International Investment Law as a Framework to Protect Private Actors in Outer Space

Vivasvat (Viva) Dadwal, Carson W. Bennett, and Charles (Chip) Rosenberg[*]

Abstract

A fast-growing global space economy requires a clear, consistent, and transparent regime of rights and remedies that can balance the needs and interests of private and State actors. The opposite – politicization of rights and an absence of the rule of law – breeds uncertainty, hinders the peaceful and effective settlement of disputes, and impedes private investment flows in outer space. Within the context of State responsibility, the scope and nature of private rights and remedies are guided by three main questions. First, should States protect private actors and their investments in outer space? Second, which rights should be protected in outer space? Third, how might private actors exercise such rights to seek redress for harm committed by States in outer space? Insights and lessons from the international investment law regime are well-suited to assist in the strengthening of an international rules-based space order.

1. Introduction

Many before us have dedicated resources and attention to advancing the peaceful settlement of space-related disputes. The main focus of such efforts has frequently been disputes between States under the space law treaties, and between private actors and States under commercial contracts and investment treaties. The current regime of international space law has neglected international obligations of States and any resulting space-related disputes between private (or non-State) actors and third-party States. These deficiencies are not only specific to the law of outer space, but also to public international law as a whole.

However, as the space industry evolves and more private actors become involved, sovereign responsibility for acts and/or omissions in space are worth clarifying. This must be done not only for States and private actors with pre-existing relationships in space (*e.g.*, *via* contract or covered investments under investment treaties), but also for private actors without

* *King & Spalding LLP.*

such relationships whose space assets could be harmed by a State's actions in outer space. Pursuing international rules and norms that delineate clear rights and responsibilities for *all* space-faring nations will encourage the growth of the commercial space sector and create socio-economic growth and advancement for all.

Our research began from the premise that private investment in space is to be expected and that a clear and consistent legal regime for private actors is desirable to promote responsible, peaceful, and sustainable use of outer space. If the exploration and use of outer space is to be carried out for the benefit, and interest of all humankind, such a regime should extend not only to private actors with existing relationships with States, but also to those without. We hypothesize that insights and lessons from the international investment law regime are well-suited to assist in identifying a minimum "floor" of protections that will advance an international rules-based space order.

2. Private Actors Lack Adequate Protections Against State Measures in Outer Space

> *[I]f one is fortunate enough to be injured by an activity of a space object, it would be best that it be one that was launched by the United States . . .*[1]

Whereas space activities used to be the exclusive domain of national space programs, the military-industrial space sector, and a few space-faring nations, over the last 10 years, there has been $264.0 billion of equity investment across 1,727 unique companies in the space economy.[2] Ambitious private actors (both new and old) are investing in the space economy, from sub-orbital, orbital, and deep space, including the industrial, launch, logistic, lunar, satellite, and station industries. Most recently, the U.S. and its partner countries launched the ambitious Artemis program to establish a permanent presence on the Moon and Mars. The program is enabled by the commercial space industry, which some speculate will generate as high as $1 trillion in annual sales by 2040.[3]

1 J. R. Tamm, Settlement of Space Law Disputes, Proceedings of an International Colloquium Munich, Sept. 13-14, 1979, at 81 (referring to the legal choices available in the U.S. under torts law, the NASA Act, and the United States Congress).

2 Space Capital, Space Investment Quarterly, available at: https://www.spacecapital.com/quarterly.

3 Citi, Space: The Dawn of a New Age, May 2020, available at: https://www.citivelocity.com/citigps/space/.

At the same time, unlike the defined territories of States, no one country's laws govern space, which is the "province of all mankind"[4] that is not subject to "national appropriation by claims of sovereignty, by means of use or occupation, or by any other means."[5] It should therefore come as no surprise that private actors have legitimate interests in protecting their assets in space, including protecting their assets from any potential harms committed by States. Although private actors may use domestic and international forms of recourse against each other (*e.g.*, *via* contract disputes) and against States with whom they share a minimum level of contacts (*e.g.*, *via* investor-state arbitration with a "host" State),[6] whether these existing protections are sufficient has been less explored in literature to date.[7]

2.1. International Space Law: A Private Actor's No Man's Land

The current international space law regime, like many traditional forms of international law, does not contemplate direct rights and remedies for private actors. Instead, international rights and remedies for "national activities" in outer space are overwhelmingly State-centric.[8] This legal framework has suited space activities for decades: all the main launches, missions, and landings were done by States (or by private entities owned by States), and international legal responsibilities were designed to apply directly to those conducting these missions.[9] Amidst the principled political disagreements on the role of the private sector, we can wager that States shied from committing themselves to obligations and procedures whose substantive effects they did not accept and could not foretell.

Take, for example, the 1967 Outer Space Treaty, which applies to States and does not contain any explicit provisions on the settlement of disputes arising from space activities. Article III of the treaty relies indirectly on the dispute resolution mechanisms in international law (such as Chapter VI, Article 33 of the United Nations Charter), while Article IX provides for consultations as a

4 Outer Space Treaty, Art. I.

5 Outer Space Treaty, Art. II.

6 S. Hobe *et al.*, The Protection of Satellite Telecommunications Activities under Bilateral Investment Treaties (2018) 19:5-6 J World Investment & Trade 1024; C.W. Bennett, Houston, We Have an Arbitration: International Arbitration's Role in Resolving Commercial Aerospace Disputes, 19 Pepp. Disp. Resol. L.J. 61 (2019).

7 Proceedings of the Workshop on Space Law in the Twenty-first Century, UNISPACE IIII Technical Forum, Vienna, Austria, July 1999, p. 11 ("The rapid expansion of private activities in and related to outer space requires examination of many aspects of existing space law, in particular . . . the protection of investor's rights.").

8 Outer Space Treaty, Art. VI.

9 F.G. von der Dunk, "The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law" (2011). Space, Cyber, and Telecommunications Law Program Faculty Publications.

means of avoiding disputes. The 1972 Liability Convention promulgates fault-based liability for damages caused in space, but provides no guidance on what constitutes "fault" or "causation," nor does it allow claims for monetary compensation to be brought other than through diplomatic channels.[10] The Liability Convention also provides a specific regime for dispute resolution in its Articles VIII-XIX, but one that is conciliatory and voluntary in nature (potentially due to the fact that risk-averse States would have preferred to cap their monetary liability under a binding dispute resolution mechanism). Neither the enforcement of the awards of the three-person Claims Commissions (the decision being recommendatory in nature), nor the security of the injured party receiving full compensation (given that the launching State is under no obligation to abide by the Commission's decision) were agreed to by States.[11]

The needs and realities of non-traditional space actors are not reflected in the principal international treaties governing space activity – the 1967 Outer Space Treaty, the 1972 Liability Convention, and the 1975 Registration Convention.[12] Notably, private actors lack basic standing under the current regime of international space law. A private actor who suffers injury at the hands of a third-party State *(i.e.*, through a measure other than a measure of its "host" and/or "home" State, however so defined) can bring its claim before the courts of the third-party State that allegedly caused such harm, or seek assistance from another State (most likely its host and/or home State) to bring a claim under international law (but not both).[13] Under the first avenue, the private actor would have to rely on domestic laws of compensation (assuming they exist) for damages allegedly caused, without regard to where the damage occurred (*i.e.,* in space). Under the second avenue, the private actor would have to rely on the discretion of a subject of public law, *i.e.,* a sovereign, to espouse its claim under international law, which may not always be possible. If the harm occurred in outer space, this would involve proving that the State in question (*i.e.,* the third-party State that allegedly caused the harmful measure) was at "fault" for the harm caused. In the event the State that allegedly committed the wrongful act were

10 Liability Convention, Art. VIII; P. Pearsall, Causation and the Draft Articles on State Responsibility, 37(1-2) ICSID Review - Foreign Investment Law Journal, at 209 (Spring 2022).

11 Liability Convention, Art. XIX, ¶¶ 2-4.

12 Proceedings of the Workshop on Space Law in the Twenty-first Century, UNISPACE IIII Technical Forum, Vienna, Austria, July 1999, pp. 214-215 (quoting Prof. Karl-Heinz Böckstiegel who noted "there were more difficulties in connection with disputes arising between private entities and subjects of public law, i.e. sovereign states and international intergovernmental organisations.").

13 Liability Convention, Art. XI(2).

to decline negotiations, a Claims Commission would have to be established to adjudicate the dispute, but its decision would be final and binding only if the disputing States so agreed.[14] As a consequence, private (or non-State) actors with investments in space have no guarantees that their investments will be adequately protected in space.

2.2. Measures Attributable to States in Outer Space

In addition to a State-centric legal regime described above, there is no clarity on what types of acts or omissions may be attributable to States in outer space, or whether such acts or omissions could constitute a breach of an international obligation. The following examples of potential State measures seek to reveal limitations of the existing space law regime in protecting private actors in outer space:

- A State's inoperable, drifting satellite either causes in-orbit collisions or requires a private party to remove the debris belonging to a State actor;
- State interference with communications of a privately-owned satellite; and
- State confiscation of space resources in transit through its territory.[15]

2.2.1. Drifting Satellites and Debris Removal

Imagine a state-operated satellite that is drifting out of control and coming into close proximity to a constellation of satellites owned by a private actor. The private actor asks the State for assistance, but the State is unable to act, having (intentionally or unintentionally) lost control of the inoperable satellite. The drifting satellite ultimately collides with the constellation, causing damage to the space asset.

This has happened before. On February 10, 2009, the defunct and drifting Russian State satellite Cosmos 2251 collided with an active satellite operated by U.S. telecoms company Iridium. Cosmos 2251 had been drifting as an inactive "dead" satellite for over a decade until it veered into Iridium-33's flight path. The collision destroyed the company's space asset. In the aftermath, legal commentators debated Russia's liability to the U.S. for the damage to Iridium's satellite.[16] Despite there being a *prima facie* cause of

14 Liability Convention, Art. XIX(2).

15 I. Rosales, Private rights in space: a legal black hole?, Global Arbitration Review, August 26, 2022, https://globalarbitrationreview.com/article/private-rights- in-space-legal-black-hole (describing hypothetical scenarios).

16 R. Jakhu, Iridium-Cosmos Collision and its implications for space operations, ESPI Yearbook on Space Policy 2008/2009, at 254-275 (2010); F.G. von der Dunk, Too-Close Encounters of the Third Party Kind: Will the Liability Convention Stand the Test of the Cosmos 2251-Iridium 33 Collision? (2010), available at: https://digitalcommons.unl.edu/spacelaw/28.

action, there is no public record of the U.S. seeking compensation on behalf of Iridium. The dispute therefore was likely resolved through diplomatic means.[17]

Although the fields of space situational awareness and space traffic management seek to protect space and ground assets, the likelihood of collisions remains a distinct possibility given that the number of satellites and mega-constellations continues to grow each year. As of 2021 there were 4,550 satellites in orbit, about 3,000 of which were owned by private operators; with an increasing number of established and NewSpace companies, like Amazon's Project Kuiper and SpaceX's Starlink, industry spectators project that the number of satellites could rise to over 100,000 satellites in orbit over the next decade.[18] The potential operational risks and associated legal remedies of multi-million dollar space assets being struck in outer space is an issue at the forefront of industry concerns.

2.2.2. Illegal Jamming of a Satellite

While "Harmful interference" is prohibited under the International Telecommunication Union ("ITU") Radio Regulations, satellite jamming is a common method of interfering with satellite connectivity.[19]

States may disrupt communications travelling to and from satellites intentionally or unintentionally. For example, Russia has been frequently accused of interfering with satellites in Ukraine, including unsuccessful attempts to jam private satellites, including the Starlink satellites. In March 2022, Elon Musk tweeted that "[s]ome Starlink terminals near conflict areas were being jammed for several hours at a time. Our latest software update bypasses the jamming."[20] A State may also impact "bystander" satellites if the company's satellite in the same "neighborhood" as the radio frequencies being emitted.

17 R. Jakhu, Iridium-Cosmos Collision and its implications for space operations, ESPI Yearbook on Space Policy 2008/2009, at 259 (2010).

18 Union of Concerned Scientists, UCS Satellite Database, accessed May 1, 2022, available at: https://www.ucsusa.org/resources/satellite- database; M. Lifson and R. Linares, Is there enough room in space for tens of billions of satellites, as Elon Musk suggests? We don't think so, SpaceNews, January 4, 2022, available at: https://spacenews.com/op-ed-is-there- enough-room-in- space-for-tens-of-billions-of-satellites-as-elon- musk- suggests-we-dont-think-so/.

19 ITU Constitution, Arts. 6.1, 45 ("Harmful Interference"), and 48 ("Installations for National Defense Services"). A low level of radio interference is near constant, but it rises to the level of "harmful" interference when a radio system "receives unwanted energy to an extent that inhibits the functioning of a radio-navigation service . . . or seriously degrades, obstructs, or repeatedly interrupts any radiocommunication service." *Id.*

20 E. Musk, Twitter, March 5, 2022, available at: https://tinyurl.com/mrxb9eay; see also Elon Musk, Twitter, March 25, 2022 ("Starlink, at least so far, has resisted all hacking & jamming attempts").

Frequency interference is a relatively common occurrence. From January 2021 to January 2022, the ITU received 329 reports of harmful interference.[21] If a private actor's satellites are jammed by a State, there is little a private actor can do aside from registering the harmful activity with the ITU. The ITU as a body is useful to establish norms, but does not provide private actors with legal redress when a State violates those norms (intentionally or not). Thus, these real-world instances of interference likely have to be solved through diplomatic channels (if at all).

2.2.3. Confiscating a Private Actor's Space Resources

The next scenario is not strictly set in outer space, but envisions a private actor that has built its business model on resource extraction, whether from an asteroid, the moon, or another celestial body. Transporting space resources to Earth and across international borders may carry risks if the company transports materials in/through States that do not recognize private ownership of space resources.

Some countries such as Luxemburg, the U.A.E., the U.S., and Japan have implemented legislation permitting their nationals to "possess, own, transport, use, and sell the asteroid resource or space resource obtained."[22] According to these States, the Outer Space Treaty prohibits national appropriation of celestial bodies, but does not bar private actors from possessing, using, and owning property obtained through commercial means. In a similar vein, the Artemis Accords – a multilateral, non-binding declaration of principles and rules to govern space operations adopted by 23 States – recognize that space resource extraction does not inherently violate the Outer Space Treaty.[23]

However, this view is not universal. The Moon Agreement, under Article 11(3), declares that no part of the Moon – nor any other celestial body – can become the "property" of any "person."[24] Austria, Chile, and the Netherlands are among the handful of countries that have ratified the Moon

21 ITU issues warning on interference with radio navigation satellite service, ITU News, August 23, 2022, https://www.itu.int/hub/2022/08/warning-harmful-interference-rnss/.

22 U.S. Commercial Space Launch Competitiveness Act (the "2015 SPACE Act").

23 Artemis Accords, Section 10 – Space Resources, available at: https://www.nasa.gov/specials/artemis- accords/img/Artemis-Accords-signed-13Oct2020.pdf ("The Signatories affirm that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty, and that contracts and other legal instruments relating to space resources should be consistent with that Treaty.").

24 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979), Art. 3 ("Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person.").

Agreement.[25] Thus, a company retrieving space resources and returning the extracted resources to Earth (like JAXA's successful Hayabusa2 mission), may need to proceed with caution if transiting through a State that prohibits ownership of space resources and subjects such contraband resources to confiscation.

2.3. Survey on Private Rights in Outer Space

Although space activity is inherently risky, State measures in space may further contribute to such risks. To test our hypotheses, we sought to informally gauge stakeholders' attitudes towards the current legal framework protecting private actors in space by surveying legal counsels, representatives, and advisors for companies that provide space-related products and/or services, regarding key legal protections and remedies found in international investment treaties. Specifically, between July 2022 and September 2022, we informally surveyed legal counsels, representatives, and advisors for companies that provide space-related products and/or services, as well as government officials regulating the space industry to: (i) understand whether States should protect private actors and their investments in outer space; (ii) identify which rights should constitute protections in outer space; and (iii) develop how private actors might exercise such rights to seek redress for harm committed by States in outer space. The survey consisted of ten questions and was anonymous in nature.

2.3.1. Respondents

Out of 35 total respondents, the majority said their primary role was either outside counsel (33.3%) or consultants (15.1%), together comprising the largest category of survey respondents (48.8%). The second largest category of respondents were academics (33.3%). Other main categories of respondents included those in-house (12.1%) and those representing government or intergovernmental organizations (12.1%). In many instances, respondents chose multiple primary roles.

Out of the respondents who answered, the majority of survey respondents operated in the government sector (29.6%), followed by satellite operators and manufacturers (22.2%), and the legal sector (14.8%). A significant number of respondents were from other sectors, including financing and investment services (7.4%), insurance services (7.4%), launch services (3.7%) and the debris removal (3.7%) sectors. There were no respondents from the commercial space stations industries.

25 United Nations Treaty Collection, Status of Treaties, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, December 5, 1979.

2.3.2. Responses

Out of the respondents who answered, a majority of survey respondents (57.2%) "disagree" or "strongly disagree" that "private actors and their investments are adequately protected against State measures in outer-space." The number of survey respondents that "agree" or "strongly agree" (20%) and those who are "neutral" (22.9%) towards the statement were the same.

2.3.2.1. Rights

A large majority of survey respondents (80%) "agree" or "strongly agree" that "commercial exploration and utilization of space resources requires the recognition of property rights in space." Incidentally, all respondents from government or intergovernmental organizations agreed or strongly agreed with this proposition. All respondents from the satellites sector also agreed or strongly agreed with this proposition. A lower rate of survey respondents (11.4%) "disagree" or "strongly disagree," and a minority of respondents (8.6%) were "neutral."

An overwhelming majority of survey respondents (94.3%) "agree" or "strongly agree" that "a shared set of rules are needed for States and private actors to operate sustainably in space." For example, all academics, in-house, and governmental or intergovernmental respondents in the survey agreed or strongly agreed with this proposition. All respondents operating in the government and satellite sectors also agreed or strongly agreed with this proposition. A minority of survey respondents (5.7%) were "neutral." Importantly, none of the respondents "disagreed" or "strongly disagreed" with this proposition.

Survey respondents were also asked whether private actors and their investments should be protected from State measures (*e.g.*, law, regulation, procedure, requirement, or practice) in outer space.

- A majority of survey respondents (67.7%) "agree" or "strongly agree" that private actors and their investments should be protected from state-based unlawful expropriation. A minority of survey respondents (2.9%) "disagree," while some (29.4%) were "neutral." With the exception of three neutral respondents, the entire category of respondents comprising consultants and outside counsel agreed or strongly agreed with this proposition.
- A majority of survey respondents (75%) "agree" or "strongly agree" that private actors and their investments should be protected from nationality-based discrimination by States. A minority of survey respondents (4.2%) "disagree," while some respondents (20.8%) were "neutral." The entire category of respondents comprising consultants and outside counsel who answered this question also agreed or strongly agreed with this proposition.

- A majority of survey respondents (80%) "agree" or "strongly agree" that private actors and their investments should be protected from unjust or arbitrary conduct by States. For example, all respondents in the satellite operators and manufacturers category agreed or strongly agreed with this proposition. The entire category of respondents comprising consultants and outside counsel who answered this question also agreed or strongly agreed with this proposition. A minority of survey respondents (8%) "disagree" or "strongly disagree" while some respondents (12%) were "neutral."

Finally, a majority of survey respondents (85.7%) "agree" or "strongly agree" that "a State should be obliged to observe the undertakings it has assumed with regard to a private actor or its investment in outer-space." All respondents whose primary role was in the government or an intergovernmental organization agreed with this proposition. A minority of survey respondents (5.7%) "disagree," while some respondents (8.6%) were "neutral." In the government sector, nearly all respondents agreed with this proposition (with the exception of one neutral respondent). Likewise, with the exception of two neutral respondents, all academic respondents also agreed or strongly agreed with this proposition. No respondents "strongly disagreed" with this statement.

2.3.2.2. Remedies

With respect to the availability of remedies, a majority of survey respondents (62.9%) "disagree" or "strongly disagree" that "current dispute resolution mechanisms are adequate for private actors to resolve their outer-space disputes with States." A minority of survey respondents (22.9%) "agree" or "strongly agree," while 14.3% were "neutral."

Survey respondents were also asked whether private rights of action should exist outside of current methods of dispute resolution.

- A majority of survey respondents (80%) "agree" or "strongly agree" that "a private actor should have a private right of action in a forum outside a State's domestic courts when that State has violated its rights in outer-space." A minority of survey respondents (8.6%) were "neutral," while some respondents (11.5%) "disagree" or "strongly disagree."
- A majority of survey respondents (80%) "agree" or "strongly agree" that "private actors and States should resolve their outer-space disputes through an independent and impartial binding method of dispute resolution." A minority of survey respondents (5.7%) "disagree," while some respondents (14.3%) were "neutral." With the exception of one neutral respondent, the entire category of

respondents comprising consultants and outside counsel agreed or strongly agreed with this proposition. No respondents "strongly disagreed" with the statement.

3. Substantive Obligations in International Investment Treaties Are Well-Suited to Address Private Needs

Sovereignty Must Be Respectable in order to be Respected.[26]

Legal protections that are responsive to the needs of private actors in space have the potential to spur prosperity and economic development. In traditional terrestrial industries like oil and gas, hospitality, and mining, States offer foreign investors a stable and predictable investment climate through international investment treaties. These treaties are entered into on a reciprocal basis by contracting States and grant investors of contracting parties substantive protections and the right to direct recourse against the host State in which the investment is made. There are upwards of 2,500 such treaties in force today, including investment provisions found in free trade agreements.[27] Common protections offered to covered investments and investors include protections against unlawful expropriation, the right against arbitrary or unreasonable treatment, and protections against nationality-based discrimination. These protections form the substantive core of modern investment treaties and address State obligations *vis-à-vis* the treatment of foreign investors or their investment in a host State.

However, in contrast to the international investment law regime, outer space is incapable of national appropriation and the protections offered in existing international investment treaties have no bearing on the actions of third-party States (only the host and home States). Thus, private actors that lack existing relationships may be subjected to State measures that are harmful, from frequency interference to confiscation of extracted space resources. States can incentivize investment and further space development by protecting private actors and their investments in space by offering non-State actors protections similar to those found in contemporary investment treaties.

An overwhelming majority of our survey respondents (94.3%) "agree" or "strongly agree" that a shared set of rules are needed for States and private actors to operate sustainably in space. None of our survey respondents "strongly disagreed" with the proposition that private actors and their investments should be protected from State measures like unlawful

26 S. M. Williams, Dispute settlement according to the Conventions on INMARSAT and INTELSAT, in Settlement of Space Law Disputes, Proceedings of an International Colloquium Munich, Sept. 13-14, 1979, at 71.

27 The Future of Investment Treaties, OECD, https://www.oecd.org/investment/investment- policy/investment- treaties.htm.

expropriation, nationality-based discrimination, and unjust or arbitrary conduct. In fact, respondents overwhelmingly "agreed" or "strongly agreed" with protections against unjust or arbitrary state conduct (80%), nationality-based discrimination by states (75%), and unlawful expropriation by states (67.7%). Respondents also overwhelmingly "agreed" or "strongly agreed" that a State should be obliged to observe the undertakings it has assumed with regard to a private actor or its investment in outer space (85.7%), including respondents whose primary role was in governments or intergovernmental organizations.

A majority of survey respondents took the somewhat contentious position that "commercial exploration and utilization of space resources requires the recognition of property rights in space." This position is by no means a universally accepted statement,[28] but is nevertheless, entirely in line with other industry insights, including a survey of 100 leaders spanning the public and private sectors.[29]

4. International Investment Law Offers Ways of Directly Enforcing Rights Against States

> *[I]f we looked into the question of perhaps amending the Liability Convention to provide some means for limited or even compulsory arbitration between private juridical or natural persons on the one hand and a state or international organization on the other . . . we may be able to provide a more effective, efficient and expedient means of settling some of the claims that are bound to arise from outer space activities . . .* [30]

Discussions on future space liability have long contemplated disputes arising not only between States, but also between private parties and foreign States. For example, attendees at the July 1979 Round Table on the Settlement of Disputes in International Space Law in Argentina concluded that: (i) future space agreements should contain dispute settlement clauses with compulsory jurisdiction; (ii) all judgments and awards should be final and binding; and (iii) such standards might eventually be extended beyond the traditional

28 *See, e.g.*, A. Boley, M. Byers, W. Evans et al., Open Letter to Foreign Affairs Minister of Canada (Re: US Executive Order on Recovery and Use of Space Resources), Apr. 20, 2020, https://www.mcgill.ca/iasl/files/iasl/open_letter_on_us_executive_ order_on _space_mining.pdf.

29 McKinsey & Company, "The role of space in driving sustainability, security, and development on Earth" (2022), at 4.

30 J. R. Tamm, Discussion on Rules for Dispute Settlement in Present Space Law, Proceedings of an International Colloquium Munich, Sept. 13-14, 1979, at 82.

subjects of public international public law.[31] Likewise, at an International Colloquium on the Settlement of Space Law Disputes in Germany in September 1979, German jurist and professor Karl-Heinz Böckstiegel emphasized that binding and final decisions are necessary for the effectiveness of space law and asked whether "only states [are] to be expected to be parties to disputes or also international organizations, private enterprises, individuals?"[32]

Professor Böckstiegel's question continues to be relevant today. A majority of our survey respondents expressed the position that more is needed to assure peaceful cooperation and coexistence of the international community in space activities, and that current dispute resolution mechanisms are inadequate for private actors to resolve their outer space disputes with third-party States (62.9%). The proposal that actors should not have to petition their home State to espouse a claim given the shortcomings of "gunboat diplomacy" and the political considerations inherent in diplomatic protection is supported by our survey respondents.[33] Specifically, respondents of our survey favor private actors not having to rely solely on a State's domestic courts when that State has allegedly violated the actor's alleged rights in outer space (80%). They also support offering private actors a private right of action against States outside their domestic courts (80%).

Indeed, experience in the international investment law regime shows that we need not restrict ourselves to current State-centric regimes of dispute resolution. Arbitration promotes party autonomy and flexibility for its users. Whether *ad hoc* or administered by an arbitral institution, it implies the least amount of loss of sovereignty for State parties, and to date, is one of the most (if not the most) preferred way for States to resolve their disputes with private actors, including space-related disputes stemming from investments made on Earth. States have accepted international arbitration as a way of resolving disputes in core existing instruments of space law, such as the ESA Convention,[34] and the general clauses and conditions for ESA contracts.[35]

These preferences broadly align with the needs of industry respondents, who

31 A. Cocca, Settlement of Space Law Disputes, Proceedings of an International Colloquium Munich, Sept. 13-14, 1979, at 140 (noting that the scope of the meeting conclusions "should – in the first stage – be limited to subjects of public international law").

32 K.H. Böckstiegel, Settlement of Space Law Disputes, Proceedings of an International Colloquium Munich, Sept. 13-14, 1979, at 153.

33 R. O'Grady, Dispute-Resolution in the Commercial Space Age: Are All Space-Farers Adequately Catered For?, ICC Dispute Resolution Bulletin, 2021, Issue 3, at 10.

34 Convention for the establishment of a European Space Agency (CSE/CS(73)19, rev.7), Art. XVII.

35 Regulations of the European Space Agency, General Clauses and Conditions for ESA Contracts, ESA/REG/002, rev. 3, Paris, July 5, 2019, Clause 35.2.

in the past, have ranked confidentiality, timeliness, and technical expertise of decision-makers as important factors in the resolution of space-related disputes.[36] These preferences align with our survey respondents who "agreed" or "strongly agreed" that private actors and States should resolve their outer space disputes through an independent and impartial binding method of dispute resolution (80%). Although the number is likely much higher, at least half-a-dozen space-related disputes between private and state actors have been resolved through international arbitration, primarily in the satellites industry where (*inter alia*) there was found to exist an investment in the "territory" of the host State.[37]

It is perhaps for this reason that the Permanent Court of Arbitration ("PCA"), an intergovernmental organization dedicated to strengthening the systems of international dispute resolution, offers dedicated optional procedural rules for the arbitral resolution of space-related disputes.[38] The PCA's Outer Space Rules were prepared in consultation with the then 113 Contracting Parties of the PCA,[39] and can extend to both public and private actors. Under the rules, sovereign immunity is waived, there are confidentiality safeguards (if needed), and parties may appoint specialized arbitrators and experts maintained by the PCA in a list (but are not obliged to do so).[40] All of these features highlight the flexibility and party autonomy typically found in arbitration of traditional disputes. These specific adaptations allow parties to utilize the structural advantages of international arbitration, including the issuance of a final, binding resolution with an internationally enforceable award. The value of such features cannot be overstated since space activities "often operate on precise and fixed schedules . . . [and] only swiftly obtained final decisions are of any value."[41]

36 V. Dadwal and E. Tepper, Arbitration in Space- related Disputes: a Survey of Industry Practices and Future Needs, paper with the preliminary results presented to the 70th International Astronautical Congress (IAC), IISL Colloquium on the Law of Outer Space, Washington D.C., Oct. 21-25, 2019.

37 V. Dadwal and M. Macdonald, Arbitration of Space-related Disputes: Case Trends and Analyses, paper with preliminary results presented to the 71st International Astronautical Congress (IAC) CyberSpace Edition, IISL Colloquium on the Law of Outer Space, IISL Young Scholars Session, Oct. 12-14, 2020, at 5.

38 Permanent Court of Arbitration, Optional Rules for Arbitration of Disputes Relating to Outer Space Activities, December 6, 2011 (Outer Space Rules).

39 E. Goriatcheva and M. Batsura, Specialized Arbitration Rules for Disputes Relating to Outer Space Activities, Russian Arbitration Association, March-April 2021, p. 18.

40 Permanent Court of Arbitration, Optional Rules for Arbitration of Disputes Relating to Outer Space Activities, December 6, 2011 (Outer Space Rules).

41 Fausto Pocar, An Introduction to the PCA's Optional Rules for Arbitration of Disputes Relating to Outer Space Activities, 38 J. SPACE L. 171, 178 (2012), https://pdfs.semanticscholar.org/264f/8846a044449c66b8 7fb75d65de83af918a79.pdf.

5. Conclusion

Insights and lessons from the international investment law regime are well-suited to assist in identifying a minimum "floor" of substantive and procedural protections that will advance an international rules-based space order for all, including particularly, private actors *vis-à-vis* third-party States. Guided by feedback from 35 survey respondents spanning various government and industry sectors, we make three observations on the scope and nature of future private rights and remedies in space.

First, should States protect private actors and their investments in outer space? Yes. The current international space law regime, like many traditional forms of international law, does not contemplate rights and remedies for private actors against third-party States. Just over half of our survey respondents expressed the position that private actors and their investments are inadequately protected against State measures in outer space. However, an overwhelming majority of survey respondents recognize that a "shared set of rules" are needed for States and private actors to operate sustainably in space.

Second, which rights should constitute protections in outer space? International space law does not advance basic minimum protections for private actors. Although we did not survey for each potential protection under international law, a majority of survey respondents support the view that private actors and their investments should be protected, at minimum, from state-based unlawful expropriation; nationality-based discrimination by States; and unjust or arbitrary conduct by States. Respondents also indicated a strong level of support for the respect of private actors' property, and (if they exist) respect for contract rights in space.

Finally, how might private actors exercise any future rights and seek redress for harm committed by States in outer space? The current methods of space dispute resolution are inadequate for private actors. However, treating private actors in a transparent and predictable manner has the potential to promote the rule of law and market-oriented space policies. Survey respondents support dispute resolution forums that lie outside a State's domestic courts, and agree that private actors and States should resolve their outer space disputes through an independent and impartial binding method of dispute resolution.

Future space exploration will undoubtedly require cooperation between private actors and States. Clarifying what constitutes responsible State conduct will help promote the rule of law in space, particularly given the types of space disputes bound to occur in the future. Extending core international rights and remedies, such as those found in international investment treaties, may offer minimum protections for *all* actors operating in space, and thus help the efficient and amicable resolution of disputes. International arbitration provides a promising way of advancing international rules-based space order beyond the current State-centric legal regime.