one hand, due to being more dependent on space for its security and well-being than any other nation, the U.S. focuses on "space control", i.e. the capability of maintaining freedom of action in space, which may go well beyond the right of self-defence (Art. 51 UN Charter)<sup>130</sup>, hence risking to infringe Art. 1 OST<sup>131</sup>, covering "the exploration and use, and freedom of scientific investigation in outer space including the Moon and other celestial bodies"<sup>132</sup>. On the other hand it is constantly reiterating the importance of the compliance to the existing legal framework and mentions it as a basis or starting point for its own doctrine.

The U.S. opposes the development of new legal regimes or other arms control measures which will infringe their right in use or their

access of outer space,<sup>133</sup> seeking to prohibit or limit U.S. access to or use of space, the U.S. in its new doctrine confirms that it "will seek to cooperate with other nations in the peaceful use of outer space to (...) promote freedom around the world".<sup>134</sup> Given that the U.S. considers space capabilities "vital to its national interests" and in order "to safeguard the U.S.", it considers itself entitled "to dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary to protect its space, capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests". While the 1996 space policy included a general principle about the right to use space governing all countries, the 2006 space policy contains an "assertion of a specific right of the U.S.", thereby indicating a change in thinking about acceptable space activities.<sup>135</sup> Some observers even go as far as saying, nations not behaving according to U.S.' standards will be restricted in their access to outer space.<sup>136</sup>

In an explanatory roundtable Under Secretary of State for Arms Control and International Security Robert G. Joseph denied the idea of the U.S. taking a "hostile and unilateral approach".<sup>137</sup> With reference to the above described theories, it becomes obvious that the U.S. is following a realist approach by taken a "worst case" approach about the intentions and plans of other States.<sup>138</sup> By focussing on the need to ensure U.S. freedom of action in Space and by pointing to the possible (i.e. "when necessary" use of measures, preventing adversaries from accessing Space,<sup>139</sup> the U.S. is trying to secure its dominance. This can be explained with the Realist school of thought, advocating that States' strive constantly for dominance and power in an anarchic system without authority to guarantee peace and the

<sup>127</sup> Joseph, Robert. "The U.S. National Space Policy." Washington Roundtable on Science & Public Policy. The George C. Marshall Institute, 13 Dec. 2006.

<<http://www.marshall.org/pdf/materials/481.pdf>>. 8.

<sup>128</sup> Grego, Laura and David Wright. "Bush Administration National Space Policy." Union of Concerned Scientists, 13 Oct. 2006. 15 Sept. 2008  
<[http://www.ucsusa.org/nuclear\\_weapons\\_and\\_global\\_security/space\\_weapons/policy\\_issues/bush-administration-national.html](http://www.ucsusa.org/nuclear_weapons_and_global_security/space_weapons/policy_issues/bush-administration-national.html)>.

<sup>129</sup> Joseph, Robert. op. cit. 3.

<sup>130</sup> Schrogl, Kai-Uwe and Julia Neumann. op. cit. 29-30.

<sup>131</sup> Schrogl, Kai-Uwe. "Weltraumrecht und Sicherheitspolitik." Europas Zukunft zwischen Himmel und Erde – Weltraumpolitik für Sicherheit, Stabilität und Prosperität. Ed. Heiko Borchert. Baden-Baden: Nomos, 2005: 68-82. 80.

<sup>132</sup> Alves, P.G. op. cit. 60.

<sup>133</sup> Schladebach, Marcus. op. cit. 56. Rocca, Christina B. "Letter dated 19 August 2008 from the Permanent Representative of the United States of America addressed to the Secretary-General of the Conference transmitting comments on 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)" as contained in document CD/1839 of 29 February 2008.  
<<http://www.reachingcriticalwill.org/political/cd/papers08/3session/CD1847.pdf>>.

<sup>134</sup> Art. 2.

<sup>135</sup> Grego, Laura and David Wright. op. cit.

<sup>136</sup> Schladebach, Marcus. op. cit 56.

<sup>137</sup> Joseph, Robert. op. cit. 8-9.

<sup>138</sup> Moltz, James Clay. "Preventing Conflict in Space: Cooperative Engagement as a Possible U.S. Strategy." Astropolitics 4 (2006): 121-129. 127.

<sup>139</sup> Space Security Summary 2008. op. cit. 11.

rule of law. In anarchy politics are dominated by military considerations and by the fragility of trust and cooperation.<sup>140</sup> Also in line with Realism, the U.S. assumes the worst case scenario and believes space to be weaponised in the near future, with the remaining questions being who will take the dominant position. The U.S. feels particularly threatened by China, "the new Soviet Union", and this way justifies the enhancement of its military and weapon capabilities in space with the need to protect its valuable space assets.<sup>141</sup> In line with the technological imperative approach, the U.S. feel a need to develop strategies and technology to factually secure its dominance and advantage in space.<sup>142</sup>

There is currently an active debate within the U.S. on how best to assure the security of vulnerable domestic space assets.<sup>143</sup> The Bush administration believes the U.S. needs to place weapons in space, to protect not only its military and commercial assets in outer space, but also to dominate and control activities on Earth from space.<sup>144</sup> Some advocate the development of space control capabilities, including enhanced protection, active defence systems, and space-based counter space weapons, others call for on-board protection capabilities for space assets, coupled with offensive counter space systems, others in this debate advocate enhanced protection measures, but oppose the deployment of weapons in space.<sup>145</sup>

This U.S. doctrine also had an impact on how the U.S. was perceived by other States. In line with the "security dilemma" the current U.S. strategic policy of "space dominance"<sup>146</sup> is perceived by other space faring countries

(i.e. China) as a threat. In line with the security dilemma, any attempt by a country to dominate space militarily would by definition make other countries that operate in space feel less secure as an increase in one State's security will lead to a decrease in the other State's security.<sup>147</sup> Feeling vulnerable to the U.S. assets, they feel the need to develop countervailing measures in order to counteract the U.S. policy.<sup>148</sup> The U.S. introduction of a missile defence shield in Poland and the Czech Republic has heightened security concerns. In line with the action reaction scheme, the consequence of heightened security fears in other States would be the consideration of further arms procurement. This has recently been proved by the Russian threat to position missiles in Kalliningrad and point them at the U.S. defence shield.<sup>149</sup> Thus, the U.S. move becomes a cause of arms proliferation and is no longer only a reaction to it.

China remained suspicious about the ambivalent U.S. policy statements. While on the one hand declaring that it does not have neither plans to develop space weapons nor space weapons already in place in space, the U.S. on the other hand expresses that as long as the potential for attacks on satellites remains, it will continue to consider the possible role that space-related weapons may play in protecting its space assets from potential future attacks.<sup>150</sup> One year after the Chinese ASAT test, the U.S. successfully destroyed one of its satellites (USA-193) with a kinetic ASAT missile in February 2008. The U.S.' motivation for testing the system were likely multifaceted, including both technical and political objectives (see section 3.4).

The Bush administration has recently signalled interest in voluntary transparency

<sup>140</sup> Andreatta, Filippo. op. cit. 23.

<sup>141</sup> Johnson, Rebecca. "Multilateral Approaches to Preventing the Weaponization of Space." Bulletin 18 – Space Without Weapons. International Network of Engineers and Scientists Against Proliferation. 22 July 2008 <[www.inesap.org/bulletin18/bull18art24.htm](http://www.inesap.org/bulletin18/bull18art24.htm)>.

<sup>142</sup> Neuneck, Götz and André Rothkirch.

"Weltraumbewaffnung und Optionen für präventive Rüstungskontrolle." Hamburg: Deutsche Stiftung Friedensforschung, 2006. 13.

<sup>143</sup> Governance Group for the Space Security Index. op. cit. 49.

<sup>144</sup> Johnson, Rebecca. op. cit; Valásek, Tomas "The Future of U.S.-European Space Security Cooperation." Collective Security in Space – European Perspectives. Eds. John M. Logsdon, James Clay Moltz and Emma S. Hinds. Washington D.C.: Space Policy Institute, 2007: 63-73. 65.

<sup>145</sup> Governance Group for the Space Security Index. op. cit.. 49.

<sup>146</sup> Dolman, Everett, Peter Hays and Karl P. Mueller. "Towards a U.S. Grand Strategy in Space." Washington Roundtable on Science & Public Policy. The George C. Marshall Institute, 10 March 2006. <<http://www.marshall.org/pdf/materials/408.pdf>>. 9.

<sup>147</sup> Jervis, Robert. op. cit. 186; Black, Samuel. "No Harmful Interference with Space Objects: The Key to Confidence-Building." Washington D.C.: The Henry L. Stimson Center, 2008. 9.

<sup>148</sup> Dolman, Everett, Peter Hays and Karl P. Mueller. op. cit. 9.

<sup>149</sup> Moravec, Michael. "Sicherheitsgipfel soll Raketenstreit beilegen." Der Standard 15./ 16. November 2008: 6; BBC News. "Country Profile: Russia." 19 Nov. 2008 <[http://news.bbc.co.uk/2/hi/europe/country\\_profiles/1102275.stm](http://news.bbc.co.uk/2/hi/europe/country_profiles/1102275.stm)>.

<sup>150</sup> Loshchinin, Valery and Cheng Jingye. "Letter dated 7 March 2007 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 third revised and amended version as of 12 February 2007 of the compilation and comments and suggestion to the working paper on PAROS contained in document CD/1679 dated 28 June 2002." CD/1818. 14 March 2007 <<http://www.reachingcriticalwill.org/political/cd/papers07/Feb14RussiaNote.pdf>>.

and confidence-building measures, while continuing to reject any legally binding instrument.<sup>151</sup> In this regard it is in a dialogue with the EU since 2008.<sup>152</sup> With Barack Obama winning the recent presidential elections, there might be another shift in the U.S. space doctrine, as democrats are generally opposing the idea of space based weapons<sup>153</sup>. Also, Barack Obama promised to "negotiate a treaty banning space weapons or at least to agree on a "code of conduct" that, by the nature of things, the U.S. would regard as the equivalent of a treaty".<sup>154</sup> He claims to develop "rules of the road" for space in order to ensure that all nations have a common understanding of acceptable behaviour in space. According to Barack Obama's election programme, he will emphasise an international, cooperative approach to space security, consequently minimising space debris, enhancing capabilities for space situational awareness, and managing increasingly complex space operations. In this regard, he opposes the stationing of weapons in space and the development of anti-satellite weapons. He seems to secure the U.S. dominant position through showing "leadership by engaging other nations in discussions of how best to stop the slow slide towards a new battlefield".<sup>155</sup> An Obama-Biden administration emphasises that it will seek "a worldwide ban on weapons that interfere with military and commercial satellites"<sup>156</sup>.

Apart from the official U.S.' space policy doctrine, one can distinguish four main schools of thought in terms of how space strategy and space weaponisation is perceived: (1) "space doves", claiming that if there is no stable way to put weapons in space, one should refrain from doing it at all; (2) "militarization realists", declaring that space cannot be maintained as a sanctuary as it is already militarised and it is natural to

want to treat it as a military medium.<sup>157</sup> This being the case, the U.S. must establish and maintain space superiority.<sup>158</sup> (3) the "inevitable weaponisers", express concern about space remaining conflict free as "every medium – air, land and sea – has seen conflict. Reality indicates that space will be no different." Therefore the U.S. must prepare itself.<sup>159</sup> (4) the "space hawks" call for a concerted development of space weapons by the U.S. as the U.S. is in a "uniquely positions because of being the only superpower, and space is unique in terms of its military attributes"<sup>160</sup>. This is why according to this school of thought one should combine them.

Outer Space Treaty	R
Rescue Agreement	R
Liability Convention	R
Registration Convention	R
Moon Agreement	-
Nuclear Test Ban	R
ITU	R

Table 1: U.S.' Ratification of the Main International Treaties (as of January 1, 2008)

<sup>151</sup> Hitchens, Theresa and David Chen. "Forging a Sino-US "grand bargain" in space." *Space policy* 24.3 (2008): 129.

<sup>152</sup> Acheson, Ray. "First Committee Monitor." First Edition No.2. 6-10 Oct. 2008.

<[www.reachingcriticalwill.org/political/1com/FCM08/week1.pdf](http://www.reachingcriticalwill.org/political/1com/FCM08/week1.pdf)>.

<sup>153</sup> Johnson, Rebecca. op. cit.

<sup>154</sup> Dinerman, Taylor. "Space weapons agreements, treaties, and politics." *The Space Review* 10 March 2008. 18 March 2008 <<http://www.thespacereview.com/article/1078/1>>.

<sup>155</sup> Obama 08. "Advancing the Frontier of Space Exploration." 3 Nov. 2008

<<http://www.spaceref.com/news/viewsr.html?pid=28880>>.

<sup>156</sup> Obama, Barack. "Defense." 11 Nov. 2008. <<http://www.barackobama.com/issues/defense/>>.

<sup>157</sup> Dolman, Everett, Peter Hays and Karl P. Mueller. "Towards a U.S. Grand Strategy in Space." Washington Roundtable on Science & Public Policy. The George C. Marshall Institute, 10 March 2006. <<http://www.marshall.org/pdf/materials/408.pdf>>. 8-9.

<sup>158</sup> General Lance W. Lord qtd. in Michael Krepon. "Weapons in the Heavens: A Radical and Reckless Option." Arms Control Association. 8 Aug. 2008

<<http://www.armscontrol.org/node/1689>>.

<sup>159</sup> Dolman, Everett, Peter Hays and Karl P. Mueller. op. cit. 90.

<sup>160</sup> Ibid.

### 3.3 Russia's Space Security Doctrine

*"The potential danger of the destabilisation of international relations is connected with obvious stagnation in the disarmament issue. Russia supports the renewal of dialogue on this important question."*<sup>161</sup>

While the Soviet Union pioneered in space and had a long list of achievements, gaining considerable expertise and developing unique capabilities, the space sector went through a severe crisis with the collapse of the Soviet Union. After a decade-long crisis, space is now back on Moscow's strategic agenda.<sup>162</sup> Russia has no explicit space doctrine comparable to the explicit U.S.' Space Policy. Like the U.S., the Soviet Union had, in the 1970s, refrained from any multilateral effort to prohibit the development or future deployment of space weapons. Rather, without admitting this publicly, it began its own development of space weapons, particularly ASAT weapons. At the beginning of the 1980s the Soviet Union shifted its policy, proposing in the framework of the UN a multilateral treaty banning space weapons (see chapter 4)<sup>163</sup> and calling for the total demilitarisation of outer space.<sup>164</sup>

Russia is driven by a two-pronged motivation in space policy since then. Its objectives are 1) to promote a framework for unhindered space exploration and 2) to preserve space as a sanctuary safe from dangerous weapons.<sup>165</sup> In Russia space is an attribute of sovereignty and independence and space capacities are associated with power, with space systems being understood as contributing in a unique way to national security.<sup>166</sup> In the same vein, one of the four main rationales for Russia's investment in

space is national security.<sup>167</sup> In this regard Russia perceives U.S.' attempts to establish military superiority in space as dangerous for international security, as it triggers responses from States, which will lead to further militarisation of space (cf. Realism / Richardson Model).<sup>168</sup> Russia is observing the U.S. military space programme very carefully and reacts to it (cf. Action-Reaction Model / Offensive-Defensive Cycle).<sup>169</sup> In the light of the development of U.S. missile defence systems, Russia has expressed concern about the potential weaponisation of space and the extension of the arms race to outer space.<sup>170</sup> This is why Russia together with China has been putting forward various proposals at the UNCD, with the U.S. continuous blocking.<sup>171</sup>

In 1983 it declared its readiness as long as the U.S. would do the same, to renounce unilaterally any deployment of ASAT weapons.<sup>172</sup> In the military doctrine documents since 1992, Russia has expressed concern that attacks on its early warning and space surveillance systems would represent a direct threat to its security. Therefore, a basic Russian national security objective is the protection of Russian space systems. In practical terms, Russian military space policy appears to have two main priorities, having a critical role in guaranteeing Russia's secure access to space: (1) transferring to a new generation of space equipment capabilities, including cheaper and more efficient information technology systems and (2) upgrading the Russian nuclear missile attack warning system. Despite the non-weaponisation rhetoric that Russia tries to disperse officially, Russian officials have also threatened retaliatory measures against any country that attempts to deploy weapons in space.<sup>173</sup>

<sup>161</sup> President Putin Vladimir V., "Russia's Role in World Politics." 43rd Munich Conference on Security Policy. Hotel Bayerischer Hof, Munich. 10 Feb. 2007

<[http://www.securityconference.de/konferenzen/rede.php?menu\\_2007=&menu\\_2008=&menu\\_konferenzen=&sprache=&id=179&>](http://www.securityconference.de/konferenzen/rede.php?menu_2007=&menu_2008=&menu_konferenzen=&sprache=&id=179&>).

<sup>162</sup> Mathieu, Charlotte. "Assessing Russia's Space Cooperation with China and India – Opportunities and Challenges for Europe." Vienna: European Space Policy Institute, 2008. 14.

<sup>163</sup> Wolter, Detlev. op. cit. 63.

<sup>164</sup> Schrogl, Kai-Uwe and Julia Neumann. op. cit.. 30.

<sup>165</sup> Mizin, Victor "Russian Perspectives on Space Security." Collective Security in Space – European Perspectives. Eds. John M. Logsdon, James Clay Moltz and Emma S. Hinds. Washington D.C.: Space Policy Institute, 2007: 75-108. 75.

<sup>166</sup> Mathieu, Charlotte. op. cit. 14.

<sup>167</sup> The other three are: maintaining and further developing the expertise and capabilities, prestige, economic benefits and diversification of the economy in a high-tech field, cf. Mathieu, Charlotte. "Assessing Russia's Space Cooperation with China and India – Opportunities and Challenges for Europe." Vienna: European Space Policy Institute, 2008. 75.

<sup>168</sup> Vozhzhov, Vladimir. "The Russian Federation's Priorities in the Field of Expanding International Cooperation in the Use of Outer Space." Safeguarding Space Security: Prevention of an Arms Race in Outer Space. Conference Report 21-22 March 2005. Ed. UNIDIR. Geneva: UNIDIR, 2006. 22-3; Mizin, Victor op. cit.. 86; President Putin Vladimir V. op. cit.

<sup>169</sup> Mizin, Victor. op. cit. 98.

<sup>170</sup> Governance Group for the Space Security Index. op. cit. 49.

<sup>171</sup> Mizin, Victor op. cit. 90.

<sup>172</sup> Wolter, Detlev. op. cit. 63; Governance Group for the Space Security Index. op. cit. 49.

<sup>173</sup> Governance Group for the Space Security Index. "Space Security 2007." Montreal: Project Ploughshares, 2007. 49.

Putin ordered a revision of the country's political national security concept and the related security documents after the terrorist attacks in "Nord-Ost" in 2002 and Beslan in 2004.<sup>174</sup> A blueprint entitled "Concept to Develop the Russian Armed Forces Until 2030" has been announced in August 2008.<sup>175</sup> In line with the Military-Industrial-Complex account, one could observe an attempt by the military to increase their influence among Russia's security elite in the course of the development of the new military doctrine.<sup>176</sup>

While Russia remains very open to international cooperation in its space programmes, Russia's attitude towards its traditional partners in the space field has changed. The U.S. while remaining a priority partner, being considered as the only one of similar size, was downgraded to a mere commercial partner apart from ISS-related experiments, with Europe remaining a key partner in space for Russia.<sup>177</sup> The revised military doctrine also reflects this changing relationship, referring to the U.S. global leadership as a key security threat for Russia. Additionally, Russia feels threatened by violations of arms control treaties.<sup>178</sup>

Russia together with China has been putting forward various proposals concerning a treaty guaranteeing the peaceful use of outer space at the UNCD.<sup>179</sup> The question arises on how to explain this relationship. There are some evidences to assume that it is a strategic cooperation rather than a cooperation by friendly countries. According to Realism major powers will seek loose coalitions to balance against a rising hegemon. This is in line with both Russian and Chinese policy statements. While the latest Russian defence blueprint concedes that the U.S. will remain the sole superpower<sup>180</sup>, China goes as far as calling it a hegemon.<sup>181</sup> Additionally both

have expressed their concerns at U.S. aggression and frequent violations of international law.<sup>182</sup> Also, one could interpret the cooperation of Russia and China as an attempt by space-newcomer China to ally ("bandwagon") with the great power patron Russia. Another explanation can be derived from the so-called "Innenpolitik theory", claiming that economic interdependence can lead to cooperation. The fact that Russia seems to prefer the treaty approach is explained by Realists: Russia has long been left behind by the U.S. in terms of military technological capability. This would support the idea of the technological imperative as the main driving force for armament.

The Russian Federation, as a successor State to the Soviet Union, ratified most of the main international treaties governing space activities (cf. table).

Outer Space Treaty	R
Rescue Agreement	R
Liability Convention	R
Registration Convention	R
Moon Agreement	-
Nuclear Test Ban	R
ITU	R

Table 2 : Russia's Ratification of the Main International Treaties

<sup>174</sup> Haas, de, Marcel. "Russia's Upcoming Revised Military Doctrine" Power and Interest News Report. 26 February 2007. 12 Nov. 2008.

<[http://pinr.com/report.php?ac=view\\_report&report\\_id=622](http://pinr.com/report.php?ac=view_report&report_id=622)>.

<sup>175</sup> Goodenough, Patrick. "Russia Views US Global Leadership As Military Threat" CNS News, 6 August 2008. 12 Nov. 2009  
<<http://www.cnsnews.com/public/content/article.aspx?RsrcID=33698>>; Schrogl, Kai-Uwe and Julia Neumann. op. cit. 31.

<sup>176</sup> Haas, de, Marcel. op. cit.

<sup>177</sup> Mathieu, Charlotte. op. cit. 16.

<sup>178</sup> Schrogl, Kai-Uwe and Julia Neumann. op. cit. 31.

<sup>179</sup> Mizin, Victor op. cit. 90.

<sup>180</sup> Goodenough, Patrick. op. cit.

<sup>181</sup> Report to Congress of the US-China Security Review Commission. "The National Security Implications of the Economic Relationship between the United States and

China" Chapter 1. July 2002. 12 Nov. 2008.

<[http://www.uscc.gov/researchpapers/2000\\_2003/reports/ch1\\_02.htm](http://www.uscc.gov/researchpapers/2000_2003/reports/ch1_02.htm)>.

<sup>182</sup> Modeshar, Sa'id. op. cit.

### 3.4 China's Space Security Doctrine

*"Outer space is the common heritage of mankind and the peaceful use of outer space is the aspiration of all peoples."*<sup>183</sup>

*"To make progress on outer space issues, it is imperative for us to uphold multilateralism and strengthen international co-operation."*<sup>184</sup>

While China's space objectives are well publicised, China's military space doctrine, should it exist, is not made public.<sup>185</sup> China started its missile programme in the fifties and launched its first DF-1 missile in 1960 and is thus a newcomer to the international space community.<sup>186</sup> In 1970, China became the fifth country to put a satellite into orbit, with the launch of the DFH-1, its first satellite. Since then, China has developed its own launchers, in particular, the Long March series. China's space activities are characterised by the multiplicity of stakeholders, non-distinguishable civilian-military applications and their limited and uncertain coordination, which also influences its cooperation in the field.<sup>187</sup> There is no explicit space policy doctrine like the American one. Instead the Standing Committee of the National People's Congress and the Central Military Commission define national and strategic objectives and national space policies and military doctrines are clarified by the relevant bureaucratic actors through speeches, white papers, position papers and other instruments.<sup>188</sup>

Although media reports consistently speculate on China's military space capabilities and intentions, the official Chinese position is that space security will be undermined rather than enhanced by the weaponisation of space and that weaponisation will lead to a destabilising arms race in space, being detrimental to both Chinese and global security. Consequently,

China is one of the key proponents of negotiating a multilateral arms control treaty within the PAROS talks at the CD.<sup>189</sup> Accordingly, it maintains that "exploration and use of outer space should only serve to promote countries' economic, scientific and cultural development".<sup>190</sup> China continuously reiterates that "space is the common heritage of mankind"<sup>191</sup> and thus deployment of weapons and an arms race in outer space should be prevented.<sup>192</sup> China perceives the existing legal framework as insufficient<sup>193</sup> and calls upon the international community to negotiate a treaty-based international arms control agreement. This is why China has introduced different proposals in the CD (see chapter 5). In line with the theoretic account of the "technological imperative", China perceives "the rapid development of science and technology"<sup>194</sup> as one of the main driving forces,<sup>195</sup> increasing the "danger of turning outer space into a battlefield and a place without security".<sup>196</sup> Nonetheless, China demonstrated an ASAT capability on 11 January 2007, thereby raising international concerns about the *real* aims and intentions of the Chinese space programme.<sup>197</sup>

<sup>183</sup> Governance Group for the Space Security Index. op. cit. 50; Hitchens, Theresa. "Monsters and shadows: left unchecked, American fears referring threat to space assets will drive weaponisation." Disarmament Forum 1 (2003): 15-32. 24; Jingye, Cheng. "Treaties as an Approach to Reducing Space Vulnerabilities." 49.

<sup>184</sup> Xianode, Hu. "Letter dated 9 February 2000 from the permanent representative of China to the Conference on Disarmament addressed to the Secretary-General of the Conference transmitting a working paper entitled "China's Position on and Suggestion for Ways to address the Issues of Prevention of an Arms Race in Outer Space at the Conference on Disarmament"." CD/1606. 9 Feb. 2000. 4 Nov. 2008

<<http://www.fas.org/nuke/control/paros/news/cd1606.htm>>.

<sup>185</sup> cf. White Paper on Chinese National Defense in 2004; Xiaodi, Hu. "Opening Statement at the International Conference on „Safeguarding Space Security. Prevention of an Arms Race in Outer Space.”" 31 March 2005. 6 Nov. 2008

<<http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/kjfywj/t189562.htm>>.

<sup>186</sup> cf. White Paper on Chinese National Defense in 2004.

<sup>187</sup> Zonghuai, Qiao. "An Effective Way to Prevent an Arms Race in Outer Space - The Early Negotiation and Conclusion of an International Legal Instrument." Speech at UN Disarmament Conference. 3 April 2002. 6 Nov. 2008 <<http://www.nti.org/db/china/engdocs/qiao0402.htm>>.

<sup>188</sup> Xiaodi, Hu. "Opening Statement at the International Conference on „Safeguarding Space Security. Prevention of an Arms Race in Outer Space.”" 31 March 2005. 6 Nov. 2008

<<http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/kjfywj/t189562.htm>>.

<sup>189</sup> Zonghuai, Qiao. op. cit.

<sup>190</sup> Xiaodi, Hu. op. cit.

<sup>191</sup> Governance Group for the Space Security Index. op. cit. 50.

<sup>183</sup> Xiaodi, Hu. "Opening Statement at the International Conference on „Safeguarding Space Security. Prevention of an Arms Race in Outer Space.”" 31 March 2005. 6 Nov. 2008  
<<http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/kjfywj/t189562.htm>>.

<sup>184</sup> Ibid.

<sup>185</sup> Governance Group for the Space Security Index. op. cit. 50.

<sup>186</sup> Schrogl, Kai-Uwe and Julia Neumann. op. cit. 31.

<sup>187</sup> Mathieu, Charlotte. op. cit. 20.

<sup>188</sup> World Security Institute. "Policy and Doctrines." 4 Nov. 2008  
<<http://www.wsichina.org/Space/program.cfm?programid=2&charid=1>>.

China's 2006 White Paper on Space Activities, entitled "China's Space Activities in 2006", lays down China's aims and principles, its progress within the last 5 years, development targets, development policies and policies of international cooperation, thus identifying national security as a principle of China's space programme.<sup>198</sup> As the main objective the 2006 White Paper mentions:

*to explore outer space, and [to] enhance understanding of the Earth and the cosmos; to utilize outer space for peaceful purposes, promote human civilization and social progress, and benefit the whole of mankind; to meet the demands of economic construction, scientific and technological development, national security and social progress; and to raise the scientific quality of the Chinese people, protect China's national interests and rights, and build up the comprehensive national strength.*<sup>199</sup>

Similar to the U.S., China declares the "principle of independence" as one of its fundamental policies. In this regard, it reiterates its support in activities regarding the peaceful use of outer space within the framework of the UN.<sup>200</sup> Further indications on its space doctrine can be found in the biannually published White Papers on National Defence. In this regard, the 2004 National Defence White Paper, as part of the modernisation of its armed forces, mentions China's plans to develop technologies, including "dual purpose technology" in space, for civil and military use.<sup>201</sup>

While China's distinctive path to space development emphasises international cooperation,<sup>202</sup> its transatlantic relations seem to be tensed. In line with Realism, China perceives the U.S. discussion on space weapons as threatening and believes it could be the target.<sup>203</sup> Contrary to the Action-Reaction Model, China does not simply react to U.S. plans, as it has no illusions about

achieving dominance or parity with the U.S. in space. The influence of U.S.' actions should however not be underestimated, as they prove to be influential in the limited resource allocation. Thus China engages itself in the PAROS discussions for pragmatic reasons: When the U.S. does not develop space weapons, China does not need to dedicate some of its limited resources to counter measures.<sup>204</sup> China seems to be trying to secure the existing balance of power, by balancing against the U.S.<sup>205</sup> or deterring it.<sup>206</sup> Pressure in this direction is "associated with power transitions in an 'anarchic' international system."<sup>207</sup> China aims at developing capabilities to retain its sovereignty and freedom of action on issues of critical national interest (e.g. Taiwan). China is "acutely aware of U.S. space dependence as a potential Achilles' heel. Disrupting or denying the U.S. military use of its space systems exploits the asymmetrical balance of military power between the U.S. and China in China's favour".<sup>208</sup> In this regard, Chinese military doctrine emphasises the importance of securing information dominance and the use of "soft kill" rather than "hard kill" space systems, i.e. those that interfere with satellites and their transmissions. In order not to be as vulnerable as the U.S., China refrains from increasing the military's reliance on space assets.<sup>209</sup> In the U.S. in turn "there are influential players trying to block cooperation with China".<sup>210</sup> China is compared to the Soviet Union during the Cold War. Thus the Bush administration has believed, it should deploy weapons in space before China does so (cf. school of thought of "inevitable weaponisers, cf. 3.2).<sup>211</sup> Proponents of this line of argumentation believe the U.S. and China to stand at crossroads on weapons and space.<sup>212</sup> Contrary accounts claim that war

<sup>198</sup> cf. Johnson-Freese, Joan. op. cit. 17 & 21. for a similar line of reasoning.

<sup>199</sup> Cabestan, Jean-Pierre. "The Chinese Factor: China between Multipolarity and Bipolarity." India, China, Russia – Intricacies of the Asian Triangle. Eds. Gilles Boquérat and Frédéric Grare. Singapore: Marshall Cavendish Academic, 2004. 103. holds that it is establishing itself as the other dominant power.

<sup>200</sup> MacDonald, Bruce. "China, Space, Weapons and U.S. Security." Council Special Report No.38. New York: Council on Foreign Relations, 2008. 9.

<sup>201</sup> Tellis, Ashley J. "China's Military Space Strategy." Survival 49.3 (2007): 41-72. 45-6.

<sup>202</sup> Johnson-Freese, Joan. op. cit. 18.

<sup>203</sup> cf. Johnson-Freese, Joan. op. cit. 21. for a more detailed discussion on the choice between investing in military use of space or the development of ASATs.

<sup>210</sup> Moltz, James Clay. op. cit. 122.

<sup>211</sup> Ibid.

<sup>212</sup> MacDonald, Bruce. op. cit. 3-4; Tellis, Ashley J. op. cit.

45-6. claims that China's action cannot be explained by the

between China and the U.S. seems unlikely, given their increasing economic interdependence but mention the issue of Taiwan as a plausible scenario that could bring the U.S. and China into conflict.<sup>213</sup> In a number of forums and military writings, "China has unofficially indicated that the United States should not underestimate China in space or its ability to respond to U.S. military space initiatives that China perceives as a threat".<sup>214</sup>

While China previously advocated a "no space weapons" approach, press articles have indicated that China has been conducting tests over the past several years to blind U.S. satellites.<sup>215</sup> Furthermore, its own ASAT testing in January 2007<sup>216</sup> led to concerns about China's real intentions, thereby pushing militarisation of space back on the agenda. China's motivations for testing the system were likely multifaceted, including technical and political objectives. If a country is developing a capability, sooner or later it must be tested or it has little value.<sup>217</sup> One can distinguish two broad stances regarding China's motivation. The first argues that China's ASAT test was a response to the U.S. national space doctrine, particularly as a *cri du cœur* related to the long-standing U.S.' opposition towards negotiating a space arms-control regime.<sup>218</sup> In line with the "Security Dilemma", China, as a result of the U.S.' space dominance policy, spurred to asymmetric capabilities, aiming at negating the competitor's advantage. China's new advantage however motivates the U.S. pursuit of dominance, resulting in a cycle as shown in the Action-Reaction Model. In this regard ASATs or other systems with the latent ability to interfere with space objects are characteristic of an asymmetric

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issue of Taiwan alone but that China is actually seeking dominance (cf. Realism). This account remains however questionable and has been criticised by various academics cf. for example Krepon, Michael. "China's Military Space Strategy: An Exchange." *Survival* 50.1 (Febr. 2008).

<sup>213</sup> MacDonald, Bruce. op. cit. 4.

<sup>214</sup> MacDonald, Bruce. "op. cit. 8.

<sup>215</sup> Kueter, Jeff. "The War in Space has already Begun." *Policy Outlook* 2006. The George C. Marshall Institute.

<sup>216</sup> the successful 11 January 2007, test was merely the latest in a line of previous efforts: China had conducted three previous anti-satellite tests between September 2004 and February 2006, all of which failed for one reason or another. Tellis, Ashley J. op. cit. 43.

<sup>217</sup> Johnson-Freese, Joan. op. cit. 20-1.

<sup>218</sup> Neuneck, Götz. "China's ASAT test – A warning shot or the beginning of an arms race in space." *Yearbook on Space Policy 2006/2007: New Impetus for Europe*. Eds. Kai-Uwe Schrogl, Charlotte Mathieu and Nicolas Peter. Vienna: Springer, 2008. 217; Johnson-Freese, Joan. op. cit. 20-1; Tellis, Ashley J. op. cit. 44-5.

strategy.<sup>219</sup> The second group, in line with Realism holds that

*China's pursuit of counterspace capabilities is not driven fundamentally by a desire to protest American space policies, and those of the George W. Bush administration in particular, but is part of a considered strategy designed to counter the overall military capability of the United States, grounded in Beijing's military weakness at a time when China considers war with the United States to be possible.*<sup>220</sup>

China's silence for twelve days after the test as well as its uncoordinated messages<sup>221</sup> (including a denial by the Ministry of Defence) spurred further speculations and indicates general shortcomings in China's diplomacy and national security planning.<sup>222</sup> Interestingly, while Chinese ministries denied the test, the intelligence community in the U.S. as well as American policy makers were aware and "programmed American eavesdropping and space tracking sensors accordingly to obtain maximum information (...). U.S. Air Force Defense Support Program missile warning satellites in geosynchronous orbit detected the Xichang launch of the ASAT kill vehicle, and U.S. Air Force Space Command radars monitored the FY-1C orbit" both before and after the intercept.<sup>223</sup> This U.S.' observance of the Chinese space policy action as well as its own subsequent ASAT test are in line with the Action-Reaction Model. When China finally confirmed that it had successfully tested a new anti-satellite weapon, it "declared that this demonstration "was not directed at any country and does not constitute a threat".<sup>224</sup>

Outer Space Treaty	R
Rescue Agreement	R
Liability Convention	R
Registration Convention	R
Moon Agreement	-
Nuclear Test Ban	R
ITU	R

Table 3: China's Ratification of the Main International Treaties (as of January 1, 2008)

<sup>219</sup> Jervis, Robert. op. cit. 186; Black, Samuel. op. cit. 9.

<sup>220</sup> Tellis, Ashley J. op. cit. 44-5.

<sup>221</sup> Neuneck, Götz. op. cit. 215.

<sup>222</sup> Johnson-Freese, Joan. op. cit. 28.

<sup>223</sup> Tellis, Ashley J. op. cit. 42.

<sup>224</sup> Liu Jianchao qtd. in Neuneck, Götz. op. cit. 215; Tellis, Ashley J. op. cit. 42.



## 4. Towards a European Space Security Identity

*"Space is increasingly a key element for key EU policies, include transport, agriculture, environment, security and information society, integrated with terrestrial components in monitoring and communications networks and services."*<sup>225</sup>

*"It is unstable for space to remain "a Wild West" when so many nations are active there."*<sup>226</sup>

*"It is time we found international pragmatic solutions to this concrete problem. To promote security of space activities, we must put in place transparency and confidence building measures on a voluntary basis, that would be acceptable by the most possible States."*<sup>227</sup>

*"Any attempt to regulate space activity runs into a minefield of legal issues."*<sup>228</sup>

Today, the main contributions to space in Europe come from the European Space Agency (ESA), the European Union (EU), other international organisations and intergovernmental programmes.<sup>229</sup> The EU is a relatively new actor in space,<sup>230</sup> with space only recently being regarded as a strategic asset.<sup>231</sup> Having a look at the existing space policy, it is only possible to distinguish elements of a European space security doctrine. Present European space activities are generally carried out through various national agencies or ministries. The EU has the ability to initiate policies and fund them, but not to substitute all other actors. Its main advantage is "the possibility of combining

<sup>225</sup> Johnson, Rebecca E. "Europe's Space Policies and their Relevance to ESDP." Brussels: European Parliament, 2006. 13. 4 Nov. 2008  
[<http://www.acronym.org.uk/space/PE381369EN.pdf>](http://www.acronym.org.uk/space/PE381369EN.pdf).

<sup>226</sup> Sarkozy qtd. in Selding, Peter B., de. op. cit.

<sup>227</sup> Sarkozy qtd. in Couchoud, Rosine. op. cit.

<sup>228</sup> Rosine Couchoud qtd. in Selding, Peter B., de. op. cit.  
<sup>229</sup> European Commission qtd. In Istituto Affari Internazionali. "Space and Security Policy in Europe."

Documenti IAI. Rome: Istituto Affari Internazionali, 2003. 27. 3 Nov. 2008  
[<http://www.iai.it/pdf/DocIAI/iai0307e.pdf>](http://www.iai.it/pdf/DocIAI/iai0307e.pdf).

<sup>230</sup> Istituto Affari Internazionali. op. cit.

<sup>231</sup> Schrogl, Kai-Uwe. "Towards a European Identity in Space for Security." 3<sup>rd</sup> International Conference on recent Advances in Space Technologies (RAST), 14-16 Jun. 2007, Istanbul, Turkey.

overall security and industrial policies with space policy",<sup>232</sup> thereby allowing for more coherence and rationalisation. Current trends are towards a more visible role for the EU in intergovernmental relationships. For two of the major European space projects, Galileo and GMES, research and development aspects are managed by ESA, while strategic questions and management are handled by the EU.

### 4.1 Actors and Institutions in Space

Besides EU and ESA, other organisations are involved in European space activities as well. National governments, with their space agencies, relevant ministries or interministerial entities, provide an additional layer of cooperation. Due to the specific development of space policy in Europe, a particular architecture of space and security has emerged, comprising different levels with national, supranational, intergovernmental and commercial endeavours. Public key actors within this architecture will be treated in the following.

#### 4.1.1 National States and their Policies

A comparison of Europe to other space-faring actors is difficult, because Europe is not a (or one) State and its policies are not always characterised by a "one-voice" approach. Instead, in critical or sensitive policy areas division in nation-states prevails. This is especially true for the domain of security, which is located in the second pillar of the European Union, i.e. left to the Member States. The main national space players in Europe are France, Germany, Italy, the U.K and Spain. Resulting from their geostrategic position as well as their international role and technological advance, their policies and strategies vary. Some elements of these policies and strategies are shortly discussed in the following.

<sup>232</sup> Istituto Affari Internazionali. "Space and Security Policy in Europe." Documenti IAI. Rome: Istituto Affari Internazionali, 2003. 27. 3 Nov. 2008  
[<http://www.iai.it/pdf/DocIAI/iai0307e.pdf>](http://www.iai.it/pdf/DocIAI/iai0307e.pdf).

**France** is the major space power in Europe. Some recent documents and speeches show the importance that it attaches to space and its link to security. In February 2007, the French Parliamentary Office for Scientific and Technological Assessment published the study **Space Policy: Daring or Decline – How to Make Europe a World Leader in the Space Domain** (also called the Cabal-Report) with an extensive list of policy recommendations.<sup>233</sup> It considers space as a matter of sovereignty for France and calls it the fourth dimension of national defence (alongside the terrestrial, air and maritime one).

The document **Let us make more space for our Defence**, also released in 2007 by the French Minister of Defence, states that space is pivotal to decisional autonomy, which is considered as lying at the heart of French defence policy. The document also observes that countries disposing of space assert their strategic influence on the global scene and enhance the efficiency of their military operations. The French **White Paper on defence and national security**<sup>234</sup> was presented in 2008. It announced a significant enhancement of French military space capabilities, again aimed at increased sovereignty in domains like reconnaissance and intelligence. The documents mentioned here not only feature national considerations, but also call for international cooperation and common projects, recognizing the potential that space holds for the European Security and Defence Policy.

**Germany** has a **space programme**<sup>235</sup> affirming that space based infrastructures among other things are also at the service of security and that space enables and enhances public handling of security issues. In this context, space-based Earth observation systems are mentioned. The space programme forecasts an increasing demand for security-related space

<sup>233</sup> Cabal, Christian and Henri Revol. "Space Policy: Daring or Decline. How to make Europe World Leader in the Space Domain." Report of the Parliamentary Office for Scientific and technological Assessment. Annex to the minutes of the sitting of February 8, 2007. France: Senate, 2007.

<[http://www.senat.fr/opecst/rapport/rapport\\_politique\\_spatiale\\_anglais.pdf](http://www.senat.fr/opecst/rapport/rapport_politique_spatiale_anglais.pdf)>.140-144.

<sup>234</sup> "The French White Paper on defence and national security" 2008 Presidency de la Republique 12 Jan. 2009 <[http://www.ambafrance-ca.org/IMG/pdf/Livre blanc\\_Press\\_kit\\_english\\_version.pdf](http://www.ambafrance-ca.org/IMG/pdf/Livre blanc_Press_kit_english_version.pdf)>

<sup>235</sup> "Deutsches Raumfahrtprogramm." May 2001 Bundesministerium für Bildung und Forschung 14 Jan. 2009 <<http://www.dlr.de/rd/Portaldata/28/Resources/dokumente/drp.pdf>>

applications. At the same time it states that the level of public funding will more or less remain constant. For this reason, it sees a growing necessity for the provision of corresponding commercial services, which it intends to foster by supporting suitable product development.

Apart from this document, few official German views on space and its link to security have been codified in written form. **White Paper on German Security Policy and the Future of the Armed Forces**<sup>236</sup> from 2006 recognizes the contribution of the space-based SAR-Lupe system to reconnaissance capability, and it states that the Air Force contributes to security through its ability for action in and from the air, including space. Various other ministerial papers mention the role of space as well. German chancellor Angela Merkel has also addressed the importance of space in speeches<sup>237</sup>. At the latest occasion in February 2008, she called for the support of European space surveillance, following up on a similar call by the French president earlier the same month.

In the **United Kingdom**, various documents are relevant for space policy and strategy. The **UK Space Strategy 2003-2006** has been developed into the **UK Civil Space Strategy 2008-2012**<sup>238</sup>. The transition was supported by a consultation process conducted by the British National Space Centre (BNSC). In the course of this process, stakeholders were asked for their assessment of various key issues. In the corresponding document **A Consultation for the UK Civil Space Strategy 2007-2010**, some background information and general statements were given, among other things regarding security and dual-use. The document stated that the UK supports European utilisation of space for aims of civil security and counter terrorism. At the same time, it opposes the EU and ESA to get involved in "space systems specified for military use".

<sup>236</sup> "Weißbuch 2006 zur Sicherheitspolitik Deutschlands und zur Zukunft der Bundeswehr." Oktober 2006 Bundesministerium der Verteidigung 14 Jan 2009 <[http://www.bmvg.de/fileserving/PortalFiles/C1256EF40036B05B/W26UYEPT431INFODE/WB\\_2006\\_dt\\_mB.pdf?yw\\_repository=youatweb](http://www.bmvg.de/fileserving/PortalFiles/C1256EF40036B05B/W26UYEPT431INFODE/WB_2006_dt_mB.pdf?yw_repository=youatweb)>

<sup>237</sup> Pisani, Pierre-Henri. "European leaders charter course for space" ESPI Flash Report 4. 13 Jan. 2009 <<http://www.espi.or.at/images/stories/dokumente/studies/flashreport5.pdf>>

<sup>238</sup> "UK Civil Space Strategy 2008 - 2012 and beyond." Feb. 2008 British National Space Centre 15 Jan. 2009 <<http://www.bnsc.gov.uk/assets/channels/about/UKCSS0812.pdf>>

There are other UK documents relevant for space and its link to security. Space is essential for many services that are considered part of the **Critical National Infrastructure (CNI)**. Accordingly, space assets need to be protected. The UK **National Security Strategy (NSS)**<sup>239</sup> published by the Cabinet Office in March 2008 specifically acknowledges the importance of space-based assets for communication. Besides, the NSS addresses the need for resilience vis-à-vis different kinds of threats – be they man made or natural. Such resilience can be increased by technology, including space. Regarding international cooperation, there is a focus on transatlantic relations because of privileged UK access to U.S. space capabilities and the limitations of UK ability to pass on data originating from the U.S. to other European States.<sup>240</sup>

Also in **Italy**, very few written official statement regarding the issue of space policy and its link to security exist. The national space plan<sup>241</sup> mentions national security in the context of Earth Observation – the objective is described as improving the quality of life and the level of security. Beyond that, Italy has been actively supporting the process of drafting the Code of Conduct proposal within the European Union [cf chapter 5]. **Spain** has no codification of relevant positions either, but nevertheless it has a role to play given its national space projects of military relevance and because of its strong interest in the European Space Situational Awareness (SSA) initiative.

#### 4.1.2 European Union

The European Union is the central political authority at European level. With its pillar structure, it contains both supranational (first pillar) and inter-governmental (second and third pillar) elements. The co-existence of European and national efforts has important implications for the conduct of space activities. The **Treaty of Lisbon** foresees space as a shared competency and the abolishment of the pillar structure, but its

entry into force is uncertain. The history of the EU has always been dominated by the dynamics of the integration process and the enlargements of the union. Integration means that over the years competencies for more and more policy areas have been conferred from the national to the EU level. The development of a European Security and Defence Policy (ESDP) as a subset of the Common Foreign and Security Policy (CFSP) constitutes a marked extension of the Union's competencies.

Based on its cooperation with ESA, the EU is involved in two European flagship projects in space, namely the **Galileo** satellite navigation system and **GMES** (Global Monitoring for Environment and Security). Especially GMES holds a potential for security related applications. Various EU bodies dealing with space issues have been created. In the context of security-related policies, the identification of actors within the EU depends on the understanding of the term security. Some important EU institutions in the area of space and security will be described shortly here.

Within the first pillar, DG (Directorate-General) Enterprise and Industry is responsible for general space policy considerations and GMES. It supports the work of the Commissioner for Enterprise and Industry, Günter Verheugen. DG Transport and Energy is in charge of the Galileo project, facilitating the tasks of the Commissioner for Transport, Jacques Barrot. The EU also invests in space research and development within the scope of the Seventh **Framework Programme for Research, Technological Development and Demonstration Activities (FP7)**. This programme earmarks EUR 1,43 billion for the funding of space-related research for the period from 2007-2013. In the scope of the FP7 Cooperation Programme there are also considerable funds foreseen for security research.

Policies in the scope of the second pillar are obviously concerned with security matters and thus have an impact on the development of space security. For an efficient conduct of the CFSP, specific structures were created. The High Representative for the CFSP is also the Secretary-General of the Council of the EU (HR/SG). The Political and Security Committee (PSC) has the task to monitor the international situation and contribute to the definition of policies by delivering opinions to the Council. The PSC also coordinates the work of the different parties in the area of the CFSP. Other organs acting in support of the PSC and established by Council Regulations are the European Union Military Committee

<sup>239</sup> "The National Security Strategy of the United Kingdom. Security in an interconnected world." Mar. 2008 UK Cabinet Office 15 Jan. 2009  
[<http://interactive.cabinetoffice.gov.uk/documents/security/national\\_security\\_strategy.pdf>](http://interactive.cabinetoffice.gov.uk/documents/security/national_security_strategy.pdf)

<sup>240</sup> UKspace "Case 4Space - Space secures prosperity." Newsdesk Communication. 15 Sep. 2008.

<sup>241</sup> "Piano Aerospaziale Nazionale 2006 – 2008" 2006 Agenzia Spaziale Italiana 12 Jan. 2009  
[<http://www.asi.it/files/20061025030257PASN\\_2006-2008\\_1.pdf>](http://www.asi.it/files/20061025030257PASN_2006-2008_1.pdf)

(EUMC), the European Union Military Staff (EUMS), and a Committee for Civilian Aspects of Crisis Management (CIVCOM)

Besides these CFSP bodies there are also agencies dealing with security and space matters in the realm of the second pillar. The **European Satellite Centre (EUSC)** in Torrejón combines both policy areas. Its task is to exploit and produce information derived from the analysis of Earth observation imagery in order to support EU's decision-making in the field of the CFSP, particularly of the ESDP, including crisis management operations. It is also associated with conflict prevention, observation and humanitarian aid. The EUSC works under the operational direction of the HR/SG. The PSC, which is subordinated to the Council of the EU, is responsible for the political guidance of the centre. The EUSC is the EU's first operational entity in space activities.

In the field of the ESDP, the **European Defence Agency (EDA)** was established under a Joint Action by the Council of Ministers on 12 July 2004. The agency is based in Brussels and has the general purpose to improve the EU's defence capabilities, especially in the field of crisis management. To this end, it aims at promoting EU armament cooperation, strengthening the EU's defence industrial and technological base and creating a competitive European defence equipment market. The agency also promotes research, with a view to strengthening Europe's industrial and technological potential in the defence field. Currently, the EDA is involved in military requirement consolidation for the upcoming European SSA (Space Situational Awareness) system, which is linked to the issue area of space security.

Beyond the pillar structure, the **European Parliament**, the only directly elected body of the European Union, is also of importance in space matters. Although it does not have a direct say in security matters, the Council consults the Parliament on main aspects of CFSP matters, and the Parliament may put questions and make recommendations to the Council. Being part of the legislative branch, the Parliament also exerts a certain financial power since Parliament and Council together constitute the budgetary authority of the European Union. Some Parliamentary Committees are of particular relevance for space and security, such as the **Subcommittee on Security and Defence (SEDE)** within the Committee on Foreign Affairs.

#### 4.1.3 European Space Agency

ESA as an international organisation is the Space Agency of Europe. Article 2 of its convention states that the "the purpose of the Agency shall be to provide for and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications...".<sup>242</sup> The transfer of ESA products and technology to non ESA countries also has to bear in mind the peaceful purposes of ESA.

However, its Council in 2004 approved a position paper "ESA and the defence sector" stating that these peaceful purposes do not exclude dual-use activities as long as they are not aggressive. This can be seen as a re-interpretation of ESA's mandate that is now generally accepted. In 2006, ESA's Director General released the so called Agenda 2011<sup>243</sup> calling for the exploitation of synergies between the needs of civilian and defence space services. The same year, ESA's Space and Human Security Working Group issued a report<sup>244</sup> attributing specific importance to the security relevance of GMES and Galileo. These documents have contributed to an enhanced ESA profile in space activities of dual-use.

There are a number of ongoing ESA activities that have a security dimension, although they were not specifically designed to account for security requirements.<sup>245</sup> Examples include the ENVISAT and ERS-2 missions, whose data are supplied to the EUSC. ESA also supports the International Charter on Space and Major Disasters and it has initiated activities with the International Atomic Energy Agency (IAEA) for monitoring critical infrastructures. Regarding GMES and Galileo, ESA had already been engaged in these programmes as a result of its cooperation with the European Union, which is one of the main users of space applications. In the domain of GMES, for example, ESA had launched the RESPOND and the MARISS projects.<sup>246</sup> In the future, ESA will contribute heavily to GMES, for example via existing satellites and the planned Sentinel missions.

<sup>242</sup> Convention of establishment of a European Space Agency. SP-1271(E), 2003.

<sup>243</sup> Agenda 2011. Document by the ESA Director General and the ESA Directors, 16 October 2006, Paris.

<sup>244</sup> ESA/C(2007)135. Basic Information Concerning Space and Security.

<sup>245</sup> ESA/C(2007)111 Status of Security-Related Activities in ESA.

<sup>246</sup> Peter, Nicolas. "Space Policy, Issues and Trends in 2006/2007." ESPI Report 6. Sept. 2007. Vienna.

In the planning of new activities, ESA now takes into account the new boundary conditions described above.<sup>247</sup> In particular, it attempts to enhance the synergy between space and security by including security requirements into the set up of new programmes and activities. Such requirements could consist of strengthening European independence regarding components, products and technology from abroad, better information and higher awareness of operational conditions in the space environment. The candidate initiatives for inclusion of these requirements are NewPro, the Enhanced European Data Relay Satellite EDRS, and the foreseen Space Situational Awareness (SSA) system.

#### 4.1.4 EUMETSAT

EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites) provides its members and cooperating states with weather-related Earth observation data and services. A major part of EUMETSAT data goes to defence-related institutions. Currently, EUMETSAT operates a fleet of two generations of geostationary weather satellites and several polar orbiting satellites. Meteorological data from polar satellites are of particular strategic importance. In many states, weather data are seen as critical to public security and technical safety. Accordingly, meteorological satellites can be considered as a critical infrastructure.

#### 4.1.5 WEU

The Western European Union (WEU) is a collective defence organisation that was founded 1954. Earlier WEU operational functions have been integrated into the EU, and its tasks like crisis management have been merged into the EU's CFSP. By the Treaty of Amsterdam, the General Secretary of the WEU is the High Representative for the CFSP and Secretary-General of the Council of the EU. The WEU still is an important discussion platform.

The Assembly represents the parliamentary dimension of the WEU. European national parliaments send delegations to the Assembly, which currently has some 400 members. Its tasks have changed since the WEU's operational activities' transfer to the EU. Since then, the Assembly acts as the Interparliamentary European Security and Defence Assembly, focusing on the European Security and Defence Policy and the further

development of the EU's civil and military crisis management capabilities.

#### 4.1.6 Space Council, HSPG and EISC

The Space Council is based on article 8 of the EU-ESA Framework Agreement of 2003. It became the common conference of the high level boards of EU and ESA for space related issues. It consists of representatives from the concerned ministries of the 27 EU Member States and the 17 ESA Member States. The Chairs are the respective representative of the ESA Council of Ministers and the representative of the EU Competitiveness Council plus Industrial Commissioner and Vice President of the European Commission, Guenther Verheugen, and Jean-Jacques Dordain, the ESA Director General.

The Space Council was set up for coordinating and facilitating the space activities of both organisations, especially since the EU has become an actor in European space activities. Lacking a concrete mandate, its resolutions have to be approved by the two composing Councils, the ESA Council and the EU Ministerial Competitive Council. Decisions in the Space Council are taken by consent.

The High-Level Space Policy Group (HSPG) is also based on article 8 of the EU-ESA Framework Agreement. Its initial goal was to reach a shared understanding of the European Space Policy and its implementation. This referred to the future European Space Programme as well. It is also involved in preparing meeting of the Space Council. The HSPG ensures cooperation between ESA and EU on a more regular basis. The Joint Secretariat ESA/EU also foreseen in the Framework Agreement is responsible for preparing the work of the HSPG.

The HSPG consists of high-level representatives of the responsible Ministries of the Member States at Head of Department level, the EC, and ESA. It is jointly chaired by the ESA DG and a high level representative from the EU Commission. Decisions in the HSPG are taken by consent. The preparations of the High Level Space Group until 2007 mainly encompassed the different elements of the European Space Policy and its strategic objectives and they led to an ESP draft for the Space Council.

The European Interparliamentary Space Conference, envisaged as a tool for interparliamentary cooperation in the space field, was created in 1999. It brings together members of national parliaments that are interested in space. National parliaments of

<sup>247</sup> Ibid.

Member States of the EU or ESA that have created a parliamentary body dealing with space affairs are permanent members. Parliaments that have not created such a body are associated members<sup>248</sup>. EISC constitutes a platform for debating the European space policy. Moreover, it analyses current issues within the space sector of Europe, and it adopts resolutions on all space related matters.

#### 4.1.7 National Projects and Cooperation Schemes

The European Union's CFSP and the ESDP are handled within the realm of the second pillar, constituting the voice of the Member States. Apart from the European structures, Member States tend to conduct a major share of their security-related space activities at the national level and will most probably continue to do so. These efforts are often flanked by bi- or multilateral cooperation supplementing own capacities. Some examples from the Earth Observation sector are considered here for completeness' sake.

The German SAR-Lupe system consists of five Radar satellites on polar orbits. A flanking bilateral cooperation agreement between Germany and France was signed in 2002. It foresees data exchange between SAR-Lupe and the complementary French led optical Helios 2 system, starting in 2009. The data is directly provided to the partner for analysis and archiving. At the European level, SAR-Lupe imagery is also planned to be provided to EUSC.

In contrast to SAR-Lupe, the Italian COSMO-Skymed system (COSMO stands for Constellation of Small Satellites for Mediterranean Basin Observation) has been specifically devised as a dual-use system, disposing of duplicated ground segments for civilian and military users. In its final configuration, it will consist of four Radar satellites on sun synchronous orbits, three of which have already been successfully launched.

COSMO-Skymed, together with the complementary French optical Pleiades satellites, is also planned as Radar part of the French-Italian ORFEÓ (Optical and Radar Federated Earth Observation) system, which is of dual-use itself. At European level,

COSMO-Skymed imagery is planned to be used by the EUSC. Beyond that, it is foreseen to contribute to GMES.

Regarding multilateral cooperation, there are some initiatives outside the existing official European structures. Apart from industry cooperation in the Letter of Intent (LoI) Group, and joint armament efforts in the frame of OCCAR (Organisation Conjointe de Coopération en matière d'ARMEMENT), European countries aim at further integration of future Earth Observation capabilities in the framework of BOC (Besoins Opérationnels Communs) and MUSIS (Multiple Users Space Information System).

## 4.2 Interaction and Documents

The development of a space policy has been independent of the general process of European integration, with ESA standing outside the community approach and the **European Community Treaty** stipulating that the defence sector remains under the control of national governments. Different civilian and military bodies, either exclusively national or acting through various partnerships contribute to defining space policy and developing industrial activities. The European Space Agency has become the main authority in the European space industry. However, the development of military space activities asks for a more coordinated approach and a growing role of the European Union.<sup>249</sup> Some of the documents relevant to European space activities and their link to the security domain will be discussed here, following a chronological order. Listing these important documents with their most prominent features, along with pertinent actions and events, this section aims at explaining the political and legal basis for the present state.

In 1992, the Ministerial Council of the Western European Union (WEU) in view of a potentially unstable Eastern Europe after the end of the Cold War adopted the **Petersberg declaration**. The WEU Member States stated the readiness to make military units of their conventional forces available to WEU, EU and NATO. The declaration also contained the so called Petersberg tasks of activities in the humanitarian and rescue domain as well as in

<sup>248</sup> cf. CHARTER OF THE EUROPEAN INTERPARLIAMENTARY SPACE CONFERENCE (EISC). 11 Dec. 2008 <[http://www.belspo.be/belspo/eisc/pdf/Charter2006\\_en.pdf](http://www.belspo.be/belspo/eisc/pdf/Charter2006_en.pdf)>.

<sup>249</sup> Istituto Affari Internazionali. "Space and Security Policy in Europe." Documenti IAI. Rome: Istituto Affari Internazionali, 2003. 8. 3 Nov. 2008 <<http://www.iai.it/pdf/DocIAI/iai0307e.pdf>>.

crisis management missions, including peacemaking ones.

In 1997, the **Treaty of Amsterdam** was signed. It developed and institutionalised the CFSP by creating a "High Representative for the Common Foreign and Security Policy" and establishing the tool of common strategies. Furthermore, it partially introduced majority voting in CFSP matters, albeit to a very limited extent and under strict conditions. Apart from that, the Petersberg Tasks were integrated into the Treaty of the Union. Cooperation with the WEU was intensified.

In 1998, the United Kingdom and France in the **Initiative of St-Malo** called for an independent European defence capacity, declaring that "the Union must have the capacity for autonomous action, backed up by credible military forces, the means to decide to use them, and a readiness to do so, in order to respond to international crises". At the same time, the Kosovo War showed that Europe was still dependent on information from abroad for its own decisions.

In 1999, the European Council of Cologne launched the European Security and Defence Policy (ESDP) as part of the CFSP. It called for a "gradual framing of a common defence policy which might in time lead to a common defence". Later that year, the European Council of Helsinki agreed on the Headline Goal 2003, the so called "**Helsinki Headline Goal**". Hereby, the Union aimed at gaining the ability to carry out the full range of the Petersberg Tasks by quickly deploying and sustaining an appropriate amount of forces up to corps level. The European Council of Feira in 2001 then stated that ESDP could only be successful by combining military and civilian needs.

The Report "Towards a Space Agency for the European Union" by Carl Bildt, Jean Peyrelevade and Lothar Späth (also called the "**Three Wise Men Report**") in 2000 stated that

- *ESA should become the EU's space agency and should therefore extend its field of activities to defence requirements*
- *ESDP is incomplete without a space component*
- *Earth observation, navigation and communication are ESDP related applications*
- *such activities would not collide with the ESA convention*
- *it was logical to use the capabilities of ESA for the development of the more security-oriented aspects of the European Space Policy.*

The **Treaty of Nice**, signed in 2001, incorporated the WEU crisis management tasks into the Union. As a result, the WEU lost its significance for the CFSP. In the Marseille Declaration of 2000, WEU ministers had already approved the residual functions and structures of the WEU and acknowledged the take-over of the WEU Satellite Centre and Institute for Security Studies by the EU. The Treaty of Nice also renamed the Political Committee to Political and Security Committee (PSC) and enhanced its role. If authorised by the Council, it may now take the necessary decisions to ensure the political control and strategic direction of a crisis management operation for its purpose and duration.

Later in 2001, the European Council of Laeken launched the **European Capabilities Action Plan (ECAP)**, based on the principles of enhanced effectiveness and efficiency of European military capability efforts, a bottom-up approach to European defence cooperation, coordination between EU Member States and cooperation with NATO and the importance of broad public support. The ECAP involved some twenty panels consisting of Member States' military experts putting forward proposals and suggestions regarding deficiencies and potential solutions.

In 2002, the Satellite Centre in Torrejón was transferred from the WEU to the EU, along with the Institute of Security Studies. EUSC became the first operational space entity of the EU. The same year, the BOC document "Common Operational Requirements for a European Global System of Observation by Satellite" (classified) was signed by five European countries.

The European Council in 2003 endorsed the **European Security Strategy (ESS)**, affirming Europe's role in the world. The ESS had been drafted under the auspices of the High Representative and it aimed at responding to the needs addressed in the ESDP. Terrorism, proliferation of weapons of mass destruction, regional conflicts, state failure and organised crime are seen as key threats. Taking a broad approach to security, including military and civilian aspects, Europe's strategic objectives are summarised as addressing the threats in a proactive manner, building security in Europe's neighbourhood and working towards an international order based on effective multilateralism. In pursuing them, the EU is summoned to combine its different instruments and assets. Doing so, the ESS gives a good indication on its fundamental principles, guiding the EU in all policy fields.

During the same year, a “**Green Paper: European Space Policy**” had been prepared by ESA and the European Commission. It acknowledged the importance of space for CFSP and ESDP as well as for enhancing the security of European citizens, it underlined the common features of civil and military space technologies, it pointed to the lack of cooperation between existing programmes and it stated that GMES could be used as a European observation system serving defence purposes. However, it fell short of establishing a European space policy that includes strictly military and intelligence space capabilities due to the limited integration in the field of defence.<sup>250</sup>

Later in 2003, the European Commission presented the **White Paper** “Space: a new European frontier for an expanding Union: An action plan for implementing the European Space policy”. While mentioning “security objectives represented by the CFSP and ESDP” as one of the five core policy challenges and goals, the emphasis was put on civilian or dual use of space. The paper stated that

- *space technology, infrastructure and services are an essential support to CFSP and ESDP*
- *space assets shall be used for identifying potential security threats and humanitarian crisis in an early stage*
- *military applications feature special requirements, which have to be considered when deploying multiple-use assets*
- *developments are needed in the area of global monitoring, positioning, navigation, timing, communication, signal intelligence, early warning and space surveillance*
- *GMES should be used for security purposes.*

Also in 2003, a report on “**Space and security policy in Europe**” funded by ESA and coordinated by the Istituto Affari Internazionali was published.<sup>251</sup> Given the development of dual use technologies, it called for a “‘European’ approach to space security, linking the present national defence programs with mainly civilian European programs” and considering space operations a continuum including civilian and military features. It also suggested ESA to take full advantage of the dual-use nature of space through a cooperative agreement with the EU

and to establish an independent space committee of European experts by the European Council.

In 2004, the **EU-ESA Framework Agreement** entered into force, providing a legal basis and appropriate operational arrangements for an efficient and mutually beneficial cooperation between the two institutions, aiming at a “coherent and progressive development of an overall European Space Policy”. Furthermore, it states that “bearing in mind the nature of space technologies and infrastructures, both Parties, in implementing this Agreement, shall take into account their security dimension.” Another element of the Agreement was the creation of the Space Council. To facilitate interaction, an ESA liaison office in Brussels was installed. At its first meeting in 2004, the Space Council defined space as a shared competence of the EU and ESA, and it acknowledged the importance of space activities for a wide range of European policies

Also in 2004, the European Council agreed on the **“Military Headline Goal 2010”**. Member States committed to be capable of responding “with swift and decisive action applying a fully coherent approach” to all kinds of crisis management operations foreseen in the Treaty of the EU or the ESS by 2010 at latest. Additionally, the needs not addressed by the previous headline goal, e.g. strategic airlift and sealift, were to be fulfilled. In parallel, the **“Civilian Headline Goal 2008”** was agreed upon. It calls for pushing the development of civilian capabilities in line with the military ones. The same year, the ESA Council took note of and approved a position paper on “ESA and the defence sector”<sup>252</sup> dating from 2003. It suggested that the “peaceful purposes” of the convention do not exclude dual-use activities as long as they are not aggressive.

Also in 2004, the Assembly of the WEU issued the report **“The Space Dimension of the ESDP”** (Recommendation 755 of the WEU Assembly). It outlines the overall importance of space systems for implementing EU policies and the strategic importance of disposing of access to space. Moreover, it considers European cooperation in the military use of space as advantageous for budgetary reasons and it states that such cooperation hardly exists to date. Besides, it suggests that EDA could play a vital role for the definition of joint requirements, joint

<sup>250</sup> Istituto Affari Internazionali. op.cit.

<sup>251</sup> Ibid.

<sup>252</sup> ESA/C(2003)153. Position Paper on ESA and the defence sector.

research, and joint procurements and that future capabilities have to adhere to the requirements resulting from the envisaged missions defined under the ESDP (ESS, Headline Goal 2010). Some proposals and recommendations are made by the Assembly, like:

- *a link between ESA and EDA*
- *interoperability and exchange of European capabilities*
- *real-time image-processing capacity for the European Satellite Centre*
- *better use of space-based systems for border control (especially maritime zones)*
- *a space based capacity to detect missile launches*
- *a policy for preservation of European autonomous satellite launch capability*
- *autonomous European capacities for verification and analysis of sensitive data relevant for decision making in crisis situations*
- *a network of already existing defence related systems as a first step.*

Apart from that, the Council of the EU approved the document "**European Space Policy: ESDP and Space**" in 2004. It stressed the importance of space capabilities for the ESDP and called for a roadmap for the development of effective and coherent space capabilities necessary to fully implement the ESDP. Apart from that, it provided for identified and agreed upon ESDP requirements to be reflected in the global EU Space Policy and its corresponding European Space Programme. It also called upon Member States to increase cooperation by sharing and pooling space assets and capabilities as well as through third-party agreements and by making maximum use of dual-use technology<sup>253</sup>.

In 2005, the Council of the EU issued a **Draft Initial Road Map** as a follow up of the "ESDP and Space" document. It specified the steps necessary to meet the goal of elaborating a roadmap as demanded by the latter. It stated that "civilian and military needs for all actions in the field of the use of space assets for ESDP purposes are compatible, with potential for synergy".

The same year, the "**Report of the Panel of Experts on Space and Security**" (SPASEC Report) was written for the European Commission. The purpose of the report was to provide the Commission with expertise on

the security issues raised in the White Paper and to identify common needs and requirements for European cooperation. The panel was composed of representatives from national space agencies, international organisations and various other institutions. In the report, security is understood in a broad sense as to include civil and military aspects, response to terrorism, and natural disasters. The report reiterates the five key threats identified by the ESS: terrorism, proliferation of WMD, regional conflicts, state failure and organised crime. It states that in order to meet the goals of the CFSP, European countries have to transform their capabilities, considering the role of space. It also emphasises the importance of increased interoperability against the background of trend to network enabled capabilities. Generally, the lack of interoperability and the lack of an assessment mechanism for the aggregation of needs is considered a capability gap, just as the lack of a European SSA system. The report proposes to:

- *establish a platform/forum for consolidating the security related user needs; its activities should be linked to the work of EDA*
- *subsequently build up a system for global situational awareness*
- *enhance the security of critical infrastructure in the space sector (space assets and ground facilities)*
- *implement focussed demonstration projects.*

In 2006, the Council of the EU adopted the document "**Generic Space System Needs for Military Operations**", which was a follow-up to the Draft Initial Road Map and highlighted in detail the ESDP requirements for space-based capabilities. It called for identifying possible dual-use capabilities. The Council also adopted the document "**Outline of Generic Space System Needs for Civilian Crisis Management Operations**", which underlined that many needs and requirements for space systems for military crisis operation are equally applicable to civilian crisis management operations<sup>254</sup>.

The same year, the ESA Director General released the **Agenda 2011**,<sup>255</sup> calling for the exploitation of synergies between the needs of civilian and defence space services. Apart from that, a working group on "Space and Human Security",<sup>256</sup> which had been initiated

<sup>253</sup> ESA/C(2007)135. op. cit.

<sup>255</sup> ESA. "Agenda 2011." Document by the ESA Director General and the ESA Directors. 16 Oct. 2006. Paris.

<sup>256</sup> ESA/C(2007)135. op. cit.

by the ESA Director General, issued its report, attributing specific importance to the security relevance of GMES and Galileo. Besides, it stated that "a European Space Policy should encompass the European way of approaching security problems".

Also in 2006, the EDA Steering Board endorsed the document "**An initial long-term vision for European defence capability and capacity needs**", which had been developed by experts to provide an outlook on future defence needs for ESDP operations, looking two decades ahead. It stated that military applications have to benefit from civil technological developments and identified strategic key issues like synergy. The latter is understood as combined deployment of military and civil means, including those of non-governmental entities. The document does not explicitly refer to space, but its significance for defence capabilities can be derived from the importance assigned to intelligence and information. The MUSIS agreement was signed in 2006, too. Besides that, in July 2006 the working paper "**A European Approach to Space Security**" for the Center for International and Security Studies at the University of Maryland was published by the Fondation pour la Recherche Stratégique<sup>257</sup>. It stated that the European way of approaching security integration could serve as an example to be followed for corresponding efforts in space related security on a global scale. Finally, the study "**Europe's Space Policies and their relevance to ESDP**" by the Acronym Institute was published in 2006 as well.<sup>258</sup> Having been requested by the European Parliament's Subcommittee on Security and Defence, it stresses inter alia the need to balance the utilisation of space for ESDP needs with potentially contradicting wider security requirements derived from the CFSP, with a special view to preventing a destabilising arms race in outer space.

In 2007, the **Resolution on the European Space Policy** (ESP) was adopted by the Space Council. The ESP allows the EU, ESA and their Member States to increase coordination of their activities and programmes. The aim is to ensure that Europe can preserve and improve its global competitive position and use the economic and strategic benefits of space for its citizens.

<sup>257</sup> Pasco, Xavier. "A European Approach to Space Security". Maryland: Center for International and Security Studies at Maryland, 2006.

<sup>258</sup> Johnson, Rebecca E. "Europe's Space Policies and their Relevance to ESDP." Brussels: European Parliament, 2006. 19. 4 Nov. 2008  
<http://www.acronym.org.uk/space/PE381369EN.pdf>.

The ESP formally introduces the EU as a space actor and establishes a link between space activities and the ESDP. Containing a dedicated chapter on security and defence, it recognises that space technologies are often dual-use in nature and that Europe can pursue the respective synergy, particularly in the domain of security. Furthermore, it does not preclude the military utilisation of GMES and Galileo, and it affirms the need to set up a structured dialogue with the competent bodies of the Member States and within the EU second and third pillar as well as the European Defence Agency. Given the timing, some observers claim that the European Space Policy is a response to the U.S. space policy.<sup>259</sup>

Later in 2007, the **Treaty of Lisbon** was signed. It foresees "research, technological development and space" as a shared competence of the European Union with a subsidiary role of the Member States. The treaty calls for establishing appropriate relations with ESA. It strengthens the position of the High Representative and brings about major structural changes. However, its entry into force is uncertain.

Also in 2007, the report "**The Cost of Non Europe in the Field of Satellite Based Systems**", requested by the European Parliament's Subcommittee on Security and Defence, was published.<sup>260</sup> It stated that "space technologies have evolved to become central enabling assets in modern defence and security systems", and underlined that space can be used to support security in a broad sense. In addition, it called for a European security architecture using civil and military systems as well as space based and non-space based technologies.

At the end of 2007, the Institute for Peace Research and Security Policy at the University of Hamburg (IFSH) and the European Space Policy Institute (ESPI) issued a common **memorandum calling for a European Space Security Strategy (E3S)**.<sup>261</sup> Such a European Space Security Strategy is envisaged as furnishing an adequate framework for European space activities,

<sup>259</sup> e.g. Johnson, Rebecca E. in a study for the European Parliament. "Europe's Space Policies and their Relevance to ESDP." Brussels: European Parliament, 2006. 19. 4 Nov. 2008

<<http://www.acronym.org.uk/space/PE381369EN.pdf>>. is of that opinion.

<sup>260</sup> Johnson, Rebecca E. op. cit.

<sup>261</sup> IFSH and ESPI. "In need for a European Space Security Strategy (E3S)." Joint memorandum by IFSH and ESPI. 2007. 24. Nov. 2008.  
<http://www.espi.or.at/images/stories/dokumente/studies/memorandum%20on%20e3s.pdf>.

promoting the peaceful use of outer space as well as winnowing the goals and instruments needed to this end. On top, it is foreseen to set the military-civilian balance within space-based information gathering for ESDP purposes, which also touches upon questions of data policy.

An important document in 2008 was the **Report on Space and Security**<sup>262</sup> (also called the von Wogau report) that was adopted by the European Parliament and that had been initiated by Karl von Wogau on behalf of the Committee on Foreign Affairs. The report insists that European space policy must not contribute to militarisation and weaponisation of space. It also pleads to adequately protect strategic space assets, for example by theatre missile defence or space surveillance systems. Moreover, it suggests space operations to be funded under the Community budget.

To sum up, the legal and political development of Europe in the area of space and security, as evidenced by various official documents, has been taking place along different lines, partially running in parallel. One has been the inclusion and implementation of a Common Foreign and Security Policy (CFSP) by the EU, along with the integration of major WEU tasks. Another line was the introduction of a European Security and Defence Policy (ESDP) as part of the CFSP, along with the definition of corresponding military needs, efforts to meet them and suggestions how to unleash the potential that space holds for security purposes. A third line consisted of creating new bodies inside existing structures (like the Political and Security Council and the EU Military Committee) and of clarifying interaction between different bodies (as in the EU-ESA Framework Agreement). All of these endeavours were flanked by position, strategy and policy papers like the European Security Strategy and the European Space Policy. All in all, however, Europe is still at the beginning of a process to align the policies, services and institutions related to CFSP, ESDP and ESP.<sup>263</sup>

Most of the documents listed above give implicit or explicit evidence of fundamental principles that guide Europe across many policy areas: effective multilateralism with an emphasis on strengthening the international

order, institutions and rule of law; promoting a stable international and regional environment for Europe; and cooperation with partners - directly or through multilateral institutions. In addition, Europe adopts a relatively broad concept of security, refraining from taking the traditional military approach which is mainly taken by the U.S.<sup>264</sup> This is in line with the general "soft power approach" of the EU, preferring diplomacy, cooperation and economic and political action.<sup>265</sup> Due to its particular history the EU represents democratic rule of law, co-existence and cooperation between nations.<sup>266</sup>

There has been strong support for efforts to strengthen space security through negotiated means in Europe, with all European States, being on record supporting the U.N. resolution on the Prevention of an Arms Race in Outer Space and none being known to have active space weapons programmes.<sup>267</sup> Since 2007 the EU is actively involved in the process of negotiating Transparency and Confidence Building Measures in outer space (see chapter 5),<sup>268</sup> trying to find a middle ground between the Russian and Chinese proposals and the U.S. position.<sup>269</sup>

The EU has a relatively active policy regarding international cooperation in space.<sup>270</sup> In General the EU's position in space is increasingly international and multilateral, rather than "atomised and unilateral".<sup>271</sup> While being actively involved in the PAROS discussion, the EU in form of the German presidency only issued a "relatively moderately phrased statement stressing the need to respect international law and to prevent an arms race in outer space" after the Chinese ASAT test.<sup>272</sup> Having often been criticised for this diplomatic immaturity, the Chinese ASAT test served as a catalyst for a "growing space security awareness" and

<sup>264</sup> Johnson, Rebecca E. "Europe's Space Policies and their Relevance to ESDP." Brussels: European Parliament, 2006. 20-1. 4 Nov. 2008  
[<http://www.acronym.org.uk/space/PE381369EN.pdf>](http://www.acronym.org.uk/space/PE381369EN.pdf).

<sup>265</sup> cf. the European Security Strategy (ESS). Ibid..

<sup>266</sup> Mean, Melissa and James Wilson. "Masters of the Universe." London: Demos, 2004. 33-4.

<sup>267</sup> Moltz, James Clay, "Next Steps towards Space Security." Collective Security in Space – European Perspectives. Eds. John M. Logsdon, James Clay Moltz and Emma S. Hinds. Washington D.C.: Space Policy Institute, 2007: 109-130. 119.

<sup>268</sup> Couchoud, Rosine. op. cit.

<sup>269</sup> Couchoud qtd. in Selding, Peter B., de. op. cit

<sup>270</sup> Istituto Affari Internazionali. op. cit.

<sup>271</sup> Moltz, James Clay, op. cit.

<sup>272</sup> Schrogl, Kai-Uwe. op. cit.

"drove the EU towards a more active role in the field of [inter alia] arms control."<sup>273</sup>

It is interesting to note different foreign perceptions of Europe's posture in space security matters. Special attention will be paid to the American perspective here because of the special nature of transatlantic relations. While both ESA (i.e. Europe) and NASA (i.e. the U.S.) feature the same pictures of "gleaming satellites, astronauts talking to children and images of distant planets" and while both "repeat the mantra of exploration, education, inspiration, industry and collaboration", one can distinguish sharp differences in both actors' approach to space security.<sup>274</sup>

Robert Kagan has previously compared European and U.S.' foreign policy and concluded that "on major strategic and international questions today, Americans are from Mars and Europeans are from Venus: they agree on little and understand one another less and less".<sup>275</sup> Accordingly, while the U.S. divides the world into friends and enemies, preferring unilateralist solutions, favouring policies of coercion over diplomacy, and resorting to force more quickly, Europe prefers multilateral solutions, favours negotiation and diplomacy over coercion, and tends to emphasise processes over results. Being aware of the exaggeration and oversimplification of Kagan's argument,<sup>276</sup> he seems to capture an essential truth: U.S. and Europe are different today: while the U.S.' space technology is "military oriented" due to a military strategy which is increasingly based on the concept of "information dominance", "European space technology is more "civilian oriented" in facts it is dual-use".<sup>277</sup> In the same vein, the U.S. vision of space is increasingly dominated by military priorities, while the EU emphasises the use of space technologies for disaster relief.<sup>278</sup>

Apart from these differences in approaches, one could observe a power struggle, when the EU introduced Galileo, thereby ending the U.S.' monopoly of GPS and limiting the U.S.' opportunities to "turn the system off in particular regions at times of conflict or terrorist attack".<sup>279</sup> In line with Realism this

can be taken as a proof for the U.S.' desire for dominance. According to Kagan's line of argumentation the U.S. seeks "to defend and advance a liberal international order; but the only stable and successful international order Americans can imagine is one that has the U.S. at its centre, being defended by power, and specifically by American power".<sup>280</sup> Moreover, the U.S. seems to have the capacity to divide Europe. After the U.S. announcement of the integration of Poland and the Czech Republic into its missile defence shield, problematic debates about missile defence emerged in which Europe remained divided into "old Europe" versus "new Europe".<sup>281</sup>

Other space actors obviously tend to take views that differ from the U.S. one. Russia, adhering to realism as well, primarily sees Europe as a potential balance to U.S. dominance, contributing to a multi-polar world. China shares the perception of Europe forming a counterweight to U.S. global influence. At the same time, it devotes special attention to the mediating and negotiating features of European policy.<sup>282</sup> This assessment gives evidence of a more constructivist approach. Table 4 shows the current ratification status of relevant international treaties.

<sup>273</sup> Dickow, Marcel. "The European Union proposal for a Code of Conduct on Outer Space Activities" (forthcoming).

<sup>274</sup> Mean, Melissa and James Wilsdon. op. cit. 29.

<sup>275</sup> Kagan, Robert. "Paradise & Power – America and Europe in the New World Order." London: Atlantic Books, 2003. 3.

<sup>276</sup> Mean, Melissa and James Wilsdon. op. cit. 29.

<sup>277</sup> Istituto Affari Internazionali. op. cit.

<sup>278</sup> Mean, Melissa and James Wilsdon. op. cit. 36.

<sup>279</sup> Mean, Melissa and James Wilsdon. op. cit. 31.

<sup>280</sup> Kagan, Robert. op. cit

<sup>281</sup> Schrogl, Kai-Uwe. op. cit.

<sup>282</sup> Shen, Dingli. "Why China sees the EU as a counterweight to America." Europe's World. 14 Nov 2008 <<http://www.europesworld.org/EWSettings/Article/tabid/191/ArticleType/articleview/ArticleID/21260/Default.aspx>>

	<b>ITU</b>	<b>Nuclear Test Ban</b>	<b>Moon Agreement</b>	<b>Registration Convention</b>	<b>Liability Convention</b>	<b>Rescue Agreement</b>	<b>Outer Space Treaty</b>
<b>AT</b>	R	R	R	R	R	R	R
<b>BE</b>	R	R	R	R	R	R	R
<b>BG</b>	R	R	-	R	R	R	R
<b>CY</b>	R	R	-	R	R	R	R
<b>CZ</b>	R	R	-	R	R	R	R
<b>DK</b>	R	R	-	R	R	R	R
<b>EE</b>	R	-	-	-	-	-	-
<b>FI</b>	R	R	-	-	R	R	R
<b>FR</b>	R	R	S	R	R	R	R
<b>DE</b>	R	R	-	R	R	R	R
<b>EL</b>	R	R	-	R	R	R	R
<b>HU</b>	R	R	-	R	R	R	R
<b>IE</b>	R	R	-	-	R	R	R
<b>IT</b>	R	R	-	R	R	R	R
<b>LV</b>	R	-	-	-	-	-	-
<b>LT</b>	R	-	-	-	-	-	-
<b>LU</b>	R	R	-	-	R	S	R
<b>MT</b>	R	R	-	-	R	S	-
<b>NL</b>	R	R	R	R	R	R	R
<b>PL</b>	R	R	-	R	R	R	R
<b>PT</b>	R	S	-	-	-	R	R
<b>RO</b>	R	R	S	-	R	R	R
<b>SK</b>	R	R	-	R	R	R	R
<b>SI</b>	R	R	-	-	R	R	-
<b>ES</b>	R	R	-	R	R	R	R
<b>SE</b>	R	R	-	R	R	R	R
<b>UK</b>	R	R	-	R	R	R	R

Table 4: EU Member States's ratification of the main international treaties (as of January 1, 2008)

## 4.3 Elements of a European Space Security Identity

In the following, potential contents and elements of a European Space Security Identity are given. Doctrines, which are a part of identities, have already been addressed in chapter 3. There, the focus was on a military environment. To accommodate for the specifically European approach, a more general discussion of terms is given here. In a generic view a doctrine is given by a coherent set of explicit or implicit principles, attitudes and teaching positions. A doctrine can exist for any entity, but often it is used in a political context as representing a guideline for governmental action. The so called Eisenhower doctrine granting states in the Middle East assistance against communist aggression is a well-known example.

Newer examples of doctrines include the United Nations Peacekeeping Operations Principles and Guidelines.<sup>283</sup> This document can be seen as a doctrine encoding principles derived from the experiences gathered by respective UN led missions. It specifically states that "it sits at the highest level of the current doctrine framework for United Nations" and that "any subordinate directives, guidelines, standard operating procedures ... should conform to the principles and concepts referred to in this document". This illustrates the foundational role of doctrines.

A strategy, by contrast, designates a mid- to long-term planned effort to achieve a given goal. It can be defined as "the process by which ends are related to means, intentions to capabilities, [and] objectives to resources".<sup>284</sup> Such concerted approach includes guidelines on the decisions to be taken, the timeline to be followed and the way to use means, capabilities and resources. A strategy can be used to reach aims that follow from application of a doctrine. In that regard, a strategy can be seen as a secondary (albeit important) element in governmental action with the need for primary objectives.

<sup>283</sup> "United Nations Peacekeeping Operations Principles and Guidelines" 18 Jan. 2008 United Nations Department of Peacekeeping Operations and Department of Field Support 20 Jan. 2008  
[http://pbpu.unlb.org/pbps/Library/Capstone\\_Doctrine\\_EN\\_G.pdf](http://pbpu.unlb.org/pbps/Library/Capstone_Doctrine_EN_G.pdf)

<sup>284</sup> Gaddis, John Lewis. Strategies for Containment, A Critical Appraisal of Postwar American National Security Policy. New York: Oxford University Press, 1982. viii.

The distinction made above is theoretical one. In real world situations, the borders are not always clear cut. Some doctrines contain elements of strategies as well, and the same holds vice versa. The European Security Strategy (ESS) is a typical illustration, since it lays down European values (which are a subset of principles) before it specifies ways to reach and enforce them. Likewise, the aforementioned Eisenhower doctrine not only contains basic principles, but also identifies possible paths of action in pursuing them.

For the time being, Europe does not have a space security doctrine. The documents and statements from above constitute a basis, because similar elements can be identified. Still, there is a lack of coherence, even if some of the documents refer to each other. These consistency gaps could be filled by a European space security doctrine in the long run. It is worth mentioning that the term doctrine sometimes has a negative connotation, because it is also associated with totalitarian regimes. Accordingly, there are voices rather calling for a European *identity* in space security.<sup>285</sup> Such identity is defined by values, traits and action.

Accordingly, European principles and derived values need to be laid down in any case. A future European space security identity will need to feature and frame the existing principles mentioned before, but it will also have to add new ones. These new principles will need to be derived from existing documents and from observable trends or unofficial statements. Some of the relevant principles are shortly described in the following.

Major existing European principles and values regarding security are enshrined in the Common Foreign and Security Policy (CFSP), as laid down in the treaty of Maastricht, Title V; Article J.1.<sup>286</sup> There, the security objectives are stated as

- *to safeguard the common values, fundamental interests and independence of the Union*
- *to strengthen the security of the Union and its Member States in all ways*
- *to preserve peace and strengthen international security, in accordance with the principles of the United*

<sup>285</sup> Schrogl, Kai-Uwe. "Towards a European Identity in Space for Security." 3<sup>rd</sup> International Conference on recent Advances in Space Technologies (RAST), 14-16 Jun. 2007, Istanbul, Turkey.

<sup>286</sup> "The Maastricht Treaty. Treaty on European Union" 7 Feb. 1992. European Union 20 Jan. 2009  
<http://www.eurotreaties.com/maastrichteu.pdf>

*Nations Charter as well as the principles of the Helsinki Final Act and the objectives of the Paris Charter*

- *to promote international co-operation*
- *to develop and consolidate democracy and the rule of law, and respect for human rights and fundamental freedoms.*

Further principles regarding security can be found in the European Security Strategy (ESS). As mentioned before it, calls for proactive handling of potential threats and for combining different instruments and assets. The most important principles include

- *effective multilateralism with an emphasis on strengthening the international order, institutions and rule of law*
- *promoting a stable international and regional environment for Europe*
- *cooperation with partners – directly or through multilateral institutions with the intention of preventing conflict and confronting security challenges before they turn into threats.*<sup>287</sup>

The von Wogau report reiterates some of these principles and relates them to space, emphasizing that the European space policy must not contribute to the militarisation or weaponisation of space. The report refers to multilateralism and calls for a soft power approach for Europe, which should act normatively to achieve specific milieu goals. A special role in this regard is assigned to diplomacy and international cooperation.

Guidelines for international relations in space have been set forth in the annex to the European Space Policy progress report of the European Commission.<sup>288</sup> It states that international space cooperation "must serve the interests of Europe while enabling it to contribute to global initiatives". Cooperation is also seen as having to be coherent with other EU policies, and a right balance between sharing of resources and European capacities is called for. Intra-European cooperation is demanded to "follow priorities set on the basis of the principle of mutual benefit". Moreover, European stakeholders are summoned to abide by U.N. Treaties and Conventions. Beyond such general guidelines, it is worth mentioning that not only

diplomacy can contribute to the conduct of space affairs and related endeavours, but that inversely space can also serve as a tool of diplomacy.<sup>289</sup>

The European identity in space security also needs to account for typical European traits like split actorship due to the strong role of the Member States. This peculiarity introduces an additional degree of diversity. With "normal" space actors, different private, military and civilian or commercial and non-profit sectors.

In the case of Europe, which can be considered as a space actor of attitudes can be found among public and its own kind, positions within the public sector might be heterogeneous as well, due to diverging national views.

A European identity in space security will have to feature the aforementioned guiding principles, like promotion of multilateralism, soft power approach, and combination of civilian, military or other tools as adequate. As such, it will reflect the Venus disposition of Europe that Kagan sees (see chapter 4.2). A European identity for space security will have to respect relevant European quirks like split actorship or relatively low budget levels as well. While accounting for existing elements, it will have to be scalable and allow for inclusion of new elements. Such new elements might be derived from changing circumstances, from modified assessments or from evolving European integration. A European Space Security Strategy (E3S), as suggested by IFSH and ESPI,<sup>290</sup> might be a first step towards a European identity in space security.

<sup>287</sup> Johnson, Rebecca E. "Europe's Space Policies and their Relevance to ESDP." Brussels: European Parliament, 2006.17. 4 Nov. 2008  
[<http://www.acronym.org.uk/space/PE381369EN.pdf>](http://www.acronym.org.uk/space/PE381369EN.pdf)

<sup>288</sup> Commission of the European Communities. European Space Policy Progress Report. Brussels: European Union, 2008

<sup>289</sup> Peter, Nicolas. "The EU's Emergent Space Diplomacy." Space Policy 23 (2007): 97-107.

<sup>290</sup> "In need for a European Space Security Strategy (E3S)." Dec. 2007. IFSH and ESPI 4 Dec. 2008  
[<http://www.espi.or.at/images/stories/dokumente/studies/memorandum%20on%20e3s.pdf>](http://www.espi.or.at/images/stories/dokumente/studies/memorandum%20on%20e3s.pdf)



## 5. At a Cross-Road: Current Negotiations on the Prevention of an Arms Race in Outer Space

Several proposals have been made to negotiations on a space weapons ban with Canada, China and Russia taking the lead<sup>291</sup> and the U.S. as a space-faring nation being involved in the debate. These main players link their position in this domain to their larger strategic positions, relationships<sup>292</sup> and their national space security doctrine.

When in the 1980s bilateral U.S.-Soviet arms control negotiations came to a standstill, the Soviet Union called upon the UN in August 1981 to put the question of an international agreement on banning space weapons on the agenda of the UNGA.<sup>293</sup> While previously UN discussions were centred around the "peaceful use" discussion and only implicitly covered the prevention of an arms race in outer space, in 1981 with the tabling of the UNGA draft Resolution entitled "Prevention of an Arms Race in Outer Space" (PAROS) the discussion for the first time explicitly appeared on the UNGA agenda.<sup>294</sup> Introduced by Italy on behalf of the group of Western States group, it called upon the Disarmament Committee (now: the Conference on Disarmament) "to consider as a matter of priority the question of negotiating effective and verifiable agreements (...) preventing an arms race in outer space" and to prohibit anti-satellite systems. In more explicit terms than before the UNGA expressed its view on the contradiction of military use of outer space to the OST.<sup>295</sup> From then on although always being a contentious subject, the Conference on Disarmament (CD) made some progress on a draft treaty until disagreement between China and the United States in 1995 brought negotiations to a standstill, when China insisted that it could only support the Fissile Material Control Treaty (FMCT) under discussion, if PAROS were considered at the same time. Since the U.S. had consistently argued that there is no

<sup>291</sup> Estabrooks, Sarah. op. cit; Axworthy, Lloyd. op. cit. 108.

<sup>292</sup> Pasco, Xavier. "A European Approach to Space Security". Maryland: Center for International and Security Studies at Maryland, 2006. 23.

<sup>293</sup> Wolter, Detlev. op. cit. 57.

<sup>294</sup> Estabrooks, Sarah. op. cit; Axworthy, Lloyd. op. cit. 106.

<sup>295</sup> Wolter, Detlev. op. cit. 57. (cf. A/RES/36/97 Chapter C).

space race, and therefore no need to negotiate PAROS, China's insistence on linking the items and the U.S.' opposition to PAROS blocked action on both items and the CD has remained paralysed and deadlocked since then.<sup>296</sup>

The topic of space security has been pushed on the agenda again over the past year as several developments have both fostered and undermined space security.<sup>297</sup> While the Chinese anti-satellite weapon test of January 2007 seemed to threaten the peaceful use of outer space and made the relations between China and the U.S. more difficult, the UN Committee on the Peaceful Uses of Outer Space and the UNGA went forward by adopting debris mitigation guidelines. Several delegations additionally submitted proposals on space security pursuant to the UNGA resolution on the prevention of an arms race in outer space (61/75 (2006)). The PAROS discussion also advanced, by having been included in the comprehensive programme of work that was nearly adopted in the CD.

While it is often claimed especially by the U.S., i.e. the Bush administration, that an arms race in space is inevitable, it should be an imperative for the international community to take effective preventive measures to avoid any possible arms race in space.<sup>298</sup> Proposals for space management or control regimes vary in scope from narrow efforts aimed at collision avoidance to wider traffic management to rules of the road, with all involving to some degree an international norm of cooperation in space.<sup>299</sup> The question

<sup>296</sup> Estabrooks, Sarah. op. cit.

<sup>297</sup> The Acronym Institute. "2007 First Committee Resolutions: Outer Space (Disarmament Aspects)." Disarmament Diplomacy 87 (Spring 2008). 10 Oct 2008. <<http://www.acronym.org.uk/dd/dd87/87unos.htm>>.

<sup>298</sup> Jingye, Cheng. "Treaties as an Approach to Reducing Space Vulnerabilities". Future Security in Space: Commercial, Military and Arms-Control Trade Offs. Eds. James Clay Moltz. Monterey: Center for Non-Proliferation Studies, 2002. 48. <<http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?id=38933&lng=en>>.

<sup>299</sup> Hitchens, Theresa. Future Security in Space- Charting a Cooperative Course. Center for Defense Information, Washington D.C.: 2004. 74.

arises whether one should aim for a comprehensive treaty, a weapon-specific instrument and / or confidence – building measures.

After having evaluated the existing legal structure and having indicated the need for a new regime securing the peaceful use of outer space, this section continues by giving an overview on the proposals at stake. In order to get a clear understanding on their differences, their content will be analysed according to different categories, which will serve as a comparing ground. This comparison is complemented by an evaluation of each of the proposals separately, thereby taking into account the national space security doctrines of the U.S., Russia, China and Europe (cf. section 3 & 4) in order to get an insight on the feasibility and the success of each single proposal.

## 5.1 The Treaty Approach

As has already been indicated the proposals at stake vary in their scope. While all of them propose a norm for the peaceful use of outer space, the degree and the way to achieve this norm varies. China and Russia have taken the so-called "treaty approach"<sup>300</sup>, proposing a comprehensive treaty prohibiting weapons in space.<sup>301</sup>

### 5.1.1 The Chinese Working Paper

China's position in the PAROS negotiations is outlined in its working paper entitled "China's Position on and Suggestions for Ways to Address the Issue of Prevention of An Arms Race in Outer Space (PAROS)"<sup>302</sup> at the CD. Before that Canada has been pursuing a number of creative options for dealing with the PAROS issue.<sup>303</sup> Amongst other things it issued a Working Paper concerning CD Action on Outer Space<sup>304</sup> in 1998 (renewed in

February 1999),<sup>305</sup> which proposes the establishment of an Ad Hoc Committee on Outer Space to commence negotiation of a convention and the appointment of a Special Coordinator "with an appropriate mandate to explore prospects for the early establishment of an Ad Hoc Committee with a negotiating mandate" as an interim measure toward full negotiations. Compared to Canada's Working Paper, the Chinese Proposal is far more explicit, as to what elements should be included in a legal instrument preventing the *weaponisation* of outer space.

According to this Chinese Working Paper, the CD is the "one and only" multilateral disarmament negotiation forum and should thus continue to play a primary role in the negotiations to prevent any form of arms race in outer space. Reasons for this position are the continuous work of the CD in this field and the experience already acquired. In particular the Working Paper proposes the re-establishment of the Ad Hoc Committee (AHC) "under agenda item 3 to negotiate and conclude an international legal instrument prohibiting the testing, deployment and use of weapons, weapons systems and components in outer space". The ultimate goal should be the conclusion of one or several international legal instruments as the existing instruments are ineffective, impose limited prohibitions, contain *lacunae* and ambiguities and do not provide necessary verification mechanisms. Additionally, they fail to reflect the latest aerospace technology developments and are thus not appropriate for the threats of the 21<sup>st</sup> century. Therefore, the proposal calls for a new international multilateral legal instrument, complementing the existing framework and guaranteeing the strict observance of the existing bilateral and multilateral agreements. China admits within this Working Paper that outer space has already been militarised to some extent with the use of military satellites therefore the primary goal is the prevention of weaponisation of and an arms race in outer space and to ban the testing, deployment and use of weapons, weapon systems and components in outer space. According to this proposal it is up to the space faring nations, i.e. "the powers with the greatest space capabilities" to prevent the weaponisation of and an arms race in outer space.

While the Chinese proposal in the opening paragraphs makes clear that China would actually prefer a legally binding treaty, this idea is now mitigated by claiming that the

<sup>300</sup> The reasons for China's and Russia's preference for this approach have been outlined before (cf. section 3).

<sup>301</sup> Dean, Jonathan. op. cit.

<sup>302</sup> Xiaodi, Hu. "Letter dated 9 February 2000 from the permanent representative of China to the Conference on Disarmament addressed to the Secretary-General of the Conference transmitting a working paper entitled "China's Position on and Suggestion for Ways to address the Issues of Prevention of an Arms Race in Outer Space at the Conference on Disarmament". 05 Dec. 2008.

<<http://www.fas.org/nuke/control/paros/news/cd1606.htm>>.

<sup>303</sup> Hitchens, Theresa. op. cit. 74.

<sup>304</sup> Conference on Disarmament. "Working Paper Concerning CD Action on Outer Space ". Canada. 21 Jan. 1998. 5 Dec. 2008  
<<http://www.fas.org/nuke/control/paros/docs/1487.htm>>.

<sup>305</sup> Dean, Jonathan. op. cit.; Petermann, Thomas, Christopher Coenen and Reinhard Grünwald. op. cit. 137.

document will only provide food for thought for a new legal instrument in “whatever form or by whatever name”. As basic obligations the document suggests not to test, deploy or use weapons, weapon systems or components. Considerations could also be given to an article on “permissible activities”, distinguishing between activities that are prohibited and those that are not, thereby contributing to a definition on lawful rights regarding utilisation of outer space. While the Working Paper acknowledges the need for verification mechanisms, it does not contain a concrete proposal but rather calls for further consideration on the technical feasibility of inspections and alternative means to prevent treaty violations. In addition to that it proposes the inclusion of an article on definitions, containing clear definitions of concepts like “outer space”, “weapon systems” and “components of weapon systems”. The working paper also calls for a provision covering appropriate national implementation measures to ensure compliance as well as an article on international cooperation as well as the establishment of an appropriate mechanism for consultations, clarifications and resolution of possible disputes in order to appropriately address suspicions and disputes as might arise. In this regard the proposal recalls the need for “appropriate, rational and workable confidence-building measures to enhance mutual trust”.

### 5.1.2 Chinese and Russian Proposal: The Next Step towards a Treaty

The Chinese Working Paper was followed by a joint proposal by the Chinese and the Russian delegation on this topic introduced in the CD in 2002 entitled **“Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Treat or Use of Force Against Outer Space Objects”**. It can be seen as a draft treaty building on the previous Chinese proposal.<sup>306</sup> While recalling the positive impact of the existing agreements on arms control and disarmament relevant to outer space as well as the existing legal regimes concerning outer space, the draft treaty emphasises the importance of its compliance as well as its inability to effectively prevent deployment of weapons and an arms race in outer space. According to this proposal a treaty is the only possible measure for preventing an arms race in outer space. As basic obligations it proposes:

- *Not to place in orbit around the Earth any objects carrying any kinds of weapons, not to install such weapons on celestial bodies, or 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, international organizations to participate in activities prohibited by this Treaty.*

Accordingly, in order to provide for the necessary implementation, each State Party to the Treaty shall, in accordance with its constitutional process, “take any measures necessary to prevent or prohibit any activity contrary to this Treaty”. In order to enhance mutual trust, the joint proposal asks each State Party to the Treaty to “promulgate its space programme, declare the locations and scopes of its space launch sites, the property and parameters of objects being launched into outer space, and notify the launching activities”. In case of suspicion, consultations in cooperation with the suspected State should be undertaken. The Treaty gives the right to request clarification from suspected States to each suspecting State. As a last resort to settle a possible dispute the Treaty proposes to refer the matter to the Executive Organisation of the Treaty for consideration. Additionally, the Executive Organisation of the Treaty should promote the objectives and implementation of the provisions of the Treaty, verify compliance and take necessary measures to end possible violation. Moreover, the Treaty also contains several procedural clauses covering the possibility to amend the Treaty, its duration and the possibility of withdrawal as well as signature, ratification and entry into force. There is no reference to the preferred negotiation forum.

The draft treaty was supplemented by subsequent thematic working papers,<sup>307</sup> identifying and considering particular elements of a treaty.<sup>308</sup> In this regard working paper **CD/1670** discusses definitions of related concepts like “Outer

<sup>307</sup> cf. CD/1769, CD/1778, CD/1779, CD/1780, CD/1781, CD/1784, CD/1785, and CD/1786

<sup>308</sup> Loshchinin, Valery and Cheng Jingye. “Letter dated 7 March 2007 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 third revised and amended version as of 12 February 2007 of the compilation and comments and suggestion to the working paper on PAROS contained in document CD/1679 dated 28 June 2002..” CD/1818. 14 March 2007 <<http://www.reachingcriticalwill.org/political/cd/papers07/Feb14RussiaNote.pdf>>.

<sup>306</sup> Pasco, Xavier. op. cit. 24.

Space", "Space Weapons", "Space Objects" and "Peaceful Use of Outer Space". It concludes that a future PAROS treaty might not need specific definitions, as on the one hand the Outer Space Treaty and the Moon Agreement do not have specific definitions, which has not led to any legal disputes and on the other hand reaching an agreement turns out to be almost impossible.<sup>309</sup>

Moreover the draft treaty has been supplemented by another working paper (**CD/1781**) summarising the existing proposals on the issue of verification. It concludes that due to the difficulty in negotiating verification provisions, the discussion should be put "on hold until conditions are ripe". Transparency and Confidence Building Measures (TCBMs) should compensate for the lack of verification measures (para. 19).<sup>310</sup>

### 5.1.3 Coping with National Security Doctrines: How to solve the Deadlock

The Russian-Chinese initiatives encountered a combination of two types of obstacles, which both also give an indication on the U.S. national space security doctrine: First, the strategic and military importance that the U.S. placed on space system in the post-Cold War era and secondly, the diplomatic reluctance by the U.S. to accept any new legal constraints on its military activities. Thus, the U.S. wants to stick with the general terms of the 1967 Outer Space Treaty, which leaves room for some military activities (see chapter 2). This U.S.' position however was interpreted by China as the American way to achieve space dominance through expanding its military uses of space, accelerating space weapon research and development and developing doctrinal theories. The U.S. however officially never agreed with this but merely reiterated that it "didn't see the need for a new treaty"<sup>311</sup>.

There have been a few attempts by different delegations within the CD and other related negotiation fora to break this deadlock and give new impetus through more flexible approaches to the CD debate.<sup>312</sup> In this regard Brazil tabled a programme of work in August 2000, calling for the creation of four Ad Hoc Committees, one of which should deal

<sup>309</sup> Reaching Critical Will. "Developing a new outer space treaty." 15 Oct. 2008.

<<http://www.reachingcriticalwill.org/legal/paros/ostreaty.html#critical>>.

<sup>310</sup> Reaching Critical Will. op. cit.

<sup>311</sup> Pasco, Xavier. op. cit. 24.

<sup>312</sup> Pasco, Xavier. op. cit. 25.

with PAROS.<sup>313</sup> This proposal was reiterated in January 2003 by the so-called Five Ambassadors Proposal,<sup>314</sup> which gave a more detailed proposal regarding the mandate of the relevant Ad Hoc Committee. Accordingly, it should "identify and examine, without limitation and without prejudice, any specific topics or proposals, which could include confidence-building or transparency measures, general principles, treaty commitments and the elaboration of a regime capable of preventing an arms race in outer space".<sup>315</sup> Both proposals prove to be an attempt to "delink" negotiations on a treaty to end fissile material production as well as discussions about nuclear disarmament from space security discussions. As a result of the Five Ambassador Proposal a first "exchange of views" occurred in an informal plenary session in May 2004. The inadequacy of the existing legal rules and the urgency of addressing space weapons were reiterated and it was proposed to assemble experts, users and other non governmental organisations in order to foster a common understanding of the PAROS debate.<sup>316</sup>

In the following China and Russia distributed two "non papers", which indicate a small shift in their national position by showing some flexibility. Accordingly, the two countries were ready to restart negotiations in an informal discussion forum. In March 2004 Canada together with United Nations Institute for Disarmament Research (UNIDIR) and some non-governmental organisations co-organised an international working group on "Security in Space", which reiterated the need for a coordinated and global approach to guaranteeing security in space. In October 2004, Russia pledged that it would not be the first country to deploy arms in space, thus inviting other space-faring countries to follow suit. In addition to these initiatives there has been a proposal for an enlarged discussion in a renewed forum by a number of countries. In this regard France claimed that it is ready to support a separate mandate for the special committee and Sweden proposed to continue discussing within the CD but taking into account the possibility of inviting a wide array of space stakeholders from both the public and private arenas.<sup>317</sup> This way an interaction

<sup>313</sup> Estabrooks, Sarah. "Preventing the weaponization of space: options for moving forward." Peace Magazine (July-Sep 2003).

<sup>314</sup> DC/1693/Rev.1 "Initiative of the Ambassadors Dembri, Lint, Reyes, Salander and Vega." Conference on Disarmament, 5 Sept. 2003. 5 Dec. 2008 <<http://www.reachingcriticalwill.org/political/cd/A5.pdf>>.

<sup>315</sup> Estabrooks, Sarah. op. cit.

<sup>316</sup> Pasco, Xavier. op. cit. 26.

<sup>317</sup> Ibid.

with a broader range of space-users would be guaranteed, which is a positive development in the light of an increasing use of dual-use space applications.

In January 2006 Russia introduced a UNGA Resolution (initially **UNGA 60/66** then **61/75** of December 2006) inviting "[...] all Member States to inform the Secretary-General" before the UNGA's "sixty-first session of their views on (...) international outer space transparency and confidence-building measures in the interest of maintaining international peace and security and promoting international cooperation and the prevention of an arms race in outer space". In the same year, China and Russia presented another Working Paper entitled "Transparency and Confidence-Building Measures in Outer Space Activities and the Prevention of Placement of Weapons in Outer Space" (**CD/1778**)<sup>318</sup> at the CD.<sup>319</sup>

In 2007 Russia agreed to adopt the compromise programme, calling for negotiations on an FMCT alone, thereby dropping the linkage to PAROS. The Chinese delegation rejected this programme of work.<sup>320</sup>

#### 5.1.4 The Chinese-Russian Draft Treaty (2008)

In February 2008 the Russian delegation introduced a joint Russia-China draft "Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects" (PPWT) based on elements proposed in the first working paper introduced to the CD in June 2002.<sup>321</sup> While most of the elements of

<sup>318</sup> Conference on Disarmament. "Transparency and Confidence-Building Measures in Outer Space Activities and the Prevention of Placement of Weapons in Outer Space." Working Paper CD/1778, 22 May 2006. Permanent Mission of the Russian Federation to the United Nations Office and Other International Organizations in Geneva 20 Oct. 2008 <<http://www.geneva.mid.ru/disarm/doc/CD1778-ENGLISH.pdf>>.

<sup>319</sup> Dickow, Marcel. "The European Union proposal for a Code of Conduct on Outer Space Activities" (forthcoming).  
<sup>320</sup> Reaching Critical Will. "Preventing the placement of weapons in outer space – A backgrounder on the draft treaty by Russia and China." 16 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PAROS-PPWT-factsheet.pdf>>.

<sup>321</sup> Reaching Critical Will. "Developing a new outer space treaty." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/ostreaty.html#critical>>; Reaching Critical Will. "Outer Space and the United Nations – A backgrounder on what is being done to prevent an arms race in outer space at the UN." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PAROS-UN-factsheet.pdf>>; Reaching Critical Will.

the Preamble remained the same, the new draft proposal does no longer explicitly refer to "a treaty-based prohibition" (para. 2, **CD/1679**) as the only solution. The basic obligation as contained in Art.II (previously para. III) remained the same. Provisions on national measures for implementation and on the use of outer space for research and peaceful purposes have been taken out. Instead the new draft contains two Articles (Art. IV and Art. V) that guarantee that the treaty cannot "be interpreted as impeding the rights of the States Parties" or "the realization (...) of the sovereign right for self-defense in accordance with Article 51". In addition the new draft goes a step further by introducing an Article (III) calling on State parties to "take all necessary measure to prevent any activity prohibited by the Treaty on its territory or in any other place under its jurisdiction or control". While the new draft treaty goes beyond the elements contained in the 2002 working paper<sup>322</sup> by defining terms like "outer space", "outer space object", "weapons in outer space", "placed" and "use of force", the relevant provisions on confidence-building measures have been reduced and are not as detailed anymore (see Art. VI **CD/1679**). Additionally, verification is put "on a hold" by providing for the possibility of subsequent negotiation of an additional protocol. Compliance should be enforced by an Executive Organisation, considering complaints of treaty violations, organising and conducting consultations with States parties and "tak[ing] measures to put an end to the violation of the Treaty" (Art. VIII). While similar provisions were contained in the working paper of 2002, the new draft treaty additionally mentions the possibility of an additional protocol covering "title, status, specific functions and forms of work" (Art. VIII) of the Executive Organisation of the treaty. Relevant provisions regarding duration and withdrawal remained the same. States do however no longer need to specify the extraordinary event jeopardising their supreme interest leading to the withdrawal (Art. XI). Regarding signature and ratification the new draft treaty goes further than merely reiterating the elements of the earlier working paper by specifying the Secretary-General of the United Nations as the Depository of the treaty (Art.XII).

"Preventing the placement of weapons in outer space – A backgrounder on the draft treaty by Russia and China." 16 Oct. 2008.

<<http://www.reachingcriticalwill.org/legal/paros/wgroup/PAROS-PPWT-factsheet.pdf>>.

<sup>322</sup> Reaching Critical Will. "Preventing the placement of weapons in outer space – A backgrounder on the draft treaty by Russia and China." 16 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PAROS-PPWT-factsheet.pdf>>.

The Russian Chinese Proposal does not cover the problem of "dual-use technologies", the questions of ground-based weapon systems including missile defence systems, the testing of space weapons, the use of space objects to conduct war on earth and the question of verification.<sup>323</sup> The obligation not to "resort to the threat or use of force against outer space objects" only covers systems placed in orbit or "installed on structures or bodies in outer space"<sup>324</sup> thus neglecting to restrict the development, testing or deployment of missile defence systems or other ground-based anti-satellite system as the reference to "hostile" actions in the draft's definition of "use of force" and "threat of force" is possible to interpret as not prohibiting tests against a country's own cooperative outer space objects employing ground-, sea, or air-based weapons. Additionally there are no provisions on the research, development, production or terrestrial storage of space-based weapons.<sup>325</sup> If neither development nor testing of space weapons but only their use is banned, it seems ambiguous whether China's and the U.S.'s test would violate the treaty. Moreover, the idea to leave verification to be covered by an additional protocol indicates the possibility of no or limited verification measures.<sup>326</sup> The wording "steps to put an end to the violation" with regard of the compliance enforcement by the Executive Organisation are rather vague and could be interpreted broadly and potentially in a way contrary to the national security interest of a Party to this Treaty (CTBTO).<sup>327</sup>

<sup>323</sup> Reaching Critical Will. op. cit.; Acheson, Ray. "First Committee Monitor." First Edition No.2. 6-10 Oct. 2008. <[www.reachingcriticalwill.org/political/1com/FCM08/week1.pdf](http://www.reachingcriticalwill.org/political/1com/FCM08/week1.pdf)>.

<sup>324</sup> Reaching Critical Will. "Developing a new outer space treaty." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/ostreaty.html#critical>>.

<sup>325</sup> Rocca, Christina B. "Letter dated 19 August 2008 from the Permanent Representative of the United States of America addressed to the Secretary-General of the Conference transmitting comments on 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)" as contained in document CD/1839 of 29 February 2008. <<http://www.reachingcriticalwill.org/political/cd/papers08/3session/CD1847.pdf>>.

<sup>326</sup> Reaching Critical Will. "Developing a new outer space treaty." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/ostreaty.html#critical>>; Reaching Critical Will. "Preventing the placement of weapons in outer space – A backgrounder on the draft treaty by Russia and China." 16 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PA ROS-PPWT-factsheet.pdf>>.

<sup>327</sup> Rocca, Christina B. op. cit.

The responses by the delegations in the CD give an indication of the security doctrines of the States. The delegation of the United States considers the Russian-Chinese proposal a "diplomatic ploy" to gain military advantage as it prohibits U.S. missile interceptor system from being installed in the Czech Republic and Poland but would not cover Chinese or Russian ground based missiles, which can reach space.<sup>328</sup> Moreover, the U.S. criticises the wording "threat of force" in the article on the objectives as being inappropriate. In this regard one can say that while

*the development, testing, and deployment of space weapon technologies constitutes a threat to the peaceful use of outer space by creating space debris, threatening the daily operation of civil and commercial space infrastructure, and threatening confidence, trust, and cooperation between states<sup>329</sup>*

this does not necessarily constitute a "threat of force"<sup>330</sup> and is thus not prohibited by the draft Treaty. Furthermore, it is unacceptable to the U.S. that amendments to the Treaty shall be approved by majority vote and thus cannot be blocked by one State party. Thereafter, the U.S. delegation argues, "No sovereign government would agree to a legally-binding instrument in which its national security interests could be jeopardized by a simple majority of subscribing States exercising their amendment rights."<sup>331</sup> The U.S. reiterate its support for voluntary TCBMs but underlines that these "are not substitute for an effective verification regime."<sup>332</sup> Regarding the introduction of an Executive Organisation, the U.S. refers to the existing arms control organisations like the Organization for the Prohibition of Chemical Weapons (OPCW) and the Comprehensive Nuclear Test Ban Treaty Organization (CNTBTO). Accordingly, both explicitly recognise the need for the settlement of disputes in conformity with the provisions of the Charter of the UN but do not have such an extraordinary mandate as the

<sup>328</sup> Reaching Critical Will. "Outer Space and the United Nations – A backgrounder on what is being done to prevent an arms race in outer space at the UN." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PA ROS-UN-factsheet.pdf>>.

<sup>329</sup> Reaching Critical Will. "CD Report 2 September 2008." Received via E-Mail.

<sup>330</sup> Reaching Critical Will. "CD Report 2 September 2008." Received via E-Mail.

<sup>331</sup> Ibid.

<sup>332</sup> Ibid.

"Executive Organization" proposed but offer "ultimate recourse to the United Nations Security Council"<sup>333</sup>. The U.S.' delegation thus concludes that "if anything several provisions in this submission are even more unacceptable than the draft agreement outlined in a 2002 Chinese-Russian working paper (**CD/1679**)"<sup>334</sup> and thus dismisses the proposal.<sup>335</sup> Table 5 gives the official American assessment of the Chinese-Russian Treaty Proposal.

Like the U.S. the EU considers the introduction of an effective and robust verification system as an integral part for the future treaty concerned with space security. Thus the mere reference to a future additional protocol is not sufficient. While appreciating Russian efforts to enhance international space security and to put the subject back on the agenda, the EU aims to focus on a more "pragmatic and incremental approach"<sup>336</sup>, creating confidence and transparency.<sup>337</sup>

Basing Mode	Space-Based Counter-Space	Space-Based Missile Defence	Ground-Based Counter-Space	Sea-Based Counter-Space	Air-Based Counter Space
- Research	no constraints or limitations				
- Development	no constraints or limitations				
- Testing against own country's space objects	prohibited	prohibited	permitted	permitted	permitted
- Production	no constraints or limitations				
- Storage	no constraints or limitations				
- Deployment	prohibited	prohibited	no constraints or limitations		
- Operational Use in a hostile action against another country's space objects	Prohibited see Russian-Chinese Treaty Proposal of 2008: Possible Implications (according to Rocca) (except when required for self-defence)				

<sup>333</sup> Rocca, Christina B. op. cit.

<sup>334</sup> Ibid.

<sup>335</sup> Reaching Critical Will. "Outer Space and the United Nations – A backgrounder on what is being done to prevent an arms race in outer space at the UN." 15 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PA-ROS-UN-factsheet.pdf>>.

<sup>336</sup> Reaching Critical Will. "Preventing the placement of weapons in outer space." 16 Oct. 2008. <<http://www.reachingcriticalwill.org/legal/paros/wgroup/PA-ROS-PPWT-factsheet.pdf>>.

<sup>337</sup> Dickow, Marcel. op. cit.

## 5.2 Confidence Building Measures: Part of a Treaty or Single Instrument

While the working paper and the draft treaty presented by Russia and China both suggest a treaty to include confidence-building measures, the latter could also be a single instrument in the forms of a code of conduct or space traffic management leading to more transparency and confidence in space. Such measures include notification of locations and scopes of space launches and sites, the property and parameters of objects being launched and notify the launching activities.<sup>338</sup> Being aware of the limitations of TCBMs, many States favour the negotiation of a legally-binding, multilateral, comprehensive treaty. Other accounts indicate that mistrust and threat perception persist, so that TCBMs will not prevent weaponisation of space.<sup>339</sup> On the positive side one can say that TCBMs are easier and quicker to negotiate and to implement than a treaty-based regime. Additionally, they offer the possibility to circumvent difficult definitional issues. Reference is often made to the positive example of the Hague Code of Conduct for Missile Proliferation and the Incidents at Sea and Prevention of Dangerous Military Activities Agreement.<sup>340</sup>

### 5.2.1 Translating the Ottawa Process to Space: A Way in-between

In order to break the deadlock Canada and NGOs often called for a space version of the Ottawa process.<sup>341</sup> When discussions regarding the ban on anti-personnel landmines seemed deadlocked, non-governmental organisations started a call to ban anti-personnel mines and later came to be supported by like-minded governments. The Ottawa process is considered to have provided a "dramatic breakthrough" due to its very fast settlement. The Ottawa convention on anti-personnel landmines was negotiated, signed and ratified in just over 23 months.<sup>342</sup> Similar

to this process, NGO representatives like Rebecca Johnson, The Acronym Institute, calls upon other NGOs and like-minded governments to overcome past disagreement over treaty versus confidence-building measures to space by submerging in collective measures around current procedural deadlocks. The novelty in this approach is mainly the independent negotiations outside the CD in the pattern of the Ottawa convention negotiations.<sup>343</sup> The form of the document is to be decided as a result of the discussion but will either be a Treaty to Prohibit Weapons and War in Space or in the form of a Code of Conduct for the peace-supporting, non-offensive and nonaggressive uses of space. Such a document would contain a ban "on the deployment and use of all kinds of weapons in space"<sup>344</sup> in the light of extending and strengthening the OST's prohibitions on weapons of mass destruction in space as to include lasers, other directed energy weapons and kinetic energy weapons as well as potential offensive innovations in this field. Moreover, it should ban the testing, deployment and use of anti-satellite (ASAT) weapons as to complete the existing legal structure.

While this approach is often referred to as an especially creative option,<sup>345</sup> a complete reproduction of the Ottawa process is not feasible, due to the unique role of the U.S. in the space weapons debate. Moreover, a treaty prohibiting space weaponisation would probably have to be the result of a global mobilisation. Considerations of the Ottawa process can however offer a sample case from which guidance can be derived. The support of developing nations was *inter alia* crucial to the progress in the Ottawa negotiations. Following the same line of logic, the connection between outer space and sustainable development should trigger the involvement of developing nations.<sup>346</sup> While the CD as a discussion forum is often criticised, the introduction of a new negotiation forum is to be done with caution: While being a positive development with the prospect of solving the deadlock in the CD, it should not evolve into a Review Conference opening up *inter alia* the entire OST, resulting in a negation of the principles, prohibitions and technical definitions contained.

<sup>338</sup> Estabrooks, Sarah. op. cit.

<sup>339</sup> Estabrooks, Sarah. op. cit. Tyson, Rhianna. op. cit. 5.

<sup>340</sup> Tyson, Rhianna. "Advancing a Cooperative Security Regime in outer Space." Policy Brief May 2007. New York: Global Security Institute, 2007. 2. 8 Aug. 2008.

<[http://www.gsinstitute.org/gsi/pubs/05\\_07\\_space\\_brief.pdf](http://www.gsinstitute.org/gsi/pubs/05_07_space_brief.pdf)>.

<sup>341</sup> Axworthy, Lloyd. op. cit. 105. for a detailed discussion of this approach, see: Petermann, Thomas, Christopher Coenen and Reinhard Grünwald. op. cit. 149-51.

<sup>342</sup> International Affairs and International Trade Canada. "The International Campaign to Ban Landmines". 18 July 2008. 22 Sept. 2008.

<[http://www.international.gc.ca/mines/campaign-inter-campagne/index.aspx?menu\\_id=3&menu=R](http://www.international.gc.ca/mines/campaign-inter-campagne/index.aspx?menu_id=3&menu=R)>.

<sup>343</sup> Estabrooks, Sarah. op. cit. & Axworthy, Lloyd. op. cit. 114-6.

<sup>344</sup> Axworthy, Lloyd. op. cit. 114-6.

<sup>345</sup> Hitchens, Theresa. Future op. cit. 74.

<sup>346</sup> Axworthy, Lloyd. op. cit. 114-6.

### *5.3 Code of Conduct on the Peaceful Use of Outer Space*

Another alternative approach to the negotiation of a legally binding instrument regulating the peaceful use of outer space is the Code-of-Conduct-Approach<sup>347</sup>. TCBMs can be regarded as an interim solution or complementary or elemental to a future, multilaterally-negotiated legally binding mechanism.<sup>348</sup> Among the disadvantages it is argued that, while a code of conduct circumvents long and fruitless discussions on definitional questions,<sup>349</sup> it might have a "deleterious effect" by detracting from the momentum to address long-term threats thus leading to stagnation.<sup>350</sup> Proponents of this approach however argue that provisions contained in the code of conduct are likely to become customary international law and are thus contribution to international practice regarding PAROS.<sup>351</sup> Code of conducts have in the past been very successful: people rely on them for vehicular traffic, ships, and planes, the U.S. and other militaries abide by them and Washington and Moscow have also signed codes of conduct, governing military interactions at sea, on the ground, and in the air. Model examples are the Incidents at Sea Agreement (1972), the Dangerous Military Practices Agreement (1989) and the Hague Code of Conduct (2002).

#### *5.3.1 Stimson's Code of Conduct*

The deadlock in the CD resulting from the CD's consensus decision making and the position of the Bush administration led in 2002 to a study by the Henry L. Stimson Center on the possible introduction of a code of conduct. The result was a list of advantages of a code of conduct and the subsequent introduction of three draft Code

<sup>347</sup> Definition "Code of Conduct": "a set of conventional principles and expectations that are considered binding on any person who is a member of a particular group." "code of conduct." WordNet® 3.0. Princeton University. 24 Nov. 2008. <<http://dictionary.reference.com/browse/code of conduct>>.

<sup>348</sup> Estabrooks, Sarah. "Preventing the weaponization of space: options for moving forward." Peace Magazine (July-Sep 2003); Tyson, Rhianna. op. cit. 4.

<sup>349</sup> "A Code of Conduct for Outer Space." New York: United Nations Headquarters, the NGO Committee on Disarmament, Peace and Security in cooperation with the UN Office for Disarmament Affairs, April 12, 2007. 3-4. NGO Committee on Disarmament, Peace and Security Website 20 Oct. 2008  
<[http://disarm.igc.org/april12krepon\\_\\_untalk.pdf](http://disarm.igc.org/april12krepon__untalk.pdf)>.

<sup>350</sup> Tyson, Rhianna. op. cit. 4.  
<sup>351</sup> Alves, P.G. op. cit. 56.

of Conducts in 2004, 2006 and 2007 respectively.<sup>352</sup> Proponents of this approach come from all kinds of fields e.g. Nongovernmental organisations from Canada, France, Japan, Russia and the U.S. the governments of Canada and Switzerland,<sup>353</sup> the Chief Executive Officer of Intelsat as well as key publications of the trade press in the U.S. (e.g. Aviation Week and Space Technology and Space News).<sup>354</sup> While the first proposal included definitions for the main terms such as debris, satellite directed energy, laser, ASAT and space weapons, the following two proposals refrained from defining any such terms in order to facilitate consensus reaching. Additionally, the provisions of the first proposal were very closely related to the discussions in the CD, while the 2006 version eliminated all of them and instead included the centre's own provisions such as debris mitigation and Space Traffic Management (see section 5.4).<sup>355</sup>

The 2007 ASAT Code of Conduct also lacks any definition on ASAT related terms. Accordingly, the discussions on a Code of Conduct (CoC) could take place in many different fora. In order to break the deadlock it is proposed that a small group of stakeholders has to work together to produce a higher common denominator, which will then be considered by a wider group of countries. The draft CoC reaffirms the commitment to the existing legal structure governing outer space and recognises its value.<sup>356</sup> None the less there are many *lacunae* in the existing structures, which in the absence of a CoC and due to growing concerns over military doctrines for space encourage "hedging strategies". The result would be "more hedging, less security, and a growing interest in devices that can interfere with or otherwise harm space objects".<sup>357</sup> Thus the idea behind the CoC is similar to the one for STM: "rules of the road" for space are needed as have been previously introduced for traffic, at sea, or in the air. "Without rules, there would be chaos, and chaos in space is not in the interest of military, business, and scientific establishments".<sup>358</sup> In line with the IR theories (see chapter 3) chaos could be understood as anarchy. In the

<sup>352</sup> Kodachi, Yukiko. op. cit.

<sup>353</sup> Stimson. "Model Text of a Code of Conduct for Responsible Space-Faring Nations." Press Release 24 Oct. 2007. 21 July 2008 <[www.stimson.org/space/?SN=WS200803121531](http://www.stimson.org/space/?SN=WS200803121531)>.

<sup>354</sup> "A Code of Conduct for Outer Space." op. cit.

<sup>355</sup> Kodachi, Yukiko. op. cit. 2-3.

<sup>356</sup> cf. preamble

<sup>357</sup> "A Code of Conduct for Outer Space." op. cit.

<sup>358</sup> Ibid.

absence of a regulatory authority, the international order could be understood as a self-help system (see Neorealism) with States developing national space doctrines, centring around weaponisation of space, leading to an arms race in space. This development can be countered through the development of rules. "These rules become norms, and norms can become treaties. (...). While rule breakers will not cease to exist, rules will help to isolate and penalise them".<sup>359</sup> Hence a CoC serves the same purpose as a treaty (i.e. increase in space security and promotion of peaceful use of outer space) but can be negotiated and implemented much faster. Instead of providing a definition for "space weapons" the CoC proposes using the formulation "no harmful interference with space objects"<sup>360</sup>, which could also be used as part of a treaty. While requiring a common understanding of what constitutes "harm", this approach is far easier than trying to define space weapons. Such a provision would be combined with elements of "advanced notice" in case of reasons to believe that activities in space "may inadvertently cause harmful interference and consultations when concerned about harmful interference".<sup>361</sup> As main obligations the CoC advocates to:

- *avoid collisions and dangerous maneuvers in space;*
- *create special "caution and safety areas" around satellites;*
- *develop safer traffic management practice in space;*
- *prohibit simulated attacks and anti-satellite tests in space;*
- *facilitate information exchanges, transparency and launch notification measures; and*
- *encourage more stringent space debris mitigation.*<sup>362</sup>

Moreover Stimson's CoC distinguishes between "rights of space-faring nations" and "responsibilities of space-faring nations". The first covers (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-defence in line with the Charter of the United Nations, (4) the right to be informed on matters

pertaining to the objectives and purposes of the CoC and (5) the right of consultation on matters of concern and the proper implementation of the CoC. As part of the obligations (i.e. responsibilities) it asks States to (1) respect the rights of other space-faring States and legitimate stakeholders, (2) to regulate stakeholders that operate within their territory or that use their space launch services in conformity with the objectives and purposes of the CoC, (3) to regulate the behaviour of its nationals in conformity with the objectives and purposes of the CoC, (4) to develop and abide by rules of safe space operation and traffic management, (5) to share information related to safe space operations and traffic management and to enhance cooperation on space situational awareness, (6) to mitigate and minimise space debris in accordance with the best practices established, (7) to refrain from harmful interference against space objects, (8) to consult with other space-faring States regarding activities of concern in space and to enhance cooperation, (9) to establish a consultative procedure to address and resolve questions relating to compliance with the CoC and to agree to additional measures needed to improve verification and effectiveness of the CoC.

The fact that the CoC does not include any prohibition against space-based missile defences reflects several considerations. Accordingly, defensive responses have to be distinguished from offensive attacks. Furthermore, tests of ballistic missile defences can be carried out in a way as not to create persistent space debris. Additionally, any provision preventing space-based missile defences would result in a non-acceptance of the CoC by the United States. The conclusion and implementation of a CoC will reduce the perceived need to test and deploy space-based missile defences.

As stated earlier CoC is a soft law instrument and is thus voluntary and not legally binding. This is why the CoC does not spell out any provisions regarding verification. Due to the soft law character the question arises whether one even has the right to hold a verification system. According to Art.7 States should refrain from "harmful interference against space objects". Hence, one could say that interference that would not cause "harm" is admitted and as far as verification is unharful, using the system to provide information will not be illegal. In a similar vein, the main provisions contained in the CoC are misleading considering the legally non-binding character of the CoC, which refers to "right" and "responsibility" in the recommendations' section. The article dealing

<sup>359</sup> Ibid.

<sup>360</sup> For a detailed account on the advantages of including the formulation "no harmful interference" refer to Samuel Black. "No Harmful Interference with Space Objects: The Key to Confidence-Building." Washington D.C.: The Henry L. Stimson Center, 2008.

<sup>361</sup> "A Code of Conduct for Outer Space." op. cit.

<sup>362</sup> Tyson, Rhianna. op. cit. 4.

with the information provision does not specify which information and on what frequency States are supposed to share them. Apart from that the Stimson CoC can have some very positive effects. In this regard it can be used as an early warning of trouble when a nation withholds promised data or acts contrary to information provided by generating the exchange of information and transparency. Additionally, the CoC discussions will provide confidence among States and this way little by little revitalise the stagnant discussion on the weaponisation of outer space.<sup>363</sup> Table 6 gives reasons for advocating a Code of Conduct.

International Astronautical Conference in Glasgow.<sup>367</sup>

#### 5.3.3.1 The Brachet Working Paper

According to the Brachet Working Paper<sup>368</sup> the Scientific and Technical Subcommittee should take up a more active role by setting up a working group "to produce, in consultation with relevant intergovernmental organisations such as ITU, a technical assessment of the situation and to suggest a way forward" (para. 27). Moreover it is proposed to involve not only governments and international organisations but also

The Choice For Space	
With Rules of the Road	Without Rules of the Road
<ul style="list-style-type: none"> <li>• International cooperation</li> <li>• Economic growth</li> <li>• Public safety</li> <li>• Exploration</li> <li>• More effective military operations</li> <li>• Fewer casualties</li> </ul>	<ul style="list-style-type: none"> <li>• Space weapons</li> <li>• Satellites at greater risk</li> <li>• More space debris</li> <li>• More military casualties</li> </ul>

Table 6: Reasons for Advocating a Code of Conduct<sup>364</sup>

#### 5.3.2 The Brachet Proposal

In June 2007 Gérard Brachet, in his positions as the chairman of the UNCOPUOS presented a working paper<sup>365</sup> on the potential future of COPUOS activities,<sup>366</sup> which became informally known as "rules of the road" to ensure "long-term space security". On this basis an informal working group was formed in February 2008. State Department and NASA representatives have been actively involved as well as representatives of the global telecommunications industry. Neither Russian nor Chinese representatives wanted to be involved however. In the long run this might raise some political frictions. The first meeting took place in the margins of COPUOS in June 2008 and the second one in September 2008 in the context of the

commercial operators of "large fleets of communication satellites (...) to report on policies and practices that they have undertaken to make their space operations more orderly and safe" (para. 27). There is no need to modify the existing legal framework but instead to develop recommendations dealing with new realities (para. 26). The new document should take the form of a CoC, which is not necessarily legally binding but does not preclude the possibility of a future treaty either.<sup>369</sup> Both the space debris situation as well as the growing number of actors in space make it necessary to agree on some "rules of the road" to "avoid interference, collisions and other mishaps that may hamper the use of outer space by all, particularly by the newcomers in space operations" (para 26). After having assessed the treaties and principles<sup>370</sup> in order to see what provisions are relevant to space, the committee should decide on how to proceed thereby taking into

<sup>363</sup> Kodachi, Yukiko. op. cit. 4-5.

<sup>364</sup> "Space Security or Space Weapons – A Guide to the Issues." Space Security Project. Washington D.C.: Stimson.

<sup>365</sup> cf. A / AC.105 / L.268

<[http://www.unoosa.org/pdf/limited/l/AC105\\_L268E.pdf](http://www.unoosa.org/pdf/limited/l/AC105_L268E.pdf)>.

<sup>366</sup> Hitchens, Theresa. "COPUOS wades into the next great space debate." Bulletin of the Atomic Scientists 26 June 2008. 27 July 2008. <<http://www.thebulletin.org/web-edition/features/copuos-wades-the-next-great-space-debate>>.

<sup>367</sup> Hitchens, Theresa. "Space Sustainability" International Efforts to Bound Space Activities." Washington D.C.: CSIS, 21 July 2008. <[www.csis.org/pdfs/csisjuly08.ppt](http://www.csis.org/pdfs/csisjuly08.ppt)>; Hitchens, Theresa. "COPUOS wades into the next great space debate." Bulletin of the Atomic Scientists 26 June 2008. 27 July 2008. <<http://www.thebulletin.org/web-edition/features/copuos-wades-the-next-great-space-debate>>.

<sup>368</sup> cf. A/AC.105/L.268

<sup>369</sup> Tyson, Rhianna. op. cit. 4.

<sup>370</sup> (for example, registration, notification in the event of an unplanned re-entry of a space object with a nuclear power source on board, assistance in the event of an emergency situation for astronauts).

account advises from the Legal Subcommittee. Accordingly, the Cosmic Study on Space Traffic Management, presented by IAA to the Committee could provide a starting point (para. 28).

#### 5.3.3.2 The Brachet Code of Conduct

After the introduction of his working paper in COPUOS, Gérard Brachet put together "an informal working group comprised primarily of government officials from the key Western space powers and representatives of the global telecommunications industry" to draft the so-called Brachet CoC.<sup>371</sup> The basic draft Brachet CoC is not yet complete. Thus a comparison with the other proposal is limited. It will supposedly be complete by February 2009 in order to be formally presented to COPUOS Scientific and Technical Subcommittee in February 2010. While the informal working group agreed to avoid confusion with the European Code of Conduct for Space Debris and the EU's CoC and Brachet has already briefed the EU Council on his draft, relations between the two proposals are officially not clarified. The Brachet CoC however seems to go beyond the other proposals regarding the topics under discussion. In this regard it is probably covering space weather and threats from other natural causes as well as measures on managing the electromagnetic spectrum in addition to the previously covered issues of space debris and safety of space operations. The whole approach seems to go beyond a mere political agreement by tackling very specific technical issues in the context of the three different orbits (i.e. LEO, GEO and MEO) and in cooperation with the relevant national experts. So far it is difficult to tell whether there will be any provision on verification and compliance is not ensured.

#### 5.3.3 The EU Code of Conduct

Brachet's proposal was followed in September 2007 by a EU call for COPUOS to consider a more specific code of conduct for space.<sup>372</sup> At the same time France announced its intention to formally propose that COPUOS should be given a specific mandate, starting in 2009 to address "long-term sustainable space activities". All three of these overlapping initiatives were on the table at the 11-20 June COPUOS meeting. An EU statement indicated the EU's commitment to a voluntary

<sup>371</sup> Hitchens, Theresa. "COPUOS wades into the next great space debate." Bulletin of the Atomic Scientists 26 June 2008. 27 July 2008. < <http://www.thebulletin.org/web-edition/features/copuos-wades-the-next-great-space-debate>>; Dickow, Marcel. op. cit.

<sup>372</sup> Hitchens, Theresa. op. cit.

CoC. COPUOS needed time for further consideration and postponed the item to next year under a new formal agenda item on space sustainability and asked the EU in form of its presidency to further elaborate on this subject.<sup>373</sup>

Already in 2007 the objective of preventing an arms race in outer space gained ground on the EU disarmament agenda.<sup>374</sup> In this regard Germany, during its EU presidency, had tried to bring arms control in space on the EU agenda by preparing a "Workshop on Security and Arms Control in Space and the Role of the EU". In this context German Ambassador Lüdeking, while acknowledging the importance of an incremental approach, referred to the CoC-Approach or rules of the road in the interim as "more promising"<sup>375</sup>: He emphasised that such an approach "does not preclude other parallel steps like political commitments, unilaterally declared moratoria etc., which could precede more far-reaching and ambitious objectives like a legally binding international treaty"<sup>376</sup>.

Even previously the EU, through its Presidency, was repeatedly stating that space activities should be developed in a peaceful environment and that an arms race in outer space should be prevented. This is in line with its voting behaviour on the relevant UNGA resolutions in the field. In addition to voting in favour of resolution **61/58** (PAROS), the EU has regularly and unanimously voted in favour of resolution (**61/75**) regarding transparency and confidence building measures in outer space activities. In 2006 most EU countries co-sponsored this resolution, inviting UN Member States to submit to the Secretary General "concrete proposals on international outer space transparency and confidence building measures"<sup>377</sup>. This already indicated a EU willingness to submit a proposal. Given the deadlock situation and the national space security doctrines at stake, one can see that the EU is focussing on measures to

<sup>373</sup> Hitchens, Theresa. op. cit.; Trezza, Carlo. "A possible comprehensive Code of Conduct for space objects in a EU perspective." EU Conference on security in space, the contribution of arms control and the role of the EU, 21-22 June 2007, Berlin. 2-4nisteri degli Affari Esteri 20 Oct. 2008 <<http://sedi.esteri.it/rapparm/2007.06.21.22-trezzal'interventoConferenzaUEBerlinoSpazio.rtf>>.

<sup>374</sup> Trezza, Carlo. op. cit.

<sup>375</sup> Ambassador Rüdiger Lüdeking, Deputy Commissioner of the Federal Government for Arms Control and Disarmament, qtd. in the Conclusions of the Workshop on Security and Arms Control in Space and the Role of the EU, 21-22 June 2007, Berlin. Paragraph 14. in Dickow, Marcel. op. cit.

<sup>376</sup> Ibid.

<sup>377</sup> Trezza, Carlo. op. cit.

strengthen transparency, confidence and security in the peaceful uses of outer space which would then be enshrined in a possible Code of Conduct. This is quite a promising approach as

*even the 2001 US Space Commission Report had endorsed the concept of "rules of the road on space", and that policies and practices which are consistent with US interests, such as debris mitigation practices (which should be part and parcel of a Code of Conduct), are contemplated by the new US National Space Policy. We see such measures as complementary and conducive to the prevention of an arms race in outer space and as a possible first step towards a consensus.*<sup>378</sup>

On a national basis, by evaluating the existing legally binding instruments, examining the studies regarding a possible Code of Conduct carried out by research centres like the Stimson's Code of Conduct as well as reflections by Theresa Hitchens and Geoffrey Forden and recalling positive CoC examples like the Hague Code of Conduct (HCOC), Italy had already done some preliminary work on a CoC. Possible overlaps between future activities in the CD and in COPUOS as well as gaps in the existing legal structure were noted. Given the increased number of actors in space and the resulting higher possibility of frictions and collisions, the objective of a EU CoC should be "to give greater coherence and complementarity to existing instruments and overcome the distinction between military and civilian space assets which seems to be an impediment to a comprehensive approach".<sup>379</sup> According to the Italian research the general principles for a CoC should be:

- *to adhere to and fully implement the existing legally binding commitments in particular O.S.T.;*
- *to adhere and implement the non legally binding instruments;*
- *to prevent space from becoming an area of conflict;*
- *to recognise that satellites and use of space in general are indispensable elements for safeguarding national security and strategic stability;*
- *to refrain from harmful use of space objects towards other space objects;*
- *to resolve any conflict created by actions in space by peaceful means.*

<sup>378</sup> Ibid.

<sup>379</sup> Ibid.

It should provide answers to the frequently discussed topics as notification, transparency measures, preventive measures, information exchanges, monitoring, registration, special caution zones, cooperation and compliance. This so-called "food for thought" became the basis for the EU discussions on a CoC. The advantage of a European CoC is that given that EU Member States do not necessarily have identical national views on all the aspects in the PAROS discussion, the compromise emerging from "EU deliberations could form a useful term of reference for the possible way ahead in the appropriate multilateral fora"<sup>380</sup>. Additionally, the EU is in a good position to negotiate with the three main actors involved in the discussion, i.e. Russia, China and the U.S., and is not subject to the same traditional mistrust. This way it can serve as a mediator between the three parties, trying to find a middle ground between the Russian and Chinese proposal and the U.S.' position.<sup>381</sup> The EU's approach came at the right time, with the new U.S. administration taking office in 2009.<sup>382</sup>

#### 5.3.3.1 Content of the EU's Code of Conduct

The Portuguese Presidency drafted a first version of a EU CoC in the second term of 2007. An updated version entitled "Best Practices guidelines for / Code of Conduct on Outer Space Activities" was circulated in the first quarter of 2008, with elements to be commented upon by March 2008. Being initially intended to be presented to the CD in 2008, the document was eventually agreed upon in CODUN at the end of the Slovenian Presidency in June 2008. Additionally, the Netherlands proposed a document, indicating the next steps regarding discussions with key partners and identifying modalities for promoting the document in the relevant international forums. The EU's CoC proposal became a French presidency priority.<sup>383</sup> As indicated earlier, drafting a CoC and making it acceptable for as many States as possible was the main objective of the EU.<sup>384</sup> Briefings with the U.S. on the CoC were conducted, with the U.S. submitting a list of amendments. Bilateral discussions with China and Russia have taken place as well.<sup>385</sup> The

<sup>380</sup> Ibid.

<sup>381</sup> Couchoud qtd. in Selding, Peter B., de. op. cit.

<sup>382</sup> Dickow, Marcel. op. cit.

<sup>383</sup> Couchoud, Rosine. op. cit.

<sup>384</sup> This section is to a large degree drawn on the related discussion in Dickow, Marcel. "The European Union proposal for a Code of Conduct on Outer Space Activities" (forthcoming).

<sup>385</sup> Hitchens, Theresa. "Space Sustainability" International Efforts to Bound Space Activities." Washington D.C.: CSIS,

draft CoC was issued by the European Union in December 2008.

The EU's CoC consists of a Preamble and 12 Articles subdivided into four sections: I. Core Principles and Objectives, II. General Measures, III. Co-operation Mechanisms and IV. Organisational Aspects. Sections II. and III., dealing with Measures on Space Operation (Art. 4), Space Debris Control and Mitigation (Art. 5), Notification, Registration, Information as well as Consultation and Investigation (Art. 6- 10), contain the main obligations or recommendations of the code. The EU reaffirms its commitment to the existing legal structure and calls for the "widest possible adherence" as well as for progress to its implementation.<sup>386</sup> Before introducing the main obligations, the EU clarifies the main underlying principles, which clearly show the mediating position of the EU, by taking into account the main concerns of the main actors in the discussion. Thereafter, the EU's CoC is based on the principles of: (1) freedom of access to space for all for peaceful purposes [accounts for U.S. claims]; (2) preservation of the security and integrity of space objects in orbit; (3) due consideration to the legitimate defence interest of States (Preamble). Additionally, it provides for the following general principles (Art. 2):

*the freedom of access to, exploration and use of outer space and exploitation of space objects for peaceful purposes without interference, fully respecting the security, safety and integrity of space objects in orbit.*

Based on the STM proposal as indicated earlier, the EU introduces certain rules of the road as part of their main obligations. Those provisions are complemented by relevant provisions covering space debris and notification of manoeuvring. The EU CoC also aims at complementing the Registration convention by calling upon subscribing States to register "space objects in accordance with the Convention on Registration of Objects launched in 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 stated in UNGA

21 July 2008. <[www.cdi.org/pdfs/csisjuly08.ppt](http://www.cdi.org/pdfs/csisjuly08.ppt)>; Hitchens, Theresa. "COPUOS wades into the next great space debate." Bulletin of the Atomic Scientists 26 June 2008. 27 July 2008. <<http://www.thebulletin.org/web-edition/features/copuos-wades-the-next-great-space-debate>>.

<sup>386</sup> cf. Preamble and Art.3.

Resolution 62/101" (Art. 7). Additionally, subscribing States share on an "annual basis and where available information on" national space policies and strategies including objectives, rules of the road, space debris strategies and environmental conditions and forecasts (Art. 8). Compliance and verification are ensured through a consultation and investigation mechanism. The first allows subscribing States "with reason to believe that certain space activities conducted by one or more Subscribing State or States are, or may be, contrary to the purposes of the Code" to request consultations (Art. 9.1). The investigation mechanism is to be agreed upon at a later stage but "could be based on national information and/or national means of investigation provided on a voluntary basis by the Subscribing States and on a roster of internationally recognised experts to undertake an investigation" (Art. 9.2). Additionally, in order to ensure effective implementation the CoC provides for biennial meetings "or as otherwise agreed" with the purpose of reviewing the implementation of the CoC and the evolution of the CoC (Art. 10.1). A "Central Point of Contact" will be nominated to deal with new subscriptions, to maintain the information-sharing system, serve as a secretariat at the biennial meetings and carry out other tasks as agreed (Art. 11).

When comparing the first draft and the version now agreed upon one can see a shift in the language of the proposals. Formulations like "shall" and "agree" have been replaced with "will" and "decide" in all relevant provisions. This way the whole proposal has become stronger in its wording. Additionally, it is no longer entitled "Best Practice Guidelines" but rather "Code of Conduct", most probably due to the fact that the proposal already became known as the "EU proposal for a CoC" by actors outside the EU. Moreover, any direct references to the UN Charter or the UNGA resolutions have been taken out. Instead a greater emphasis is placed on national doctrines. Obviously, no proposal containing reference to UN Resolutions would be acceptable to the U.S. Yet, an explicit reference to Art. 53 UN Charter "right of self-defense" which the U.S. and the UK would have liked to be included, could not be approved by several EU Member States (e.g. Germany, Italy and the Scandinavian countries). Thus, a compromise was found with a somewhat weaker wording, increasing the likelihood of successful third-party talks. In this context it is important to point out that the EU approach eventually aims at a legally binding treaty. For tactical reasons, the EU chose a "tiered process

trying to overcome the reluctance of the U.S. to negotiate on any legally binding instruments".<sup>387</sup>

While Art. 4.2 establishes concrete space debris mitigation guidelines, Art. 4.3 softens these provisions by permitting manoeuvres provided that "all reasonable measures to minimise the risks of collision" have been taken. Moreover, the CoC does not propose any provision on temporary interference with space objects. The EU's CoC also does not foresee any provision for the preferred negotiation forum. In this regard, contrary to its objective as put forward in Italy's "food for thought", it does not offer any solution to the possible overlaps between future activities in the CD and in COPUOS. In the same vein it does not go beyond the mere reiteration of the Registration Convention.

Compared to the Russian Chinese proposal, which focused on negative definitions (i.e. prohibitions) the EU CoC takes a behavioural approach by focussing on behavioural recommendations, i.e. in choosing the latter approach the EU has the advantage of circumventing negotiations of definitional questions but also precludes itself from "specifying actions, situations, timeframes and spatial conditions"<sup>388</sup> in detail. Thus the EU CoC misses provisions tackling "keep-out zones" and specifications of "long-lived space debris"<sup>389</sup>. Compared to previous CoC proposals one can say that the Stimson CoC is significantly more far-reaching than the actual EU proposal (see section 5.2).

## 5.4 A Comprehensive Space Traffic Management

One of the most often referred to all encompassing solutions is the proposal of a comprehensive space traffic management (STM) regime with the most prominent proponent being the International Academy of Astronautics (IAA). Thereafter, space traffic management is "a set of technical and regulatory provisions for guaranteeing safe access to outer space, operation in outer space and return from outer space to Earth free from physical or radio-frequency interference".<sup>390</sup> STM is not tackling single

issues, but regards the regulation of space activities as a comprehensive concept and is thus often compared to as a "big bang" comprehensive approach. The underlying concept is based on the idea of regarding space activities "as a traffic system and not as disconnected activities of States"<sup>391</sup>. As a starting point the IAA Report analyses two dimensions: the scientific and technical area and the regulatory field and then applies theses to analysing three phases of space traffic: the launch phase, the in-orbit operation phase and the re-entry phase. It concludes that an international inter-governmental agreement should contain three parts entitled: (1) Securing the Information Needs, (2) Notification System and (3) Traffic Management.<sup>392</sup>

While the existing treaties and regulations are neither complete nor harmonised, with some provision being more advanced than others<sup>393</sup> and many provisions missing at all (i.e. on the avoidance of polluting the atmosphere / troposphere or any obligation regarding pre-launch notifications), they still provide a good basis and thus should form the basic elements of a comprehensive space traffic management system. Thus, the basic idea of a comprehensive space traffic management is countering the *lacunae* and ambiguous provisions within the existing framework in the form of a new international inter-governmental agreement, being complementary to the existing legal structure. The IAA Report considers STM as the appropriate means for guaranteeing the conduct of space activities in accordance with the "no harmful interference"-clause as contained in the OST.<sup>394</sup>

In order to secure the information needed to avoid collision, the IAA report proposes the inclusion of provisions defining the necessary data, setting the provisions for the data (i.e. sources, governmental as well as private, incl. financing) in order to guarantee the establishment of a database and distribution mechanisms for data (format of the database access to data on request, collision warning as a service), which would also include an information service on space weather. In this regard the IAA report also proposes a

<sup>387</sup> Dickow, Marcel. op. cit.

<sup>388</sup> Ibid.

<sup>389</sup> Ibid.

<sup>390</sup> Contant-Jorgenson, Petr Lála and Kai-Uwe Schrogl. Cosmic Study on Space Traffic Management. Paris: 2006. 10-1.

<sup>391</sup> Schrogl, Kai-Uwe. "Space Traffic Management – The new comprehensive approach for regulating the use of outer space." Flash Report #3. Vienna: European Space Policy Institute, 2007. 3.

<sup>392</sup> Ibid. 1, 3.

<sup>393</sup> ITU rules on the avoidance of radio-frequency

interference are further developed than rules covering the avoidance of physical interference.

<sup>394</sup> Contant-Jorgenson, Petr Lála and Kai-Uwe Schrogl. op. cit. 10.

notification system including (1) pre-launch notification improving the data provided based on the Registration Convention, (2) pre-notification of orbital manoeuvres and active de-orbiting as well as (3) information on the end of active and operational lifetime of space objects. The comprehensive STM should provide rules based on the evolving database, and can be summarised as follows:

- *safety provisions for launches;*
- *safety provisions for human spaceflight;*
- *zoning (selection of orbits);*
- *right of way rules for in-orbit phases;*
- *prioritisation with regard to manoeuvre;*
- *specific provisions for GEO and LEO respectively;*
- *debris mitigation mechanisms;*
- *safety provisions for re-entries;*
- *environmental provisions.*

The IAA Report also calls for several definitions to be included in the STM. In this regard it aims at clarifying the concept of the "launching State" as well as the definition of "space objects". Moreover, there should be provisions covering the question of liability in case of damage caused as a result of STM rules. The institutional link with the International Civil Aviation Organization and the International Telecommunication Union should be clarified. Finally, the STM should set forth an enforcement mechanisms as well as a provision covering dispute settlement.<sup>395</sup>

A comprehensive Space Traffic Management could be complementary to existing or future legal regulations, solving the existing deadlock in the CD. In this regard, the STM should be understood as a permanent solution and not as an interim tool. A Code of Conduct could be one of its elements. However as the implementation of a STM requires additional regulation, which can be understood as infringing the freedom of use of outer space as guaranteed by the OST, it remains questionable whether the U.S. will be willing to discuss the matter. Being aware of this problem, the IAA calls for an "international consensus on internationally binding regulations" which "will only be achieved, if States identify certain urgency and expect a specific as well as collective benefit including an economic benefit from this"<sup>396</sup>. In order for the "traffic management" of outer space to be successful the information basis in form of a Space

Situational Awareness (SSA) has to be secured. Additionally, it requires a pre-launch notification system combined with a notification system on in-orbit manoeuvres complemented by a notification system of orbital manoeuvres and re-entries and on the end-of-lifetime of space objects. STM requires a strong oversight.<sup>397</sup>

## 5.5 Comparative Matrix

After having given an overview on the proposals at stake and having analysed their content by drawing on the previous chapter on the national space security doctrines of the U.S., Russia, China and Europe, the differences are shown in a comparative matrix. In this regard several categories serve as a ground for comparison, namely

- *the proposed negotiation forum of each proposal,*
- *the form the new document should take,*
- *how liability is addressed,*
- *how registration and notification are improved,*
- *whether ASATs are covered,*
- *which types of weapons are covered,*
- *whether research, development, production and storage of weapons are forbidden, or only the deployment,*
- *how the definitional question is solved,*
- *whether the Moon is covered,*
- *whether any TCBMs are proposed,*
- *how verification is guaranteed.*

These categories capture the essence of the various alternatives. Their comparison also shows the similarities and differences of each proposal and helps to evaluate their respective added value. Moreover, the synopsis illustrates the development of approaches and underlying concepts over time.

<sup>395</sup> Contant-Jorgenson, Petr Lála and Kai-Uwe Schrogl. op. cit. 14-5.

<sup>396</sup> Contant-Jorgenson, Petr Lála and Kai-Uwe Schrogl. op. cit. 10.

<sup>397</sup> Schrogl, Kai-Uwe. op. cit. 3-4.



	<b>Chinese Working Paper (2000)</b>	<b>Chinese-Russian Treaty Proposal (2001)</b>	<b>Chinese-Russian Treaty Proposal (2008)</b>	<b>Ottawa Process for Space</b>	<b>IAA- Report on Space Traffic Management</b>	<b>Stimson Code of Conduct (2007)</b>	<b>Brachet Working Paper (2007)</b>	<b>Brachet CoC</b>	<b>EU CoC</b>
<b>Negotiation Forum</b>	- CD as one and only disarmament forum - re-establishment of the AdHoc Committee	- n.a.	- n.a.	- NGOs and supportive governments discuss outside the CD	- monitored by UNCOPOUS - handled by UNOOSA - operational oversight either by UNCOPOUS / UNOOSA or ICAO or a NGO - need to clarify institutional link with International Civil Aviation Organisation and the ITU	- small group of stakeholders producing common denominator result, which might then be considered by a wider group of countries	- more active role for Scientific and Technical Subcommittee - set up a working group within the Scientific and Technical Subcommittee working in consultation with relevant intergovernmental organisations (e.g ITU) - involve governments, international organisations and commercial operators in negotiation	- drafting process: informal working group comprised of government officials, representatives of the global telecommunications industry - negotiation: COPUOS Scientific and Technical Subcommittee	- bilateral negotiations after agreement on draft text within the EU - agreed upon in CODUN
<b>Perception of Existing Legal Structures</b>	- ineffective - provides only limited prohibitions - contains many lacunae and ambiguities - outdated: does not reflect the latest development in aerospace technology	- played a positive role - ineffective - thus: building blocks for new proposal	- played a positive role - thus: building blocks for new proposal		- unique rules exist, but are incomplete and not harmonised (provisions in some particular field go further than others) - building blocks	- recognises value of mechanisms - lacunae in existing structure and absence of proper negotiations lead less security	- no need to modify existing legal framework but provision of recommendations covering new realities	- no need to modify existing legal framework but provision of recommendations covering new realities	- importance of widest possible adherence to relevant existing international instruments - need for making progress towards adherence to, and implementation of, the relevant existing framework – building block
<b>Form of new Document</b>	- food for thought for legally binding treaty	- treaty	- treaty	- either Treaty or Code of Conduct (to be decided as a result of the discussion)	- international inter-governmental agreement; eventually to be superseded (in 2020) by a comprehensive Outer Space Convention - comprehensive solution: could include CoC	- Code of Conduct / soft law - voluntary - as interim solution; rules can become norms which can become part of a treaty	- CoC / soft-law : interim solution or first step towards treaty, can be element of a to be discussed treaty or complementary; - should include existing provisions and new ones; - take STM as a basis for discussion	- CoC / soft-law : interim solution or first step towards treaty, can be element of a to be discussed treaty or complementary; - should include existing provisions and new ones; - take STM as a basis for discussion	CoC on voluntary basis but including investigation mechanism ensuring implementation
<b>Liability</b>	- n.a.	- n.a.	- n.a.	- n.a.	- provides framework and main features for national licensing regimes (incl. insurance provisions)	- no obligation or liability, compliance on pure voluntary basis - responsibility to regulate stakeholders that operate within their territory or that use their space launch services in conformity with Code of Conduct - responsibility to regulate the behaviour of its nationals in conformity with the objectives and purposes of this Code of Conduct	- n.a.	- draft not finalised yet from the structure it covers: - space debris mitigation - need for improving the safety of space operations - managing the electromagnetic spectrum - space weather and threats from other natural causes - international mechanisms to improve safety and security of space activities	- n.a.

	Chinese Working Paper (2000)	Chinese-Russian Treaty Proposal (2001)	Chinese-Russian Treaty Proposal (2008)	Ottawa Process for Space	IAA- Report on Space Traffic Management	Stimson Code of Conduct (2007)	Brachet Working Paper (2007)	Brachet CoC	EU CoC
<b>Registration / Notification</b>	- n.a.	- each State shall promulgate its space programme, declare locations and scopes of space launch sites, the property and parameters of objects being launched, and notify launching activities	- each State shall promulgate its space programme, declare locations and scopes of space launch sites, the property and parameters of objects being launched, and notify launching activities	- n.a.	- notification system including: (1) pre-launch notification; (2) notification on orbital manoeuvres and active de-orbiting; (3) information on end of active and operational lifetime of space objects	- responsibility to develop and abide by rules of safe space operation and traffic management - responsibility to share information related to safe space operations and traffic management and to enhance cooperation on space situational awareness	- STM		- establish and implement national policies and procedures to minimise the possibility of accidents in space, collisions of space objects of any form of harmful interference - notification in a timely manner (feasible and practicable) of scheduled manoeuvres, orbital change and re-entry as well as other relevant orbital parameters, collisions or accidents taken place, malfunctioning of orbiting space objects with risk of orbital decay or collision - register relevant data set forth in Registration Convention, the related resolution UNGA 62/101
<b>ASAT / Nuclear Tests</b>	- ban testing, deployment and use of weapons, weapon systems and components - future treaty should distinguish between forbidden and permissible activities	-not to resort to the threat or use of force against outer space objects →BUT: does an ASAT constitute a "threat or use of force"?  - not to place in orbit around the Earth any objects carrying <b>any kinds of weapons</b> , not to install such weapons on celestial bodies, or 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→BUT: does an ASAT constitute a "threat or use of force"?  - not to place in orbit around the Earth any objects carrying <b>any kinds of weapons</b> not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner.  - Not to assist or encourage other States, groups of States, international organisations to participate in activities prohibited by this Treaty.	- n.a.	- n.a.  - more concerned with Space Debris Guidelines, Space Surveillance and Collision Avoidance - provisions on improving the situation in Space Traffic and not regarding weaponisation or militarisation of space	- responsibility to refrain from harmful interference against space objects  - responsibility to refrain from harmful interference against space objects	- STM and existing legal framework as building block - new provisions have to be agreed upon after investigation by Scientific and Technical Subcommittee		- refrain from intentional destruction of any on-orbit space object or other harmful activities which may generate long-lived space debris  - refrain from any harmful activities which may generate long-lived space debris
<b>Conventional Weapons / Lasers/ Kinetic Energy Weapons /WMDs</b>									
<b>Ground-based Weapons Systems</b>		- n.a.	- n.a.	- n.a.					- refrain from any harmful activities which may generate long-lived space debris



	<b>Chinese Working Paper (2000)</b>	<b>Chinese-Russian Treaty Proposal (2001)</b>	<b>Chinese-Russian Treaty Proposal (2008)</b>	<b>Ottawa Process for Space</b>	<b>IAA- Report on Space Traffic Mgmt.</b>	<b>Stimson Code of Conduct (2007)</b>	<b>Brachet Working Paper</b>	<b>Brachet CoC</b>	<b>EU CoC</b>
<b>Dual-use Technology</b>	- n.a.	- n.a. - could be covered by term "any kind of weapon" but definitional problem of "weapon"	- n.a. - could be covered by term "any kind of weapon" but definitional problem of "weapon"	- n.a.					- refrain from any harmful activities which may generate long-lived space debris
<b>Research</b>	- n.a.	- n.a.	- n.a.	- n.a.					- refrain from any harmful activities which may generate long-lived space debris
<b>Development</b>	- n.a.	- n.a.	- n.a.	- n.a.					- n.a.
<b>Production</b>	- n.a.	- n.a.	- n.a.	- n.a.					- n.a.
<b>Storage</b>	- n.a.	- n.a.	- n.a.	- n.a.					- n.a.
<b>Deployment</b>	- ban deployment and use of weapons, weapon systems and components	- not to place in orbit around the Earth any objects carrying <b>any kinds of weapons</b> , not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner.	- not to place in orbit around the Earth any objects carrying <b>any kinds of weapons</b> , not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner.  - partially prohibited: space-based counter-space and space-based missile defence is prohibited  - no provision regarding ground-based -, sea-based – and air-based counter-space	- ban on the deployment and use of all kinds of weapons in space					- refrain from any harmful activities which may generate long-lived space debris
<b>Operational Use in a hostile Action against another Country's Space Object</b>			- prohibited BUT: right of self-defence (Art. 51)	- ban on the deployment and use of all kinds of weapons in space		- responsibility to respect the rights of other space-faring States and legitimate stakeholders - responsibility to refrain from harmful interference against space objects			- recognition of freedom of access for all for peaceful purposes - inherent right of individual or collective self-defence
<b>Definitional Questions</b>	- should eventually include an article in definitions of the concepts: "outer space", "weapon systems" and "components of weapon systems"	subsequent thematic working paper CD/1670	- "outer space" - "outer space object" - "weapons in outer space" - "placed" in outer space - "use of force" or "threat of force"	- n.a.	- "launching State" - "space objects"	- CoC proposes to use the formulation "no harmful interference with space objects"	none, but maybe glossary on technical terms	- n.a.	- n.a.
<b>The Moon</b>	- n.a.	not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner <sup>398</sup>	not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner <sup>399</sup>	- n.a.	- n.a.			- n.a.	- n.a.

<sup>398</sup> It remains unclear whether the term "celestial bodies" includes the Moon. The OST distinguished between the Moon and other celestial bodies.

	<b>Chinese Working Paper (2000)</b>	<b>Chinese-Russian Treaty Proposal (2001)</b>	<b>Chinese-Russian Treaty Proposal (2008)</b>	<b>Ottawa Process for Space</b>	<b>IAA- Report on Space Traffic Mgmt.</b>	<b>Stimson Code of Conduct (2007)</b>	<b>Brachet Working Paper (2007)</b>	<b>Brachet CoC</b>	<b>EU CoC</b>
<b>TCBMs</b>	- appropriate , rational and workable confidence-building measures - consultation mechanism - dispute settlement mechanism	- introduction of an Executive organisation to enforce compliance which organises and conducts consultations in case of suspicion - each State shall promulgate its space programme, declare locations and scopes of space launch sites, the property and parameters of objects being launched, and notify launching activities - Dispute settlement: consultations and cooperation with suspected State Party, right to request clarification from the suspected State Party, suspected State Party shall provide clarifications	- States parties shall practice on a voluntary basis confidence-building measures	- n.a.	- notification system & traffic management - provision on dispute settlement	- responsibility to consult with other space-faring States regarding activities of concern in space and to enhance cooperation - responsibility to establish consultative procedures to address and resolve questions relating to compliance		- n.a.	- subscribing States share on an annual basis and where available information on: national space policies and strategies (incl. basic objectives for security and defence related activities), national space policies and procedures to prevent and minimise the possibility of accidents, collisions or other forms of harmful interference, national space policies and procedures to minimise the creation of space debris, information on space environmental conditions and forecasts  - consultation mechanism: in case of suspicion States can request consultation
<b>Verification / Compliance</b>	- eventually: inspections or alternative measures to ensure verification	- introduction of an executive organisation to enforce compliance - national measures for the implementation of the Treaty - supplemented by working paper CD/1781 proposing TCBMs instead of verification measures	- introduction of an executive organisation to enforce compliance - additional protocol to negotiate later on title, status, specific functions and forms of work of the Executive organisation - State parties enforce treaty in their territory or any other place under control	- n.a.	- enforcement mechanism - provision on dispute settlement	no obligation or liability, compliance on pure voluntary basis		- n.a.	consultation and investigation mechanism; biennial meetings to ensure effective implementation
<b>Procedural Clauses relating to Amendment</b>	- necessary but to be decided upon	- any State may propose amendments by submitting a text to the Depositary Governments - promptly circulate to all States Parties - request of at least one third of the States necessary to convene a conference to consider the proposed amendment - need for majority vote for approval	- any State may propose amendments by submitting a text to the Depositary Governments - promptly circulate to all States Parties - request of at least one third of the States necessary to convene a conference to consider the proposed amendment - need for majority vote for approval	- n.a.	- n.a.	- responsibility to agree upon necessary additional measures to improve the viability and effectiveness of the Code of Conduct		- n.a.	- notification, registration, information

<sup>399</sup> It remains unclear whether the term "celestial bodies" includes the Moon. The OST distinguished between the Moon and other celestial bodies.



	<b>Chinese Working Paper (2000)</b>	<b>Chinese-Russian Treaty Proposal (2001)</b>	<b>Chinese-Russian Treaty Proposal (2008)</b>	<b>Ottawa Process for Space</b>	<b>IAA- Report on Space Traffic Management</b>	<b>Stimson Code of Conduct (2007)</b>	<b>Brachet Working Paper (2007)</b>	<b>Brachet CoC</b>	<b>EU CoC</b>
<b>Duration and Withdrawal</b>	- necessary but to be decided upon	- unlimited duration - right to withdraw by giving notice to the Depositary Governments including statement of extraordinary events, which the notifying State Party regards as having jeopardised its supreme interests	- unlimited duration - right to withdraw by giving notice to the Depositary Governments	- n.a.	- n.a.	- n.a.		- n.a.	central point of contact to be nominated, taking care of new subscriptions, information-data-sharing and consultation & investigation mechanism requests
<b>Ratification / Entry into Force</b>	- necessary but to be decided upon	-open for signature by all States at United Nations Headquarters in New York - later accession at any time possible	same provision for signature and ratification but specifying the Secretary-General of the United Nations as the Depositary of the treaty	- n.a.	- n.a.	- n.a.		- n.a.	- n.a.
<b>Miscellaneous</b>	specifically addresses the space-faring nations	- not to assist or encourage other States, groups of States, international organisations to participate in activities prohibited by this Treaty.	- not to assist or encourage other States, groups of States, international organisations to participate in activities prohibited by this Treaty.	- n.a.	- n.a.	- responsibility to mitigate and minimise space debris	importance of including commercial stakeholders in discussion	- n.a.	- n.a.

Table 7: Comparison of the Proposals at Stake

## 6. Assessing a Role for Europe on the International Scene

The situation described above leaves room for several options to move forward. Accordingly, one could simply neglect the threat of an arms race and avoid any action. Another option would be to amend the existing legal structure. A third possibility is to introduce confidence-building measures and a code of conduct. A fourth way is the negotiation of a legally binding treaty.<sup>400</sup>

Given the substantial discussion of various proposals covering this topic, one can dismiss the first option. While a Review Conference of the OST would serve to promote universal ratification, it could also lead to an opening up of the entire OST to revision, meaning that all the principles and prohibitions as well as technical definitions contained would be negated<sup>401</sup>. Consequently, option two can be dismissed as well. Thus there are only two options left: (1) negotiating a legally binding treaty, (2) establishing confidence-building measures and / or agreeing on a code of conduct.

Given these options in general terms, the question arises in more specific terms which road the EU should take. While the U.S. doctrine for space has been clear for some years now, the EU's ambitions are still open.<sup>402</sup> The fundamental question remains how ambitious Europe wants to be, which strategic culture it decides on for space and which identity in space it will take up? Additionally, the level of integration in space still seems to be undecided, with no European nation being capable of independently maintaining a space policy at the necessary level and the U.S. devoting "six times as much in terms of public resources to space as all European countries put together".<sup>403</sup>

<sup>400</sup> Ambassador Lüdeking in United Nations Institute for Disarmament Research. "Conference Report." Celebrating the Space Age: 50 Years of Space Technology, 40 Years of the Outer Space Treaty, 2-3 Apr. 2007, Geneva. 16. UNIDIR 22 Aug. 2008 <<http://www.unidir.org/pdf/ouvrages/pdf-4-978-92-9045-189-1-en.pdf>>. similar account in Kodachi, Yukiko. op. cit. 1; Tyson, Rhianna. op. cit. 5; Dickow, Marcel. op. cit.

<sup>401</sup> Tyson, Rhianna. op. cit. 5.

<sup>402</sup> Reinke, Niklas. "Die Kooperation zwischen Europa, den USA, Russland und China." Europas Zukunft zwischen Himmel und Erde – Weltraumpolitik für Sicherheit, Stabilität und Prosperität. Ed. Heiko Borchert. Baden-Baden: Nomos, 2005. 46.

<sup>403</sup> Mean, Melissa and James Wilsdon. op. cit. 36.

Moreover, Europe needs to decide on the right balance between autonomy and cooperation. In line with Donald Rumsfeld's fears of a "space Pearl Harbor", dominance remains the predominant strategy with the key question being whether Europe can offer a viable, alternative path.<sup>404</sup> Having outlined the space security doctrines above, whose strategy will end up shaping the twenty-first century approach to space? In particular, in line with Kagan will Mars or Venus preponderate?

Any conceptualisation of Europe's international role does not mean outlining a single role which Europe does or might follow. It also relates to a definitional problem – what is "Europe"? Contemporary Europe seems to have multiple identities:

- *the EU as Europe or as a nucleus of Europe,*
- *Europe as a wider security community,*
- *Europe as a grouping of developed capitalist economies (OECD Europe),*
- *Europe as an exclusive cultural entity.*

The criteria for defining Europe can also be geographical, political, institutional, economic, moral or any combination of the five.<sup>405</sup> In this regard the different European actors in space have been discussed above.

All these considerations can be broken down to three possible scenarios<sup>406</sup> for the European Union. In this regard, the first scenario assumes the possibility of the EU taking military measures and engaging in an arms race in space, thereby facing up to the realities of an U.S.' dominance and in terms of realist thinking defending its own position and balancing against the U.S..

Based on Bull's famous quote ""Europe" is not an actor in international affairs, and does

<sup>404</sup> Ibid.

<sup>405</sup> Hill, Christopher. "The Capability-Expectations Gap, or Conceptualizing Europe's International Role." Journal of Common Market Studies 31.3 (1993): 305- 328.

<sup>406</sup> According to international relations' theory there would be a fourth scenario in which Europe would "pass the buck" and leave the situation to someone else. As all major space faring States are already involved in the discussion on the peaceful use of outer space and have not been successful so far, this theoretic attempt is neglected.

not seem likely to become one"<sup>407</sup>, the second scenario discusses the possibility of the EU's continuance in being a side player and not engaging with a particular stance. In line with realism it will mainly defend the status quo. The principle of "actorness", referring to "the capacity to behave actively and deliberately in relation to others in the international system"<sup>408</sup> will be introduced in this regard. Accordingly, an actor is an entity, which is:

1. *delimited from others, and from its environment;*
2. *autonomous, in the sense of making its own laws and decisions, and*
3. *possesses certain structural prerequisites for action at the international level, such as legal personality, a set of diplomatic agents and the capability to conduct negotiations with third parties*<sup>409</sup>

Taking this basic definition a step further an actor is characterised as a "variable and multidimensional presence in international affairs".<sup>410</sup>

Based on these concepts the third scenario assumes that the EU, while using space for security purposes, acts as a "normative power", opposing the development of an arms race in space. This "ability to exert influence and to shape the perceptions and expectations of others" will be referred to as "presence". According to this scenario, the EU will develop a specific strategic culture, i.e. "a habit of thinking along certain lines"<sup>411</sup> in space security. It will not only defend its interests but "assert its identity" as laid down in general terms in Art. 2 TEU.<sup>412</sup> Europe will continue to strive for peace, justice and solidarity throughout the world<sup>413</sup> and in line

with Jean-Jacques Dordain's vision, space will be perceived and promoted as a "public good".<sup>414</sup> A world without space weapons will be advocated.<sup>415</sup> In line with international relations theory, this is the revisionist stance.

In order to answer the above mentioned questions, all three scenarios will be discussed along the same scheme, including (1) the related means; (2) the external perception / implications on how the EU is perceived; (3) threats; (4) possibilities and (5) scale of integration. This discussion also includes an analysis on how the EU will deal with the existing space security doctrines, and how the other space faring nations would possibly react to the particular policy as described by each scenario. Additionally, the question on how to protect space assets will be discussed in each of the scenarios. Moreover, predictions will be made on which State would align under which scenario and which would oppose a certain scenario.

## 6.1 Scenario 1: Europe as a Participant in an Arms Race

In line with realism Europe faces up to the U.S. dominance and balances against the U.S. through the introduction of space-based and terrestrial weapons in order to protect its space assets. International Cooperation is taken to be too insecure and a worst case scenario is assumed, which asks for preparation and deterrence. Europe will design a purely European military space policy. Given the previously advocated civilian or soft power approach of the EU, a ninety degrees turn towards a hard power approach would lead to a loss of credibility as a union of values and to disrespect and contempt by the international community. In this scenario the EU's actorness decreases as it does no longer behave actively but rather is a victim of the U.S.' policy and adapts to the existing doctrines without attempting to change them. The possibility of a space war increases as the international order is in a state of instability. The EU has to increase the budget for space policy in order to cover the high costs of the arms race, meaning also a reallocation of budget and resources leading to a neglect of other policy areas. While on the one hand given the high expectations put on the EU and the intensive engagement in the peaceful use of outer

<sup>407</sup> Bull, Hedley. "Civilian Power Europe: A Contradiction in Terms?" *Journal of Common Market Studies*. 21.2 (1982). 149-170. 151.

<sup>408</sup> This analytical framework has first been introduced by Gunnar Sjöstedt. cf. Sjöstedt, Gunnar. *The External Role of the European Community*. Farnborough: Saxon House, 1977.

<sup>409</sup> Sjöstedt, Gunnar. *The External Role of the European Community*. Farnborough: Saxon House, 1977.

<sup>410</sup> David Allen and Michael Smith took Gunnar Sjöstedt's definition as a basic concept and came up with their own definition on actorness. cf. Allen, David and Michael Smith. "Western Europe's Presence in the Contemporary International Arena." *Review of International Studies* 16.1 (1990): 19-37.

<sup>411</sup> Rynning, Sten. "Towards a Strategic Culture for the EU." *Security Dialogue* 34.4 (2003): 479-496. 482.

<sup>412</sup> Ibid.

<sup>413</sup> European Convention Art. 3.4; Rynning, Sten. "Towards a Strategic Culture for the EU." *Security Dialogue* 34.4 (2003): 479-496. 482.

<sup>414</sup> Mean, Melissa and James Wilson. op. cit. 34.

<sup>415</sup> Dickow, Marcel. op. cit.

space discussion of China and Russia, political friction in the EU relations with these two space faring States becomes possible, on the other hand there is the possibility of an alliance with the U.S.. The part of the international community that favours hard power will finally take the EU serious and no longer judge it as ludicrous. The EU will get the chance of technological leadership, as innovation in this realm will be supported.

The increasing debate within the EU about the role of space in ESDP<sup>416</sup> supports this scenario. Observers however indicate that Europe cannot and will not want to make the strategic choice that has been made in the U.S.. Yet, given its increasing use of space, Europe definitely aims at protecting its investments in space.<sup>417</sup>

## 6.2 Scenario 2: Europe as a Passive Player

According to Realism, satisfied states favour the status quo. In line with this proposition, this scenario assumes that the EU continues to be side player without developing any particular identity for space, accepting the current situation as a given. In the past the EU often "decided not to decide" due to consensus decision making and unanimity in the second pillar. In the evolution of EU policy areas there has not been a decision on strategy. Instead they developed rather gradually. Progress towards a European Space Policy and a common programme of activities is slow, partly because of diverging Member States objectives.<sup>418</sup> Facing the U.S. dominance on the one hand and diverging interest by its Member States on the other hand, the EU might remain paralysed and unable to decide on a future strategy. In this scenario its actorness remains low and there is no "presence". The EU is no longer perceived as a credible international actor but rather as an entity which watches when others shape the international order. China and Russia are disappointed, as they expected the EU to act like a mediator and the U.S. advocates it always knew that Europe will fail. A Europe that does not integrate space in its policy fields is

understood as a Europe risking mistakes in key areas.<sup>419</sup> Without any further integration in space, Europe will be left behind in technological and innovative terms, as well as in military ones. Only low investment is needed and resources can instead be allocated to other policy areas. Without any particular stance or identity and without any new instruments everything stays as it is. There is thus no need for difficult decision-making. The level of integration is low, with space policy being mainly based on national capabilities.

Given that in the past integration in sensitive and critical policy fields like CFSP and ESDP only "spilled over" this is quite a probable scenario.<sup>420</sup> It is also often argued that in areas of key importance, nations prefer certainty and thus prefer to rely on national rather than European policy.<sup>421</sup> The current proposal by the EU on a CoC however tells a different story and opposes the probability of this scenario.

## 6.3 Scenario 3: Europe as a Normative Power Advocating the Prevention of an Arms Race

While using space assets for military and security purposes as well, the EU could also act as a normative power,<sup>422</sup> countering an arms race in space, thereby trying to influence other actors. In this scenario, it advocates international cooperation as a solution to the problem of protection of space assets (in line with liberalism). Its presence is high as it influences others and shapes the perceptions and expectations of others. In line with Constructivism it does not accept the current international situation as a given but tries to change it. The EU will achieve change without war<sup>423</sup>: The EU thus develops a distinctive approach to space – a European identity for space. Its primary instruments in this regard are diplomatic tools, as well as international treaties and agreements, i.e.

<sup>416</sup> Reinke, Niklas. op. cit. 39-40.

<sup>420</sup> cf. Neofunctionalism. in Rosamond, Ben. Theories of European Integration. Hounds Mills: Palgrave, 2000. 50.

<sup>421</sup> Jones, Seth G. "The European Union and the Security Dilemma." Security Studies 12.3: 114-156. 149.

<sup>422</sup> Ian Manners first introduced the EU as a "normative power". Tocci, Nathalie. "Profiling Normative Foreign Policy: The European Union and its Global Partners." Who is a Normative Foreign Policy Actor? Ed. Nathalie Tocci. Brussels: Centre for European Policy Studies, 2008. 1-2.

<sup>423</sup> Buchan, Alastair. "Change Without War: The Shifting Structures of World Power." Chatto and Windus, 1975.

<sup>417</sup> Parliamentary Office of Science and Technology. "Military Uses of Space." Postnote Dec. 2006, 273. 2.

<sup>418</sup> Pasco, Xavier. "Enhancing Space Security in the Post Cold War Era: What Contribution from Europe?" Perspectives on Space Security. Eds. John M. Logsdon and Audrey M. Schaffer. Washington D. C.: Space Policy Institute, George Washington University, 2005: 51-68. 57.

<sup>419</sup> Parliamentary Office of Science and Technology. op. cit. 2.

hard law and soft law instruments, which are used to answer the question how to protect space assets. In line with the so-called "soft power" approach, the EU advances "milieu goals" by relying on cooperation, multilateralism and the power of attraction.<sup>424</sup> A soft power approach does not exclude the acquisition of other forms of power and a security culture<sup>425</sup>. The EU is continuously perceived as a union of values. The EU thereby meets the expectations by China and Russia, in acting as a normative power and a mediator breaking the existing deadlock. This has already been visible when the EU, the French EU Presidency, managed to negotiate an OSCE security conference in summer 2009 to discuss tensions between the U.S. and Russia on the missile shield.<sup>426</sup> On the other hand, there is the risk of a transatlantic divide. However, given the new U.S. administration this risk seems to decrease. This is why a European Space Security Strategy (E3S)<sup>427</sup> will also have to take into account U.S. interests. Europe advocates a broader definition of space security<sup>428</sup> by seeing it "more as a realm for developing cooperative economic opportunities and achieving military stability, rather than for pursuing unilateral benefits or military dominance".<sup>429</sup> Most issues cannot be treated through a purely military approach and benefit from a clearly articulated security-oriented international policy.<sup>430</sup> States preferring the hard power approach will continue to dismiss the EU in line with Kagan as not being able to exert hard power and thus choosing a soft power approach. Deterrence through military means remains impossible. There is the risk of being perceived as pretentious in exerting some kind of "norm imperialism". Additionally, the formulation of a common European identity for space security might not be that easy to take. Apart from the already mentioned possibilities for the EU in acting as a mediator, promoting values, exerting influence, achieving change and establishing a distinctive European identity for space, the EU in this third scenario also establishes new

ways and mechanisms for political influence. Europe makes a strategic choice and does not become irrelevant but will exert global leadership as laid down in the European Security Strategy. Thus, it demonstrates independence and readiness to assume global responsibility.<sup>431</sup> A tailor-made scale of integration, which can be adapted to different fields within space policy is facilitated.

The fact that Europe is already a very significant space actor, both collectively and thanks to the national space policies of some of its Member States<sup>432</sup> is supporting this scenario. The development of CFSP predestines the EU for formulating a space security doctrine.<sup>433</sup> China publicly mentioned that it sees the EU as a possible balance to the U.S.<sup>434</sup> Similar to this scenario Dordain rejects the idea about Europe being forced to follow the path laid down by the U.S.:

*Europe shouldn't be trying to catch up with the US. For the US, space is an instrument of domination – information domination and leadership. But space enables the opposite kind of leadership...it is the best way to distribute information closing the gap between the information-rich North and the information-poor South... Europe should be proposing a different model: space as a public good.<sup>435</sup>*

In line with realism States, especially great powers, have an interest in the stability of their external environment and those follow "milieu goals" and try to influence their environment.<sup>436</sup> Moreover, the EU has already experience in being the norm-maker, advocating fundamental rights. The history of the EU is another supportive argument for this scenario. The goal of European integration was to maintain peace. Thus working in this very same direction would make sense for Europe. Particularly due to the fact that it has not been involved in the discussion about the weaponisation of space in the past, it is able to approach the subject from a different angle.<sup>437</sup> Additionally, the

<sup>424</sup> Nye, Joseph S. Jr. *Soft Power: The Means to Success in World Politics*. New York: Public Affairs, 2004. 5.

<sup>425</sup> Cornish, Paul and Geoffrey Edwards. "The strategic culture of the European Union: A progress report." *International Affairs* 81.4 (2005): 801-820. 818.

<sup>426</sup> Moravec, Michael. "Sicherheitsgipfel soll Raketenstreit beilegen." *Der Standard* 15/16 Nov. 2008: 6.

<sup>427</sup> IFSH and ESPI. op. cit.

<sup>428</sup> Istituto Affari Internazionali. op. cit.

<sup>429</sup> Moltz, James Clay. "Next Steps toward Space Security." *Collective Security in Space – European Perspectives*. Eds. John M. Logsdon, James Clay Moltz and Emma S. Hinds. Washington D.C.: Space Policy Institute, 2007: 109-130. 123.

<sup>430</sup> Pasco, Xavier. op. cit. 58.

<sup>431</sup> European Commission. "European Space Policy."

Brussels, 26 April 2007: 4.

<sup>432</sup> Istituto Affari Internazionali. op. cit.

<sup>433</sup> Reinke, Niklas. op. cit. 39.

<sup>434</sup> Shen, Dingli. "Why China sees the EU as a counterweight to America." *Europe's World* (2008). <<http://www.europeeworld.org/EWSSettings/Article/tabid/191/ArticleType/articleview/ArticleID/21260/Default.aspx>>.

<sup>435</sup> Dordain qtd. in Mean, Melissa and James Wilsdon. op. cit. 28-9.

<sup>436</sup> Hyde-Price, Adrian. "'Normative' power in Europe: a realist critique." *Journal of European Public Policy* 13.2 (2006): 217-234. 222.

<sup>437</sup> Pasco, Xavier. op. cit. 61.

CoC proposal indicated that the EU is taking a stance in questions concerning international security and arms control even in the face of opposition.<sup>438</sup> The idea of balancing as advocated by Neorealism could also be interpreted as to mean, the development of an own identity that balances against the U.S. one.<sup>439</sup>

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<sup>438</sup> Dickow, Marcel. op. cit.  
<sup>439</sup> Seth G. op. cit. 153.

## 6.4 Comparative Matrix on the Three Possible Scenarios

	<b>Means</b>	<b>External impact / external perception</b>	<b>Threats</b>	<b>Possibilities</b>	<b>Scale of integration</b>
<b>Scenario 1 Europe as a Participant in an Arms Race</b>	- introduction of space-based and terrestrial-based weapons	- loss of credibility - increased presence - dis respect and contempt by the international community	- low individual actorness - loss of credibility: EU no longer perceived as a Union of values - increased possibility of space war / situation of instability - political friction with Russia and China - higher financial commitment / re-allocation of resources from other areas / neglect of other policy areas - victim of an arms race	- alliance with other space-powers depending on present repartition of power with the objective of achieving balance or dominance - hard power favouring State will appreciate EU's changed policy and take it more seriously - possibility of technological leadership	- mixed levels, co-existence of national and European efforts
<b>Scenario 2 Europe as a Passive Player</b>	- no new instruments	- low actorness and presence - China and Russia are disappointed: expected Europe to mediate and counter-balance the U.S.	- being left behind in technological and innovative terms	- low investment is needed; resources can be allocated to other policy areas - no difficult decision-making process - open for short-term and short notice alliances	- minimum degree; almost none; based on national capabilities
<b>Scenario 3 Europe as a Normative Power advocating the Prevention of an Arms Race</b>	- diplomatic instead of military tools - increased actorness and presence - CoC as breakthrough instrument - treaties and agreements (hard and soft law instruments) to protect space assets - new mechanisms for political influence	- EU as a "norm maker" - influencing and shaping perception of others - EU as a union of values	- transatlantic divide due to opposite strategic approach - not being taken seriously for soft power approach - perceived as pretentious by exerting "norm imperialism"	- achieve change without war - act as a mediator - promote values - establish separate European space identity - contribute further to European integration	- tailor-made scale of integration

Table 8: Comparative Matrix on the Three Possible Scenarios

## 6.5 Conclusions and Recommendations

The discussion above showed the future possibilities and roads for the EU to take. The introduction of the CoC might already indicate a certain future direction. It increases the EU's position in the space debate<sup>440</sup> by indicating its willingness and ability to deal with sensitive questions even in the face of opposition from key partners. Nonetheless, for a Euphoric the CoC is probably quite disappointing. Instead of taking a strong and independent stance on its CoC initiative, the EU tries to appease all other players involved. Having recently proceeded in developing technological capabilities for space, policy-wise the EU does not step out "of the shadow of its transatlantic partner"<sup>441</sup>. Instead it should secure its interests and not subordinate them to strategic considerations<sup>442</sup> or to a certain administration.

All in all, the *role* that Europe takes will need to be *formative*, i.e. it will have to actively influence the situation of space security by normative action instead of just handling or administrating the given status quo that has been set by others. Europe should pursue certain goals in this regard. Such goals follow from values that have been laid down in various documents like the European Security Strategy. They include multilateralism, emphasising international cooperation and diplomacy, combining civilian and military means, and promoting the rule of law. An *identity* formed by these underlying values is a *principled* one. Based on such an approach, Europe should take into consideration the following policy recommendations, in order to be taken serious and to develop an independent standing in the international space faring community:

- **formulate a strategy and develop a space identity in line with the European Security Strategy, corresponding to the values, goals and policies of the EU**

In many policy areas the EU has already formulated a policy strategy or built an identity through its action. In the space

<sup>440</sup> Hitchens, Theresa. "Space Sustainability" International Efforts to Bound Space Activities." Washington D.C.: CSIS, 21 July 2008. <[www.csis.org/pdfs/csisjuly08.ppt](http://www.csis.org/pdfs/csisjuly08.ppt)>.

<sup>441</sup> Dickow, Marcel. op. cit.

<sup>442</sup> Dickow, Marcel. op. cit.; Neuneck, Götz. "EU Conference on Security in Space, the Contribution of Arms Control and the Role of the European Union." 21-22 June 2007, Berlin  
<[http://www.ifsh.de/pdf/aktuelles/NE\\_SPACE\\_AA.pdf](http://www.ifsh.de/pdf/aktuelles/NE_SPACE_AA.pdf)>.

domain, this is lacking. In line with the core values of the EU, as laid down in the European Security Strategy (democracy, respect for the rule of law, sustainable development and maintenance of peace and order through dialogue and diplomacy), the EU needs to develop a European space identity.

- **decide on the policy-making and decision-making process and introduce key mechanisms to oversee the European Space Policy**

The existing institutional structures have to be adapted as to take into account and to include space policy. A concrete and transparent policy-making and decision-making process has to be introduced. In this regard mechanisms overseeing the European Space Policy as well as the development of a space identity have to be developed. In particular there is a need for redefinition of strong strategic, institutional and organisational patterns.

- **clarify the organisational and institutional questions relating to space and CFSP / ESDP, e.g. in regard to ESA and EDA**

As has been shown in the discussion on the actors engaging in space policy in Europe, there is no clear work and competency allocation. With space security matters being considered more and more important, organisational and institutional questions relating to the role of space security within the framework of ESDP have to be clarified. In this regard, taking into account the "comparative advantage" of both agencies, competencies have to be resolved as to achieve the best possible outcome for all.

- **establish a European Space Situational Awareness (SSA) System**

The ESA Council Meeting at Ministerial level recently decided on the introduction of a preparatory programme on Space Situational Awareness (SSA). This is necessary for Europe to be independent from the U.S. when wanting to launch a satellite or conduct a maneuver. However the programme seems to have fallen victim to the steady erosion of available funding. A sustainable funding perspective has to be established and related institutional questions have to be addressed to ensure long term success of a European SSA system.

- **increase investments for space programmes, research and development**

In order to guarantee technological prominence and independence, space programmes both at European and national level have to be funded sufficiently and investments for research and development have to be increased. Adequate political backing will support this effort.

- **given the broad space security concept, move away from a purely State focussed actor perception**

Given the changed geopolitical context of space in the post-Cold War realm, the concept of security has been re-defined. With many more actors involved in space activities, Europe has missed to re-adjust its threat perception and consequent counter policies. Europe needs to improve strategic functions like threat evaluation.

It also has to respond to threats coming from non-State actors and to adapt its policies to account for the changed geopolitical context.

- **establish a coordinated space dialogue with international partners**

The European Commission and the European Space Agency, jointly representing Europe in space matters, shall establish a structured dialogue and cooperation with strategic partners, i.e. U.S. and Russia as well as with other established and emerging space powers.

On the basis of these policy recommendations, Europe has to take up an independent stance in matters of space security. It needs to develop its own specific and suitable approach, incorporating its strengths and competencies. According to the words of Clausewitz, "*Who holds the high ground also holds the low ground*"<sup>443</sup>. Europe must not risk to be left behind in this regard.

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<sup>443</sup> Cabal, Christian and Henri Revol. "Space Policy: Daring or Decline. How to make Europe World Leader in the Space Domain." Report of the Parliamentary Office for Scientific and technological Assessment. Annex to the minutes of the sitting of February 8, 2007. France: Senate, 2007.  
<[http://www.senat.fr/opecst/rapport/rapport\\_politique\\_spatiale\\_anglais.pdf](http://www.senat.fr/opecst/rapport/rapport_politique_spatiale_anglais.pdf)>.140-144.



## Acronyms

ABM	Anti-Ballistic Missile
CD	Conference on Disarmament
CFE	Conventional Forces in Europe
CFSP	Common Foreign and Security Policy
CIVCOM	Committee for Civilian Aspects of Crisis Management
CNTBTO	Comprehensive Nuclear Test Ban Treaty Organization
CoC	Code of Conduct
CODUN	Working Group on Global Arms Control and Disarmament
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CWC	Chemical Weapons Convention
DWD	Deutscher Wetterdienst
EAEC	European Atomic Energy Community
EC	European Community
ECAP	European Capabilities Action Plan
ECSC	European Coal and Steel Community
EDA	European Defence Agency
EISC	European Interparliamentary Space Conference
ENMOD	Environmental Modification Convention
ESA	European Space Agency
ESP	European Space Policy
ESPI	European Space Policy Institute
ESS	European Security Strategy
E3S	European Space Security Strategy
ESDP	European Security and Defence Policy
ESRT	European Security Round Table
EUMC	European Union Military Committee
EUMS	European Union Military Staff
EUSC	European Satellite Centre
FMCT	Fissile Material Control Treaty
HCOA	Hague Code of Conduct
HSPG	High-Level Space Policy Group
ICBM	Intercontinental ballistic missiles
IAEA	International Atomic Energy Agency
INF	Intermediate Nuclear Forces
ITU	International Telecommunication Union
JDEC	Joint Data Exchange Centre
MIC	Military-Industrial-Complex
MTCR	Missile Technology Control Regime
NMS	National Meteorological Services
NTM	National Technical Means
OPCW	Organization for the Prohibition of Chemical Weapons
OST	Outer Space Treaty
PAROS	Prevention of an Arms Race in Outer Space
PSC	Political Security Committee
PDMA	Prevention of Dangerous Military Activities Agreement
PJC	Police and Judicial Cooperation in Criminal Matters
PLNS	Pre- and Post-Launch Notification System
PTBT	Partial Test Ban Treaty
PPWT	Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects
SALT	Strategic Arms Limitation Talks
SEDE	Subcommittee on Security and Defence
SLBMS	Submarine-launched ballistic missiles
SDI	Strategic Defense Initiative
SORT	Strategic Offensive Reduction Treaty
SSA	Space Situational Awareness
STM	Space Traffic Management
TCBM	Transparency and Confidence Building Measures
UNCDD	United Nations' Conference on Disarmament
UNCOPUOS	United Nations' Committee on the Peaceful Use of Outer Space
UNGA	United Nations' General Assembly
WEAG	Western European Armaments Group
WEU	Western European Union



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## Acknowledgements

The authors thank ESPI Director Kai-Uwe Schrogel for providing his conceptual guidance and friendly advice throughout the project duration. They also thank Marcel Dickow for engaging in fruitful discussions. Special thanks are due to Lucia Marta, Martin Hellmann and Pete Hays, who gave their review comments and helped to streamline, tailor and refine the contents.

### **Mission Statement of ESPI**

The mission of the European Space Policy Institute (ESPI) is to provide decision-makers with an independent view and analysis on mid- to long-term issues relevant to the use of space.

Through its activities, ESPI contributes to facilitate the decision-making process, increases awareness of space technologies and applications with the user communities, opinion leaders and the public at large, and supports students and researchers in their space-related work.

To fulfil these objectives, the Institute supports a network of experts and centres of excellence working with ESPI in-house analysts.

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