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Positioning Outer Space Industry in Global Order

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ABSTRACT

The race to outer space is growing intense at a very rapid pace. Globally, countries are launching missions and expanding their commercial outer space industry in order to conquer the unknown. Human aspirations have directed him towards exploring and utilising the outer space at its best possible way. What is worth noticing in this context is that few countries dominate the space exploration sector and corner most of the benefits derived from commercialisation of outer space sector. The technology and scientific capabilities are not uniformly distributed throughout the globe, few countries have already taken the lead with their outer space explorations. The imbalance between the technological accessibility among countries is a threat to equitable outer space exploration and resource utilisation. The changing global order in terms of political, economic and social interest has its reflections in outer space arena as well. The dominant principle on the subject of global resources has been, 'Common Heritage of Mankind', though the principle of equitable benefit sharing of outer space is also recognised globally, but receives little traction in the real-politick of the global community. The outer space industry aids in the human existence (communication, remote sensing, meteorology etc.) and has a huge potential to build a country's economy. The immense potential of outer space and human ambition to rule the resources in outer space, gives significant importance to the outer space industry. In near future, the unknown outer space might be the reason of hassle for human beings on the Earth. This study elucidates that the iniquitous system evolved for outer space exploration is diluting the benefits of non-space faring countries. Countries struggling with basic necessities and reaching to outer space is close to an imagination, their interests are hampered and ignored. This research attempts to highlight that the role of outer space industry in changing global order might come up as substantial in coming days, along with role of India G-20 presidency in building global cooperation.

Keywords: *outer space, global order, common heritage of mankind, equitable benefit sharing, international relations, space exploration.*

I. INTRODUCTION

The outer space industry has its roots in the early days of commencing with the launch of Soviet

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Union's Sputnik 1 satellite in the year 1957.[2] This event sparked a race for exploration in outer space and resource utilization, with both the United States and Soviet Union investing heavily in space technology and exploration. Throughout the 1960s and 1970s, countries engaged in a series of high-profile missions to the Moon, culminating in the United States' Apollo 11 mission, which landed astronauts on the lunar surface in 1969.[3] During this time, both US and Soviet Union governments were the primary drivers of space exploration and development, with little private sector involvement. In the 1980s and 1990s, however, the landscape began to shift as governments began to scale back their investments in space exploration, while private companies began to see new opportunities in the space industry.[4] The commercialization of satellite technology in particular opened up new markets for telecommunications, remote sensing, and navigation services.[5] In the 2000s and 2010s, the growth of the space industry accelerated, with private companies like SpaceX, Blue Origin, and Virgin Galactic investing in new technologies and pursuing ambitious plans for space exploration and development. At the same time, government agencies like NASA (National Aeronautics and Space Administration) and ESA (European Space Agency) continued to assert significant influence on space exploration and scientific research. Today, the outer space industry encompasses series of activities, including satellite communications, remote sensing, navigation, space tourism, and space exploration. The industry is projected to grow in the future, motivated by developments in space technology, increasing private sector investment, and growing interest in space exploration and resource utilization.[6]

The outer space industry has the potential to transform the global order in many ways. The control of space-based assets such as satellites, communication networks, and intelligence gathering systems can provide a strategic advantage to countries in matters of national security and defence. Countries that dominate the outer space industry could potentially have a significant advantage over other countries in these areas.[7] The outer space industry has the potential to create new markets and industries, leading to significant economic benefits for countries that invest in it. For example, the commercial use of space for activities such as

[2] JANE GIBSON ET AL., *Current Space Law And Policy*, 43 (2009), http://www.jstor.org/stable/resrep13939.10 (last visited Feb 7, 2022).
[3] FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY, (Ajey Lele & Institute for Defence Studies and Analyses eds., 2017).
[4] Yun Zhao, *Space Commercialization and the Development of Space Law*, *in* OXFORD RESEARCH ENCYCLOPEDIA OF PLANETARY SCIENCE (2018), https://oxfordre.com/planetaryscience/view/10.1093/acrefore/9780190647926.001.0001/acrefore-9780190647926-e-42 (last visited Mar 30, 2023).
[5] Joshua Hampson, *The Future of Space Commercialization*, 25 NISKANEN CENTER RESEARCH PAPER (2017).
[6] Kelly Whealan George, "The economic impacts of the commercial space industry," 47 *Space Policy* 181–186 (2019).
[7] Carl Q. Christol, *Outer Space Exploitability*, 6 SPACE POLICY 146 (1990).

 [ISSN 2581-5369]

mining, tourism, and manufacturing could potentially generate significant revenues.

The progress of technologies for space exploration and application has a ripple effect on other industries, leading to advancements in fields such as materials science, robotics, and artificial intelligence.[8] The outer space industry also serves as a platform for international cooperation, politics and diplomacy. Collaboration on space projects could potentially lead to improved relations between countries and the resolution of conflicts. However, the countries that invest in this industry and dominate it probably have a significant advantage over others in areas such as national security, economic growth, and technological advancement. Judicial utilisation of outer space in global order requires addressing the root causes of global inequality, such as the unequal distribution of resources, addressing climate change, and preventing violence and conflict, and promoting policies and initiatives that ensure all individuals and communities have access to basic human rights. There have been attempts to build global consensus for utilisation and exploration of outer space on different world platforms.

This research attempts to highlight that the role of outer space industry in changing global order might come up as substantial in coming days, along with role of India G-20 presidency in building global cooperation. This research paper elucidates that the iniquitous system evolved for outer space exploration is diluting the interests of non-space faring countries. The countries struggling with basic necessities and reaching to outer space is close to an imagination, their interests are hampered and ignored. Part II of this research paper discusses about the role of outer space in international politics and diplomacy. Part III reflects about the technological gap that exists among the countries with respect to outer space industry. Part IV deliberates upon the outlook that India presents globally for outer space governance by using G-20 platform and significance of its position as presiding country.

II. ROLE OF OUTER SPACE IN INTERNATIONAL POLITICS AND DIPLOMACY

The outer space industry has seen significant growth and development in recent years, driven in part by advances in technology and increased commercial interest in space exploration and utilization. The outer space industry is a sector that provides a wide range of products and services that support various economic activities.[9] As the industry continues to evolve and become more accessible, it has the potential to create new jobs, stimulate innovation, and contribute to the global economy. Satellites provide communication and navigation services

[8] PHILIP DE MAN, EXCLUSIVE USE IN AN INCLUSIVE ENVIRONMENT (2016), http://link.springer.com/10.1007/978-3-319-38752-9 (last visited Apr 12, 2022).
[9] Sarah Lieberman, *Understanding Our Changing Relationship with Space: An International Political Economy Reading of Space Popularisation*, 41 SPACE POLICY 53 (2017).

 [ISSN 2581-5369]

that are essential for various economic activities, such as shipping, aviation, and transportation. These services enable businesses to operate more efficiently, reduce costs, and improve safety. Earth observation satellites furnish data on climate, weather, and natural resources, which is crucial for industries such as agriculture, forestry, and mining. This information helps businesses to optimize their operations and reduce risks associated with natural disasters and climate change. Space exploration activities, such as launching rockets and building space stations, create jobs and stimulate innovation in various industries. The emerging space tourism industry has the potential to create new jobs and revenue streams in the travel and hospitality sectors. As space travel becomes more accessible, it could become a new frontier for the tourism industry.

As a result, there have been several notable developments in world politics related to the outer space industry. The outer space industry is no longer limited to a small number of established space powers, such as the United States and Russia. New players, such as China, India, and private companies like SpaceX, are emerging and challenging the established order, which has led to new geopolitical dynamics. All the stakeholder, namely Governments, private companies, and research institutions collaborate on outer space exploration and exploitation projects for efficient timely delivery of purpose. This also helps to reduce costs and promote technological advancement. Governments and private companies encourage innovation in the outer space industry by funding research and development programs and creating incentives for companies to invest in this field. Governments tries develop a framework for the regulation of space activities, including issues such as liability, intellectual property, and environmental sustainability in order to ensure their international relations and diplomacy.[10]

The rising number of players in the outer space has increased competition and collaboration in the industry. Countries and companies are forming partnerships and alliances to pool resources and expertise, while also competing to develop new technologies and dominate key areas of the market. The increase in space activity has also led to a proliferation of space debris, which poses a threat to the safety, utility and sustainability of outer space activities.[11] The threat incited need for greater international collaboration as well as cooperation to address the issue and prevent the escalation of tensions/conflicts related to space debris. The advancement in the outer space industry urged the development of new legal frameworks and norms for peaceful space

[10] DAVID LINDGREN, AN ASSESSMENT FRAMEWORK FOR COMPLIANCE WITH INTERNATIONAL SPACE LAW AND NORMS: PROMOTING EQUITABLE ACCESS AND USE OF SPACE FOR EMERGING ACTORS (2020), http://link.springer.com/10.1007/978-3-030-15762-3 (last visited Apr 12, 2022).

[11] FABIO TRONCHETTI, FUNDAMENTALS OF SPACE LAW AND POLICY (2013), http://link.springer.com/10.1007/978-1-4614-7870-6 (last visited Feb 8, 2022).

 [ISSN 2581-5369]

governance, such as the Artemis Accords[12], which provide guidelines with respect to space exploration and utilization. These frameworks reflect the changing dynamics of the industry and the need for new governance structures to manage emerging challenges and opportunities.[13] Growth of the outer space industry has significant implications for world politics, including new geopolitical dynamics, increased competition and collaboration, and the emergence of new legal frameworks and norms.[14] These developments are likely to shape the future of space exploration and utilization, as well as the broader political and economic landscape of the 21st century.[15] The outer space industry has the potential to play a significant role in the global sphere. The outer space industry has positioned itself in the global sphere with upsurge in technological development and innovation.

Governments and international organizations have recognized the importance of the outer space industry and its potential to transform the global economy, technology, and security. Governments invest in the infrastructure needed for space exploration and exploitation, such as launch sites, communication networks, and navigation systems. Equitable positioning the outer space industry in the global sphere requires a coordinated effort from governments, private companies, and research institutions. By recognizing its importance, encouraging collaboration, developing a framework for regulation, investing in infrastructure, and encouraging innovation, the outer space industry can play a significant role in shaping the future of the global economy, technology, and security.

III. DEVELOPED VS. DEVELOPING COUNTRIES IN OUTER SPACE

Outer space is considered common heritage of mankind. The concept of outer space as a common heritage of mankind refers to the idea that outer space and celestial bodies, including the moon and other planets, are not subject to national appropriation, but instead belong to all of humanity.[16] This concept was first introduced in the United Nations Outer Space Treaty of 1967, which established principles for the exploration and use of outer space. The common heritage of mankind concept recognizes the importance of outer space for all of humanity and seeks to ensure that the benefits of outer space exploration and exploitation are shared equitably

[12] Rossana Deplano, *The Artemis Accords: Evolution or Revolution In International Space Law?*, 70 ICLQ 799 (2021).
[13] Petr Boháček, *Addressing Global Governance Gaps in Planetary Defense*, *in* GOVERNANCE OF EMERGING SPACE CHALLENGES: THE BENEFITS OF A RESPONSIBLE COSMOPOLITAN STATE POLICY 117 (Nikola Schmidt ed., 2022), https://doi.org/10.1007/978-3-030-86555-9_7 (last visited Mar 31, 2023).
[14] Margarita Chrysaki, *The Sustainable Commercialisation of Space: The Case for a Voluntary Code of Conduct for the Space Industry*, 52 SPACE POLICY 101375 (2020).
[15] Darryl Roberts, *Space and International Relations*, 50 THE JOURNAL OF POLITICS 1075 (1988).
[16] B Rama, *Common Security in Outer Space and International Law*, 22 SPACE POLICY 291 (2006).

 [ISSN 2581-5369]

among all countries and peoples.[17] This means that outer space should be used for peaceful purposes and that the exploration and exploitation of outer space resources should be carried out in a manner that promotes the well-being of all people and protects the environment.[18]

The concept of outer space as a common heritage of mankind recognizes the importance of outer space for all of humanity and seeks to ensure that its exploration and exploitation are carried out in a responsible and equitable manner that benefits all countries and peoples.[19] The imbalance in the distribution of space assets can pose a threat to mankind in several ways. The outer space industry is heavily concentrated in a few countries, with the majority of space assets owned and controlled by a handful of developed countries.[20] This can lead to an imbalance in the benefits derived from outer space activities, with developing countries and smaller players often left out of the loop.[21] The concentration of space assets in a few countries can limit scientific progress in areas such as astronomy, planetary science, and space exploration. This can hinder our understanding of the universe and limit our ability to discover new knowledge and technologies. Developing and underdeveloped countries have a range of interests in outer space exploration, which vary depending on their respective national priorities, economic development, and technological capabilities. Many developing and underdeveloped countries view space-based technologies, such as communication satellites and Earth observation satellites, as essential for bridging the digital divide and promoting economic growth. Developing and underdeveloped countries often face natural disasters such as hurricanes, floods, and earthquakes. Outer space technologies, such as remote sensing, provide critical information for disaster management, such as tracking storms and predicting floods.

The control of space-based assets such as satellites, communication networks, and intelligence gathering systems provide a strategic advantage to countries in matters of national security and defence. Countries that dominate the outer space industry could potentially have a significant advantage over other countries in these areas. The availability of space-based services such as weather forecasting, satellite communication, and Earth observation confined to few countries can create inequalities in access to these services, particularly for developing and underdeveloped countries. These tensions can escalate into military conflicts, posing a threat to

[17] GLENN H REYNOLDS & ROBERT P. MERGES, OUTER SPACE: PROBLEMS OF LAW AND POLICY (2 ed. 1997).
[18] FRANS VON DER DUNK, HANDBOOK OF SPACE LAW (2015), http://www.elgaronline.com/view/9781781000359.xml (last visited Apr 12, 2022).
[19] Martin Menter, *Commercial Participation in Space Activities*, 9 J. SPACE L. 53 (1981).
[20] OGUNSOLA O. OGUNBANWO, INTERNATIONAL LAW AND OUTER SPACE ACTIVITIES (1975), http://link.springer.com/10.1007/978-94-011-9212-5 (last visited Mar 31, 2023).
[21] Tyler Way, *The Space Gap, Access to Technology, and the Perpetuation of Poverty*, 5 IRJ (2018), https://scholarworks.bgsu.edu/irj/vol5/iss1/7/ (last visited Mar 31, 2023).

 [ISSN 2581-5369]

global peace and stability along with environment menace. The disparity in the distribution of space assets raises security risks, as certain countries may have more space-based surveillance and intelligence capabilities than others.[22] This can produce apprehensions about privacy, surveillance, and national security. The concentration of space assets in certain countries can generate economic risks, as those countries may have greater control over the global space industry and may use that influence to their advantage in trade and economic negotiations. The imbalance in the distribution of space assets is a complex issue that poses significant threats to mankind

IV. GLOBAL COOPERATION IN OUTER SPACE: ROLE OF INDIAN G-20 PRESIDENCY

One of the most important changes to global governance in the twenty-first century is the G-20's emergence as the main forum for international economic cooperation. Over the years, the G-20 has become an important forum for international economic cooperation and decision-making, with a focus on promoting global economic growth, financial stability, and international trade. G-20 is considered a grouping where synergies of both developed and developing countries are present. This platform is related to the continuing global order transition as well as the acknowledged requirement for finding global solutions to issues that are gradually taking on global dimensions.[23] While the G-20's primary focus is on economic matters, the forum has also taken up issues related to sustainable development, including outer space governance. In recent years, the G-20 has made significant contributions to the outer space dialogue by bringing together policymakers, industry leaders, and space experts to discuss key issues related to space governance and sustainability. India's G-20 presidency commenced in 2022 and with motive to create significant impact, there have been several initiatives undertaken during its tenure.[24]

India worked to create a framework to enhance access to opportunities in the digital age. This initiative focuses on improving access to digital infrastructure and increasing the digital skills of citizens. India also advocated for the development of sustainable finance frameworks that would enable the mobilization of resources for climate-resilient infrastructure and help achieve sustainable development goals.[25] This initiative seeks to promote the adoption of disaster-resilient infrastructure and the development of risk assessment and management systems. Apart

[22] U.M. Leloglu & E. Kocaoglan, *Establishing Space Industry in Developing Countries: Opportunities and Difficulties*, 42 ADVANCES IN SPACE RESEARCH 1879 (2008).
[23] Juha Jokela, *The History of the G-20*, UROPEAN UNION INSTITUTE FOR SECURITY STUDIES (2011).
[24] G-20 and India's Presidency, PIB (2022), https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1882356 (last visited Mar 31, 2023).
[25] *Id.*

 [ISSN 2581-5369]

from this, India has directed and streamlined its effort for women empowerment through official engagement group called G-20 Women Leaders' Engagement Group. The pursuit of this group is promoting the economic and social empowerment of women by increasing their participation in the workforce and promoting gender equality.[26] India encouraged for the development of a digital economy that is inclusive, safe, and transparent. The initiative aims to promote the adoption of digital technologies in a way that supports economic growth and benefits all citizens. India focused on promoting inclusive economic growth during its tenure as G-20 presidency, not ignoring the social growth and sustainable development. The entirety of G-20 initiatives across all sectors is beyond the scope of this research paper as it is too broad to comprehensively deal, hence the focus will be Outer Space industry. The G-20 group held the inaugural Space Economy Leaders Meeting (SELM) in 2020 with the goal of enhancing the space industry. Since then, the gathering has taken place yearly alongside G-20 summits. The fourth edition of SELM was held under the India's Presidency, organized by the Department of Space in association with the Indian Space Research Organisation (ISRO), NSIL, and IN-SPACe on theme 'Towards a New Space ERA (Economy, Responsibility & Alliance)'.[27]

SELM theme acknowledges that outer space operations has contributed to the expansion of the "Economy", it is important to remember that modern space players also have the duty of guaranteeing the long-term viability of outer space. The reduced barriers of investing and easy accessibility to the necessary technology are two important factors in the rise of the outer space players. The "Responsibility" aspect must be ingrained in the activities of the G20 space leaders to further mitigate these challenges. The fact that space technology has several applications should be accorded equal weight. It's also necessary to make sure that technologies don't end up in inappropriate hands persuading wrong objectives. The outer space activities are growing in nature and use, which makes it expensive and technologically complex. Third aspect- 'Alliance' has the key to overcoming these obstacles. Enough channels must exist for New Space actors throughout the nations to cooperate and grow.

Attendees at this significant SELM event, which took place in Bengaluru on July 6-7, 2023, included distinguished leaders and senior representatives from eight invited countries, one international organization, and the space agencies of eighteen G20 nations. The grandeur of the event was further enhanced by the active participation of 53 space enterprises from India and 34 space industry from other countries. The SELM promoted bilateral interactions between

[26] W20 (Women 20) for India's G20 Presidency, PIB (2023), https://pib.gov.in/pib.gov.in/Pressreleases hare.aspx?PRID=1902349 (last visited Mar 31, 2023).
[27] SELM-G20, ISRO, https://www.isro.gov.in/g20selm/SELM_Theme.html (last visited Mar 31, 2023).

 [ISSN 2581-5369]

industry and space agencies as well as the robust exchange of ideas between the two sectors. The gathering promoted cooperation, idea sharing, and the investigation of possible alliances, which accelerated the expansion and advancement of the world space economy.

India's G-20 presidency played a significant role in promoting global cooperation in outer space. India utilized its G-20 presidency to create a diplomacy platform for discussion on issues related to outer space. This includes stimulating dialogue on topics such as space exploration, commercial space activities, and space debris mitigation. With the G-20 leadership, India encouraged international cooperation in outer space-related endeavours. By fostering joint projects and initiatives, stakeholders are able to work together towards common goals and share resources and expertise.[28] This comprises global partnerships between space agencies, private companies, and research institutions. India is constantly advocating for international agreements on outer space activities, such as the creation of a global framework for the commercial use of outer space resources. This help in ensuring that the space resources are used sustainably and in a manner that benefits all countries. India is working in association with other countries to develop best practices for outer space activities, such as space debris mitigation, satellite registration, and space traffic management. These best practices help in promote responsible behaviour in outer space and reduce the risk of accidents and conflicts. ISRO is engaging bilateral and multilateral relations with different agencies and bodies related to outer space in order to develop and strengthen current transnational ties. It is necessary for meeting out new scientific and technological challenges in current global order, a set of improve consistent policies, uniform standards and defined international frameworks meant for the exploitation and utilisation of outer space peacefully. Globally, space-faring countries see India as an emergent space power, able to accomplish its objectives more quickly and affordably. Particularly, the poor nations turn to India for help in enhancing their capacity to profit from space technology. The range of foreign collaboration has expanded and diversified as a result of ISRO's recent outstanding achievements.

India has the ability to support capacity building in non-spacefaring countries by providing training, resources, and technology transfer.[29] Extending effective support is a step towards helping these countries in participating in outer space activities and benefit from the opportunities that space industry offer. For instance, the signing of a Memorandum of Understanding (MoU) on cooperation between the governments of the 'Republic of India' and

[28] DECODING THE INTERNATIONAL CODE OF CONDUCT FOR OUTER SPACE ACTIVITIES, (Ajey Lele ed., 2012).
[29] NARAYAN PRASAD & RAJESWARI PILLAI RAJAGOPALAN, SPACE INDIA 2.0: COMMERCE, POLICY, SECURITY AND GOVERNANCE PERSPECTIVES. (2017).

 [ISSN 2581-5369]

the 'Royal Government of Bhutan' regarding peaceful space users and the formation of a joint working group encouraged further investigation of partnership opportunities in the fields of earth remote sensing, satellite communication, satellite navigation, space science, and extra-terrestrial exploration.[30] India's mission is to promote transparency in outer space activities by encouraging countries to share information about their activities, such as satellite launches and space debris mitigation efforts. This is futuristic preparation to reduce the risk of misunderstandings and promote trust and cooperation among countries. India during its G-20 presidency tried to address issues like space militarization, the danger posed by space debris[31]and security concerns[32] associated with outer space operations. India's G-20 presidency turns out to be a valuable opportunity to endorse global cooperation in outer space activities and streamline all varied interests. Countries are working out to find the common ground where outer space is used in a way that is sustainable, responsible, and advantageous to everyone by cooperating and including interests of mankind as a whole. With discussions and deliberations together, countries attempting to ensure that outer space is used in a manner that is sustainable, responsible, and beneficial to all. India constant campaign for 'One Earth, One Family, One Future' is elevating the idea of sustainable space exploration by encouraging the development of technologies that minimize the environmental impact of space activities, such as the usage of renewable energy sources in the space. Along with this, boosting the application of space-based solutions to address global challenges such as climate change, disaster management, and sustainable development is adding to integration of global efforts.

India G-20 presidency created diverse platforms for discussion, promote international collaboration, address space security challenges, encourage sustainable space exploration, and support space-based solutions for global challenges. While the G-20 is a forum for international cooperation on a wide range of issues, it may not be the most effective platform for building cooperation for outer space utilization. There are few lacunas in the process. The reason being G-20's focus is primarily on economic and financial issues, with a secondary or expanded focus on environmental and social issues. While outer space utilization has economic, social, political and environmental implications, it is not a primary focus of the G-20 and may not receive the attention it deserves. The G-20 includes only 20 member countries, which may not fully represent the diverse perspectives and interests of the international community on outer space

[30] Cabinet approves MoU between India and Bhutan on Cooperation in the peaceful uses of outer space, PIB (2020), https://pib.gov.in/Pressreleaseshare.aspx?PRID=1684625 (last visited Mar 30, 2023).
[31] Vishakha Gupta, *Critique of the International Law on Protection of the Outer Space Environment*, 14 ASTROPOLITICS 20 (2016).
[32] HANDBOOK OF SPACE SECURITY, (Kai-Uwe Schrogl et al. eds., 2015), http://link.springer.com/10.1007/978-1-4614-2029-3 (last visited Apr 12, 2022).

 [ISSN 2581-5369]

utilization. Some countries with significant interests in outer space, such as China and Russia, are not members of the G-20. Member countries may still prioritize their own national interests when it comes to outer space utilization.[33] This can make it difficult to build consensus and cooperation on issues associated to outer space, such as resource exploitation, military approaches and environmental protection. There is currently no binding universal legal framework regulating outer space resources, which can create problematic situation to build cooperation among G-20 member countries. While some principles, such as the common heritage of mankind, are recognized in international law, there is still a lack of consensus on how to apply these principles in practice. G-20 may be a useful platform for building international cooperation on a range of issues, it may not be the most effective forum for building cooperation for outer space utilization. Additional international forums and legal frameworks may be necessary to promote binding principles for peaceful and sustainable outer space exploration and exploitation.

V. CONCLUSION

The equitable distribution of outer space resources is essential to ensure that all countries can extract benefits from the exploration and deployment of space resources. Outer space resources belong to all of humanity, and all countries have a right to access and benefit from them. Equitable distribution ensures that all countries have an equal opportunity to benefit from the resources. Developing and under developed countries may not have the resources or technology to explore and exploit outer space resources on their own. Equitable distribution can provide these countries with the resources they need to develop and advance their economies. Outer space resources are finite, and if they are not distributed equitably, some countries may deplete them at a faster rate than others. Equitable distribution can help ensure that these resources are used sustainably and that they are available for future generations.

The exploration and exploitation of outer space resources can be a source of tension and conflict between countries. Equitable distribution can promote peaceful cooperation between countries, as all countries have a stake in the resources and can work together to develop them. The equitable distribution of outer space resources is essential for fairness, development, sustainability, and peaceful cooperation. It is important that countries work together to ensure that these resources are used for the benefit of all of humanity.

India has been actively involved in the outer space industry for several decades and has made

[33] BOHUMIL DOBOŠ, GEOPOLITICS OF THE OUTER SPACE: A EUROPEAN PERSPECTIVE (2019), http://link.springer.com/10.1007/978-3-319-96857-5 (last visited Feb 15, 2022).

 [ISSN 2581-5369]

significant contributions in this field. Here are some of the roles played by India in the outer space industry: India has launched a number of satellites in outer space for purposes like communication, education, earth observation, remote sensing and others. Expanding and aiding these kinds of services to less technologically sound countries will build stronger position for India at global platform. India has invested heavily in the research, expansion and development of outer space sector. The Indian Space Research Organisation (ISRO) is responsible for promotion of research and scientific temper in this field. India over the years has been able to build the capacity to develop its own launch vehicles, namely PSLV (Polar Satellite Launch Vehicle) and GSLV (Geosynchronous Satellite Launch Vehicle) for sending satellites into the orbit. India offers commercial launch services to other non-spacefaring countries. India has collaborated with spacefaring countries, including the United States, Russia and France on various outer space initiatives and projects. India has signed various bilateral and multilateral agreements with countries for building sense of cooperation in the outer space industry. India being a space faring nation should make more efforts to persuade countries globally towards observing principle of '*common heritage of mankind'*. The equitable distribution outer space resources must be reflected as dominating feature for sustainable future in framework adopted for governing the outer space.

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