www.legalonus.com

LEGALONUS

Aequitas Sequitur Legem

Web: www.legalonus.com Email: JOURNAL@LEGALONUS.COM

LEGALONUS LAW JOURNAL (LLJ)

A QUALITY INITIATIVE FOR LEGAL DEVELOPMENT,

UNDERTAKEN BY LEGALONUS

VOLUME 1 ISSUE 1, 2024

About Us - LegalOnus Law Journal (LLJ)

LegalOnus Law Journal (LLJ) is a monthly, peer-reviewed, online academic journal dedicated to advancing legal scholarship. We provide an interactive platform for the publication of short articles, long articles, book reviews, case comments, research papers, and essays in the field of law and multidisciplinary issues.

Our mission is to enhance the level of interaction and discourse surrounding contemporary legal issues. By fostering a dynamic environment for discussion, we aim to elevate the quality of legal scholarship and become a highly cited academic publication.

We invite quality contributions from students, academics, and professionals across the industry, the bar, and the bench.Join us in our commitment to advancing legal knowledge and practice.

Disclaimer for LegalOnus Law Journal (LLJ)

All content published in the LegalOnus Law Journal (LLJ) is the intellectual property of their respective authors and contributors. The authors' copyright of articles, reviews, and other contributions remains.

Reproduction, redistribution, or commercial use of any materials from LLJ is strictly prohibited without prior written permission from the copyright holder and LLJ.

The opinions expressed in the articles are those of the authors and do not necessarily reflect the views of LLJ or its editorial board. LLJ and its editorial team are not responsible for any copyright infringements or legal issues arising from unauthorized use of the journal's content.

For permissions, queries, or copyright concerns, please contact the LLJ editorial team at journal@legalonus.com

By accessing and using LLJ content, you agree to comply with this disclaimer and all applicable copyright laws.

Mr. Ayush Chandra

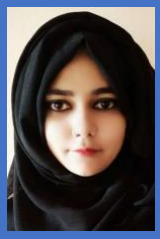
Publisher, Managing Director, and Founder

Mr. Ayush Chandra is the Publisher, Managing Director, and Founder. He pursued an extensive legal education and practical experiences, significantly enriching his expertise. He graduated with first-division marks in a 5-year integrated BA-LLB course from Amity University. His education provided a solid foundation in legal studies. His internships included the District Legal Services Authority at a lower court, the Allahabad High Court under a seasoned advocate, and the Supreme Court of India. These experiences deepened his understanding of the legal system, honing his analytical skills and expertise in drafting and pleading.

- Email: ayush.chandra@legalonus.com
- +91 9140433246
- Linkedin

Mr. Ayush Chandra

Publisher, Managing Director, and Founder of LegalOnus



Sayed Nishat Fatima

Co-Founder of LegalOnus

Sayed Nishat Fatima

Co-Founder

Sayed Nishat Fatima has a solid academic foundation, earning a BA.LL.B (Hons) and an LLM specializing in criminal law from Aligarh Muslim University. These achievements have provided her with a robust understanding of legal principles and a profound sense of societal responsibility. Her scholarly pursuits include a dissertation on offences against women in India, highlighting her commitment to meaningful change. As a published author of "One Step with Me" and a judge in moot court competitions, she inspires future legal professionals. Actively participating in legal conferences and seminars, she remains engaged with emerging trends. At LegalOnus, she upholds integrity, professionalism, and compassion in every case.

- Email: sayed.nishat@legalonus.com

Editorial Board

Prof. (Dr.) Jay Prakash Yadav
Director,
Amity Law School
Amity University,
Lucknow Campus

Dr. Jay Prakash Yadav

Senior Chief Editor

Dr. Jay Prakash Yadav, Director of Amity Law School at Amity University, Lucknow, serves as the Senior Chief Editor of the LegalOnus Law Journal. A renowned scholar in Constitutional Law, Dr. Yadav has over two decades of experience in teaching, research, legal practice, and administration. His career highlights include founding the Jagran School of Law, Dehradun, and the University Institute of Legal Studies at Chandigarh University, transforming them into leading institutions in legal education.

Holding a Ph.D. in Law, Dr. Yadav's research on "State Obligation to Enforce Directives under Part IV of the Indian Constitution" has gained widespread recognition. He is also a respected consultant and Fellow of The Institute of Constitutional and Parliamentary Studies, New Delhi. Known for his leadership, motivational skills, and commitment to justice, Dr. Yadav continues to inspire the next generation of legal scholars, ensuring LegalOnus remains a premier platform for legal scholarship.

- Email: dr.jayprakash.sr.chiefeditor@legalonus.com
- LinkedIn

Dr Pallavi Singh

Editor-in-Chief

Assistant Professor School of Law and Governance, Department of Law and Governance Central University of South Bihar, Gaya.

She is B. Sc, LL. B, LL.M, NET qualified. She has completed her PhD from the faculty of law at Banaras Hindu University.

She has participated in and presented a paper in many national as well as international seminars and conferences with multiple publications to her name which are indexed in UGC CARE and peer-reviewed journals. She is an author of various books in law and edited books. Her areas of interest are cyber law, women and criminal law, property law, criminal law, etc.

- Email: dr.pallavi.chiefeditor@legalonus.com
- Adress: SH-7, Gaya Panchanpur Road – Village – Karhara, Post, Fatehpur, Bihar 824236
- LinkedIn

Asst Prof Dr Pallavi Singh

School of law and Governance, Department of Law and Governance Central University of South Bihar, Gaya

Asst Prof Rachit Sharma

IILM University, Greater Noida

Mr. Rachit Sharma

Editor-in-Chief

Mr. Rachit Sharma, with LL.M. and B.A.LLB(Hons.) degrees from Guru Gobind Singh Indraprastha University, New Delhi, has a strong background in advocacy and research. His practical legal experience has sharpened his skills and provided deep insights into the legal system's challenges.

Mr. Sharma has published numerous papers in national and international peer-reviewed journals, showcasing his commitment to legal scholarship. As an educator, he is dedicated to fostering critical thinking and academic excellence among students. Additionally,

Mr. Sharma contributes to the legal community through his editorial roles in over eight national and international law journals, helping shape the field of legal literature.

- Email: rachit.chiefeditor@legalonus.com
- Adress: IILM University, Greater Noida Plot No.18, Iilm College Of Engineering & Technology, 16, Knowledge Park II, IILM University Greater Noida, Uttar Pradesh 201306 IILM University Greater Noida
- LinkedIn

Asst Prof Anandh Kumar V

SRM School of Law,
SRMIST, Tamil Nadu

Mr. Anandh Kumar V

Editor-in-Chief

Mr. Anandh Kumar V, Assistant Professor at SRM School of Law, SRMIST, Tamil Nadu, holds a B.A.B.L from Govt Law College, Madurai (2014), a Master's in Business Law from Tamil Nadu Dr. Ambedkar Law University (2016), and is pursuing a PhD in Law. He coached the SOEL team for the 5th SAARC International Moot Competition in 2020 and has judged over 100 moot court events globally.

His experience includes academic roles at TNDALU, where he taught Competition Law, Insurance Law, and Company Law, and as a Research Associate in Consumer Law. He has also been a resource person for cybercrime courses and won awards for drafting and curriculum development.

- Email: dr.anandh.chiefeditor@legalonus.com
- Adress: SRM School of Law SRM Institute of Science and Technology, Kanchipuram Dist. Tamil Nadu.

Res. Scholar Megha Middha

Editor-in-Chief

Megha Middha is a Research Scholar at Mohanlal Sukhadia University, Udaipur. With nearly four years of teaching experience, she has previously served as an Assistant Professor at Chandigarh University and Mody University of Science and Technology, Lakshmangarh.

Megha graduated with a BBA LL.B (H) from Amity University, Rajasthan (Gold Medalist), and earned her LL.M in Business Laws from NLSIU, Bengaluru.

She is currently pursuing a Ph.D. in Law at Mohanlal Sukhadia University. Megha is dedicated to advancing academics and research, fostering critical thinking in students, and has published numerous articles in reputed journals. She enjoys reading diverse genres and writing.

- Email: megha.chiefeditor@legalonus.com
- Adress: University Rd, Ganapati Nagar, Udaipur, Rajasthan 313001
- LinkedIn

Res. Scholar Megha Middha

Mohanlal Sukhadia University Udaipur

Asst Prof Dr Radha Ranjan

Amity University Patna Bihar Amity University

Dr Radha Ranjan

Editor-in-Chief

Dr. Radha Ranjan is an Assistant Professor at Amity Law School Amity University Patna Bihar He holds a BA (Hons) in Spanish from EFL University, an LL.B from Banaras Hindu University, an LL.M from NLSIU, and a Diploma from the University of Catolica Chile.

Dr. Radha Ranjan has been awarded his PhD from Central University of South Bihar (NAAC A++ and UGC Category 1 University).

He has qualified for UGC NET in Law and Criminology. Dr. Ranjan has numerous publications in research papers, articles, blogs, and book chapters, and has presented at various national and international conferences.

He is an editorial member and reviewer for several journals and has expertise in Constitutional Law, Cyber Law, Criminal Law, and Human Rights.

- Email: dr.radha.chiefeditor@legalonus.com
- Adress: Amity University Patna Bihar Amity University Police Station, Bailey Rd, near Rupaspur, Rupaspur, Kaliket Nagar, Patna, Bihar 801503
- LinkedIn

Advo. Tarun Agarwal

Lawyer in London and Mumbai

Advo. Tarun Agarwal

Editor-in-Chief

Mr. Tarun is a distinguished legal professional with extensive cross-jurisdictional experience in London and Mumbai. He excels in managing comprehensive legal processes, negotiating critical agreements, resolving cross-border disputes, and leading significant restructuring projects.

Mr. Tarun co-authored a pivotal book on International Litigation (Eastern Book Company) and has published articles in the Young Arbitration Review. He holds a BA LL.B (Hons.) from Gujarat National Law University, a P.G.D.L. from NALSAR University of Law, and an LL.M. from University College London (UCL).

Mr. Tarun is a Registered Foreign Lawyer in England and Wales, a member of the Law Society of England and Wales, and the Bar Council of India, and has received the Lex Falcon Global Awards 2024 – Rising Independent Lawyer of the Year.

His election as a Fellow of the Royal Society of Arts underscores his leadership and influence in the legal community.

- Email: tarun.chiefeditor@legalonus.com
- LinkedIn

Aakansha Verma

Senior Editor

Aakansha Verma is an Assistant Professor at the Presidency School of Law, Presidency University, Bengaluru, and a Ph.D. candidate at Integral University, Lucknow. She previously taught at Amity Law School, Amity University. With an LL.M. in Constitutional and Administrative Law from BabaSaheb BhimRao Ambedkar University and UGC NET qualification, she has presented at numerous national and international conferences and published extensively on healthcare access, arbitration, and reproductive technologies. Her dedication to legal research and education makes her a valuable member of the editorial board.

- Email: aakansha.sreditor@legalonus.com

Aakansha Verma,

Presidency school of Law, Presidency University

Bengaluru,Karnataka

Shivani Gupta

Senior Editor

Shivani Gupta is an Assistant Professor at KGP PG College, Moradabad. She earned an LLB with honors, receiving the Gold Medal from Mahatma Jyotiba Phule Rohilkhand University, and an LLM from IFTM University, Moradabad. She holds a Ph.D. in Law from Invertis University, specializing in legal philosophy.

Her certifications include the Latham & Watkins Mergers & Acquisitions Job Simulation, UNCITRAL International Commercial Arbitration Certificate, and Clifford Chance Cyber Security Job Simulation. She judges the 2024 IBA ICC Moot Court Competition and is a member of INTA, the Mumbai Centre for International Arbitration, and MediateGuru. As an Evaluator for the IBA ICC MOOT: India National Rounds, she mentors aspiring legal professionals.

- Email: shivani.sreditor@legalonus.com

Advocate

Shivani Gupta

KGP PG College, Moradabad

Students Editors

1. Advo. Anushree Tiwari
2. Ashutosh Debata
3. Akriti Sonwani
4. Jatin Rana
5. Sumit kumar

Publisher

LegalOnus Publishing Team

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

INTERNATIONAL LIABILITY OF COMMERCIAL SPACE ACTIVITIES AND SPACE DEBRIS

-Tadepalli Aditya Kamal

ABSTRACT

Space activities are generally sophisticated and involve a high frequency of risk. Notwithstanding the precautionary measures that are taken by the commercial operators in any point of time which include launch, passing through air space , in-orbit manoeuvring and operating and de-orbiting , the rules and procedures are aimed to ensure the prompt payment of a full and equitable compensation for such damage constitute the international liability regime , which is a crucial importance in space law. The very first reference of international liability for damage caused by the space objects and their components on Earth can be traced back to the very beginning of the space era. The United Nations General Assembly had declared the international liability, as one the legal principles, governing the activities of states in the exploration and use of outer space, just a few years after the first ever artificial satellite was launched in 1963. This was later made legally binding by the inception in the 1967 Outer Space Treaty and has received further development in the 1972 Liability Convention. The latter is generally referred to as lex specialis when the interrelation between the two international treaties is described and introduces several provisions that treat liability for damage caused in specific circumstances somewhat differently.

International Space Law imputes liability on states that launch or procure launchings of space objects and states from whose territory or facility space objects are launched. This does now however exclude the liability of damages caused by the space objects that are operated by the private entities. International Liability for accidents involving commercial operators stays with the so-called launching states, as this term is defined by the Liability Convention for same states that are listed in the Outer Space Treaty as internationally liable. The damages and liability issues although are well known and are addressed by the Insurance, however, it is not always mandatory.

Often, space-related accidents involve dysfunctional space objects and their parts which are referred to as 'Space debris'. This may include parts like spent rocket stages and defunct

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

satellites, fragments from their disintegration, etc. Since the non-functional state of a space object does not change its legal status, the relevant provisions of international space law that are applicable to space objects continue to apply to what is called space debris. There are certain practical problems which arise with identification of space debris and consequently, an efficient implementation of the liability regime.

Keywords: International Space Law; Outer Space Treaty; Liability Convention; International Liability; Commercial Space Activities; Space object; Launching State; Damage; Compensation and Space Debris.

INTRODUCTION

The rapid advancement of technology and science has given several countries the ability to use and exploit outer space. Many rich and emerging nations engaged in unrestricted space research in the preceding century, and as a result, space trash production has expanded dramatically. Defunct satellites that are still orbiting the Earth and have successfully completed their missions are collectively referred to as "space debris" since they are space rubbish. The legal framework governing the use of space must incorporate space debris remediation since it will be essential to the long-term viability of space. The outer space has become crowded with both operational and non-functional space objects, which has led to an unforeseen overcrowding of orbits. As countries and non-governmental entities continued to launch their objects into space, the available space in outer space has significantly diminished.[1] To address the issue of space debris, active debris removal (ADR) has been proposed to reduce the number of debris already present in space. ADR involves more aggressive measures compared to mitigation, as it requires actively retrieving debris and guiding it to burn up in the Earth's atmosphere. Since many space objects lack post-mission disposal capabilities, external vehicles are necessary to perform ADR. The technical methods employed in ADR include capturing and removing debris. Currently, ADR technology focuses on larger debris due to their higher likelihood of colliding with other space objects.

[1] Sukriti Mathur MRMA, 'Space Debris and International Laws: The next Generation Concern' (*The Daily Guardian*, 16 August 2021) accessed 14 May 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

Spacefaring nations are actively developing technologies for active debris removal (ADR). In 2012, the European Space Agency (ESA) initiated the Clean Space initiative to protect the sustainability of the outer space environment.

ADR is considered a practical solution for preserving the space environment. However, studies indicate that it is an expensive endeavour requiring advanced technological capabilities. Consequently, defining the legal aspects of ADR becomes vital. Key legal considerations include jurisdiction and control, ownership, authorization, responsibility, and liability. ADR operations, due to their challenging remediation techniques, can pose risks to other satellites in orbit, making accidents a potential concern. This analysis will examine how the Liability Convention of 1972 addresses ADR and assess whether they offer sufficient provisions.[2]

As space activities continue to grow, the issue of space debris becomes increasingly significant and requires attention from the global community. The approaching anniversary of the Outer Space Treaty provides an opportunity to reflect on achievements in the past and chart a collective path forward.

Space debris, also known as orbital debris, consists of human-made objects ranging from tiny paint flecks to non-functional satellites. It is generated through normal space activities, collisions between objects, and even anti-satellite weapons. The presence of a growing population of debris in near-Earth orbit poses a substantial threat to operational satellites and human life in space or on the ground due to the risk of collisions. Moreover, in the long term, space debris jeopardizes the sustainability of space activities and renders Earth orbit inhospitable by turning it into a debris-filled zone.

While scientific predictions regarding space debris involve some degree of uncertainty, the scientific and technical communities concur that concerted action is necessary on multiple fronts to mitigate the proliferation of hazardous orbital debris. The complexity of legal aspects surrounding debris currently occupies space lawyers and raises more questions than answers. These questions demand comprehensive and thoughtful consideration from all stakeholders involved in outer space activities.[3]

[2] Pelton JN, 'New Solutions for the Space Debris Problem' (Google Books, 6 May 2015) accessed 4 May 2023
[3] Robert Wickramatunga, 'United Nations Office for Outer Space Affairs' (The Outer Space Treaty, 1996) accessed 21 April 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

The legal status and liability of non-governmental entities involved in commercial activities in outer space are not clearly defined within existing space law frameworks. Non-governmental entities refer to private actors engaged in activities such as commercial launches, supplying equipment or parts to space agencies, and manufacturing spacecraft and satellites. Potential litigation arising from these commercial activities primarily revolves around financial consequences of damages caused and technical complications that private entities may encounter, such as providing faulty parts to space agencies.

Under the Outer Space Treaty of 1967 (Article VI) and the Liability Convention of 1972 (Articles II and III), the launching state is held liable for any activities in outer space, including non-governmental activities. This means that in the case of accidents or consequential damages resulting from commercial activities conducted by any sovereign state, the state is held responsible.

This article specifically focuses on the issue of liability for commercial activities conducted by non-governmental entities within the existing international space law regimes. It examines the relevant principles of space law and international law that apply to outer space activities. The article also investigates the impact on the space liability regime and the legal framework governing the relationship between private entities and state liability. This analysis is particularly significant given the increasing number of private spacecrafts scheduled for launch in the future.

LEGAL FRAMEWORK

Like other areas of law, space laws are built upon the principles of international cooperation and equality. The Committee on the Peaceful Uses of Outer Space (COPUOS) has played a pivotal role in developing five important treaties that govern space activities and aim to ensure the preservation of the outer space environment. The Committee on the Peaceful Uses of Outer Space (COPUOS) has been instrumental in the development of key treaties that regulate space activities and promote the peaceful exploration and utilization of outer space. These treaties, collectively known as the "Five United Nations Treaties on Outer Space," The Five Agreements are as follows:

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

1. Outer Space Treaty of 1967: The Outer Space Treaty was considered and agreed upon by the Legal Subcommittee in 1966, with the General Assembly adopting it through resolution 2222 (XXI) in the same year. The Treaty was largely based on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, which was adopted by the General Assembly in resolution 1962 (XVIII) in 1963. However, the Outer Space Treaty introduced several new provisions. In January 1967, the Treaty was opened for signature by the three depository Governments: the Russian Federation, the United Kingdom, and the United States of America. It entered into force in October 1967. The Outer Space Treaty establishes the fundamental framework for international space law and includes the following key principles:
    1. Benefit and Interests of All: The exploration and use of outer space should be carried out for the benefit and in the interests of all countries and should be considered a common endeavour for all of humanity.
    2. Free Exploration and Use: Outer space is to be freely explored and used by all states, without any discrimination or exclusivity.
    3. Non-Appropriation: Outer space is not subject to national appropriation, meaning no state can claim sovereignty over any part of outer space through occupation or other means.
    4. Weapons in Space: States are prohibited from placing nuclear weapons or other weapons of mass destruction in orbit, on celestial bodies, or stationing them in outer space.
    5. Peaceful Purposes: The Moon and other celestial bodies should be used exclusively for peaceful purposes, without any militarization or hostile activities.
    6. Astronauts as Envoys of Mankind: Astronauts are considered as representatives of all humankind and should be provided with necessary assistance and treated with dignity.
    7. Responsibility and Liability: States bear responsibility for their national space activities, regardless of whether they are carried out by governmental or non-

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

governmental entities. They are also liable for any damage caused by their space objects.

8. Avoidance of Harmful Contamination: States are obliged to prevent the harmful contamination of space and celestial bodies, taking into account the principles of environmental protection.

These principles form the core elements of the Outer Space Treaty, which lays the foundation for international space law and promotes cooperation, peaceful exploration, and the preservation of space for the benefit of all nations and humanity.[4]

2. Rescue Agreement of 1968: The Rescue Agreement, formally known as the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, was adopted by the United Nations General Assembly on December 19, 1967, and entered into force on December 3, 1968. It is one of the five international treaties governing space activities. The Rescue Agreement primarily focuses on the obligation of states to rescue and aid astronauts in distress. Its key provisions include:
    1. Rescue of Astronauts: States have a duty to rescue astronauts who have landed in territory other than their own or who are in distress in outer space. This obligation applies regardless of the nationality of the astronauts involved.
    2. Return of Astronauts: States are required to ensure the safe and prompt return of astronauts to their respective countries after they have landed in the territory of another state or have been recovered in outer space.
    3. Return of Space Objects: States must also facilitate the return of space objects launched into outer space that land outside the territory of the launching state. This provision applies to both manned and unmanned missions.
    4. Notification and Assistance: States are encouraged to provide mutual assistance and to promptly notify each other of any incidents or accidents involving astronauts or space objects. They should also take necessary measures to prevent the spread of hazardous substances.

[4] Wickramatunga R, 'Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space' (United Nations Office for Outer Space Affairs, 1967) accessed 22 April 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

The Rescue Agreement underscores the importance of cooperation among states in ensuring the safety and well-being of astronauts involved in space missions. It aims to promote the prompt rescue and return of astronauts, as well as the recovery and return of space objects. By establishing clear obligations and procedures, the agreement contributes to the advancement of international space law and the peaceful exploration of outer space.[5]

3. The Liability Convention of 1972: The Liability Convention of 1972, officially known as the Convention on International Liability for Damage Caused by Space Objects, is an international treaty that addresses the liability of states for damages caused by space objects. It was adopted by the United Nations General Assembly on March 29, 1972, and entered into force on September 1, 1972. The Liability Convention establishes a framework for determining the liability of launching states for damages caused by space objects, including satellites and spacecraft. Key provisions of the convention include:
    1. Scope of Liability: The convention applies to damage caused on the surface of the Earth, to aircraft in flight, and to persons or property on board aircraft or spacecraft. It also applies to damage caused by space objects on other space objects.
    2. Fault-Based Liability: The convention imposes absolute liability on launching states for damage caused by their space objects on the surface of the Earth or to aircraft in flight. This means that a launching state is held responsible regardless of whether it was at fault or negligent.
    3. Presumption of Fault: In cases where damage is caused to a space object or its components on the surface of the Earth or in outer space, fault-based liability applies. The injured party must establish that the damage was a result of a fault or negligence on the part of the launching state or its personnel.
    4. Limitation of Liability: The convention provides for a limited liability regime where the total liability of a launching state is capped. The specific limit is

[5] Wickramatunga R, 'Convention on International Liability for Damage Caused by Space Objects' (United Nations Office for Outer Space Affairs, 1971) accessed 22 April 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

determined by the size of the launching state's space object and its purpose (whether it is a manned or unmanned mission).

5. State Responsibility: The convention emphasizes that the liability of a launching state is a matter of international responsibility and does not affect the responsibility of any other state involved in the launch or use of a space object.

The Liability Convention promotes the principle of accountability in space activities and ensures that launching states bear responsibility for damages caused by their space objects. It encourages cooperation and provides a legal framework for addressing liability issues in the peaceful exploration and use of outer space.[6]

4. The Registration Convention of 1976: The Registration Convention, formally known as the Convention on Registration of Objects Launched into Outer Space, is an international treaty that establishes a framework for the registration of space objects launched into outer space. It was adopted by the United Nations General Assembly on January 14, 1975, and entered into force on September 15, 1976. The main objective of the Registration Convention is to enhance transparency and facilitate the identification and tracking of space objects. Key provisions of the convention include:
    1. Mandatory Registration: The convention requires states to register space objects that they launch into outer space. Registration is mandatory and should be done with an appropriate national authority or with the United Nations Office for Outer Space Affairs (UNOOSA).
    2. Contents of Registration: The registration information should include details such as the name of the launching state, the date and location of launch, basic orbital parameters, and general function of the space object. If the object is intended to remain in orbit for more than one year, additional information is required.

[6] Wickramatunga R, 'Convention on Registration of Objects Launched into Outer Space' (United Nations Office for Outer Space Affairs, 1974) accessed 22 April 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

3. Publication of Information: The registration information is to be published by the registering state or UNOOSA and made available to other states and the international community. This promotes transparency and facilitates the exchange of information related to space activities.
4. Modification and Cessation of Registration: If there are changes in the status of a registered space object, such as its transfer of ownership or cessation of operation, the registering state is responsible for updating the registration information accordingly.
5. International Cooperation: The convention encourages states to cooperate in the exchange of information regarding space activities and the sharing of data related to registered space objects.

The Registration Convention plays a vital role in maintaining a comprehensive and up-to-date record of space objects launched into outer space. It enables states and the international community to monitor and track space activities, which is crucial for ensuring the safety, security, and peaceful use of outer space. By promoting transparency and international cooperation, the convention contributes to the overall governance of outer space activities.[7]

5. Indonesian Treaty

LEGAL STATUS OF THE SPACE DEBRIS

The process of addressing the issue of space debris through traditional legal frameworks faces unique challenges due to the nature of outer space and its legal realities. The issue of space debris and its legal ramifications has gained increased attention due to the rise of space travel. While scientific and technological research on space debris has been ongoing for many years, the development of a comprehensive international legal framework to address its complex legal concerns is still lacking. The Outer Space Treaty of 1967, considered the cornerstone of space law, provides only limited guidance on the specific issue of space debris. Its general clauses do not offer detailed recommendations on countermeasures to address debris at the state level, leaving room for interpretation by legal professionals. The treaty holds states

[7] Raju KD and BG, 'Understanding International Space Law and the Liability Mechanism For …' (Sage Journals , Volume 75, Issue 4, 27 December 2019) accessed 12 May 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

responsible for their actions in outer space and for any harm caused by particles launched into space by them.[8]

One fundamental legal challenge is the definition of space debris. While scientists and engineers use technical definitions focusing on non-functional man-made objects in Earth orbit or re-entering the atmosphere, translating this into an international legal definition is not straightforward. The existing space law treaties do not explicitly mention 'space debris,' and the closest related term is 'space object.' The treaties apply this term to any object launched into space and determine important legal consequences such as jurisdiction, registration, and liability. However, the treaties do not provide a precise definition of what constitutes a 'space object,' nor do they consider the functional or non-functional nature of the object when applying legal consequences. This lack of specific terminology and criteria for space debris poses a challenge in developing comprehensive legal frameworks. The issue of space debris and its legal ramifications has gained increased attention due to the rise of space travel. While scientific and technological research on space debris has been ongoing for many years, the development of a comprehensive international legal framework to address its complex legal concerns is still lacking.[9]

Article IX of the Outer Space Treaty emphasizes the need for states to undertake their operations in outer space with respect for the interests of other treaty parties. While this provision does not explicitly address space debris, it can be interpreted to compel states to take measures to prevent and minimize debris, allowing for safe and sustainable space exploration. The Liability Convention of 1972 further expands on the issue of space debris. It establishes a liability framework where launching states are held accountable for damages caused by private companies for whom they are responsible. However, it is important to note that only states that have ratified the Liability Convention are eligible to bring a claim under its provisions. Efforts have also been made by organizations to address the problem of space debris. The International Law Association's Space Law Committee, since 1986, has examined the legal implications of debris and proposed an "International Instrument on the Protection of the Environment from Damage Caused by Space Debris" in 1994. This instrument,

[8] Ibid

[9] Larsen PB, 'Commercial Operator Liability in the New Space Era: American Journal of International Law' (Cambridge Core, 1 April 2019) accessed 22 May 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

consisting of 16 articles, represents the first legal text on space debris agreed upon by an international organization.

Overall, while existing space law treaties provide a foundation for addressing space debris, further development of an international legal framework specifically focused on debris is needed. The efforts of organizations and ongoing discussions within the legal community are vital in shaping the legal response to the challenges posed by space debris. While the existing space law treaties provide a foundational framework, they do not directly address the issue of space debris. The absence of a clear legal definition of space debris within the treaties creates obstacles in formulating precise and effective legal measures to tackle this problem.[10]

THE RISK OF LIABILITY

The operation of satellites and rockets in outer space poses risks of accidents and potential liability. Notable incidents, such as the 2009 collision between the Iridium 33 and COSMOS 2251 satellites, highlight the dangers of space debris. In that case, the debris was identifiable, but no claim was pursued. Another example is the 1978 crash of the Russian COSMOS 954 satellite in Canada, which caused extensive contamination due to its nuclear power sources. Canada sought compensation from Russia under the Liability Convention and customary international law, resulting in a settlement. Additionally, the disintegration of the Columbia space shuttle in 2003 led to debris falling in Texas, causing damage on the ground. With the projected growth of satellite deployments and space debris, the risk of such incidents is expected to increase.

The anticipated influx of small satellites in low-Earth orbit, requiring frequent replacement, raises concerns about their controlled deorbit or potential crashes on land. Without proper control, the accumulation of debris could lead to chaos and even restrict access to space. The emergence of reusable space-launch technology is set to bring about significant changes in the market competition among launch operators while also affecting the risk of liability. Companies like SpaceX and Blue Origin are developing rockets with reusable stages that can return to the launch site on land or floating platforms at sea. The primary goal of this technology is to reduce the cost of space launches. These rockets are designed to be quickly

[10] Ibid

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

and repeatedly reused, potentially up to one hundred times. However, there is a possibility that some of these rockets may not return as intended. The return of the first-stage rocket happens rapidly, while the return of the second stage, including orbital realignment and atmospheric re-entry, may take up to twenty-four hours. Guiding the second stage back to the launch pad carries more risk, and there is a chance of accidental impact on the ground in locations other than the designated launch pad. In essence, the use of reusable launch rockets entails lower risk because the flight to the launch pad is controlled, which is an improvement from the perspective of commercial operators and potential individuals on the ground who could be affected by any mishap.[11]

DEVELOPMENTS IN COMMERCIAL OPEREATORS LIABILITY RISK EXPOSURES

In the new era of space exploration, two significant liability developments are anticipated: an increase in claims brought by non-governmental entities and a shift from international tribunals to national ones. When the Liability Convention was drafted, it was expected that claims for damages would be filed under the Convention, and commercial operators could rely on their governments to resolve such claims through negotiation or international governmental trials before the Convention's Claims Commission. However, the case of COSMOS 954 exemplifies the limited compensation available when states bring claims under international treaty law.

With the growth of commercial satellite development in the new space age, there will be a significant departure from the assumption that claims will primarily be resolved by states, as envisioned by the drafters of the Liability Convention. Instead, the involvement of non-governmental entities in space activities will likely lead to a shift in liability proceedings towards national tribunals, where commercial operators will play a more prominent role in resolving liability claims. The new space age is expected to bring a significant increase in the number of operational satellites, potentially ranging from 1,200 to as many as 27,000. These satellites will predominantly be located in low-Earth orbit and will require frequent

[11] Ian Havercroft, 'Lessons and Perceptions: Adopting a Commercial Approach to CCS Liability' (Global CCS Institute, 2019) accessed 22 May 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

replacement. Initially, the majority of satellite operators will be based in the United States. As a result, many of these operators may not have the right to bring liability actions under the Liability Convention, and therefore, most claims are likely to be litigated under U.S. law.

Furthermore, regardless of the provisions of the Liability Convention, claimants are likely to choose to file their claims under national law in order to seek more favourable recoveries in national courts. By pursuing their claims directly against defendants, claimants can have greater control over their cases, engage their own legal representation, and have the option to seek punitive damages. This approach allows claimants to avoid potential political considerations that may arise between national governments. In light of these circumstances, it is advisable for commercial operators to mitigate their increased liability exposure in the new space age by obtaining adequate insurance coverage.[12]

In the new era of commercial space operations, there will be an increase in the number of collisions between space vehicles, as well as an escalating risk of collisions with unidentifiable space debris. This issue primarily presents a liability challenge for commercial operators when dealing with other operators in the industry. The concept known as the Kessler Syndrome suggests that the number of fragmenting debris will expand at a faster rate than the growth of operational satellites. As commercial space activities continue to flourish, the substantial volume of untracked space debris will pose a threat not only to governmental operators but also to non-governmental operators. Space debris is difficult to navigate and is often not adequately tracked.

In cases where collisions occur and the ownership of the debris cannot be determined, it becomes virtually impossible to pursue compensation from the debris owner. Consequently, collisions between satellites and space debris are likely to become more frequent. It is worth noting that the implementation of reusable rocket technology will have limited impact on liability concerns in this context. There is positive news regarding the increasing liability faced by commercial satellite operators. In June 2018, the U.S. issued Space Policy Directive–3, which aims to address the challenges arising from the growing number of satellites and space debris. The Directive acknowledges the need for new international standards and best

[12] Sukriti Mathur MRMA, 'Space Debris and International Laws: The next Generation Concern' (The Daily Guardian, 16 August 2021) accessed 14 May 2023

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

practices in space traffic management to prevent the escalation of the Kessler Syndrome. As an initial step, the United States will develop national safety standards, with the intention of encouraging other nations to collaborate in establishing international safety standards and practices. The ultimate goal is to establish uniform international minimum standards for all space traffic and space debris. This initiative is expected to bring significant benefits to the commercial space industry by reducing the occurrence of collisions and, consequently, lowering the associated liability risks.

DRAWBACKS

The current international space laws have a significant flaw when it comes to addressing the issue of space debris. These laws primarily focus on the utilization of space and do not specifically address the problem of space junk. There is a lack of legislation that explicitly prevents countries from intentionally destroying their own satellites. The existing laws mainly discuss the liability associated with orbital debris and the ownership of space objects, but they do not provide clear guidelines on the origin of space debris.

In fact, the term "Space Debris" is not even mentioned in any of the United Nations treaties related to space. Furthermore, the international provisions of space laws are outdated and unclear. They need to be revised and updated to reflect the changing times. The destruction of satellites in outer space, leading to the generation of space debris, is not adequately addressed in these treaties. This has resulted in more incidents where countries lose their satellites due to the presence of debris in orbit. Another limitation is that the current space laws are voluntary and lack legally binding obligations. They rely on countries to voluntarily comply with the provisions, which may not be sufficient to effectively address the growing problem of space debris.

CONCLUSION

In conclusion, the rapid advancements in technology and science have significantly increased human activities in outer space, leading to a substantial rise in space debris. This debris, which includes defunct satellites and other human-made objects, poses a severe threat to both operational satellites and human life, potentially jeopardizing the long-term sustainability of

ISSN: 3048-8338

LEGALONUS LAW JOURNAL
VOLUME 1 ISSUE I, 2024
Email: journal@legalonus.com|+919140433246
Website: https://legalonus.com/legalonus-law-journal/

space activities. The global community, including nations like Indonesia that are increasingly reliant on satellite technology, must prioritize space debris remediation to maintain the viability of outer space. Active Debris Removal (ADR) is emerging as a practical yet challenging solution to this growing problem. Despite its high costs and technological demands, ADR offers a proactive approach to reducing space debris by capturing and guiding it to burn up in the Earth's atmosphere. As several spacefaring nations and private companies develop ADR technologies, it becomes imperative to establish robust legal frameworks addressing key aspects such as jurisdiction, ownership, responsibility, and liability. The Liability Convention of 1972 and national laws, such as the Indonesian Space Act of 2013, must evolve to adequately cover these areas and ensure safe and effective ADR operations. Furthermore, the legal status and liability of non-governmental entities involved in commercial space activities require clear definitions within international space law. As private actors increasingly engage in space activities, the responsibility of the launching state under the Outer Space Treaty and the Liability Convention becomes more complex, necessitating comprehensive legal considerations to address potential damages and technical complications. The upcoming anniversary of the Outer Space Treaty presents an opportune moment for the global community to reflect on past achievements and chart a path forward. It is essential to foster international cooperation and develop legal and technical solutions to mitigate and remediate space debris. By doing so, we can safeguard the outer space environment, ensuring its sustainability for future generations and continued exploration and utilization.