ISSN 2582-0311 (Print)
ISSN 2582-0303 (Online)

Volume 3
Issue I

August 2021

VIPS STUDENT LAW REVIEW

VIVEKANANDA INSTITUTE OF PROFESSIONAL STUDIES
ISO 9001:2015 Certified Institution
(Affiliated to GGSIP University & Approved by BCI & AICTE)
The Institute is NAAC Accredited 'A' Grade, recognized by UGC under section 2(f)
& NBA Accredited for MCA Programme

Volume 3, Issue I August, 2021 ISSN 2582-0311 (Print)
ISSN 2582-0303 (Online)

TABLE OF CONTENTS

S. No. Title of the Paper/ Author **Page No.**

1. An Era Comes To An End: Soli- A Great Lawyer And A True Friend
V. Sudhish Pai 1

2. Pre-empting A rise in Human Trafficking: A Deadly Side Effect of the COVID-19 Pandemic
Shivani Chawla 7

3. Efficacy of Victim Impact Statement in Indian Criminal Justice System in the Light of International Experiences
Samriti Verma and Anuj Kumar Tiwari 23

4. Psychological Autopsy
Lovleen Sharma 36

5. Constitutional Courts and Judicial Independence: Conceptualising Judicial Dissent in South Asian Perspective
Neha Tripathi and Anubhav Kumar 44

6. Work From Home and The Need for Right to Disconnect: Aftermath of the COVID-19 Pandemic
Shivya Juneja and Divyanshu Priyadarshi 61

STUDENTS

7. Liability Dimension of The Chamoli Disaster in Uttarakhand Under the Legal Framework
Sarthak Aryan and Jayanta Boruah 73

8. The Role of Nyaya Panchayat in Delivery of Rural Justice in India: A Critical Analysis
Namrata Chakraborty and Himanshu Anand 83

9. Inadequate Environmental Laws and increasing Pollution in Space
Deepansh Tripathi 94

10. An Unvaccinated World: The Intellectual Property Rights Conundrum
Nishita Arora and Hiba Nasir 105

11. Regulating the Unregulated Video-On-Demand Platforms in India
Ravi Singh Chhikara and Abhinav Arora 114

12. Utility Model System: Need of the Hour for Small Innovators
Girish Ahuja and Aparna Singh 130

13. CSR and Ghost Beneficiaries: The New Age Fraud Mechanism
Kushal Tekriwal 145

14. The 'Unpolished' Code Barricading Cross- Border Insolvency In India.
Prateek Khandelwal and Poojal Agarwal 154

15. Evaluation of Multiculturalism and Gender Equality in Family Laws of India from Uniform Civil Code Perspective
Tejash Bhandari 167

16. Protest: Defending the Right to Protest in the Digital Age
Neha Maria Antony 177

17. Is Gambling Safe Haven for Taxation? Understanding the Applicability of GST Laws in the Gambling Industry
Sagnik Sarkar 188

18. Applicability of the POSH Act to the Virtual Workplace: Assessing the New Normal
Gunjan Garg 202

19. Cyber Defense Policy Framework and Response Mechanisms towards the Cyber Threats and Emerging Cyber Warfares
Kshitij Dahiya and Vasu Manchanda 216

CASE COMMENTS

20. To Report or Not To Report: Zooming in the Case of Chief Election Commissioner of India v/s M.R. Vijayabhaskar & Ors.
Prerna Dhingra 228

21. An Approach Towards Balancing Fundamental Rights: Amit Sahni v/s Commissioner of Police
Sarthak Bhardwaj 237

LEGISLATIVE REVIEW

22. The Hindu Marriage Act of Pakistan: A Spearhead of Social Change
Kavish Arora 247

23. Critical Analysis of Civil Liability for Nuclear Damage Act, 2010
Ayush Garg and Mridul Pateriya 256

BOOK REVIEW

24. Rashmi Salpekar and Gauri Gupta, *Moot Problems*
(Vivekananda Institute of Professional Studies, 2021)
Shweta Shukla 269

Inadequate Environmental Laws and Increasing Pollution in Space

Deepansh Tripathi*

VIPS Student Law Review
August 2021, Vol. 3, Issue 1, 94-104
ISSN 2582-0311 (Print)
ISSN 2582-0303 (Online)
© Vivekananda Institute of Professional Studies
https://vslls.vips.edu/vslr/

Abstract

Pollution has been one of the core concerns when we look at the position of our planet. However, little is being done to throw light upon and examine pollution in Space. This paper attempts to do that and call attention to the grave repercussions that humankind will face due to the rapid increase of debris in Outer Space. Initially, the paper will trace the root cause of pollution and elaborate on the different kinds of pollutants such as chemical effluents, biological effluents and nuclear material, which poses an imminent danger. Furthermore, the paper will illustrate the risk on the Earth's environment due to imbalance in outer space. Then the paper will critically examine the most significant Article of the Outer Space Treaty concerning space pollution (Article IX). Later, the paper will list the various international conventions and collective efforts by the international communities to deal with the predicament. Lastly, the paper will put forward several proposals of multiple theorists and scholars to deal with the orbital debris problem in the outer space environment and the possible way forward.

Introduction

It is said that wherever humans go, they tend to leave their mark. This can be in the form of development or destruction. Humans are witnessing how badly the ecology is imbalanced, be it the depletion of the ozone layer, or emission of greenhouse gases, leading to the rise in the earth's overall temperature. Human has substantially exploited the Earth's resources, and now it is time to expand our horizon to Outer Space.[1] We have international treaties like *Kyoto Protocol, Paris Agreement and UNFCCC*, but none of them pays attention to the

* Student, 1st year, LLM, South Asian University, Delhi, India.

1 Christol, *The modern international law of outer space*, 77(4) Am. J. Int. L. 937-939 (1982).

problem of pollution in Outer Space.[2]

Since both the public and the private entities have begun launching and utilising satellites and making the process easier and less expensive to launch satellites into orbit. This expansion is giving rise to the problem of *space debris*.[3] The time is not too far when there can be a point of cascading exponential increase in space debris, leading to problems like debris collides, which might ultimately result in unusable Earth orbits. This is known as *Kessler Effect*.[4] Pollution is a threat to human existence, be it on the surface of earth or in outer space.[5]

Understanding the Contamination of Space: Space Debris

Veiling behind the curtain of development to justify the acts is always the tendency of humans, but this devastation has been multiplied extensively[6] because of increased space activities.[7] The source of outer space pollution is divided into *forward contamination* and *backward contamination,*[8] former occurs due to the result of human activities such as launching satellites[9] whereas the latter refers to any unpropitious change caused in the Earth's environment due to the introduction of an extra-terrestrial matter.[10]

Space debris is defunct human-made objects in space; it can also be referred to as Space Junk

2 Lotta Viikari, *The Environmental Element in Space Law: Assessing the Present and Charting the Future,* 3 Studies in Space Laws 998 (2008).

3 Gabrielle Maxey, *Clearing some Space* Yumpu (2009) https://www.yumpu.com/en/document/read/7998329/taking-care-of-business-university-of-memphis.

4 ESA, *The Kessler Effect and How To Stop It*, European Space Agency (2012) http://www.esa.int/Our_Activities/Space_Engineering_Technology/The_Kessler_Effect_and_how_to_stop_it.

5 Nandasiri Jasentuliyana, *The Role of Developing Countries in the Formulation of Space Law*, XX(II) Annals AIR & SPACE L. 95 (1995).

6 Thierry Senechal, *Orbital Debris: Drafting, Negotiating, Implementing a Convention,* Research Gate (2007) https://www.researchgate.net/publication/37999896_Orbital_debris_drafting_negotiating_implementing_a_convention.

7 Stephen Gorove, *Pollution and Outer Space: A Legal Analysis and Appraisal* 53(5) N.Y.U. J. Int. L. & Pol. 59 (1972).

8 Sandeepa Bhat, *Sustainable Space Development: Need for a Change in the Liability* IISL – AAIA Sept. 24-28, 2008 at 319.

9 European Space Policy institute, The Fair and Responsible Use of Space' (Wolfgang Rathgeber, Kai-Uwe Schrogl, Ray A. Williamson eds. Springer) (2010).

10 Major Bernard K. Schafer, *Solid, Hazardous and Radioactive Wastes in Outer Space: Present Controls and Suggested Changes*, 19(1) Cal. W. L. Rev. 1 (1988).

or Waste in simple terms.[11] It is the most potent form of space pollution found extensively in orbits, caused by fragmentation of space shuttle, satellite or inoperative payloads. This overcrowding of space will give rise to frequent incidences of collisions of objects with existing debris which will proliferate secondary fragments, and the chain will continue.[12]

One crucial factor that needs to be taken into account is that all the space debris are relatively very small, ranging from a few millimetres to several centimetres. Hence, the major problem is not with the size but with its high velocity, wherein actual danger[13] is when these micro-particulate matters with high velocity collide with other space objects, extra-terrestrial bodies or with humans (astronauts),[14] because that is where there is a possibility of an even bigger havoc.[15] This floating junk will result in damage of property, unpropitious effect on the costs of space missions and most severely on Astronauts' lives.[16]

Past Instances of Collision

The first-ever collision incidence was in 1996 when the French CERISE spacecraft collided with a European Ariane rocket.[17] In January 2005, a U.S. rocket collided with the third stage of a Chinese CZ-4 launcher.[18] In February 2009, an Iridium satellite collided with a spent Russian satellite, resulting in close to 2,000 debris pieces over 10 cm long.[19]

Threats Surpassing Fragmented Particles to Outer Space

Air pollution and harmful chemicals are polluting Earth and impacting outer space

11 Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, *Technical Report on Space Debris* United Nations (1999) https://digitallibrary.un.org/record/276455?ln=en.

12 I.A.S.L – Univ. of Cologne, Environmental Aspects of Activities in Outer Space: State of the Law and Measures of Protection (Karl-Heinz Böckstiegel ed. Springer) (1990).

13 Donald Kessler and Burton G. Cour-Palais, *Collision Frequency of Artificial Satellites: The Creation of a Debris Belt*, 83 Journal of Geophysical Research 2637 (1978).

14 Fishman, *Space salvage: A proposed treaty amendment to the agreement on the rescue of astronauts, the return of astronauts and the return of objects launched into space* 26 J. Int. L., 965 (1985).

15 NASA, *Interagency Report on Orbital Debris*, (NASA, Orbital Debris Quarterly News, April 2005)

16 Viikari, *supra* note 2.

17 NASA, *Orbital Debris qutarly news*, (Vol 1 Issue 2, NASA, Sept 1996)

18 Leonard David, *U.S.-China Space Debris Collide in Orbit*, Space News (2005) https://www.space.com/969-china-space-debris-collide-orbit.html.

19 Becky Iannotta , *U.S. Satellite Destroyed in Space Collision*, Space News (2009) https://www.space.com/5542-satellite-destroyed-space-collision.html.

undesirably.[20] In outer space, the source of chemical release is from the use of solid rocket fuels in spacecraft, which is composed of *hydrogen chloride, aluminium oxide, water, hydrogen, carbon monoxide, and carbon dioxide*.[21] These compounds have an adverse impact on Outer Space and might also be harmful to the atmospheric balance of Earth because it is still undetermined what will happen if these compounds enter the atmosphere of Earth.[22]

The next threat is from *Nuclear-propelled spacecraft;*[23] human civilisation has already witnessed severe destruction by a nuclear weapon in World War II. There is a constant threat to planet Earth and an amount of destruction beyond our imagination in case of explosions of nuclear substances in the vicinity of space.[24] In the crash of the *Russian satellite Cosmos 954 in 1978,*[25] this nuclear-powered satellite disintegrated on re-entering the Earth's atmosphere and scattered toxic radioactive debris over certain parts of Canadian territory.[26]

Applicability of Principles of International Environment Law in Outer Space

The existing conventions and treaties do not effectively conserve the outer space environment. Thus, it becomes essential to explore the possibility of importing customary environmental law principles into the space sector.[27]

20 NASA Policy Directive, *Biological Contamination Control for Outbound and Inbound Planetary Spacecraft,* National Aeronautics and Space Administration, (2016) https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPD&c=8020&s=7G.

21 Carl Q. Christol, *Protection of the Space Environment: Debris and Power Sourc*es Kluwer Law International 260 (1995).

22 Vishakha Gupta, *Critique of the International Law on Protection of the Outer Space Environment,* 14(1) Astro Politics (2016).

23 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, U.N. GA - UNOOSA, art. IV, 1962.

24 Melissa K. Force, *The Legal Landscape for Nuclear Spacecraft: International Environmental Law and Space Law* 35 Asian Journal of Air and Space Law 146–47 (2012).

25 W.K. Gummer, F.R. Campbell, G.B. Knight, J.L Ricard, '*COSMOS 954*, *The Occurrence and Nature of Recovered Debris,* C. Pub Co. (May., 1980) https://inis.iaea.org/collection/NCLCollectionStore/_Public/12/595/12595268.pdf.

26 He Qizhi, *Towards a New Regime for the Use of Nuclear Power Sources in Outer Space*, 25 Journal of Space Law 97 (1996).

27 Roberts, *Traditional and modern approaches to customary international law: A reconciliation* 95(4) Am. J. Int. L., 757, 791 (2001).

Let us examine the feasibility of the same, starting with the case of *Trail Smelter,*[28] where it reiterated the Principle 21 of Stockholm that *"No state has the right of permit use of its territory in such a manner as to cause injury to the territory of another state or properties"*. It will be challenging to inculcate this principle because the whole concept of Territorial jurisdiction or State boundary is not applicable in the scenario of outer space.

Another relevant international environmental norm is the *Polluter pays principle*, which states that *Whoever is responsible for damage to the environment should bear the costs associated with it*.[29] This principle directly holds the polluter liable and compel them to pay the cost to repair the damage they have caused to the environment.[30] Though it emerged largely as an economic principle, it also has legal implications in international environmental liability.[31] However, an embodiment of this principle in the space sector is ridden with ambiguities and makes the reparation mechanism deficient.[32] The challenge here is not to identify the Polluter of space pollution, taking the reference from the Convention On International Liability For Damage Caused By Space Objects, the Polluter will either be the launching state, manufacturer state or it can even be a private organisation like *SpaceX* who independently create space objects.[33] The issue that arises here is that, *to whom the compensation will be given*? In case of space pollution, *who will be the party calming the compensation?* This fundamental question nullifies the applicability of the principle of Polluter pays in the Space sector.[34] Other environmental law principles, including *Sustainable development, Intergenerational Equity or Principles of Integration*, do not hold any value in the space sector and need more clarification and scholarly work to generate the debate.[35]

28 United States v. Canada (1941) Arbitral Trib., 3 U.N. Rep. [Int'l Arb. Awards 1905].

29 FEE, *The Impossibility of Harming the Environment,* Foundation for Economic Education, (May. 1, 2002) https://fee.org/articles/the-impossibility-of-harming-the-environment/.

30 Karl-Heinz Bockstiegel, *ILA Draft Convention on Space Debris,* 1994 German Journal of Air and Space Law 395, 400.

31 Roy E. Cordato, *The Polluter Pays Principle: A Proper Guide for Environmental Policy,* IRET (2016) http://iret.org/pub/SCRE-6.PDF.

32 Nandasiri Jasentuliyana, *International Space Law and the United Nations,* (1995) Kluwer Law International 45.

33 Risley, *Examination of the need to amend space law to protect the private explorer in outer space* 26 Wes. Sta. Univ. L. Rev., 47 (1999).

34 Fawcett, Outer space: New challenges to law and policy 19(3) Oxford, UK: Clarendon Press, (1984).

35 David Tan, *Towards a New Regime for the Protection of Outer Space as the Province of all Mankind*, 25(1) Yale J. Int. L. 145 (2000).

Elucidating the Position of International Treaties

One of the first treaties to address environmental concerns of Outer Space is the *Partial Nuclear Test Ban Treaty of 1963*. It prohibits the employment of nuclear weapons in the atmosphere, underwater, and in outer space to prevent radioactive fallout in space.

In order to create liability[36] on Nations, it became essential to define the term *"Space Object"*. The Liability Convention[37] is the first space convention to provide a definition which states:-

> *"The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof".*[38]

This definition was crucial as it helped establish the joint and several liability[39] of all launching states in case of any misshaping.[40] Even though, the Outer Space Treaty is in existence for more than five-decades but still fail to define "Space Object" even after using the term in Article X.[41] Now the focus was on "*space debris"* and can be traced through an attempt by *UNCOPUOS in 1977.*[42] However, it was not fruitful because the problem was raised as a side issue to *crowding of the geostationary orbit.*[43]

Then in the same year, the *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977* prohibited military or other hostile uses of techniques which, could change the dynamics, composition or *structure of outer space*". Finally, in 1992, the General Assembly realised the gravity of the problem of pollution in outer space and urged States to pay more attention to the protection and the preservation of the outer space environment.[44] Special emphasis was given to the problem

36 Foster, *Convention on international liability for damage caused by space objects*, 10 CAN.. Y.B. INT. L., 137 (1972).

37 U.N. GA Res. 2777 (XXVI), *Convention On International Liability For Damage Caused By Space Objects,* Sept. 1972 UNOOSA 1971.

38 *Id.*, art. I (d).

39 *Id.*, art. V.

40 Armen Rosencranz, *Origin and Emergence of International Environmental Norms*, 26 HASTINGS INT'L & COMP. L. REV. 309 (2002).

41 Robert C. Bird, *Procedural Challenges to Environmental Regulation of Space Debris*, 40 AM BUS LJ 635, 637 (2003).

42 UNCOPUOS, *Space Debris Mitigation Mechanism in Japan* (2009), http://www.oosa.unvienna.org/pdf/pres/lsc2009/pres-05.pdf.

43 Jer-Chyi Liou and Nicholas L. Johnson, *Risks in Space from Orbiting Debris*, 311(5759) AAAS SCIENCE 340 (2006).

44 Bhat, *supra* note 8, at p.319.

of collisions of space objects with space debris.[45]

Outer Space Treaty could be the Game Changer

The enactment of the Outer Space Treaty is considered a historic event.[46] The combined effort of the U.N. General Assembly and the Legal Subcommittee of COPUOS, which is also considered the Magna Carta of space law, lead to the creation of the Outer Space Treaty. When the treaty was being drafted, space activities were too exorbitant, and it was highly unenforceable for the drafters of the treaty to think of space junk as a severe concern. As a result, today, we have only one provision that abstractly discusses the *Environmental protection of Outer Space, Article IX*[47] of the Outer Space, 1966.

Article IX of the Outer Space Treaty is described as a bunch of imprecise terms. In order to thrive better understanding, the Provision of Article IX has been divided into three distinguished paragraphs.

First Paragraph of Article IX

It is difficult to extract out the real intent of the treaty's drafters, but the term *"guided"* does not clarify whether member states have to mandatorily conform to the principle of cooperation and mutual assistance or merely consider it before undertaking an activity. This discretion on the parties can lead to a situation of conflict while interpreting.[48]

45 U.N. GA, *International Cooperation in the Peaceful Uses of Outer Space*, 4th Comm. 70 Sess. (1992) UN Doc. A/RES/47/67.

46 United Nations Committee on the Peaceful Uses of Outer Space, *Status of International Agreements Relating to Activities in Outer Space*, (2015) A/AC.105/C.2/L.295.

47 *Supra* note 23, art. IX, (*In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extra-terrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment.)*.

48 Reynolds, Merges, Outer space: Problems of law and policy 3 Harv. J. L. & Tech 275 (1990).

It is also important to highlight here is that the starting sentence of the first para of Article IX was imported from the *1963 UNGA Resolution*. It promulgates the principle of international "*cooperation and mutual assistance*" with respect to space activities. It mandates that parties to the Outer Space Treaty give due regard to other states' interests while exploring outer space. However, unlike the 1963 UNGA Resolution that applied to *all States*, Article IX applies only to the "State Parties" to the Outer Space Treaty.[49]

In the last line of the first paragraph, the phrase *"corresponding interests"* fails to provide a lucid meaning. From a rational human-centric perspective, it is construed to include only the harm caused to *future space activities*; with such unidirectional interpretation, it dilutes the whole relevance of the provision.[50] Also, this provision limits the scope of considering the *precautionary principle* as a measure to deal with the situation.

Second Paragraph of Article IX

It is the only provision in the entire Outer Space treaty that expressly addresses the *protection of the outer space environment*. It starts by stating that the *"States Parties to the Treaty shall pursue studies…"*. The use of *"shall"* in this sentence implies that the party states will mandatorily have to pursue studies of outer space even if not engaging in any space activity. But the provision fails to further assist as to *what sort of studies have to be pursued,* wherein this interpretation is left on speculation of states. Also, this provision does not take into account the great divide between the Developed and Emerging nations as there will be a discrepancy in states' financial resources, scientific & technological capabilities and infinite other barriers.[51]

The terms *"harmful"* and *"adverse change"* are subject to multiple interpretations, and the interplay between these two terms results in another anomaly. The provision does not clarify aspects like, *for whom the contamination must be harmful*; *for whom the change must be adverse*[52] or *whether the contamination is harmful to celestial bodies, future space experiments, or to the Earth's atmosphere*.

49 Natalie Pusey, *The Case for Preserving Nothing: The Need for a Global Response to the Space-Debris Problem*, 21 Colo. J. of Int'l. Envtl. L. & Pol'y. 425 (2010).

50 Lawrence D. Roberts, *Addressing the Problem of Orbital Space-Debris: Combining International Regulatory and Liability Regimes*, 15(1) B.C Int'l. & Comp. L. Rev. 51(1992).

51 Olga Stelmakh, *Space Debris: Emerging Challenge, Common Concern and Shared Responsibility: Legal Considerations and Directions towards a Secure and Sustainable Space Environment*, 13 Int'l Inst. Space Law, 353, 357 (2013).

52 N. Trendle, *Negligence and the Right to Support: Bognuda v. Upton & (and) Shearer*, 28 V.U.W. L. Rev. 416 (1971).

The provision also leaves the word *"contamination"* undefined. As the article does not explicitly address other kinds of pollution and Contamination, in common parlance means the discharge of *chemical effluents*. So, it leaves us with the doubt that, *whether to draw an inference, the article only refers to the harm caused to outer space through the release of chemical contaminants*.[53]

The terms *"where necessary"* and *"appropriate measures"* augment the abstractness of this article. There is no definite authority to set standards for «necessary» and «appropriate measures». In a strict sense, these terms will be interpreted according to the «quantity of contamination» instead of «quality of the environment,» undermining outer space environmental sustainability.[54]

The term "avoid" obligates the member states only to shun certain activities but *what actions must be "avoided" are not specified*. This obscurity highlights the depth of human-centrism ingrained in this Article which reflects the intent of drafters, who merely for the sake of creating some obligation on state parties, created this provision.[55]

Third Paragraph of Article IX

The core issue in the third paragraph is with the term *"reason to believe"*. This term is subjective and provides ample power in the hand of the concerned State party to decide whether they want to seek international consultation or wants to avoid by rebutting the existence of *"reason to believe"*.[56] There can also be a possible scenario when the state party attempts to manipulate facts to adduce faith in their venture and negate any prospect of harmful interference with outer space. Due to the absence of any yardstick to determine the truth the states can easily manipulate this term in their favour.

Even when the member state is willing to seek consultation but the provision is silent on the fact that *from whom to seek these international consultations*. As the provision fails to mention any international body to whom the State party can go and seek consultation in case of any potential harm or interference to outer space.

Article IX also fails to impose any firm obligation on the state parties. The only direct

53 Howard A. Baker, *The Sci-Lab Perception: Its Impact on Protection of the Outer Space Environment* 30 Colloq. L. Outer Space, 121, 127 (1988).

54 Alexander F. Cohen, *Cosmos 954 and the International Law of Satellite Accidents*, 10 Yale J. Int'l L. 1 (1984).

55 Aldo Armando Cocca, *Convention on Registration of Objects Launched into*. 1 Space Manual on Space Law 177, 178 (1979).

56 Bin Cheng, Studies in International Space Law, 383 (Oxford: Clarendon Press) (1997).

prohibition in the Outer Space Treaty is given in *Article IV*, which forbids the placing of nuclear weapons in the orbits around the Earth.[57] But the Treaty is silent on the situation when there is a violation of any provision of the Outer Space Treaty, in other words, there is no mechanism of sanction in case of violation.[58]

The Way Forward

Despite various proposals advanced by scholars and institutions, some of them workable, the international law on outer space is stagnant; there has been no significant development in treaty law since the enactment of the Moon Agreement, 1979. Meanwhile, the outer space environment continues to be polluted by spacefaring nations.

The present international legal system is not adequate for protecting the outer space environment, no binding standards have been adopted so far, nor any binding guidelines exist to help space actors determine appropriate levels of debris mitigation.[59]

Proposals by Scholars to Remedy the Mechanism

Space Debris Mitigation Convention proposed by *Thierry Senechal*. Convention highlights the harmful consequences of space debris, and require the parties to mandatorily undertake certain measure for debris mitigation at national and international levels.[60]

Howard Baker attempts to harmonise international space law and international environmental law. He envisions a *Protocol for the Protection and Preservation of the Planetary Environment* with general principles and specific obligations. The protocol shall contain fundamental principles of environmental law: (1) principle of common planetary concern; (2) principle of good neighbourliness; (3) principle of precautionary measures; and (4) principle of sustainable development.[61]

The International Association for the Advancement of Space Safety (IASS), proposed the establishment of *International Removal, Maintenance and Servicing of Satellites*

57 Gupta, *supra* note 22.

58 Joseph Pelton, Space Debris and Other Threats from Outer Space (Springer Science & Business Media) (2013).

59 Ping Yiding, *Application of Image Restoration in GEO Space Debris Survey*, (2016), http://aero.tamu.edu/sites/default/files/faculty/alfriend/S7.3%20Ping.pdf.

60 James Lampertuis, *The Need for an Effective Liability Regime for Damage Caused by Debris in Outer Space* 13 Mich. J. Int'l. L. 447 (1991).

61 Agatha Akers, *To Infinity and Beyond: Orbital Space-Debris and How to Clean It Up*, 33 U. La Verne L. Rev. 285 (2012).

(INREMSAT), which shall assist with the removal of space debris and non-functional satellites.[62]

The Inter-Agency Space Debris Coordination Committee (IADC) is an international body made up of national and multinational space agencies to coordinate space debris-related activities. Participating States have to give a voluntary undertaking with a view to mitigate space debris, and have to develop domestic standards and nationally binding laws.[63]

Removing those spacecrafts that have reached the end of their mission operations from the functional densely populated orbit regions.[64]

Some scholars advanced the idea of the imposition of a *"space access fee"*. Every State encroaching on outer space shall be liable to pay it. The fund created out of such a fee shall be used to clear out the existing debris.

This paper highlights the gap and the grey area in Environmental Laws, in the area of pollution in Space. At an international level, there is a devoid of adequate legislation regulating the outer space activities and hold accountability in case of any misshaping in space. The problem of Space Debris is not the only issue, but other major developments which are happening in space and can become a threat to humanity in the future. The slow legislative development in the area of Space portrays a lack of seriousness on part of the member states. Without any policy initiatives, the world will encounter serious constraints in meeting the demands and dealing with contemporary issues of Outer Space.

62 European Space Policy institute, *supra* note 9.

63 J.C. Liou, David Jarkey, *Orbital Debris Mitigation Policy and Unique Challenges for Small Satellites*, 19(2) NASA Orbital Debris Program Office Small Satellite Conference 4 (2015).

64 Nicholas Johnson, *Origin of the Inter-Agency Space Debris Co-ordination Committee*, ARES Biennial Report (Jan. 1, 2014) http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20150003818.pdf.