LAWS IN SPACE - LEGALITY OF SPACE DEBRIS AND SPACE WARS

Saumyam Krishna & Anu Mittal

Symbiosis Law School, Noida

For purposes of analysis under the international law of war, whether there is any meaningful distinction between warfare prosecuted within airspace and warfare prosecuted within outer space. In both cases, the military assets above the earth's surface may support the combat occurring below, or may engage targets in the same combat environment. Given this, some may view armed conflict from and within outer space as simply a subset of air warfare. Others may see armed conflict in outer space as superior to air warfare-that is, air warfare as a subset of space warfare. Still others may view space conflict as a new category of combat that is sui generis. This paper discusses about the legal implication of the prospective War in space and the consequent space debris created by it.

Keywords- International Law, War, Debris, Space

Space Debris

Space Debris is only an inefficient accumulation of man-made articles that are there in orbit over the Earth and the objects can be any satellites, Rocket Stage and so on. In any case, the Government doesn't appear to stress over it and the current move of ISRO propelling a record 104 satellites has been lauded everywhere throughout the world yet intensely scrutinized by G. Madhavan Nair, Former Chairman of ISRO. Mr Madhavan even went ahead to say that this could heavily impact the functioning of different satellites, as impacts between different satellites can bring about damages being paid by India. So the purpose of exchange at that point emerges with respect to who is under the obligation of leaving so much garbage. As of late some Space Debris; an Indian Satellite which was withdrawing back to Earth fell on a Japanese Village and under the Convention on International Liability for Damage Caused by Space Objects, 1972 India has a flat out risk of absolute liability to pay compensation for the damages caused.[1]

The "Magna Carta" of space law is the Outer Space Treaty of 1967. Be that as it may, its arrangements are excessively bland, making it impossible to manage the unpredictable issues of space debris with any sureness. Regardless of endeavors over decades to

[1] Anubhav Pandey, Reasons why India needs a robust Space Law, June 30, 2017, available at "https://blog.ipleaders.in/reasons-india-needs-robust-space-law/"

characterize the idea of 'space debris', no universally accepted definition exists. Maybe the nearest we get is that space debris constitutes any man-made question that is either:

"(a) Earth-orbiting and is non-functional with no reasonable expectation of assuming or resuming its intended function; or

(b) re-entering the Earth atmosphere."[2]

This concept covers pieces and component parts of space objects, decommissioned / failed spacecrafts and used upper stages of launchers. Therefore, the decommissioned orbiters like the Russian satellite "Cosmos 2251" would come under the definition of "space debris".

In fact "The Outer Space Treaty" provides minimalistic direction as to the supposed intention of one its objectives; mitigation of space debris, at the State level, with much lacunas left open for interpretation. For example, Article IX[3] provides that State Parties to the Outer Space Treaty:

"shall conduct all their activities in outer space… with due regard to the corresponding interests of all other State Parties to the Treaty."

With some creativity, this can be interpreted along the path to oblige all State Parties to avoid the creation of, reduce, regulate or remove, "space debris" to allow all States to participate in the peaceful exploration and use of the outer space without the risk from any debris.[4]

The need for creativity also illuminates itself within the wording of Article IX[5]; which clarifies that space exploration for all purposes shall be led, "so as to avoid their harmful contamination" and also that States Parties; "shall adopt appropriate measures for this purpose." The Act is silent for the definition of "harmful contamination" and/or what such "appropriate measures" comprise of. "Space debris" is not normally classed as "harmful contamination;" the phrase is usually interpreted as containing mostly radioactive contamination and/or biological.[6]

Article IX provides for international consultation[7]. In the event that a Member State believes that an action planned by it or its nationals would "cause potentially harmful interference" to the activities of another State, then the state shall attempt a consultation before continuing. A State Party may likewise ask for interviews on the off chance that it believes that an activity planned by another State would cause it "potentially harmful

[2] ibid
[3] United Nations Treaties And Principles On Outer Space, available at http://www.unoosa.org/pdf/publications/STSPACE11E.pdf
[4] Joanne Wheeler, Space debris: The legal issues, available at "https://www.aerosociety.com/news/space-debris-the-legal-issues/"
[5] Supra Note 3
[6] Supra Note 4
[7] Supra Note 3

interference". Be that as it may, it is hard to depict the presence or formation of space flotsam and jetsam as a future "planned" movement. The arrangements additionally don't address the issue of present or finished exercises or the issue of current space garbage.

Liability Regime for Damage by Space Debris

For easy elucidation let's analyze this hypothetical example; suppose if a United Kingdom established personal communications operator were to launch a satellite. After the launch of which, a part of its shielding comes loose, (which incidentally can also be identified for its home state), and unfortunately crashes with an antenna of a French satellite, inflicting serious damage thereto. What consequences follow?

As a Member State signatory to the Outer Space Treaty, under Article VI[8], the damager i.e. United Kingdom bears the "international responsibility" for any activity conducted by it or any of its nationals in the outer space, irrespective of whether such "nationals" are governmental agencies and/or private entities[9], and apparently for ensuring that such activities are in accord with "The Outer Space Treaty, 1967". The United Kingdom is, hence, responsible for all the space debris creating activities committed by it or its constituents.

According to the "Registration Convention, 1976"[10], each "Launching State" must hold a register of all the "objects" it launches into space; i.e. including rockets, satellites, decommissioned or broken parts of the rockets, etc. A Launching State has been defined as: "A State which launches or procures the launching of a space object"; or "A State from whose territory or facility a space object is launched." The United Kingdom deals with this obligation with its own "Outer Space Act, 1986"[11], in accordance of which; the Secretary of State has to maintain a register of all the "space objects" ever licensed by the country.[12]

The Outer Space Treaty, 1967; Article VIII[13] provides that each Member State shall retain ownership and control over all the objects launched into space by it or any of its nationals, provided they are registered on its registry:

"Ownership of objects launched into outer space […] and of their component parts, is not affected by their presence in outer space."

[8] ibid
[9] Michael J. Listner, A legal look at Elon Musk's plans to colonize Mars, July 17, 2017, Available at "http://www.thespacereview.com/article/3286/1"
[10] RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY 3235 (XXIX). Convention on Registration of Objects launched into Outer Space, available at "http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/registration-convention.html"
[11] UK's Outer Space Act available at "http://www.unoosa.org/documents/pdf/copuos/lsc/2016/sem2-203.pdf"
[12] Supra Note 4
[13] Supra Note 3

The shielding from that United Kingdom satellite can be classified as a "component part" and, hence, the principle of "permanent ownership and responsibility" would extend to it.[14]

Likewise, the United Kingdom will be held liable for all the damages caused by "the shielding" of its satellite under "Article VII of the Outer Space Treaty of 1967"[15]:

"Each State Party […] that launches or procures the launching of an object into outer space […] and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty […] by such object or its component parts on the Earth, in air space or in outer space."

Article VII of the Other Space Treaty of 1967 is explained in the Liability Convention of 1972. This encourages a liability regime in accordance to which "launching States" are liable for all the damage caused by any debris generated by any it's by private entities for which such States are responsible. "The liability regime is two-fold depending on where the damage occurred.

(a) If the damage is caused on the surface of the Earth or to aircraft in flight, the simple proof of causality of damage is sufficient, regardless of proving fault.

(b) If the damage is caused to the space object of another State in outer space, the fault of the entity for whom the launching State is responsible must be proven."[16]

"Many "launching States" pass their liability, via licensing and/or contractual obligations, to the launch service provider or the spacecraft owner or operator (as is the case under the Outer Space Act licensing regime). In turn, the launch service provider, the satellite owner or operator insures these liabilities."[17]

Filing Claim under the Liability Convention of 1972

Only Member States party to the Liability Convention can file a claim. For the United Kingdom to be liable, France would have to:

"(a) Prove that damage was caused to French citizens for whom the country is responsible or to the space objects registered by France on the registry which it maintains;

(b) Identify the space object (the shielding) that caused the damage and establish that the UK is its "launching State" and therefore has "ownership and control over it"; and

(c)Prove that the damage was caused by the fault (as the damage has occurred in outer space) of the UK or the fault of a private entity for whom the UK is responsible."[18]

[14] Supra Note 4
[15] Supra Note 3
[16] Supra Note 4
[17] ibid
[18] Yearbook on Space Policy 2010/2011: The Forward Look, page 258 available at "https://books.google.co.in/books?id=fXFEAAAAQBAJ&pg=PA258&lpg=PA258&dq=Earth-

While the first step may seem relatively easier to prove than the rest, establishing the causality of damage caused by such space debris may be onerous. France can be said to be lucky that the shielding part was still identifiable as a United Kingdom satellite.

"Earth-based tracking stations can currently monitor pieces of space debris that are larger than approximately 10cm. Smaller pieces are not tracked or catalogued and generally cannot be "identified" with any certainty for the purposes of determining the "launching State"."[19]

Yet the challenging part will be establishing the "fault" of the "launching State". Usually, "fault liability" presumes that a "standard of care" exists against which the "reasonableness" of the state's actions may be judged.

"Proving fault requires the Claimant State to establish that the owner of the debris that caused the damage did not comply with national or international standards or guidelines for conducting space activities or for debris mitigation."[20]

Currently only voluntary, non-binding standards and guidelines apply to the operation of space objects and mitigation of debris such as those of the United Nations, the Inter-Agency Space Debris Coordination Committee, the International Telecommunication Union (ITU) and the International Organization for Standardization (ISO). Such guidelines can be useful indicators of the expected "standard of care" with regard to the generation of space debris. But there are no mandatory international standards of conduct regarding debris mitigation to establish a "standard of care" against which the fault will be assessed.[21]

Basis on Which the "Law of War" Applies to Outer Space

As a general proposition, a State's legal obligations are not limited by geography unless specifically promulgated or are apparent by circumstances, in international law. Consequently, it may appear apparent that the "laws of war" will apply; to the extent of relevance, to prospective future space conflicts. But this is not necessarily precise for the simple understanding that the relevant legal norms governing space warfare, with very few exceptions, have yet to evolve. Hence, to provide the basis for further development, the

based+tracking+stations+can+currently+monitor+pieces+of+space+debris+that+are+larger+than+10cm&source=bl&ots=Nyh9DPILGm&sig=OeuUiccBQjzOgbHGHnvwq0QSJug&hl=en&sa=X&ved=0ahUKEwjii-SC-InWAhXIP48KHTJtAkUQ6AEIMjAC#v=onepage&q=Earth-based%20tracking%20stations%20can%20currently%20monitor%20pieces%20of%20space%20debris%20that%20are%20larger%20than%2010cm&f=false"

[19] ibid

[20] ibid

[21] ibid

conclusion that the specific principles of the "laws of war" that cover outer space, should only prevail on the basis of reasoned legal argumentation. [22]

At least three methods of argumentation appear to sustain the conclusion that the present "laws of war" does apply to space warfare:

- Analogy,
- The Outer Space Treaty, and
- Martens' clause.

1. Analogy

Evolution of the "corpus juris spatialis"[23] has occurred in many in part due to legal analogies. Analogy can be understood, broadly speaking, in two broad perspectives.

In the First perspective, the "environment" to be regulated i.e. outer space is compared to other such "environments" with no sovereign authority claims, for example- the Antarctica, the High seas, etc. On the basis of this the international community conceives laws governing "space" conflicts with respect to laws governing conflicts on Antarctica, High Seas, etc.

Secondly, "the use of analogy occurs after a legal norm within the "corpus juris spatialis"[24] has already been established. In this sense a principle of law is interpreted by means of analogy with a specific principle from another legal regime. This could be termed argumentation by micro-analogy, while the other constitutes argumentation by macro-analogy."[25]

Both the perspectives are useful with respect in developing/evolving a "jus in bello"[26] for space. "On the macro-level, the "jus in bello" governing combat on land, sea, or air, provides potential similarities as to the means and methods of space combat; made possible by the existing or prospective future technologies. The closer the factual similarity, the more likely it is that the existing norm will undergird the developing legal regime for space. Similarly, given the relative youth of space law, argumentation by micro-analogy is just about the only means of interpreting the general corpus "juris spatialis" to fit specific legal issues relating to the military use of outer space."[27] The use of analogies in any sense can be misleading if

[22] The Law of War in Space, Printed in the Air Force Law Review; Published March 13 2001 avaliable at "http://www.space4peace.org/slaw/lawofwar.htm#n531"
[23] Meaning "A Body of Law", available at "http://legal-dictionary.thefreedictionary.com/Corpus+Juris"
[24] Supra Note 23
[25] Supra Note 22
[26] Meaning- the law that governs the way in which warfare is conducted, available at "https://www.icrc.org/en/document/what-are-jus-ad-bellum-and-jus-bello-0"
[27] Supra Note 22

it amounts to misinterpretation of the existing norms but it will undoubtedly ignite the quest for discovering the current "jus in bello" for space.

a. Parallels to Sea Warfare

Given the "general jurisdictional parallels and legal analogies drawn between outer space and the high seas"[28], a comparative approach along the same lines is possible while attempting to establish the status of outer space in prospective scenarios of armed conflict.[29] The sovereign rights of all States on the high seas are equal. So too in outer space by analytical extension. Once armed conflict has begun however, with the exception of avoiding the territory and property of neutral States[30], the "legal status" of the place in which combat takes place becomes less relevant. Ergo, if State A launches an "armed attack" against State B, the latter may respond (in self-defense) either in State A's territory, State B's territory, international airspace, the high seas, or the outer space. As a consequence, "though space law has made significant use of analogies from the law of the sea, a unique analogy between warfare in space and warfare on the high seas appears inapposite, at least as distinguished from analogies with international airspace and the territory of opposing belligerents."[31]

b. Previous Application of the Law of War to Aerial Warfare

"In addition to the use of analogies drawn by the "corpus juris spatialis"[32] from the law of the sea, it is likely that the "jus in bello"[33] for space will draw on the developmental patterns characterizing evolution of the "jus in bello"[34] for aerial warfare. When the Hague conferences met in 1907[35], aviation was a fledgling industry. There were profound uncertainties about how or even if aviation could be effectively used in war. Thus, the 1907 Conventions do not specifically address limits on aerial warfare. As aeronautical technology developed, the international community never adopted a binding legal regime restricting means and methods of aerial warfare. Though the 1923 Hague Rules of Aerial Warfare are thought to reflect "customary law" in some respects, not a single nation ever ratified this agreement. What does exist by way of restriction exists in piecemeal form through an array of instruments comprising the laws of war. This evolutionary, piecemeal approach to

[28] ibid
[29] ibid
[30] "As a general rule, neutral territory is treated as sacred space; it is inviolable." J. Astley & M.N. Schmitt, The Law of the Sea and Naval Operations, 42 A.F. L. REV. 119, 140 (1997).
[31] Supra Note 22
[32] Supra Note 23
[33] Supra Note 26
[34] ibid
[35] Convention (IV), Respecting the Laws and Customs of War on Land, Oct. 18, 1907, (1908 Supp.) 2 AM. J. INT'L L. 90 (entered into force Jan. 26, 1910) [Hereinafter Hague Convention (IV)].

restrictions on aerial warfare is likely to characterize the evolutionary growth of international restrictions on space warfare as well."[36]

With the development of air and space missions and the international limits are recognized on prosecuting aerial war, it is reasonable to predict like "jus in bello" for outer space.

2. Outer Space Treaty

According to The Outer Space Treaty of 1967, parties to the treaty have an obligation to carry on activities on moon and other celestial bodies, for carrying out exploration of outer space. Article III of the treaty provides that International law on war will apply to space warfare also. The United Nation Charter promotes for maintaining international peace and security and thereby creating an environment of international understanding and cooperation between the states.

From Article III[37], two major inferences can be drawn. First, that the provision in the treaty international law which is applicable on outer space activities will be restricted. Two significant observations arise from this provision ("in accordance with"). Article III makes special reference to the Unites Nations Charter, and the" jus in bello"[38]. "This observation provides the strongest evidence that as far as its principles will apply to future technologies, the law of war has been incorporated into military space operations by virtue of the Outer Space Treaty. A second observation relates to the requirement that a State's exploration and use of outer space be "in the interest of maintaining international peace and security." This well-worn phrase in international law comes directly from, among others, the U.N. Charter. As historically used, the phrase assumes that military force will be available to the international community to ensure international order. As international law has limited the means and methods States may use in employing military force in combat, those limits form a part of the context in which the maintenance of international peace and security, including the use of force in space, must occur."[39]

3. Martens' Clause

An observation regarding the application of the laws of war to military space operations connects to what became known at the Hague diplomatic conferences as the "Martens' Clause."[40] "This clause, so named after the Russian delegate proposing its inclusion, was inserted into the preamble of the 1899 Second Convention and the 1907 Fourth Convention. The clause was intended to supplement the prohibitory rules adopted at both conferences. The clause appears in several law of war documents, and reads as follows in its 1907 iteration: Until a more complete code of the laws of war has been issued, the high contracting parties deem it expedient to declare that, in cases not included in the

[36] Supra Note 22
[37] Supra Note 3
[38] Supra Note 26
[39] Supra Note 22
[40] Supra Note 35

Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience. The clause reminds States Parties that explicit prohibitions within the Treaty do not supersede general, implicit prohibitions operating in the background by way of "principles of the law of nations." In this way, the clause covers not only customary international law but also incorporates all rules and principles of the general law of nations. As a result, it does more than simply claim that customary international law fills in the gaps left by conventional law. The further influence of the clause can be seen by its inclusion into successive law of war documents throughout the twentieth century."[41] Thus, versions of the principle quoted above have appeared in each of the four 1949 Geneva Conventions, the 1977 Protocol (I) to the Geneva Conventions governing international armed conflicts, and the 1980 Convention on Conventional Weapons. This widespread incorporation of the principle, adopted by the vast majority of States, strongly suggests that the Martens' Clause itself may have become a principle of customary international law. The continuing vitality of the doctrine expressed in the Martens' Clause will be particularly important for space warfare, often thought to be the most technologically innovative form of warfare. Because the doctrine is phrased "dynamically," implicitly anticipating the need to regulate means and methods of warfare developed through technological advances, it will always operate to limit the lawful prosecution of space warfare. No matter what new means or methods are developed, they will remain subject to "the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience."

Conclusion

The militarization of outer space does not necessarily entail its weaponization. Many of the legal issues arising from the militarization of space do so in part because of the absence of clear definitions for terms used in the relevant space treaties. For example, aside from peaceful purposes and outer space, the law lacks basic authoritative definitions of other terms including space object, and space debris. As noted previously, the Liability Convention defines "space object," but its general circularity leaves the definition unhelpful. Functionally, the "space object" as used in international parlance includes "space debris." As it is generally conceived, a space object includes any artifact, manned or unmanned, that is launched into orbit. This includes objects that have ceased to function and have become debris. The lack of legal definition for these basic terms makes the already difficult task of applying two distinct branches of international law to space combat that much more difficult.

[41] Supra note 35