

# 26<sup>th</sup> MANFRED LACHS SPACE LAW MOOT COURT COMPETITION





## Case Concerning Lunar Facilities and Withdrawal from the Outer Space Treaty (*Republic of Perovsk v. Republic of Titan*)

Melissa Force\*

### PART A: INTRODUCTION

The final rounds of the 26<sup>th</sup> Manfred Lachs Space Law Moot Court Competition were held in Adelaide, Australia during the week of September 25, 2017, coinciding with the International Institute of Space Law (IISL) Colloquium held every year during the International Astronautical Congress. This year's regional finalists argued the moot court problem entitled, the "Case Concerning Lunar Facilities and Withdrawal from the Outer Space Treaty (*Pervosk v. Titan*)," co-authored by Dr. Michael Simpson, Executive Director of the Secure World Foundation, and Mr. Christopher Johnson, Secure World's Space Law Advisor. This year's moot problem presented issues relating to interference with the activities of states in the use of lunar resources and the resolution of the dispute under the novel principles of *ex aequo et bono*.

From a field of 74 teams competing across five continents within four regional rounds over the past year, the University of Mississippi (North America), the National and Kapodistrian University of Athens (Europe), University of Pretoria, South Africa (Africa), and the National Law School, India University at Bangalore (Asia Pacific) were victorious in their respective regional competitions and advanced to compete in the semi-final rounds on Tuesday, September 26, 2017. In the first of these matches, the National Law School of India University at Bangalor competed and prevailed against the University of Pretoria, South Africa. In the second of the semi-final matches, the University of Mississippi competed and prevailed against the National and Kapodistrian University of Athens.

On September 28, 2017, the World Final round of the competition was held at the Federal Court of Australia before current and former judges from the International Court of Justice in The Hague, Judge Kirill Gevorgian, Ret. Judge Sir Kenneth Keith and Judge James Crawford. Pleading on behalf of

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\* Co-Chair, Manfred Lachs Space Law Moot Court Committee, IISL.

the applicant was the team from the University of Mississippi, represented by Ms. Alexia Boggs and Mr. Kent Aldenderfer, supported by their teammate, Mr. Kyle Hansen and faculty representatives, Dr. Andrea Harrington and Marshall McKellar. Pleading on behalf of the respondent was the team from the National Law School, India University at Bangalore, represented by Mr. Sharan A. Bhavnani and Mr. Karan Dhalla, supported by their teammate Hrishika Jain. Ruling from the bench, the acting president of the panel, the Hon. Sir Kenneth Keith, pronounced the respondent as the prevailing party and declared the National Law School of India University at Bangalore as the winner. The panel then announced its decision to award best oralist honors to Ms. Alexia Boggs, from the University of Mississippi.

Following the competition, the Annual IISL Gala Dinner was held at the State Library's Mortlock Chambers and additional honors were bestowed on the student finalists competing in this year's competition. The winning team was awarded the Manfred Lachs trophy (the original of which is on permanent display at the International Court of Justice in The Hague), the Lee Love Award for Best Team, a commemorative plaque and certificates to each team member. The runner-up team, the University of Mississippi, was awarded a commemorative plaque and certificates to the team members. The two semi-finalists, the University of Pretoria, South Africa (Ruvimbo Samanga and Tebello Moseou, and Faculty Advisor Sewela Masie) and the National and Kapodistrian University of Athens (Yvonne-Kyriaki Vastaroucha, Iliana Griva, and Pelagia-Ioanna Ageridou, with Assistant Faculty Advisor Koula Taratsa and Faculty Advisor George Kyriakopoulos, not present) were recognized with commemorative plaques and certificates for the team members. The National Law School of India University (Bangalore) was presented the Eilene M. Galloway Award for Best Memorials, awarded to the team with the highest combined score for memorials in the competition, and certificates were presented to each of the team members. The winner of the best oralist award, Alexia Boggs, was awarded the Sterns and Tennen Award for Best Oralist and a certificate. In addition, all the students received awards of law books donated by Eleven International Publishing, Brill/Nijhoff and Springer Publishing.

The Asia Pacific Regional took place 18-21 May 2017 among 35 teams representing Indonesia, China, India, Hong Kong, Australia, Singapore, Iran, South Korea and Pakistan. The winner was National Law School of India University, Bangalore, India, comprised of Mr. Sharan A. Bhavnani, Ms. Hrishika Jain, and Mr. Karan Dhalla.

The African regional was held 25-26 May 2017 among 5 teams from Uganda, Nigeria (2), South Sudan and South Africa. The Winner was the University of Pretoria, Pretoria, South Africa, comprised of Ms. Ruvimbo Samanga and Ms. Tebello Moseou.

The North America regional competition took place 31 March – 1 April, 2017 among 16 teams, including teams from Colombia and Canada. The

winner was the team from University of Mississippi, Oxford, Mississippi, comprised of Ms. Alexia Boggs, Mr. Kyle Hansen, Mr. Kent Aldenderfer.

The European regional competition took place 10-12 May, 2017 among 15 teams from Russia (3), the Netherlands, Poland (2), Germany, Greece, Italy, Italy, Finland, Slovenia, Luxembourg, France and Austria. The winner was the team from National and Kapodistrian University of Athens, Greece, comprised of Ms. Yvonne-Kyriaki Vastaroucha, Ms. Iliana Griva, and Ms. Pelagia-Ioanna Ageridou.

Two semi-final matches were held simultaneously on 26 September, 2017. Session one, between University of Pretoria and National Law School of India University, was judged by Prof. Henry Hertzfeld, (US), Prof. Mahulena Hoffman, (Czech Rep.) and Dr. Elina Morozova (Russia). The winner of session one was the National Law School of India University. Session two, between National and Kapodistrian University of Athens and the University of Mississippi, was judged by Dr. Ranjana Kaul (India), Dr. Seidu Onailo Mohammed (Nigeria) and Prof. Yun Zhao (China). The winner of session two was the University of Mississippi.

Memorials were judged by Adv. Phetole Sekhula, International Air Services Council, Pretoria, South Africa; Dr. Ulrike M. Bohlmann, ESA Strategy Department (Policy); Milton "Skip" Smith, Member, Sherman & Howard, United States; Prof. Melissa de Zwart, Australia; Ms. Lusani Nelufule-Mugivhi, South Africa, Dr. Dale Stephens, Australia; Rosa Ma Ramírez De Arellano y Haro, Mexico and Dr. Lotta Viikari, Finland.

After an impressive round of oral pleadings between the two finalists, the three ICJ Judges (Judges Kirill Gevorgian, Richard Crawford and Former Judge Kenneth Keith) declared the National Law School of India University (NLSIU), Bangalore, India victors of the World Final of the Manfred Lachs Space Law Moot Court Competition and recipient of the Lee Love Award for Best Team. The judges also awarded the Sterns and Tennen Award for Best Oralist to Ms. Alexia Boggs, from the University of Mississippi. The Eilene Galloway Award for Best Memorials was awarded to the National Law School of India University (NLSIU), Bangalore, India.

#### **Participants in the African Regional Rounds:**

- Makerere University, Kampala, Uganda
- Obafemi Awolowo University, City of Ile-Ife, Nigeria
- University of Juba, Juba, South Sudan
- University of Nigeria, Nsukka, Nigeria
- University of Pretoria, Faculty of Law, Pretoria, South Africa

#### **Participants in the European Regional Rounds:**

- Belgorod State National Research University, Belgorod, Russia
- International Institute of Air and Space Law, Leiden University, Leiden, The Netherlands

- John Paul II Catholic University of Lublin, Lublin, Poland
- Leuphana University, Lüneburg, Germany
- National & Kapodistrian University, Athens, Greece
- Peoples' Friendship University of Russia, Moscow, Russia
- Sapienza University of Rome, Rome, Italy
- Tyumen State University, Tyumen, Russia
- University of Genoa, Genoa, Italy
- University of Helsinki (Law), Helsinki, Finland
- University of Ljubljana, Ljubljana, Slovenia
- University of Lodz (Law and Administration), Lodz, Poland
- University of Luxembourg, Luxembourg, Luxembourg
- University of Paris-Saclay, Paris, France
- University of Vienna, Vienna, Austria

**Participants in the North American Regional Rounds:**

- Duke University, Durham, North Carolina, USA
- Florida State University College of Law, Tallahassee, Florida, USA
- Georgetown University Law Center, Washington D.C., USA
- George Washington University, Washington D.C., USA
- McGill University, Institute of Air and Space Law, Montreal, Quebec, Canada
- New York University, New York City, New York, USA
- Pepperdine University, Malibu, California, USA
- St. Thomas University School of Law, Miami Gardens, Florida, USA
- University of Arkansas – Little Rock, Little Rock, Arkansas, USA
- University of Colorado, Boulder, Colorado, USA
- University of Hawaii, William S. Richardson School of Law, Honolulu, Hawaii, USA
- University of Michigan, Ann Arbor, Michigan, USA
- University of Mississippi, School of Law, Oxford, Mississippi, USA
- Universidad Sergio Arboleda, Bogotá, Colombia
- University of Nebraska College of Law, Lincoln, Nebraska, USA
- University of Nevada – Las Vegas, Las Vegas, Nevada, USA

**Participants in the Asia Pacific Regional Rounds:**

- Bandung Islamic University Indonesia, Bandung, Indonesia
- Beijing Institute of Technology, Beijing, China
- Catholic University of Atma Jaya, Jakarta, Indonesia
- Chanakya National Law University, Patna, India
- China University of Political Science and Law (CUPL), Beijing, China
- City University of Hong Kong, Hong Kong

- Civil Aviation University of China, Tianjin, China
- College of Legal Studies, University of Petroleum and Energy Studies (UPES), Dehradun, India
- Dr. Ram Manohar Lohiya National Law University, Lucknow, India
- Gujarat National Law University, Gandhinagar, India
- Indian Law Society Law College (ILS), Pune, India
- National Law School of India University (NLSIU), Bangalore, India
- Institute of Law, Nirma University, Ahmedabad, India
- Jindal Global Law School, Sonipat, India
- Murdoch University, Perth, Australia
- NALSAR University of Law, Hyderabad, India
- National Law University, Delhi, India
- National Law University Jodhpur, India
- National Law University, Odisha, Cuttack, India
- National University of Advanced Legal Studies (NUALS), Kochi, India
- National University of Singapore, Singapore, Singapore
- Shanmugha Arts, Science, Technology & Research Academy (SASTRA University),
- Thirumalaisamudram, India
- School of International Relations, Tehran, Iran
- Shahid Beheshti University, Tehran, Iran
- Soongsil University, Seoul, South Korea
- Symbiosis Law, India School, Pune, India
- The WB National University of Juridical Sciences, Kolkata, India
- Universitas Islam Indonesia, Yogyakarta, Indonesia
- Universitas Padjadjaran, Bandung, Indonesia
- Universitas Trisakti, Jakarta, Indonesia
- University of Adelaide, Adelaide, Australia
- University of Hong Kong, Hong Kong
- University of Karachi, Karachi, Pakistan
- Zhongnan University of Economics and Law, Wuhan, China

**Participants in the Final Rounds:**

- National Law School of India University, Bangalore, India
- Students: Mr. Sharan A. Bhavnani, Ms. Hrishika Jain, and Mr. Karan Dhalla
- Faculty Advisor: Prof. Kunal Ambasta
- University of Mississippi, Oxford, Mississippi, USA
- Students: Ms. Alexia Boggs, Mr. Kyle Hansen, Mr. Kent Aldenderfer
- Faculty Advisor: Prof. Dr. Andrea Harrington

**Awards:**

- **Lee Love Award for Best Team:** National Law School of India University (NLSIU), Bangalore, India (Mr. Sharan A. Bhavnani, Ms. Hrishika Jain, and Mr. Karan Dhalla)
- **Sterns and Tennen Award for Best Oralist:** Ms. Alexia Boggs, University of Mississippi
- **Eilene Galloway Award for Best Memorials:** National Law School of India University (NLSIU), Bangalore, India (Mr. Sharan A. Bhavnani, Ms. Hrishika Jain, and Mr. Karan Dhalla)

**Judges of the Final Round:**

- H.E. Judge James Richard Crawford, International Court of Justice
- H.E. Judge Kirill Gevorgian, International Court of Justice
- H.E. Judge Kenneth Keith, Former Member, International Court of Justice

**Sponsors of the regional teams:**

- Sponsor of North American Team: National Aeronautics and Space Administration (NASA)
- Sponsor of European Team: European Centre for Space Law (ECSL)
- Sponsor of Asia Pacific Team: Japan Aerospace Exploration Agency (JAXA)
- Sponsors of African Team: Department of Trade and Industry, Republic of South Africa and South African National Space Agency

**Sponsors of the Finals:**

- Brill Nijhoff Publishers
- Eleven International Publishing
- European Space Agency (ESA)
- Excalibur Almaz
- International Astronautical Federation
- International Court Of Justice
- Springer Publishing Company
- Secure World Foundation
- South African Space Association

**PART B: THE PROBLEM**

**Agreed Statement of Facts:**

1. Perovsk and Titan are neighboring republics enjoying more than 200 years of peaceful relations, a common language, and a shared cultural heritage. Many Perovsk citizens have ancestors from Titan, and vice-versa. They are simultaneously each other's largest customers for export



goods, and each other's largest competitors for global markets. When political differences trouble the relations between these two States, they are often rooted in the republics' differing economic value systems. Perovsk values individualism and *laissez faire* economics, while Titan favors social planning and various combinations of public and private cooperation in business and industry.

2. Titan was one of the first states to ratify the 1967 Outer Space Treaty, as well as the 1979 Moon Agreement, and successive governments in Titan have included the statement in their national space policies that outer space belongs to all humankind. Titan also briefly explored the Moon in the mid-1970s with the robotically-operated missions *Novum Organum-1* and *Novum Organum-2* alighting on the Moon's Sea of Tranquility. Mission architecture for these activities depended on the purchase of launch and descent stage services from Perovsk.
3. In the decade prior to 2020, a series of intergovernmental agreements led both Perovsk and Titan to engage in cooperative space projects and to pursue complementary niche specialization in technologies required for space activities. Perovsk developed highly efficient launch and chemical propulsion capabilities, and evolved creative technologies for materials processing and manufacturing in space. Early results from Perovsk's proof-of-concept experiments in Earth orbit showed considerable promise for creating metal powders in reduced gravity for commercial use in 3D printers.
4. Meanwhile, Titan excelled in instrumentation, spacecraft design, and scientific research. Titan began operations of its lunar station *Mondiale* on the Moon's Sea of Tranquility in 2019. The *Mondiale* station had a mix of scientific projects, including scientific testing stations around the main facility that sampled the tenuous lunar atmosphere.
5. The *Mondiale* station was built in Titan and launched from Perovsk's La Mancha Spaceport on a Perovsk-built rocket, and delivered to the lunar surface by a descent unit built in Perovsk launched together with the *Mondiale* station. Perovsk conducted significant review of the *Mondiale*'s various capabilities, including its lunar atmosphere experiments, prior to the launch. Perovsk notified the UN of the launch, which was thereafter placed on the UN's registry of space objects. The rocket and the descent module were both placed on Perovsk's national registry. Concurrently, Titan placed the *Mondiale* station on its national registry of space objects, and on the UN registry, noting that *Mondiale* occupied a 10 square meter footprint on the lunar surface and operated robotically without a human crew.
6. In 2021, scholarly papers, as well as the political and social discourse in both countries, increased pressure on their governments to execute more ambitious lunar missions. The business community in Perovsk wanted to

explore the possibility of processing lunar materials into products with commercial value. Titan's scientific community, in alliance with many businesses, wanted to use their *Mondiale* lunar station to receive lunar samples to test and improve the capacity of robotic instrumentation to analyze them.

7. By late 2022, Perovsk was highly focused on final preparations for its own lunar station, *Tekla*, which among other functions, was to serve as a base station for a surface rover. The *Tekla* program was created with considerable involvement of the commercial space sector, as officials made statements in both the national and international press expressing their hopes for a commercial lunar economy. A private enterprise incorporated in Perovsk, Fireskin Ltd., (hereinafter cited as Fireskin), consummated a commercial partnership with One-Zero, Ltd., (hereinafter cited as One-Zero), a private launch services provider also incorporated in Perovsk, to send the *Tekla* station to a site roughly 30 km distant from the *Mondiale* station on the Moon's Sea of Tranquility. Perovsk granted a launch license to One-Zero and mission authorization to Fireskin contingent on assurances from each that the lunar rover later to be included in the mission was not to approach any closer than 5 km from Titan's *Mondiale* lunar station.
8. With a license in hand, Fireskin's spacecraft began its journey to the Moon aboard One-Zero's "Goldrush" heavy-lift launch vehicle. The mission launched from Perovsk's La Mancha launch site on the last day of 2023 and was safely delivered to the lunar surface six days later by a Perovsk-built and operated descent unit. Both the launch vehicle and the *Tekla* station were duly listed on Perovsk's national registry of space objects, and on the UN registry of space objects.
9. In 2024, Perovsk unveiled a reusable lunar shuttle to replace the descent unit it had used to deliver the *Mondiale* and *Tekla* stations to the lunar surface. Later that same year, Perovsk's new shuttle transported from Earth a Titanite mobile surveying unit capable of collecting and robotically analyzing samples in a 20 km radius of the *Mondiale* station. Titan fully disclosed to Perovsk the technical capabilities of its rover prior to its delivery to the Moon.
10. In the first quarter of 2025, Perovsk reported publicly through a technical journal published by its space agency that its *Tekla* station was in an area rich in ilmenite, a basaltic titanium ore. Perovsk's report indicated that samples randomly collected within 20 km of its lunar station showed an average titanium content of 20 percent, with certain samples approaching 30 percent.
11. Critical of Titan's lack of transparency regarding scientific discoveries associated with its work around the *Mondiale* station, the article also reported finding evidence that more than one of the ilmenite deposits had

been visited and analyzed previously by Titan's rover, whose tread pattern was quite distinctive. Meanwhile in Titan, the journal article was widely criticized by the media and scientific community for making an unjustified accusation by declaring that Titan was intentionally hiding discoveries that might be developed commercially.

12. Recognizing the commercial implications of Perovsk's report, many in Titan's scientific and political communities became increasingly concerned about Perovsk's commercial intentions and some argued that hiding property belonging to all humankind from "greedy entrepreneurs" was justified. Many in Titan feared that Perovsk's discovery could signal the onset of large-scale exploitation of lunar materials in a way contrary to Titanite policy that outer space and its wealth belong to all humankind. A Titanite official commented that Perovsk risked starting a "colonialist gold rush" in outer space.
13. Aware of this concern, representatives of Fireskin were increasingly critical of the Outer Space Treaty and their CEO Felix Falkner was quoted as saying, "This sixty-year-old treaty has become a relic. We should scrap it and get on with colonizing the solar system and developing its business opportunities."
14. Titanite concern was further increased later that year when Perovsk announced that its lunar shuttle had delivered important cargo to the *Tekla* station including an advanced 3D printer, and equipment capable of creating metal powder for the printer's use from lunar materials. The 3D printer was sent to help construct material to provide more solid habitat walls for a larger *Tekla* station, and also to test the feasibility of creating structural components for a launch site and refueling station to be operated by Fireskin.
15. Midway through 2025, using their 3D printer and lunar materials, Perovskite astronauts working temporarily at the *Tekla* station produced regolith processing equipment, and placed it at three mineral-rich sites, one of which was within 15 km of the *Mondiale* station. That site showed tracks from at least one previous visit by Titan's lunar rover. The installation of the processing equipment allowed Fireskin's operations to become more efficient by processing regolith close to where it was mined and then only returning processed materials back to the *Tekla* base station for final refinement and use in the 3D printer.
16. Perovsk made no prior announcement of this expanded footprint for its lunar activity, but subsequently informed the UN Secretary General of the new installations on 12 August 2025, within two weeks of the new processing equipment becoming operational.
17. Many in Perovsk's commercial space community began to argue that governments should leave entrepreneurs alone, and began petitioning for

- Perovsk to withdraw from the Outer Space Treaty so as to allow unambiguously for the commercial use of space resources.
18. Legislators in Perovsk's parliament held a hearing on whether to remain a party to the Outer Space Treaty. After consultation with their foreign ministry, on 26 January 2026, Perovsk's leaders formally notified the Depository Governments of the Outer Space Treaty that Perovsk would withdraw from that treaty one year subsequent to their receipt of that notification of withdrawal. Receipt of notification was acknowledged by the Depository Governments on 28 January 2026.
  19. Concerned that Perovsk was setting up a major industrial facility and that its pulverization of ilmenite was releasing oxygen that interfered with *Mondiale's* scientific research on the lunar atmosphere, Titan arranged in February 2027 for its mobile surveying unit to inspect Perovsk's one processing installation that was located within the range of its robotically-operated rover.
  20. During this inspection Titan's rover collided with the processing unit. Three factors contributed to the collision: a minor and unexpected solar event disrupted communication; the three-second delay in round trip communications from the Earth to the Moon prevented timely response once communication was restored, and the lunar regolith at the site was steeper and looser than Titan had observed in its previous visit to the site prior to the unit's installation. Although loud voices in Perovsk argued that the damage had been intentional, the parties both agree that Titan had not intended to cause damage to the processing unit. This collision nonetheless caused sufficient damage for the processor unit's fail-safe software to shut the installation down. It remains out of service, and its lack of availability has caused setbacks and delays in Perovsk's and Fireskin's lunar operations.
  21. The inspection confirmed, however, that trace amounts of oxygen were being released into the lunar boundary exosphere in sufficient volume to account for the anomalous readings Titan had begun to see in mid-2025 on the scientific instruments at the *Mondiale* station, which had been gathering data on the tenuous lunar atmosphere. Citing interference with its scientific work at *Mondiale* station, Titan sent a demarche to Perovsk and demanded the dismantlement of the remaining ilmenite processing equipment. They also stressed that Perovsk was spoiling the priceless and previously intact *Novum Organum* landing and exploration sites, and disrupting the pristine lunar environment.
  22. Perovsk responded to the demarche by issuing a public declaration in which it refused the demand, noting that it had not only established a 5 km safe zone that Fireskin had respected, but had also placed its processing units so that none was closer than 15 km from *Mondiale*. The declaration also stated that if Titan had published the results of its

explorations predating the establishment of the *Tekla* regolith processing stations, Fireskin might have selected different sites for its equipment that would not have caused Titan concern.

23. With political tensions rising rapidly, the leaders of Perovsk and Titan met in May 2027 to seek a peaceful resolution to their disputes. Their conversations led both leaders to conclude that domestic political circumstances made it impossible for a negotiated compromise on matters in dispute to be reached.
24. Perovsk initiated these proceedings by Application to the International Court of Justice, and submitted this Agreed Statement of Facts. Both Titan and Perovsk explicitly notified the Court that they consent to the full jurisdiction of the Court as provided for in Article 36 of the ICJ statute, and the full list of sources in both Article 38 (1) and (2) of the ICJ statute. There is no issue of jurisdiction before the Court.
25. (1) Perovsk requests the Court to adjudge and declare that:
  - a. Perovsk was under no obligation to notify or consult Titan about activities at the *Tekla* station, and that under the principles of *ex aequo et bono*, Perovsk has the right to continue its activities on the Sea of Tranquility.
  - b. Titan violated international law by failing to disclose its discoveries on the Moon, that Titan failed to notify Perovsk before inspecting its lunar facilities, and that Titan is liable for the damage to Perovsk's property on the Moon.
- (2) Titan requests the Court to adjudge and declare that:
  - a. Perovsk's activities on the Moon violated international law by failing to consult with Titan, and that Perovsk must be compelled to cease its lunar processing and production activities, the despoliation of the *Novum Organum-1* site, and the impermissible appropriation of the Moon.
  - b. Titan was permitted to inspect Perovsk's processing stations, and is not liable to Perovsk for damages incurred.

Both Perovsk and Titan are Member States of the United Nations, and are parties to the 1968 Rescue Agreement, the 1969 Vienna Convention on the Law of Treaties, the 1972 Liability Convention, and the 1975 Registration Convention. Titan is also a State Party to the 1967 Outer Space Treaty, and the 1979 Moon Agreement. Perovsk has never signed the 1979 Moon Agreement.

#### **Special Clarification to the 2017 Lachs Competition Problem:**

The reference to *ex aequo et bono* in the first submission in the Problem does not apply beyond that express reference.

## PART C: BEST MEMORIALS

National Law School of India University, Bangalore, India

Students: Mr. Sharan A. Bhavnani, Ms. Hrishika Jain, and Mr. Karan Dhalla

### ARGUMENT OF APPLICANT, THE REPUBLIC OF PEROVSK

#### PEROVSK WAS UNDER NO OBLIGATION TO CONSULT TITAN REGARDING THE ACTIVITIES AT THE TEKLA STATION.

1. Perovsk has placed regolith processing equipment [hereinafter, “processing stations”] on the Moon.<sup>1</sup> These processing stations are situated at least 15-km away from Titan’s *Mondiale* station. They have been utilizing the lunar regolith to make powder for use in 3D printers. The processing stations have been releasing trace amounts of Oxygen into the lunar exosphere as a by-product of the processing.<sup>2</sup>
2. Perovsk submits that it has no obligation to consult Titan because *first*, it exercised “due regard” [A]; and *second*, it did not have “reason to believe” that its activities would cause “potentially harmful interference” with Titan’s activities [B].

#### Perovsk exercised ‘due regard’.

3. States are obligated to exercise “due regard” to the “corresponding interests” of other States.<sup>3</sup> ‘Due regard’ refers to a reasonable standard of care or attention.<sup>4</sup> This is an obligation of conduct, and not result.<sup>5</sup> Therefore, the obligation is *only* to take *reasonable measures* to ensure that the existing interests of other States are not adversely affected.<sup>6</sup> ‘Due regard’ can be exercised by granting licenses only to those private entities that undertake to respect the interests of other States.<sup>7</sup>
4. Perovsk ensured that the license and authorization granted to Fireskin and One-Zero were contingent on establishing a 5-km safe-zone near the *Mondiale*.<sup>8</sup> This distance was considered to be sufficient for the

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1 *Compromis* § 15.

2 *Compromis* § 21.

3 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *entered into force* Oct. 10, 1967, Article IX, U.S.T. 2410, 610 U.N.T.S. 205 [OST]; Sergio Marchisio, *Article IX*, in I COLOGNE COMMENTARY ON SPACE LAW 169, 175 (Stephan Hobe *et al.* eds. 2009).

4 Marchisio, *id.*

5 Timo Koivurova, *Due Diligence*, 3 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 236, 238 (R. Wolfrum ed., 2012).

6 *Id.*

7 Marchisio *supra* note 3, at 176; Outer Space Act 1986, c.38 § 5 (Eng.).

8 *Compromis* § 7.

preservation of Titan's interests at the time of establishment.<sup>9</sup> Fireskin duly complied by setting up its processing station at least 15-km away from Titan's facilities.<sup>10</sup> Therefore, Perovsk exercised due regard.

**A. Perovsk did not have reason to believe that its activities would cause potentially harmful interference with Titan's Activities.**

5. Perovsk's pulverization of the lunar regolith led to the release of Oxygen molecules, which caused the anomalous readings in *Mondiale's* atmospheric testing facilities. However, the said release was only in *trace* quantities, and only into the exosphere of the Moon.<sup>11</sup> The OST confers an obligation to hold appropriate consultations on a State *only* when the state has "reason to believe" that its activities, or those of its nationals, can cause "potentially harmful interference" to the activities of other States.<sup>12</sup> The standard for such interference has been set to be any such activity which may contravene the basic principles of the Outer Space Treaty [hereinafter, "OST"] – such as the duty of due regard and co-operation.<sup>13</sup>
6. All activities in space do not constitute potentially harmful interference to activities of others.<sup>14</sup> This was made clear in USA's position regarding its obligation to consult under Article IX before destroying its satellite – USA-193. It contended that it was not obligated to consult other States since it exercised 'due regard' by intercepting the satellite at a suitable orbit.<sup>15</sup> Thus, it had no reason to believe that it would cause potentially harmful interference to another State's activities.<sup>16</sup>
7. Perovsk submits that it had no obligation to consult since there was no reason to believe that the release of trace amounts of Oxygen would cause potentially harmful interference to Titan's activities. The exosphere

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<sup>9</sup> *Compromis* § 7.

<sup>10</sup> *Compromis* § 7.

<sup>11</sup> *Compromis* § 21.

<sup>12</sup> Article IX, OST.

<sup>13</sup> Michael C. Mineiro, *FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations under Article 9 of the Outer Space Treaty*, 34 *JOURNAL OF SPACE LAW* 321, 337 (2008); GEORGE T. HACKETT, *SPACE DEBRIS AND THE CORPUS JURIS SPATIALIS* CARL Q. CHRISTOL, *THE MODERN INTERNATIONAL LAW OF OUTER SPACE*, Vol. 2, 123 (1994).

<sup>14</sup> Marchisio, *supra* note 3.

<sup>15</sup> Michael C. Mineiro, *FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations under Article 9 of the Outer Space Treaty*, 34 *JOURNAL OF SPACE LAW* 321, 351 (2008).

<sup>16</sup> U.S. Department of Defense News Transcript, DoD News Briefing with Deputy National Security Advisor Jeffrey, 350 (Feb. 14, 2008), [www.spacelaw.olemiss.edu/resources/pdfs/usa193-selected-documents.pdf](http://www.spacelaw.olemiss.edu/resources/pdfs/usa193-selected-documents.pdf); Christopher M. Petras, "Space Force Alpha:" *Military Use of the International Space Station and the Concept of "Peaceful Purposes"*, 53 *F.L. REV.* 135, 155 (2002).

of the Moon does not retain Oxygen molecules long enough to reasonably lead to a threat of accumulation, due to a weak gravitational force.<sup>17</sup> Moreover, the processing stations were established at a minimum distance of 15-km from *Mondiale*,<sup>18</sup> with ‘due regard’ to Titan’s interests.<sup>19</sup>

8. Thus, Perovsk had no reason to believe that the Oxygen release will adversely affect Titan’s tests. Therefore, it had no obligation to consult Titan under Article IX regarding the activities at the *Tekla* station.

**1. UNDER THE PRINCIPLE OF EX AEQUO ET BONO, PEROVSK HAS THE RIGHT TO CONTINUE ITS ACTIVITIES ON THE MOON.**

9. The processing activity involves pulverizing the regolith to create metal powder for its peaceful use. Titan contends that this pulverization constitutes appropriation. Further, Titan contends that the pulverization is damaging the unused and non-functional *Novum Organum-1* site. Both the Parties, for this issue, have expressly submitted to Article 38(2) of the Statute of the ICJ,<sup>20</sup> which allows the ICJ to decide *ex aequo et bono*.<sup>21</sup> This permits the ICJ to rely on principles of equity as well as considerations beyond the law.<sup>22</sup>

10. Perovsk submits that *first*, its activities amount to use and do not constitute appropriation of outer space [A]; and *second*, Perovsk is not responsible for the despoliation of the *Novum Organum-1* site [B].

**A. Perovsk’s activities amount to use and do not constitute appropriation of outer space.**

11. The “exploration and use” of outer space is the “province of all mankind”.<sup>23</sup> This means that all States have equal freedom to use outer space.<sup>24</sup> The term “use” includes the possibility of exploitation. This broad interpretation of the term use may be seen in the UNGA Resolution 1348 (XIII) which laid the foundation for the OST and

17 E.J. Opik & S.F. Singer, *Escape of Gases from the Moon*, 65(10) JOURNAL OF GEOPHYSICAL RESEARCH 3065, 3065 (October, 1960).

18 *Compromis* § 22; Clarifications, at 1.

19 *infra* § 3-4.

20 *Compromis* § 24.

21 Article 38(2), Statute of the International Court of Justice (1945); Indo-Pakistan Western Boundary (India v. Pakistan), 17 R.I.A.A. 1, 11 (1968).

22 *infra* § 15, 18 and 23.

23 G.A. Res. 1962 (XVIII), U.N. GAOR, 18<sup>th</sup> Sess., U.N. Doc. A/RES/18/1962 (1963); G.A. Res. 2222 (XXI), U.N. GAOR, 21<sup>st</sup> Sess., U.N. Doc. A/RES/21/2222 (1966); Article I, OST.

24 Stephan Hobe, *Outer Space as the Province of Mankind – An Assessment of 40 Years of Development*, 50<sup>th</sup> I.I.S.L PROC. 442, 444 (2007); G.A. Res. 1962, *id*.



endorsed “exploration and exploitation” of outer space.<sup>25</sup> The *travaux préparatoires* can be relied on to confirm the meaning of a word.<sup>26</sup> In the 5<sup>th</sup> Session of the Legal Subcommittee of the UNCOPUOS [hereinafter “LSC”] the French representative stated that the term “use” was “by no means exhaustive” and may include “exploitation”.<sup>27</sup> Perovsk’s regolith processing may be termed exploitation and would therefore amount to permissible use.<sup>28</sup>

12. The express restriction is on the appropriation of outer space.<sup>29</sup> Such prohibition is limited to any permanent claims of title or sovereignty over a territory in outer space.<sup>30</sup> It is not extended to the use of extracted resources from such territory.<sup>31</sup> Further, appropriation requires the intention to act as a Sovereign.<sup>32</sup> In the present case, Perovsk has neither staked any permanent claim to the lunar area as a Sovereign.
13. Additionally, natural resource utilization is recognized in outer space. ‘Natural resources’ are defined not by their physical characteristics but their “potential economic value”.<sup>33</sup> Like ilmenite, the Geostationary Orbit [hereinafter, “GSO”] has been considered to be a limited natural

25 G.A. Res. 1348 (XIII), GAOR, 13<sup>th</sup> Sess. U.N. Doc. A/RES/1348 (1958).

26 Vienna Convention on the Law of Treaties, *entered into force* Jan. 27, 1980 Article 32, 1155 U.N.T.S., 331 [VCLT].

27 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Records of its 5<sup>th</sup> Sess., 63<sup>rd</sup> mtg., July 20, 1966, 5, U.N. Doc. A/AC.105/C.2/SR.63, 8 (20<sup>th</sup> July 1966).

28 Stephen Hobe, *Article I*, I COLOGNE COMMENTARY 30; CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 40 (1982); E.G. Vassilievskaiā, *Notions of ‘exploration’ and ‘use’ of natural resources of celestial bodies*, 20 I.I.S.L PROC. 476 (1977); K.H. Böckstiegel, *Legal implications of commercial space activities*, 24 I.I.S.L PROC. 26 (1981); CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 40 (1982).

29 Article II, OST.

30 C.W. Jenks, *Property in Moon Samples and things left upon the moon*, 12<sup>th</sup> I.I.S.L PROC 148 (1969); S.M. Williams, *The law of Outer Space and natural resources*, 36 INT. & COMPARATIVE LAW QUARTERLY 146 (1986); GA, Comm. on Disarmament and Intl. Sec., 21<sup>st</sup> Sess., 428, U.N. A/C.1.PV.1492 (December 17, 1966) (statement by the Ambassador of USA, in referring to Article II he circumscribed its limits to “claims of territorial sovereignty”).

31 Cestmir Cepelka & Jamie Gilmour, *The Application of General International law in outer space*, 36 J. AIR & COM. 32 (1970); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 56<sup>th</sup> Sess., 33, U.N. Doc. A/AC.105/1122 (April 18, 2017) (§246, “...extraction of resources from the Moon or a celestial body was a use within the meaning of and permitted by article I of the Outer Space Treaty...”); STEPHEN GOROVE, STUDIES IN SPACE LAW: ITS CHALLENGES AND PROSPECTS 82-84 (1977); C.W. JENKS, SPACE LAW 275 (1965).

32 Rep. on its 56<sup>th</sup> Sess., *id.* at 31, § 239.

33 *Natural resources*, BLACK’S LAW DICTIONARY, (9<sup>th</sup> edn., 2009).

resource with economic value.<sup>34</sup> The restriction on appropriation does not distinguish between “celestial bodies” and “outer space”.<sup>35</sup> Therefore, the principles applicable to GSO are transferable to ilmenite. The exploitation of GSO is permitted,<sup>36</sup> and widespread.<sup>37</sup> Since States’ satellites are allowed to occupy and use the GSO, States must similarly be allowed to use the lunar resources.<sup>38</sup> Therefore, Perovsk’s activities amount to permissible use and not appropriation.

14. Titan may argue that, *de lege lata*, there is no regime governing the use of resources derived from outer space. In such cases, *ex aequo et bono* entitles the ICJ to use any appropriate equitable measures, procedure, principle or method without inhibitions.<sup>39</sup> Accordingly, the ICJ may consider practical<sup>40</sup> and political<sup>41</sup> requirements, as well as rely on analogies drawn from other legal regimes or principles to fill gaps in the law.<sup>42</sup>
15. The right to enjoy usufructs is one such principle. It is embodied in, both, civil and common law jurisdictions.<sup>43</sup> This is the right to use the fruits of

34 Constitution of the International Telecommunications Union, *entered into force* July 1, 1994, ATS (1994) 28, BTS 24 (1996) Article 44 [ITU Constitution].

35 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 56<sup>th</sup> Sess., 13, U.N. Doc. A/AC.105/1045 (April 23, 2013); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Records, 5<sup>th</sup> Sess., 16, U.N. Doc. A/AC.105/C.2/SR.57 (October 20, 1966) (statement by the French representative).

36 Article 44, ITU Constitution.

37 ITU, *Space Network List: List of geostationary satellites in non-planned services*, [goo.gl/OmAKLA](http://goo.gl/OmAKLA); ITU, *Space Network List: List of geostationary satellites in planned services*, <https://goo.gl/LK0Xso>.

38 Phillip De Man, *The Commercial Exploitation of Outer Space and Celestial Bodies – A Functional Solution to the Natural Resource Challenge*, NEW PERSPECTIVES ON SPACE LAW: 53 I.I.S.L PROC., 56 (Mark J. Sundahl & V. Gopalakrishnan eds., 2011).

39 Maritime Delimitation (Denmark v. Norway) (Merits), 1993 I.C.J. (Jun. 14) (separate opinion by Weeramantry, J.) §55; THOMAS M. FRANCK, FAIRNESS IN INTERNATIONAL LAW AND INSTITUTIONS, 53 (1998); Leon Trackman, *Ex Aequo et Bono: Demystifying an Ancient Concept*, 8(2) CHICAGO JOURNAL OF INTERNATIONAL LAW, 621 (2008); *Ex aequo et bono*, BLACK’S LAW DICTIONARY 500 (5th ed., 1979); Maritime Delimitation (Denmark v. Norway) (Merits), 1993 I.C.J. (Jun. 14) (separate opinion by Weeramantry, J.) § 55; Alain Pellet, *Article 38* in THE STATUTE OF THE INTERNATIONAL COURT OF JUSTICE: A COMMENTARY, 703 (A. Zimmerman *et al*, eds., 2012).

40 Stephen Hall, *The Persistent Spectre: Natural Law, International Law and the Limits of Legal Positivism*, 12 EUROPEAN J INTL L. 261, 278-81 (2001).

41 H. LAUTERPACHT, THE FUNCTION OF LAW IN THE INTERNATIONAL COMMUNITY 379 (1933).

42 O. Schachter, *International Law in Theory and Practice*, in 178 RECUEIL DES COURS 85-86 (1982); North Sea Continental Shelf Case (Germany v. Netherlands) (Merits), 1969 I.C.J. (Feb. 20) (separate opinion by Ammoun, J.) § 39.

43 H. JOLOWICZ & B. NICHOLAS, HISTORICAL INTRODUCTION TO THE STUDY OF ROMAN LAW 296 (3<sup>rd</sup> edn., 1972); WILLIAM HOLDSWORTH, HISTORICAL INTRODUCTIONS TO THE ENGLISH LAND LAW 90 (1934); A. N. Yiannopoulos, *Usufruct: General*

a property without claiming a title to it. This right has been extended to other *res communis* regimes such as the high-seas<sup>44</sup> which, like outer space, possess a non-appropriative character.<sup>45</sup> The law of the sea only requires the exploiting State to not exclude other States from doing the same.<sup>46</sup> The use of outer space is the “province of all mankind”,<sup>47</sup> and must be on the basis of “equality”.<sup>48</sup> Thus, an analogy with the law of the sea is considered by States to mirror the underlying freedom of the outer space.<sup>49</sup> Therefore, the exploitation of natural resources “merely forms part of the freedom of exploration and use, and is not prohibited”,<sup>50</sup> as long as no permanent claims of sovereignty to the area are made and States do not prevent other States from doing the same.<sup>51</sup>

16. In the present case, Perovsk has not laid claim to ownership over the lunar territory. It is merely exercising its rights to enjoy the usufructs.

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*Principles – Louisiana and Comparative Law*, 27 LA. L. REV. (1967).

44 JOHN SPRANKLING, INTERNATIONAL PROPERTY LAW 34-35 (2014).

45 Article 137, UN Convention of the Law of the Sea [1994] ATS 31/21 ILM 1261 (1982) [UNCLOS].

46 FABIO TRONCHETTI, THE EXPLOITATION OF NATURAL RESOURCES OF THE MOON AND OTHER CELESTIAL BODIES 221 (2009); Article 116, UNCLOS.

47 Article I, OST; G.A. Res. 1962, *supra* note 23.

48 G.A. Res. 1962, *supra* note 23.

49 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Record, 3<sup>rd</sup> Sess., 31<sup>st</sup> Meeting, 19, U.N. Doc. A/AC.105/C.2/SR.31 (August 24, 1964) (statement by the representative of Romania); GA, Comm. on Disarmament and Intl. Sec., 15<sup>th</sup> Sess., 7, U.N. Doc. A/C.1/PV.1210 (December 4, 1961) (statement by the representative of USA, “Man should be free to venture into space on the same basis that he has ventured on the high seas”); D. Goedhuis, *Some Recent Trends in the Interpretation and Implementation of the Rules of International Space Law*, 19 COLUM. J. TRANSNAT’L L. 219 (1981); Comm. on the Peaceful Uses of Outer Space, Scientific and Technical Subcomm., 39<sup>th</sup> Sess., U.N. Doc. A/AC.105/C.1/L.256/Rev.1 (2002).

50 Bin Cheng, *Le Traité de 1967 sur l’espace*, 95 (No. 3) Journal du Droit International 574 (1969).

51 C.W. JENKS, SPACE LAW 275 (1965); STEPHEN GOROVE, STUDIES IN SPACE LAW: ITS CHALLENGES AND PROSPECTS 82-84 (1977); TRONCHETTI, *supra* note 43, at 221; Böckstiegal, *supra* note 28, at 24; General Assembly, Comm. on Disarmament and Intl. Sec., 21<sup>st</sup> Sess., 2, U.N. Doc. A/C.1/PV.1210 (January 27, 1967) (statement by the representative of USA “the exploration and use is the right of all States on the basis of equality”); Bin Cheng, *The Legal Regime of Airspace and Outer Space: The Boundary Problem, Functionalism vs. Spatialism*, 5 ANNALS OF AIR AND SPACE LAW 323, 332(1980); FRANCIS LYALL & PAUL LARSEN, SPACE LAW: A TREATISE 193 (2013); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Record, 8<sup>th</sup> Sess., 45<sup>th</sup> Meeting, 19, U.N. Doc. A/AC.105/PV.45 (September 19, 1966) (statement by the representative of Romania).

Therefore, Perovsk's activities are lawful and it must not be compelled to cease its operations.<sup>52</sup>

17. Additionally, *ex aequo et bono* allows treaty interpretation to be “in accordance with justice and political requirements”.<sup>53</sup> In this context, a broad and liberal reading of the first clause of Article I, OST should be employed. Accordingly, the establishment of a “launch site and refueling station”,<sup>54</sup> would expand the bounds of space exploration and use and is thus in the “common interest of mankind”,<sup>55</sup> and “general interest of all countries”.<sup>56</sup>

**B. Perovsk is not responsible for the despoliation of the *Novum Organum-1* site.**

18. Titan has prayed for the cessation of Perovsk's activities because these activities have led to despoliation of the non-functional *Novum Organum-1* site. Perovsk submits that *first*, claims in perpetuity on the Moon are prohibited [I]; and *second*, non-material interests are not protected under space law [III].

**I. Claims in perpetuity on the Moon are prohibited.**

19. Titan's interest in the preservation of *Novum Organum-1* site amounts to appropriation.<sup>57</sup> Admittedly, there exists a distinction between occupancy and appropriation.<sup>58</sup> The two are differentiated by the intent of the occupying party.<sup>59</sup> Space law does not prohibit temporary occupancy but prohibits claims in perpetuity because they amount to appropriation.<sup>60</sup>

52 International Law Commission, *Articles on State Responsibility*, GAOR, 56<sup>th</sup> Sess. Supp. No. 10, Article 30, U.N. Doc. A/56/10 (2001) [Articles on State Responsibility].

53 H. LAUTERPACHT, *supra* note 41.

54 *Compromis* § 14.

55 G.A. Res. 71/90, GAOR, 71<sup>st</sup> Sess. U.N. Doc. A/RES/71/90 (2016); General Assembly, Comm. on Disarmament and Intl. Sec., Summ. Record, 21<sup>st</sup> Sess., 58-59, U.N. Doc. A/ PV.1499 (December 19, 1966) (statement by the representative of Italy, “Finally, this Treaty has one exploitation only as its aim, that of giving mankind all the possible benefits that can derive from the opening of a new immense frontier.”).

56 Rep. on its 56<sup>th</sup> Sess., *supra* note 31 at 33 (§242, “...such activities should be considered for the benefit and in the general interest of all countries because of the technological progress and scientific advancements flowing from such activities.”).

57 Article II, OST.

58 Brendan Cohen, *Use versus Appropriation of Outer Space: The Case for Long Term Occupancy Rights*, 57 I.I.S.L PROC. 35, 36 (2014).

59 Cepelka, *supra* note 31, at 33.

60 Stephen Gorove, *The 1980 Session of The U.N. Committee on The Peaceful Uses Of Outer Space: Highlights Of Positions On Outstanding Legal Issues*, 8 JOURNAL OF SPACE LAW 182 (1980) citing the Columbian representative, “the fact that there might be an allocation of satellite orbits in perpetuity was at variance with international law”.

Occupancy stretches only till the space object is functional.<sup>61</sup> Claims over the territory occupied by a space object after the loss in functionality amount to a claim in perpetuity.<sup>62</sup> Even in the GSO, States are required to de-orbit any satellite which has reached its end of life.<sup>63</sup>

20. In the present case, the equipment of the *Novum Organum-1* has reached the end of its functionality.<sup>64</sup> Thus, Titan's interest in the exploration site would amount to *de facto* appropriation due to its claim in perpetuity over the tracts of the lunar territory.<sup>65</sup>

## II. **Non-material interests are not protected under space law.**

21. Titan may claim that the *Novum Organum-1* site is their cultural heritage and seek its preservation. However, States cannot claim exploration sites, in outer space, to be cultural heritage since such claims are tied to territoriality.<sup>66</sup> This territoriality would violate the freedom of exploration and "access to all areas" of other States,<sup>67</sup> as well as the principle of non-appropriation,<sup>68</sup> and interfere with activities of other States.<sup>69</sup> Lastly, States cannot extend cultural property rights to outer space since cultural property implies a "duty to pass them on to successors".<sup>70</sup> However, this very concept of "heritage" which gives a

61 Cohen, *supra* note 58, at 40.

62 René Mankiewicz, *Interventions with Respect to Permanent Stations on the Moon*, 11 I.I.S.L. PROC., 163, 163 (1968).

63 G.A. Res. 60/99, GAOR, 60<sup>th</sup> Sess. U.N. Doc. A/RES/60/99 (2005); UNCOPUOS, *Compendium Space Debris Mitigation Standards Adopted by States and International Organisations*, [www.unoosa.org/documents/pdf/spacelaw/sd/Space\\_Debris\\_Compendium\\_COPUOS\\_10\\_January\\_2017.pdf](http://www.unoosa.org/documents/pdf/spacelaw/sd/Space_Debris_Compendium_COPUOS_10_January_2017.pdf) (2017).

64 *Compromis* § 2 and 21.

65 Clarification, at 20; Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37(3) FORDHAM L. REV. 349, 352 (1999).

66 Convention Concerning the Protection of the World Cultural and Natural Heritage, 16 November 1972, 1037 UNTS 151; UNIDROIT Convention On Stolen or Illegally Exported Cultural Objects, 24 June 1995, 34 ILM 1322.

67 Article I, OST; Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Record, 5<sup>th</sup> Sess., 7, U.N. Doc. A/AC.105/C.2/SR.57 (October 24, 1966) (statement by the representative of USA confirms that there exists an "explicit guarantee of open access to all areas of celestial bodies, a provision which flowed naturally and logically from prohibition of claims to territorial claims.").

68 Article II, OST.

69 Article IX, OST.

70 Lyndel Prott & Patrick O'Keefe, 'Cultural Heritage' or 'Cultural Property'?, 1 INT'L J OF CULTURAL PROP 307, 311 (1992); Janet Blake, *On Defining the Cultural Heritage* 49 ICLQ 61, 69 (2000).

patrilineal right to outer space was rejected by space faring nations by not signing the Moon Agreement.<sup>71</sup>

22. Even if Titan's interest is recognized as legitimate under law, *ex aequo et bono* allows the ICJ to consider factors beyond the law.<sup>72</sup> In the present case, the ICJ must consider the non-functionality of the *Novum Organum-1* site. Perovsk's right to use the Moon for its lawful purposes should not be hampered by the presence of non-functional debris. Even within the law, the Liability Convention does not provide compensation for damages of a non-material character.<sup>73</sup> In space, the damage must impair the functionality of the object or destroy it.<sup>74</sup> All interests held by Titan in the preservation of the *Novum Organum-1* site are non-material in nature.<sup>75</sup> Thus, Perovsk material interests must be given precedence.
23. Moreover, the protection of material interests in outer space over non-material interests would serve to promote space-faring and the use of space resources. A majority of developing countries are on the verge of developing space-faring capabilities.<sup>76</sup> Their interests in exploration and exploitation would be severely compromised if the non-material interests of other nations were given precedence over their existing material interests. Therefore, Perovsk must not be compelled to cease its activities.

## 2. TITAN VIOLATED INTERNATIONAL LAW BY FAILING TO DISCLOSE ITS DISCOVERIES ON THE MOON.

24. Titan discovered ilmenite on the Moon and failed to disclose it to the international community.<sup>77</sup> States are obligated to disclose information regarding their space activities to the greatest extent feasible and practicable.<sup>78</sup> Titan's failure to disclose constitutes a breach of its obligations.

71 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 12<sup>th</sup> Sess., (April 27, 1973) U.N. Doc. A/AC.105/115; KEMAL BALSAR, THE CONCEPT OF THE COMMON HERITAGE OF MANKIND 125-127 (1998); *International Space Activities, 1979: Hearings Before the Subcomm. on Space Science & Applications of the H. Comm. on Science & Technology*, 96th Cong., 219 (1979) (statement by Alexander Haig, ratification "would doom any private investment directed at space resource exploration.").

72 Trackman, *supra* note 37, at 636; Pellet, *supra* note 39, at 793.

73 Carl Q. Christol, *International Liability for the Damage Caused by Space Objects*, AM. J. INT'L LAW 368 (1980); VALERIE KAYSER, LAUNCHING OBJECTS: ISSUES OF LIABILITY AND FUTURE PROSPECTS 44 (2001).

74 KAYSER, *id.* at 43.

75 *Compromis* § 2 and 21.

76 Francis Lyall, *Small States and Space*, 49<sup>th</sup> I.I.S.L. PROC. (2006).

77 *Compromis* § 11.

78 Article XI, OST.

25. Perovsk submits *first*, the available circumstantial evidence serves as sufficient proof for the alleged act [A]; *second*, the ICJ can adjudicate on the non-fulfilment of the disclosure norms [B]; *third*, disclosure norms are subject to good-faith obligations, which were not fulfilled by Titan [C].

**A. The available circumstantial evidence serves as sufficient proof of Titan's discovery of ilmenite.**

26. The ICJ's approach to the admissibility of evidence has been flexible.<sup>79</sup> This is supported by the substantial weight given to circumstantial evidence in the *Corfu Channel* case,<sup>80</sup> wherein the parties were allowed to take "liberal recourse to inferences of fact and circumstantial evidence".<sup>81</sup> Perovsk submits that *first*, in the present case, the ICJ may give reasonable weight to circumstantial evidence [I]; and *second*, the circumstantial evidence is sufficient to prove the discovery of minerals by Titan [II].

**I. In the present case, the ICJ may give reasonable weight to circumstantial evidence.**

27. In the *Corfu Channel* case, the ICJ allowed the parties to resort to circumstantial evidence if two conditions were met.<sup>82</sup> *First*, the direct evidence must be within the exclusive control of the opposite party and *second*, the circumstantial evidence must not contradict known facts.

28. Titan has the sole control over any direct evidence of the activities of the rover. Further, none of the circumstantial evidence provided below,<sup>83</sup> contradict the *Compromis*. Moreover, Titan has failed to furnish any direct evidence contradicting the evidence provided by Perovsk.

**II. The circumstantial evidence sufficiently proves the alleged discovery of minerals by Titan.**

29. The ICJ permits liberal inferences from circumstantial evidence, when the direct evidence is in the control of the other party.<sup>84</sup> The ICJ allowed any proof from such inferences in the *Corfu Channel* case only if they left no room for "reasonable doubt".<sup>85</sup>

79 MICHAEL P. SCHARF & MARGAUX DAY, RECONCILABLE DIFFERENCE: A CRITICAL ASSESSMENT OF THE INTERNATIONAL COURT OF JUSTICE'S TREATMENT OF CIRCUMSTANTIAL EVIDENCE, 2 (2010), [http://works.bepress.com/michael\\_scharf/2](http://works.bepress.com/michael_scharf/2).

80 *Corfu Channel* (United Kingdom v. Albania) (Merits) 1949 I.C.J. 4 (Apr. 9) [*Corfu*].

81 *Corfu, id.*, at 18.

82 Scharf, *supra* note 79, at 6.

83 *infra* § 31-36.

84 *Corfu, supra* note 80, at 18.

85 *Corfu, supra* note 80, at 18.

30. However, Perovsk submits that the ICJ must set a lower standard of proof for establishing the present allegation, and subsequent State responsibility. ICJ's evidentiary practices, including that of the desirable standard of proof in a given case, are flexible and vary in accordance with the needs and gravity of the dispute and the allegations made.<sup>86</sup>
31. The high "beyond reasonable doubt" standard, laid down for a dispute regarding compensation for loss of life and property caused due to minefields in Albania's territorial waters, is not appropriate for the present issue of non-disclosure of discoveries. Further, the ICJ, in the *Crime of Genocide* case, has also stated that any inference about a State's intent must be "convincingly shown".<sup>87</sup> However, this evidentiary standard must also be restricted to the imputation of intent on a State for grave crimes like genocide.
32. In light of that, regard must further be had to the less grave nature of the present allegation and the particularly volatile conditions that operate in outer space. These conditions reduce the likelihood of collection and survival of sufficient evidence to satisfy a high standard of proof. Thus, mandating a high standard would "render the proof unduly exacting."<sup>88</sup> Therefore, Perovsk submits that the lower standard of "preponderance of probabilities", that has been utilized in international law in multiple disputes,<sup>89</sup> is appropriate in the present case.
33. In 2021, Titan was under significant pressure to find lunar samples. Consequently, Titan launched a rover capable of collecting and analysing lunar samples.<sup>90</sup> The rover's distinctive tread pattern was found near *multiple* ilmenite deposits.<sup>91</sup> These factors taken together, upon a balance of probabilities, point to Titan's discovery of ilmenite. Further, it must be noted that Titan has failed to produce any records of the activities of the

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86 James A. Green, *Fluctuating Evidentiary Standards for Self-Defence in the International Court of Justice*, INTERNATIONAL AND COMPARATIVE LAW QUARTERLY; Carl Q. Christol, *International Liability for the Damage Caused by Space Objects*, 58(1) AM J. INT'L LAW 163, 166 (2009); Charles N. Brower, *Evidence Before International Tribunals: The Need for Some Standard Rules*, 28(1) THE INTERNATIONAL LAWYER 47, 48 (1994); CHITTHARANJAN F. AMERASINGHE, EVIDENCE IN INTERNATIONAL LITIGATION, 232 (2005).

87 *Bosnian Genocide (Bosnia and Herzegovina v. Serbia and Montenegro)*, ICJ Reports (2007) § 373.

88 *Norwegian Loans (France v. Norway) (Merits)*, I.C.J. Reports (1957) (July 6) (separate opinion by Lauterpracht, J.) 39-40; Kenneth P. Yeager (*Yeager v. Iran*), 17 Iran U.S. CTR, 108 (1987).

89 *Combustion Engineering (Combustion Engineering Inc. v. Iran)*, 26 Iran U.S. CTR, 79-80 (1991); *Schering Corporation (Schering Corp. v. Iran)*, 5 Iran U.S. CTR, 178 (dissenting opinion by Mosk, J.) (1984); *Sea Land Service (Sea Land Service Inc. v. Iran)*, 6 Iran U.S. CTR, 178 (dissenting opinion by Holtzmann, J.) (1984).

90 *Compromis* § 9.

91 *Compromis* § 11.



rover. This is evidence that can be reasonably expected to exist, and be in the exclusive control of Titan. This must lead the ICJ into forming a further inference adverse to Titan, regarding the assessment of the evidence adduced in the dispute.<sup>92</sup>

34. Therefore, the circumstantial evidence, when seen in its entirety and in combination with the non-production of evidence by Titan, sufficiently proves that the alleged discoveries were made by the Titanite rover.

**B. The ICJ can adjudicate on the non-fulfilment of disclosure norms.**

35. Titan may argue that the disclosure norms are self-judging, and are thus not subject to adjudication by the ICJ. However, Perovsk submits that in the absence of any phrase conferring absolute discretion on the Sovereign in Article XI,<sup>93</sup> performance by the ICJ. The assessment is, thus, not merely a function of the subjective judgment of the States.<sup>94</sup>
36. The *travaux préparatoires* confirm this proposition. Disclosure norms serve two broad purposes – ensuring demilitarization and dissemination of scientific findings.<sup>95</sup> The US representative pointed out that making the obligation completely voluntary will defeat the purposes of the provision and the idea of “common province of mankind” laid down in the OST.<sup>96</sup> The LSC accepted this proposition.
37. Further, in the absence of any mechanism to review the performance of Article XI, the first purpose of ensuring the observance of demilitarization of outer space<sup>97</sup> would remain unfulfilled.<sup>98</sup> Therefore,

92 Fritz (J. Fritz & Co. v. Sherkate Tavonie), 22 Iran U.S. CTR, 189-190 (dissenting opinion by Allison, J.) (1989); Protiva (Protiva v. Iran), 31 Iran U.S. CTR, 110-115 (1995); Birnbaum (H. Birnbaum v. Iran), 29 Iran U.S. CTR, 280 (1993); Marvin Feldman v. United Mexican States, ICSID Case No. ARB(AF)/99/1, at 625 (2003); McCurdy (United States v. Mexico), 1929 Opinions of Commissioners, 141; Pomeroy’s El Paso Transfer Co. Case (United States v. Mexico), 1931 Opinions of Commissioners, 6.

93 Article XI, OST.

94 Oil Platforms (Iran v. United States) (Merits) 2003 I.C.J. 161, 183 (Nov. 6); Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States) (Merits) 1986 I.C.J. 14, 141 (June 27).

95 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 65<sup>th</sup> mtg., July 22, 1966, 5, U.N. Doc. A/AC.105/C.2/SR.65 (October 24, 1966); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 70<sup>th</sup> mtg., August 3, 1966, 3, U.N. Doc. A/AC.105/C.2/SR.70 (October 21, 1966).

96 Rep. on its 5<sup>th</sup> Sess., *supra* note 88; Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 64<sup>th</sup> mtg., July 21, 1966, 11, U.N. Doc. A/AC.105/C.2/SR.64 (October 24, 1966); Article I, OST; Ksenia Shestakova, *The Dichotomy Between the Duty to Provide Information and Security Concerns of a State* 55<sup>th</sup> I.I.S.L PROC. (2012).

97 Article IV, OST.

98 BIN CHENG, *STUDIES IN INTERNATIONAL SPACE LAW*, 253 (1997).

interpreting the provision in line with its ordinary meaning and in light of its object and purpose,<sup>99</sup> the ICJ has the power to adjudicate on the non-fulfilment of disclosure norms.

**C. Disclosure norms are subject to good faith obligations, which are not fulfilled by Titan**

38. Titan's performance of Article XI is reviewable on the grounds of good faith.<sup>100</sup> A performance, in good faith, must be consistent with the object and purpose of the treaty. Article I, OST sets up a normative framework and is a clear codification of the object of the treaty.<sup>101</sup> Article I prescribes that outer space is free to use by all member States without discrimination.<sup>102</sup> Therefore, any non-disclosure by a sovereign, under Article XI for the purposes of disallowing or discriminating against a particular sovereign from freely utilizing outer space is a breach of good faith.
39. In the present case, statements by Titan's officials,<sup>103</sup> and the political discourse in Titan,<sup>104</sup> clearly indicate that Titan's non-disclosure of ilmenite is targeted towards preventing Perovsk from exercising its legal right of lunar resource exploitation.<sup>105</sup> Therefore, Titan's non-disclosure is discriminatory and violates the freedom envisaged under Article I of the OST. Hence, Titan has breached its international obligation of performing the OST in good faith.
40. At the minimum, Titan was required to furnish reasons in good faith for the non-fulfilment of its obligation and to show that the reasons fell under the exceptions allowed under the disclosure norms.<sup>106</sup> In the immediate instance, no responsible authority from Titan issued any official statement providing any reasons for the non-disclosure. Thus, Titan has violated International law by failing to disclose its discoveries.

**3. TITAN IS LIABLE FOR THE DAMAGE TO THE PROCESSING STATION.**

41. In February 2027, a rover operated by Titan was sent from *Mondiale* for the purpose of an inspection. The rover collided with the processing

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<sup>99</sup> Article 31(1), VCLT.

<sup>100</sup> Article 26, VCLT; Stephen Schill & Robyn Brieese, "If the state considers": *Self-judging clauses in International dispute settlement*, 13 MAX PLANCK YEARBOOK OF UNITED NATIONS LAW, 61-140 (2009).

<sup>101</sup> Stephen Hobe, *Article I*, I COLOGNE COMMENTARY 10-12.

<sup>102</sup> Article I, OST.

<sup>103</sup> *Compromis* § 12.

<sup>104</sup> *Compromis* § 12.

<sup>105</sup> *Infra* § 12-18.

<sup>106</sup> *Certain Questions of Criminal Assistance in Criminal Matters (Djibouti v. France) (Merits)* 2008 I.C.J. 177, 229 (June 4).

station.<sup>107</sup> Perovsk submits that *first*, this collision is within the scope of the Liability Convention [A]; *second*, Titan is liable under Article III of Liability Convention [B]; and *third*, alternatively, Titan is liable under general International law [C].

**A. The collision is within the Scope of the Liability Convention.**

42. Perovsk submits that Titan is liable for the damage to the processing station because *first*, it is the launching State of the rover [I]; *second*, claims between co-launching States are allowed under the Liability Convention [II]; and *third*, Article III is applicable to the collision [III].

**I. Titan is a launching State of the rover.**

43. A “Launching State” includes a State party responsible for “procuring the launch” of the space object.<sup>108</sup> The State which procures a launch is one which requests the launch or is directly responsible for it.<sup>109</sup> The launch of the damage-causing rover was carried out at the request of Titan.<sup>110</sup> Thus, Titan is the launching State of the rover.

**II. Claims between co-launching states are allowed under the Liability Convention.**

44. The rover that caused damage to the processing station was launched from Perovsk’s *La Mancha* spaceport, on a Perovsk-operated rocket.<sup>111</sup> Therefore, Perovsk is a co-launching State of the rover.<sup>112</sup> Perovsk submits that its status as a co-launching State does not prejudice its claim under the Liability Convention.

45. Any interpretation of an International convention must not defeat its underlying purpose.<sup>113</sup> The Liability Convention is “victim-oriented” in nature and must be interpreted as such.<sup>114</sup> Article VII only expresses a bar

107 *Compromis* § 19.

108 Convention on International Liability for Damage Caused by Space Objects, *entered into force* Oct. 9, 1973, 24 U.S.T. 2389, Art 1(c) 961 U.N.T.S. 187 [Liability Convention]; Armel Kerrest, *Remarks on the Notion of a Launching State*, 42 I.I.S.L PROC. 308 (1999).

109 K.H. Böckstiegel, *The Term Launching State” in International Law*, 37 I.I.S.L PROC. 80, 81 (1994); William B. Wirin, *Practical Implications of Appropriate State-Launching State Definitions*, 37 I.I.S.L PROC. 109 (1994).

110 *Compromis* § 9.

111 *Compromis* § 9.

112 Article I(c), Liability Convention.

113 ULF LINDERFALK, ON THE INTERPRETATION OF TREATIES, 203 (2007) [LINDERFALK].

114 CHRISTOL *supra* note 28, at 211; CHENG, *supra* note 98, at 314.

- on nationals of a launching State claiming from that *particular* launching State.<sup>115</sup> Therefore, claims against other co-launching States are allowed.
46. Moreover, the Liability Convention only calls for joint liability when multiple States “jointly launch a space object”.<sup>116</sup> This provision must be interpreted ordinarily to refer only to damage arising during the process of the launching of the space object.<sup>117</sup> When the launching is complete and the space object is in outer space, the launching State is liable only if the damage is due to its “fault”.<sup>118</sup> Thus, joint liability in outer space can only arise when multiple co-launching States are at fault. Only a State which exercises jurisdiction and control over the space object can be responsible for fault.<sup>119</sup>
  47. In the present case, Titan, the ‘operator State’<sup>120</sup> and the ‘State of registry’<sup>121</sup> exercises sole jurisdiction over the space object.<sup>122</sup> Hence, Perovsk cannot be at fault for the operation of the rover and is not liable as a co-launching State. Therefore, its claim is admissible under the Liability Convention.
  48. Further, holding all launching States jointly liable for damage in outer space, irrespective of fault, would be inequitable as it would impose liability on one launching State due to the fault of another.<sup>123</sup> This would also imply that a launching State can be held absolutely liable *even* in outer space. Such a conclusion would frustrate the “fault” liability regime set up by Article III.<sup>124</sup>
  49. Additionally, such a declaration would be detrimental to space-faring. The boom in third-party launch service providers,<sup>125</sup> would be affected since they would be liable for any damage caused due to the object, irrespective of fault. This would be disproportionately harsh on the developing States, which form the majority of such providers.<sup>126</sup>

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115 Article VII, Liability Convention; CHENG *supra* note 98, at 308.

116 Article V(1), Liability Convention.

117 Motoko Uchitomi, *State Responsibility/Liability for “National” Space Activities*, 44<sup>th</sup> I.I.S.L. PROC. 51 (2001); Article 31(1), VCLT; LINDERFALK, *supra* note 113, at 203.

118 Article III, Liability Convention.

119 Article 2, Articles on State Responsibility.

120 *Compromis* § 11.

121 Clarification, at 18.

122 *Compromis* § 11.

123 Ricky J. Lee, *Liability arising from Article VI of the Outer Space Treaty*, 48<sup>th</sup> I.I.S.L. PROC. (2005).

124 Article III, Liability Convention.

125 ROBERT C. HARDING, *SPACE POLICY IN DEVELOPING COUNTRIES*, 73 (2012).

126 Lyall, *supra* note 76; Ajay Lele, *India and the satellite launch market*, INSTITUTE OF DEFENSE STUDIES AND ANALYSIS (2015).

50. Therefore, Perovsk's status as a co-launching State of the rover does not prejudice its claim for damage in the present dispute, under the Liability Convention.

**III. Article III of the Liability Collision is applicable to the collision.**

51. Titan might argue that the collision is out of the scope of Article III since the damaged processing station was never launched, thus disqualifying Perovsk from claiming damages as a 'launching State'. However, such an interpretation is narrow, and must be discarded.
52. All international instruments must be interpreted in an evolutive manner.<sup>127</sup> The evolutive interpretation of treaties recognizes that the application of legal instruments must evolve with time, lest they lose relevance.<sup>128</sup> The common intention of parties must be upheld in all evolutive interpretation of treaties.<sup>129</sup> In this scenario, disqualifying Perovsk from claiming would be contrary to the intention of the parties at the time of drafting.
53. In the 7<sup>th</sup> session of the LSC, the phrase "space object of a launching State" was added in order to ensure a link of traceability to facilitate claims.<sup>130</sup> Further, since there could be multiple launching States, the addition of the phrase was to ensure that any State which could possibly be affected by the damage to a space object had the opportunity of compensation. Therefore, the common intention of the parties was to broaden the scope of possible claims by the addition of this phrase, and not narrow it.<sup>131</sup> This is consistent with the "victim-oriented" nature of the Liability Convention.<sup>132</sup>
54. In the present case, the link of traceability between Perovsk and the processing unit is clear. It exercises ownership and sole control over the equipment.<sup>133</sup> Further, Perovsk only State monetarily disadvantaged by the loss of functionality of the unit. Disallowing it from claiming under the Liability Convention would be against the intention of the drafters. Therefore, it must be allowed to claim under Article III.

127 EIRIC BJØRGE, *THE EVOLUTIONARY INTERPRETATION OF TREATIES* 60 (2014).

128 *Dispute regarding Navigational and Related Rights (Costa Rica v. Nicaragua)*, 2009 I.C.J. 213 (July 13).

129 *Draft Report of the International Law Commission on the Work of its Sixty-Fifth Session*, A/CN.4/L.819/Add.1, 18 (2013).

130 *Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 7<sup>th</sup> Sess., 4<sup>th</sup> June-18<sup>th</sup> June 1968*, Annex II, 19 U.N. Doc. A/AC.105/C.2/SR.101 (June 17, 1968).

131 Julian Hermida, *International responsibility for space activities*, The Hague, London and Boston: Kluwer Academic Publishers, 2004.

132 *infra* at § 51.

133 *Compromis* § 11.

## **B. Titan is liable under Article III of the Liability Convention.**

55. Article III only imputes liability for accidents in outer space on the basis of “fault”.<sup>134</sup> Perovsk submits that *first*, fault is a breach of due diligence [I]; *second*, Titan’s conduct in inspecting the processing station constitutes a breach of due diligence [II]; and *third*, Titan’s breach is the proximate cause of the damage [III].

### **I. Fault is a breach of due diligence.**

56. The term “fault” has not been defined under the Liability Convention. Its meaning must be ascertained through general International law.<sup>135</sup> Fault is interpreted as a negligent act in the circumstances,<sup>136</sup> an interpretation confirmed by the *travaux préparatoires*.<sup>137</sup> The failure to exercise due diligence constitutes negligence.<sup>138</sup> Due diligence is acting in a manner considered reasonable and prudent under the circumstances.<sup>139</sup> The standard for due diligence may be ascertained through prior obligations<sup>140</sup> or non-binding standards.<sup>141</sup>

### **II. Titan’s conduct in inspecting the processing station constitutes a breach of due diligence.**

57. Titan’s lack of notification to Perovsk before inspecting the processing station amounts to a breach of due diligence.<sup>142</sup> Due diligence obligates a

134 Article III, OST.

135 Article III, OST; Carl Q. Christol, *The Legal Common Heritage of Mankind: Capturing an Illusive Concept and Applying it to the World Needs*, 18<sup>th</sup> I.I.S.L PROC. 48 (1976).

136 HOWARD BAKER, SPACE DEBRIS: LEGAL POLICY AND IMPLICATIONS 84 (1989).

137 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 8<sup>th</sup> Sess., 9<sup>th</sup> June-4<sup>th</sup> July 1969, Annex II, 19 U.N. Doc. A/AC.105/58 (July 4, 1969); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on the 2<sup>nd</sup> part of its 3<sup>rd</sup> Sess., 5<sup>th</sup> Oct-23<sup>rd</sup> Oct, 1964, Annex II, 20 U.N. Doc. A/AC.105/21 (May 21, 1965).

138 Ram Jakhu, *Iridium-Cosmos Collision and its implications on Space Operation*, 52<sup>nd</sup> I.I.S.L PROC. (2009); Maria Flemme, *Due Diligence in International law*, 13 (2004).

139 Paul G. Dembling, *Establishing Liability for Outer Space Activities*, 13 I.I.S.L PROC. 87, 88 (1970); Howard Baker, *Liability for Damage Caused in Outer Space by Space Refuse*, 13 ANNALS AIR & SPACE L. 183 (1988).

140 *2<sup>nd</sup> Report*, ILA STUDY GROUP ON DUE DILIGENCE IN INTERNATIONAL LAW (2016); BIN CHENG, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS, 224 (1953).

141 JAMES CRAWFORD, BROWNIE’S PRINCIPLES OF PUBLIC INTERNATIONAL LAW, 561 (2012); Lotta Viikari, *Environmental Aspects of Space Activities*, HANDBOOK OF SPACE LAW, 735 (2015).

142 Riccardo Pisillo-Mazzeschi, *Due Diligence Rule and the Nature of International Responsibility of States*, in STATE RESPONSIBILITY IN INTERNATIONAL LAW 113, 136

- State to exercise reasonable preventive measures to minimize the potential harms to other States.<sup>143</sup> This obligation is customary International law.<sup>144</sup>
58. The extension of the principle of due diligence to outer space is essential,<sup>145</sup> given the ultra-hazardous nature of the activity.<sup>146</sup> Moreover, the OST has also recognized the applicability of general International law to outer space.<sup>147</sup> Thus, the duty to exercise due diligence in all activities extends to outer space.
59. Space activities are ultra-hazardous.<sup>148</sup> Therefore, the standard for meeting due diligence in the conduct of such activities is especially high.<sup>149</sup> Hence, any act of directing a rover specifically to another State's facilities with the particular intent of inspecting the same has the potential for harmful interference in that State's activities. This inherent safety threat posed by inspections was recognized unanimously in the LSC.<sup>150</sup> Notification prior to inspection was stipulated in the USSR draft in order to ensure the safest of environments. As the USSR representative pointed out, absolute freedom regarding the conditions of inspection was undesirable, because safety threats to personnel and processing stations had to be considered.<sup>151</sup>
60. As a spacefaring nation that was one of the first States to ratify the OST,<sup>152</sup> and has been conducting activities on the Moon since mid-1970s,<sup>153</sup> reasonable belief of this potential may be attributed to Titan.

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(Rene Provost ed., 2001); John Kelson, *State Responsibility for Abnormally Dangerous Activities* 13 HARV. INT'L L. J. 197, 238 (1972).

143 HACKETT, *supra* note 13 at 180; Stephen Gorove, *Liability in Space Law: An Overview*, 8 *Annals. Air & Space. L.* 376 (1983).

144 *Pulp Mills on the River Uruguay (Argentina v. Uruguay)* (Judgment) 2010 I.C.J. 14, 55 (Apr. 20); *Certain Activities Carried out by Nicaragua in the Border Area (Nicaragua v. Costa Rica)* (Merits) 2015 I.C.J. 1, 45 (December, 16) [Border Area].

145 Setsuo Aoki, *The Standard of Due Diligence in Operating a Space Object*, 55<sup>th</sup> I.I.S.L PROC. (2012).

146 C.W. Jenks, *Liability for Ultra-hazardous Activities*, RECUEIL DES COURS 147 (1966).

147 Article III, OST.

148 Jenks, *supra* note 146, at 147.

149 Pisillo-Mazzeschi, *supra* note 142 at 136; Kelson, *supra* note 142.

150 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 63<sup>rd</sup> mtg., July 20, 1966, 5, U.N. Doc. A/AC.105/C.2/SR.63 (October 20, 1966); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 64<sup>th</sup> mtg., July 21, 1966, 8, U.N. Doc. A/AC.105/C.2/SR.64 (October 24, 1966); Rep. on its 5<sup>th</sup> Sess., *supra* note 88.

151 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 63<sup>rd</sup> mtg., July 20, 1966, 5, U.N. Doc. A/AC.105/C.2/SR.63 (October 20, 1966).

152 *Compromis* § 2.

153 *Compromis* § 2.

Hence, Titan has breached its obligation to exercise due diligence and has acted negligently.

### III. Titan's breach is the proximate cause of the damage.

61. The Liability Convention imputes liability on a State only if the resulting damage is "due to its fault".<sup>154</sup> Thus, a State is liable for reparation only if the injury to the other State is *caused* by its actions.<sup>155</sup> This is confirmed by the *travaux préparatoires*.<sup>156</sup>
62. The test to determine causation is proximate causation.<sup>157</sup> This requires the satisfaction of two conditions.<sup>158</sup> *First*, the breach must be the *conditio sine qua non* of the damage [1];<sup>159</sup> and *second*, the damage must be a reasonably foreseeable result of the breach [2].<sup>160</sup>

1. *Titan's failure to exercise due diligence is the conditio sine qua non of damage.*

63. A *conditio sine qua non* refers to an event, *but for* which the damage would not have occurred.<sup>161</sup> As elaborated above, Titan's failure to notify and consult Perovsk before inspecting the processing station is a failure in exercising due diligence.<sup>162</sup> This failure is the *conditio sine qua non* of the damage.

154 Article III, Liability Convention.

155 H.L.A. HART & TONY HONORÉ, CAUSATION IN THE LAW (1985); Frans G. Von der Dunk, *Liability versus Responsibility in Space Law: Misconception or Misconstruction*, 34 I.I.S.L PROC. (1991); Alabama Claims, *supra* note 106.

156 "Belgium: Proposal Working paper on the unification of certain rules of liability for damages caused by space devices" (1963) at U.N. Doc Annex II, 19 U.N. Doc A/AC/C.2/L.7 (1963).

157 War-Risk Insurance Premium Claims Arbitration, (United States v. Germany) 7 R.I.A.A. 44, 55 (1923); Bernhard Graefrath, *Responsibility and Damages Caused: Relationship between Responsibility and Damages*, 185 RECUEIL DES COURS 9 (1984).

158 Article 31, *Commentary to ILC Draft Articles on Responsibility of States for Internationally Wrongful Acts*, 2(2) ILC Yearbook (2001) 31.

159 RENÉ LEFEBER, TRANSBOUNDARY ENVIRONMENTAL INTERFERENCE AND THE ORIGIN OF STATE LIABILITY, 89 (1996); HART & HONORÉ, *supra* note 155.

160 Special Rapporteur on State Responsibility, Second Report of the Special Rapporteur, 16-17, UN Doc. A/CN.4/425 & Corr.1 and Add.1 & Corr.1 (June 9, 22, 1989); Rep. of the International Law Commission, 58<sup>th</sup> session, May 1-June 9, July 3-August 11, 2006, 157 U.N.Doc. (A/56/10); GAOR, 61<sup>st</sup> Sess., Supp. No. 10 (2006); HART & HONORÉ, *supra* note 162, at 254-290.

161 Glanville Williams, *Causation in Law*, 19 CAM. L. J 62, 63 (1961); 9 Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v. Serbia and Montenegro), ICJ Reports (2007) § 462.

162 *Infra* § 63-66.



64. Titan's lack of knowledge regarding the steepness of the lunar regolith,<sup>163</sup> near the processing station was a major contributor,<sup>164</sup> *but for* which, the accident would not have occurred. Titan's consultation with Perovsk regarding the inspection would have reasonably ensured Titan's cognizance of this steepness. This would have allowed Titan to make the necessary changes in the rover's path of approach. The changes would have ensured that even in the event of a communication failure rendering the rover inoperable, the unnatural steepness would not cause it to collide with the processing station. Hence, Titan's failure to hold appropriate consultations before the inspection is the *conditio sine qua non* of the damage.

2. *The damage is a reasonably foreseeable result of the breach.*

65. Proximate causation only requires the general class of harm to be foreseeable, not the clear prediction of specific harm.<sup>165</sup> Consequences are reasonably foreseeable if they are probable results of an act.<sup>166</sup> Titan has breached their obligation of conduct by not exercising due diligence in their targeted inspection.<sup>167</sup> The conclusion that a broad class of damage might result as a consequence of this failure is reasonably foreseeable.<sup>168</sup> Moreover, the risk of damage resulting from erroneous conduct, however slight, cannot be ignored.<sup>169</sup> Thus, Titan is not justified in ignoring the risk of damage resulting from its wrongful conduct. The consequence that damage could result from erroneous conduct is reasonably foreseeable.

66. The foreseeability of damage, in this case, is not affected by the "minor solar event".<sup>170</sup> Intervening natural phenomenon must not mitigate the liability of States in outer space. All activities in outer space are, *a priori*, known to be susceptible to various natural phenomena.<sup>171</sup> Minor natural

163 *Compromis* § 20.

164 *Compromis* § 20.

165 Luke Punnakanta, *Space Torts: Applying Nuisance and Negligence to Orbital Debris*, 86 SOUTHERN CALIFORNIA LAW REVIEW, 182, 183 (2012); RODA VERHEYEN, CLIMATE CHANGE DAMAGE AND INTERNATIONAL LAW: PREVENTION DUTIES AND STATE RESPONSIBILITY, 180 (2005).

166 Naulilaa Arbitration, (Portugal v. Germany), 2 R.I.A.A. 1011, 1013 (1928); Dix Arbitration (United States v. Venezuela), 9 R.I.A.A. 119, 121 (1903).

167 *infra* § 63-66.

168 Punnakanta, *supra* note 165.

169 Wagon Mound (No. 2), [1967] 1 AC 617; Samoan Claims (Germany, Great Britain, United States) IX R.I.A.A. 23 (12 October 1902).

170 *Compromis* § 20.

171 JENKS, *supra* note 31; MCDUGAL, LASSWELL & VLASIO, LAW AND PUBLIC ORDER IN SPACE 615, 616 (1963).

- disturbances, although rare, are considered foreseeable.<sup>172</sup> Even in the Articles of State Responsibility, *force majeure* only precludes responsibility when the circumstance has prevented a State from exercising its obligation.<sup>173</sup> Particularly, when a State has voluntarily acted in a wrongful manner, these disturbances are considered concurrent causes,<sup>174</sup> which do not mitigate its liability.<sup>175</sup>
67. It would be detrimental to the interests of the wronged State if the mere interference of foreseeable natural phenomena was enough to offset a claim for compensation. This would also go against the object and purpose of the Liability Convention as a “victim-oriented” treaty.<sup>176</sup> Hence, any damage in outer space must be considered reasonably foreseeable if it is proven that the risk of damage, however small, existed and is inherent in that particular wrongful action by the State.<sup>177</sup>
68. The *travaux préparatoires* supports this conclusion. The LSC agreed that the rarity of natural phenomena could not endanger a claim for compensation.<sup>178</sup> Damages from a satellite felled by lightning were deemed recoverable.<sup>179</sup> Thus, damage is considered foreseeable even if a low probability event materializes as such risks are inherent in space activities.<sup>180</sup>
69. A collision is a reasonably foreseeable consequence of the rover’s physical visit to the processing station. Titan has voluntarily breached its obligation to notify Perovsk,<sup>181</sup> which has precluded the parties from creating the safest environment possible for the inspection. The interference caused due to a foreseeable “minor solar event”,<sup>182</sup> does not render the damage

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172 ANTONIO CASSESE, INTERNATIONAL LAW, 251 (2<sup>nd</sup> Ed. 2005); Christol, *supra* note 73, 365.

173 Article 23, *Commentary to ILC Draft Articles on Responsibility of States for Internationally Wrongful Acts*, 2(2) ILC Yearbook (2001) 31 at 64.

174 *Id.*

175 The ‘John’ (United States v. Great Britain), Commission under the Convention between the United States and Great Britain of February 8, 1853 (4 November 1864), reprinted in Article de la Pradelle and N. Politis, R.I.A.A., vol. 1 (1905), at 748.

176 *Supra* note 132.

177 Special Rapporteur on International Liability, *Third Report of the Special Rapporteur*, International. Law Comm., 58, U.N. Doc DA/CN.4/360 (Jun. 28, 1982) (by Robert Quentin-Baxter).

178 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 4<sup>th</sup> Sess., 50<sup>th</sup> mtg., September 28, 1965, 7, U.N. Doc. A/AC-105/C.2/SR.50 (Nov. 30, 1965).

179 *Id.*

180 Rep. on its 4<sup>th</sup> Sess., *supra* note 190.

181 *infra* § 63-66.

182 *Compromis* § 20.

unforeseeable. The “minor solar event” is, at best, a concurrent cause,<sup>183</sup> and the presence of concurrent causes do not affect the amount of reparation owed by the liable State.<sup>184</sup>

70. Thus, Titan’s unlawful act is the *conditio sine qua non* of the damage and the damage is a foreseeable consequence of the breach. Hence, Titan’s actions are the proximate cause of the damage to the processing station. Therefore, Titan is liable under Article III of the Liability Convention.

### C. In any case, Titan is liable under general International law.

71. Perovsk is entitled to claim damages under general International law.<sup>185</sup> In the *Corfu Channel* case, the ICJ declared that a State is liable for damages when the breach of an international obligation is attributable to a State.<sup>186</sup> Further, there needs to be a causal link between the unlawful act and the harm suffered. Each of these applies to Titan, making it liable for the damage caused.<sup>187</sup>
72. Titan’s failure to notify and consult before inspecting the processing station constitutes a breach of due diligence.<sup>188</sup> Moreover, the *Trail Smelter Arbitration*,<sup>189</sup> established that every State has a duty not to cause damage to the property of other States. The breach of this obligation is a wrongful act.<sup>190</sup> Thus, Titan’s act of sending the damage-causing rover is attributable to it. There is a clear and causal link between the wrongful act and the damage. Therefore, Titan is liable under general International law.

### SUBMISSIONS TO THE COURT:

For the foregoing reasons, the Republic of Perovsk, the Applicant, respectfully requests the ICJ to adjudge and declare that:

1. Perovsk was under no obligation to notify or consult Titan about activities at the *Tekla Station*.
2. Under the principles of *ex aequo et bono*, Perovsk has the right to continue its activities on the Moon.

183 Ilias Plakokefalos, *Causation in the Law of State Responsibility and the Problem of Overdetermination: In Search of Clarity*, EJIL (2015) 26(2): 471-492; Leon-Castallanos Jankiewicz, *Causation and International State Responsibility*, ACIL RESEARCH PAPER NO 2012-07 (2007).

184 *Id.*

185 Article XXIII(1), Liability Convention.

186 *Corfu*, *supra* note 80.

187 *Factory at Chorzów (Germany v. Poland)*, 1928 P.C.I.J. (ser. A) No. 17 (Sept. 13).

188 *Infra* § 63-66.

189 *Trail Smelter Arbitration (United States v. Canada)* 3 R.I.A.A. 1905 (1938).

190 CHENG, *supra* note 140 at 436.

3. Titan violated International law by failing to disclose its discoveries on the Moon.
4. Titan is liable for the damage to Perovsk's property on the Moon.

### **ARGUMENT OF RESPONDENT, THE REPUBLIC OF TITAN**

#### **1. PEROVSK VIOLATED INTERNATIONAL LAW BY FAILING TO CONSULT TITAN.**

1. Perovsk has placed regolith processing equipment [hereinafter, "processing station"] on the Sea of Tranquility.<sup>1</sup> The processing stations have been releasing trace amounts of oxygen into the lunar atmosphere as a by-product of processing the lunar regolith.<sup>2</sup> This has caused disruption in and harmful interference with Titan's peaceful use of outer space.<sup>3</sup> The pulverization of regolith has also led to the despoliation of the pristine lunar environment and the priceless and previously intact *Novum Organum-1* site.<sup>4</sup>
2. Perovsk withdrew from the Outer Space Treaty [hereinafter, "OST"],<sup>5</sup> on January 28<sup>th</sup> 2027.<sup>6</sup> According to the Vienna Convention on the Law of Treaties,<sup>7</sup> [hereinafter, "VCLT"], Perovsk's withdrawal from the OST has led to the termination of all *further* obligations to perform the treaty as between Perovsk and every other State Party to the treaty, including Titan. However, withdrawal from a treaty does not affect the legal situation of the parties *retroactively*.<sup>8</sup> Thus, Perovsk is still responsible for breaching its obligations under the OST, prior to its withdrawal. Perovsk's processing stations, set up in 2025,<sup>9</sup> have been releasing Oxygen in quantities sufficient to account for the interference in *Mondiale's* atmospheric experiments.<sup>10</sup>
3. *Inter alia*, the OST obliges States to exercise "due regard" to the corresponding interests of other States, in outer space.<sup>11</sup> The principle of

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1 *Compromis* § 15.

2 *Compromis* § 21.

3 *Compromis* § 21.

4 *Compromis* § 21.

5 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *entered into force* Oct. 10, 1967, U.S.T. 2410, 610 U.N.T.S. 205 [OST].

6 *Compromis* § 18.

7 Vienna Convention on the Law of Treaties, *entered into force* Jan. 27, 1980 Article 70(1)(a) *read with* Article 70(2), 1155 U.N.T.S., 331 [VCLT].

8 Herve Ascensio, *Article 70, Convention of 1969*, in II THE VIENNA CONVENTION ON THE LAW OF TREATIES: A COMMENTARY 1585, 1589 (Olivier Corten & Pierre Klein, eds. 2011).

9 *Compromis* § 15.

10 *Compromis* § 21.

11 Article IX, OST.

“due regard” requires a State to exercise a certain standard of care in the use of outer space.<sup>12</sup> Due to the ultra-hazardous nature of outer space,<sup>13</sup> this standard is especially high.<sup>14</sup> The exercise of ‘due regard’ primarily includes following the obligations of conduct laid down in the OST.<sup>15</sup> The OST obliges States to hold appropriate consultations when their activities may cause potentially harmful interference to the activities of other States.<sup>16</sup>

4. Titan, thus, submits *first*, Perovsk had reason to believe that its planned activities would cause potentially harmful interference in Titan’s space activities [A]; and *second*, the onus of consultation lay on Perovsk, and not Titan [B]. Therefore, by failing to consult Titan, Perovsk has violated International law.

**D. Perovsk had reason to believe that the activities at the Tekla station would cause potentially harmful interference with Titan’s space activities.**

5. A potential for harmful interference may arise from physical proximity as well, in addition to the nature of the activity.<sup>17</sup> Perovsk placed its processing equipment around 15 km away from Titan’s *Mondiale* station. Prior to its launch, Perovsk had conducted a thorough review of *Mondiale*’s technical capabilities, including its lunar atmosphere testing facilities.<sup>18</sup> Therefore, Perovsk was the unique position to possess sufficient knowledge of Titan’s testing activities. Despite such knowledge and close proximity with the *Mondiale*, Perovsk set up its equipment. Their knowledge and basic scientific facts about the lunar atmosphere would give it reason to believe that the release of Oxygen during processing may potentially interfere with Titan’s activities.

12 Sergio Marchisio, *Article IX*, in I COLOGNE COMMENTARY ON SPACE LAW 175 (Stephan Hobe *et al.* eds. 2009).

13 C.W. Jenks, *Liability for Ultra-Hazardous Activities in International Law*, 117 RECUEIL DES COURS, 99, 147 (1966).

14 Riccardo Pisillo-Mazzeschi, *Due Diligence Rule and the Nature of International Responsibility of States*, in STATE RESPONSIBILITY IN INTERNATIONAL LAW 113, 136 (Rene Provost ed., 2001); John Kelson, *State Responsibility for Abnormally Dangerous Activities* 13 HARV. INT’L L. J. 197, 238 (1972).

15 Paul G. Dembling, *Principles of Space Law: Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies*, in I MANUAL ON SPACE LAW 21 (Nandasiri Jasentuliyana & Roy S.K. Leeds 1979).

16 Article IX, OST; Dr. Istvan Herczeg, *Introductory Report: Provisions of the Space Treaties on Consultations*, 17<sup>th</sup> I.I.S.L PROC. 141, 142-143 (1974).

17 D. Goedhuis, *Legal Aspects of the Utilization of Outer Space*, 17(1) NETH. INT’L L. REV. 25, 33 (1970).

18 *Compromis* § 5.

6. The processing activities have the potential to adversely affect the fragile lunar atmosphere. The fragility of the Moon's atmosphere and the need for its preservation in its optimal condition has been recognized by the UNCOPUOS.<sup>19</sup> The Moon's atmosphere has a low density, at only 100 molecules/cubic centimeters.<sup>20</sup> Thus, heavier molecules like Oxygen, which are being released by the processing stations, are retained in the Moon's atmosphere for long periods of time, increasing the probability and possibility of interference with Titan's activities.<sup>21</sup> Therefore, Perovsk's artificial injection of even small amounts of Oxygen into the atmosphere has the potential of seriously damaging its natural composition as well as interfering with *Mondiale's* research.
7. Additionally, the 'precautionary principle' precludes States from claiming scientific uncertainty concerning any hazardous effects of its activities as a reason for not carrying out measures to prevent adverse environmental impacts.<sup>22</sup> This principle has become part of customary International law,<sup>23</sup> and has been extended to outer space.<sup>24</sup>
8. Therefore, Perovsk had reason to believe that its pulverization may harmfully interfere with Titan's lunar atmosphere testing experiments.

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19 Report of the Committee on the Peaceful Uses of Outer Space, U.N. GAOR, 66<sup>th</sup> Sess., U.N. Doc. A/66/20 (2011); Paul B. Larsen, *Application of the Precautionary Principle to the Moon*, 71 JOURNAL OF AIR LAW AND COMMERCE 295, 301 (2006).

20 NASA, *NASA Mission to Study the Moon's Fragile Atmosphere*, [https://science.nasa.gov/science-news/science-at-nasa/2009/23oct\\_ladeel/](https://science.nasa.gov/science-news/science-at-nasa/2009/23oct_ladeel/); Space.com, *Atmosphere of the Moon*, [www.space.com/18067-moon-atmosphere.html](http://www.space.com/18067-moon-atmosphere.html).

21 E.J. Opik & S.F. Singer, *Escape of Gases from the Moon*, 65(10) JOURNAL OF GEOPHYSICAL RESEARCH 3065 (October, 1960).

22 David Kriebel *et al.*, *The Precautionary Principle in Environmental Science*, 109(9) ENVIRONMENTAL HEALTH PERSPECTIVES 871, 871 (2001); James Cameron & Julie Abouchar, *The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment*, 14(1) BOSTON COLLEGE INTERNATIONAL AND COMPARATIVE LAW REVIEW 1, 2 (1991).

23 United Nations Conference on Environment and Development, *Rio Declaration on Environment and Development*, Principle 15, UN Doc. A/CONF.151/26 (June 14, 1992); Second International Conference on the Protection of the North Sea, *Ministerial Declaration*, of Nov. 24-25, 1987 Principle VII (London); Request for an Examination of the Situation in Accordance with Paragraph 63 of the Courts Judgment of 20 December 1974 in the Nuclear Tests Case, 1995 I.C.J. 288, 412 (Sep. 22) (dissenting opinion by Palmer, J.); Owen McIntyre & Thomas Mosedale, *Precautionary Principle as a Norm of Customary International Law*, 9(2) JOURNAL OF ENVIRONMENTAL LAW 221, 223 (1997); Olivier Ribbelink, *Article III*, in I COLOGNE COMMENTARY ON SPACE LAW 67 (Stephan Hobe *et al.* eds. 2009); MALCOLM N. SHAW, INTERNATIONAL LAW 72 (1977).

24 Article III, OST; Ribbelink, *id.* at 67; Larsen, *supra* note 19.

**E. The onus to conduct consultation lies on Perovsk, not Titan.**

9. In case a State's *planned activities* cause potentially harmful interference with another State's activities, the former State *shall* consult with the latter, while the latter *may* request consultations from the former.<sup>25</sup> Interpreting the terms in accordance with their ordinary meanings makes it clear that the obligation to consult lies on the State which begins its operations later in time, while the other State is merely allowed, and not *obligated*, to request a consultation.<sup>26</sup>
10. In the immediate instance, Titan's testing of the lunar atmosphere at the *Mondiale* station began from 2019,<sup>27</sup> and thus preceded the establishment of Perovsk's processing stations.<sup>28</sup> Therefore, the onus to conduct consultations lay with Perovsk, notwithstanding Titan's failure to request one. Thus, Perovsk is internationally responsible for failing to consult Titan.

**2. PEROVSK MUST BE COMPELLED TO CEASE ITS LUNAR ACTIVITIES, IMPERMISSIBLE APPROPRIATION OF THE MOON AND THE DESPOLIATION OF THE NOVUM ORGANUM-1 SITE.**

11. Perovsk is responsible for all of Fireskin's activities in outer space.<sup>29</sup> Its lunar activities consist of pulverizing the lunar regolith for its own material gains. The processing units intersect with the artefacts from the priceless and previously pristine *Novum Organum-1* site.
12. For this issue, both the Parties have expressly submitted to Article 38(2) of the Statute of the ICJ,<sup>30</sup> which allows the ICJ to decide *ex aequo et bono*.<sup>31</sup> This permits the ICJ to rely on principles of equity as well as considerations beyond the law.<sup>32</sup>
13. Accordingly, Titan submits that Perovsk must be compelled to cease its lunar processing and production activities because *first*, it amounts to the impermissible appropriation of the Moon [A] and *second*, it has led to the despoliation of the *Novum Organum-1* site [B].

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25 Article IX, OST.

26 Article 31, VCLT; J.G. Verplaetse, *International Consultation and the Space Law Treaties*, 11 I.I.S.L. PROC. 63, 65-66 (1968).

27 *Compromis* § 4, 5.

28 *Compromis* § 15.

29 Article VI, OST; G.A. Res. 68/74, GAOR, 68<sup>th</sup> Session, U.N. A/Res/68/74 (2013) § 2.

30 *Compromis* § 24.

31 Article 38(2), Statute of the International Court of Justice (1945); Indo-Pakistan Western Boundary (India v. Pakistan), 17 R.I.A.A. 1, 11 (1968).

32 *Infra* § 20.

## F. Perovsk's activities amount to impermissible appropriation of outer space.

14. States' freedom to "use" and "explore" outer space,<sup>33</sup> is limited by the principle of non-appropriation.<sup>34</sup> The principle of non-appropriation prohibits a State from taking resources from the Moon, including the "sub-soil of the heavenly bodies",<sup>35</sup> for its *exclusive* use and control.<sup>36</sup> This principle is *jus cogens*,<sup>37</sup> from which a State cannot, under any circumstance, deviate.<sup>38</sup>
15. Furthermore, subsequent State practice has confirmed unregulated space-resource mining as a form of appropriation.<sup>39</sup> This is seen in States' responses to USA's Space Resource Exploration and Utilization Act, 2015.<sup>40</sup> The Act allows private individuals to mine asteroids.<sup>41</sup> The legislation was discussed in the UNCOPUOS, and most States opposed such practice since it amounts to "either a claim of sovereignty or a national appropriation of those bodies and thus could constitute a violation of the Outer Space Treaty".<sup>42</sup> This extends the preemptory norm of non-appropriation to the mining of space resources and minerals as well.<sup>43</sup>
16. Admittedly, States are allowed to use the Geosynchronous Orbit [hereinafter, "GSO"] which is considered to be a limited natural resource due to limited slots.<sup>44</sup> However, an analogy between the GSO and *in-situ* resource utilization is untenable. This is because the GSO in itself is inexhaustible. Therefore, utilization by States does not prejudice the use by others, whereas minerals on the Moon are exhaustible. Further, even

33 Article I, OST.

34 Article II, OST; G.A. Res. 1721 (XVI), 16<sup>th</sup> Sess., U.N. Doc A/RES/1721 (1961).

35 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 10<sup>th</sup> Sess., 152<sup>nd</sup>- 169<sup>th</sup> mtg., August 3, 1966, 6, U.N. Doc. A/AC-105/C.2/SR.70 (June 29, 1971) (statement by the Representative of France).

36 Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 (3) *FORDHAM LAW REVIEW*. 349, 352 (1999); U.N. GAOR, 21<sup>st</sup> Sess., 1492 plen. mtg., at 47 U.N. Doc. A/C.1/PV.1492 (December 17, 1966) (Statement of the representative of Austria, "The legal principle that outer space is free for exploration and use by all States would indeed be of little value if enjoyment of that freedom could be destroyed by the use which a single State might make of it.").

37 Valérie Kayser, *Launching Space Objects: Issues of Liability and Future Prospects*, 26 (Ram Jakhu et al. eds. 2001).

38 Article 26, Articles on State Responsibility; Article 53, VCLT.

39 Article 31(3)(b), VCLT.

40 Space Resource Exploration and Utilization Act, 51 U.S.C. § 51303 (2015).

41 *Id.*

42 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 55<sup>th</sup> Sess., April 15, 2016) U.N. Doc. A/AC.105/C.2/L.298/Add.1, § 21.

43 *Id.*, at § 22 – 30.

44 Constitution of the International Telecommunications Union, *entered into force* July 1, 1994, ATS (1994) 28, BTS 24 (1996) Article 44 [ITU Constitution].



in the GSO, States are not permitted to use the orbit in perpetuity since any satellite registered by prior users “should not provide any *permanent* priority” over later users.<sup>45</sup> This is because any claim in perpetuity would amount to *de facto* appropriation of the GSO.<sup>46</sup>

17. Perovsk’s activities amount to appropriation by use. In the present case, the processed regolith serves to provide more solid habitat walls for a larger *Tekla* station.<sup>47</sup> Further, it seeks to test the feasibility of creating structural components for a launch site and refueling station to be operated by Fireskin.<sup>48</sup> This amounts to *exclusive* use and control by Perovsk. Further, the pulverization of ilmenite has depleted the ores.<sup>49</sup> This amounts to a claim *in perpetuity* over the pulverized ilmenite, and hence appropriation of the moon.<sup>50</sup>
18. Perovsk may contend that, *de lege lata*, extraction of resources from outer space is permissible. In such a case, *ex aequo et bono* would empower the ICJ with the flexibility to decide equitably.<sup>51</sup> It entitles the Court to use any appropriate equitable measures, procedure, principle or method *without inhibitions*.<sup>52</sup> These principles are based in fairness and equity.<sup>53</sup> Accordingly, departing from strict legal rules,<sup>54</sup> the ICJ may

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45 The World Radio communication Conference, *Equitable use, by all countries, with equal rights, of the geostationary-satellite and other satellite orbits and of frequency bands for space radiocommunication services*, Rev. WRC-03 (Geneva, 2003) [Rev. WRC-03]; Philip De Man, *The Commercial Exploitation of Outer Space and Celestial Bodies – A Functional Solution to the Natural Resource Challenge*, in *NEW PERSPECTIVES ON SPACE LAW: 53 I.I.S.L PROC.*, 67 (Mark J. Sundahl & V. Gopalakrishnan eds., 2011).

46 Carl Q. Christol, *The geostationary orbital position as a natural resource of the space environment*, 26 *NETHERLANDS INT. L. REV.* 1, 10-11 (1979).

47 *Compromis* § 14.

48 *Compromis* § 14.

49 Gorove, *supra* note 37 at 353.

50 MANFRED LACHS, *THE LAW OF OUTER SPACE*, 43 (1972).

51 *Maritime Delimitation (Denmark v. Norway) (Merits)*, 1993 I.C.J. (Jun. 14) (separate opinion by Weeramantry, J.); Alain Pellet, *Article 38* in *THE STATUTE OF THE INTERNATIONAL COURT OF JUSTICE: A COMMENTARY*, 703 (Andreas Zimmermann, Christian Tomuschat & Karen Oellers-Frahm (eds., 2012).

52 *Maritime Delimitation (Denmark v. Norway) (Merits)*, 1993 I.C.J. (Jun. 14) (separate opinion by Weeramantry, J.) §55; THOMAS M. FRANCK, *FAIRNESS IN INTERNATIONAL LAW AND INSTITUTIONS*, 53 (1998); Leon Trackman, *Ex Aequo et Bono: Demystifying an Ancient Concept*, 8 (2) *CHICAGO JOURNAL OF INTERNATIONAL LAW*, 621 (2008).

53 *Ex aequo et bono*, *BLACK’S LAW DICTIONARY* 500 (5th ed., 1979); *Maritime Delimitation (Denmark v. Norway) (Merits)*, 1993 I.C.J. (Jun. 14) (separate opinion by Weeramantry, J.) § 55; Alain Pellet, *Article 38* in *THE STATUTE OF THE INTERNATIONAL COURT OF JUSTICE: A COMMENTARY*, 703 (A. Zimmerman *et al*, eds., 2012).

consider practical<sup>55</sup> and political<sup>56</sup> requirements, as well as rely on analogies drawn from other legal regimes or principles to fill gaps in the law.<sup>57</sup>

19. In the present case, analogous regimes [I] and equitable principles governing benefits derived from space [II] prohibit unregulated mining.

**I. Analogous regimes prohibit unregulated mining.**

20. In the absence of a globally accepted regime for space resource extraction, reliance must be placed on regimes governing other *res communis* zones such as Antarctica and the Deep Sea Bed. The Antarctic Treaty has served as a model for the development of the OST.<sup>58</sup> State parties to the treaty expressly prohibited “any activity relating to mineral resources, other than scientific research”<sup>59</sup> through the Madrid Protocol.
21. Even if reliance is placed on regimes that permit gaining benefits through resource extraction, the Deep Seabed’s ‘Area’ exploitation is regulated by the International Seabed Authority set up by State parties to the UNCLOS.<sup>60</sup> Therefore, even if extraction of minerals is permitted, it must not be unregulated. Such exploitation would lead to the absurd consequence of monopolization of outer space. This interpretation is confirmed by the *travaux préparatoires*.<sup>61</sup>

54 League of Nations, *Documents of the First Assembly*, Meetings of the Committee, 403 (Vol. I, 1920); *Continental Shelf (Tunis. v. Libya) (Merits)*, 1982 I.C.J. 18 (Feb. 24), § 71 “The Court can take such a decision only on condition that the Parties agree (Art. 38, para. 2, of the Statute), and the Court is then freed from the strict application of legal rules in order to bring about an appropriate settlement.”

55 Stephen Hall, *The Persistent Spectre: Natural Law, International Law and the Limits of Legal Positivism*, 12 EUROPEAN J INTL L. 261, 278-81 (2001).

56 H. LAUTERPACHT, *THE FUNCTION OF LAW IN THE INTERNATIONAL COMMUNITY* 379 (1933).

57 O. Schachter, *International Law in Theory and Practice*, in 178 RECUEIL DES COURS 85-86 (1982); *North Sea Continental Shelf Case (Germany v. Netherlands) (Merits)*, 1969 I.C.J. (Feb. 20) (separate opinion by Ammoun, J.) § 39.

58 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 57<sup>th</sup> mtg., 12 July, 1966, 6-7, U.N. Doc. A/AC.105/C.2/SR.57 (October 20, 1966) (statement by the representative of the USA).

59 Protocol on Environmental Protection to the Antarctic Treaty, *entered into force on* Nov. 16, 1994, 402 UNTS 7, Article 7.

60 United Nations Convention on the Law of the Sea, *entered into force on* Nov. 16, 1994, 1933 UNTS 397, Articles 208-209.

61 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 64<sup>th</sup> mtg., 21 July, 1966, 3, U.N. Doc. A/AC-105/C.2/SR.64 (October 24, 1966) (statement by the representative of Hungary, “...the obligation of States to avail themselves of the freedom to explore space only to the extent that it did not infringe the interests of other States...”); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Summ. Records, 6<sup>th</sup> Sess., 23, U.N. Doc. A/AC.105/PV.29 (December 8,

## II. Equitable principles prohibit unregulated mining.

22. Two equitable principles that govern the benefits derived from outer space are: equitable sharing of benefits and inter-generational equity. Perovsk's use violates both these principles. The first is embodied in the *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, which was passed unanimously.<sup>62</sup> It concretized the customary nature of the obligation both to not benefit exclusively from the exploration or use of outer space, and to equitably share benefits.<sup>63</sup>
23. Perovsk's mining and processing of the lunar regolith has been done specifically to build more solid habitat walls for its own station, *Tekla*<sup>64</sup> and operate a relaunching and refueling station, which does not amount to an equitable sharing of benefits.<sup>65</sup> Therefore, Perovsk's activities amount to a violation of the said declaration.
24. The second is the principle of "inter-generational equity".<sup>66</sup> It lays down

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1964) (statement by the representative of Czechoslovakia, "A worldwide system on a non-discriminatory basis cannot...be built on a basis of a capitalistic share corporation which at the same time limits...the number of States which may adhere to such a system."); Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 56<sup>th</sup> Sess., 10, U.N. Doc. A/AC.105/1122 (April 18, 2017) (§50, "...space resources were accessible to only a very limited number of States and to a handful of enterprises within those States...it would be important to assess the impact of a "first come, first served" doctrine on the global economy, with the creation of a de facto monopoly in complete contradiction with the letter and the spirit of the United Nations treaties and resolutions.").

62 G.A. Res. 51/122, U.N. GAOR, 51<sup>st</sup> Sess., at 4, U.N. Doc. A/RES/51/122 (1996).

63 Article I, OST; Rev. WRC-03, *supra* note 45; Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 39<sup>th</sup> Sess., (April 20, 2000) U.N. Doc. A/AC.105/738; Press Release, General Assembly, Benefits From Space Exploration Must Be Shared Among All Nations, Fourth Committee Is Told, U.N. Press Release GA/SPD/291 (13 October 2004); VII BRICS Summit, *Ufa Declaration*, (July 9, 2015); G.A Res. 69/85, GAOR, 69<sup>th</sup> Session, U.N. Doc A/RES/69/85 (2014).

64 *Compromis* § 14.

65 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 56<sup>th</sup> Sess., 10, U.N. Doc. A/AC.105/1122 (April 18, 2017) (§230, "...a greater understanding among States of the principles set out in the Outer Space Treaty was needed, as was a multilateral approach to addressing issues relating to the extraction of resources from the Moon and other celestial bodies, in order to ensure that States adhered to the principles of equality of access to space and that the benefits of the exploration and the use of outer space were enjoyed by all humanity.").

66 Edith Brown Weiss, *Intergenerational Equity*, 5 MAX PLANCK ENCYCLOPEDIA PUB. INT'L L., 287 (2012); THOMAS M. FRANCK, FAIRNESS IN INTERNATIONAL LAW AND INSTITUTIONS 76 (1998); EDITH BROWN WEISS, IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY 48 (1989) [WEISS].

that mankind holds the “*natural and cultural environment of the Earth in common both with other members of the present generation and with other generations, past and future*”.<sup>67</sup> This principle is grounded in the understanding that humankind possesses the potential to cause resource depletion and environmental degradation.<sup>68</sup> Mankind has a common interest in outer space and celestial bodies such as the Moon.<sup>69</sup> States have extended the principle of intergenerational equity to outer space.<sup>70</sup>

25. Any present action undertaken by a State must be with ‘due-regard’ to future generations. The use of outer space as the province of all mankind can only be realized if this aspect of equity is given consideration.<sup>71</sup> By using regolith for their appropriative activities, Perovsk has disregarded the fragility of the space environment,<sup>72</sup> leading to the despoliation of the pristine lunar environment and the depletion of the exhaustible natural resources on the Moon. Therefore, Perovsk has not only deprived the current generation of mankind of any use of these resources, but also violated the principle of inter-generational equity.

**G. Perovsk’s pulverization has led to the despoliation of the *Novum Organum-1* site.**

26. Perovsk’s regolith processing equipment overlaps with Titan’s *Novum Organum-1* site, causing despoliation to the priceless site.<sup>73</sup> Titan retains ownership, control and jurisdiction over the space objects on the site.<sup>74</sup> This ownership is not affected by their non-functionality.<sup>75</sup> States have a duty to not injure the rights of other States.<sup>76</sup> This also includes injury to

<sup>67</sup> WEISS, *id.*

<sup>68</sup> United Nations Environment Program, *GEO-5: Global Environment Outlook: Environment for the Future We Want* 88 (2012).

<sup>69</sup> Article I, OST; G.A. Res. 1962 (XVIII), GAOR, 18<sup>th</sup> Sess., U.N. Doc A/RES/19/1962 (1963).

<sup>70</sup> G.A. Res. 2779, U.N. GAOR, 26<sup>th</sup> Sess., at 28, U.N. Doc. N8429 (1971); WEISS, *supra* note 66.

<sup>71</sup> G.A. Res. 2779, *id.*

<sup>72</sup> G.A. Res. 70/82, U.N. GAOR, 70<sup>th</sup> Sess., at 1, U.N. Doc. A/RES/70/82 (2015); G.A. Res. 71/90, U.N. GAOR, 71<sup>st</sup> Sess., at 1, U.N. Doc. A/RES/71/90 (2016).

<sup>73</sup> Clarifications, at 32.

<sup>74</sup> Article VIII, OST; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *entered into force* July 11, 1984, 1363 U.N.T.S. 3, Article 11(3) [Moon Treaty].

<sup>75</sup> Bernhard Schmidt-Tedd & Stephan Mick, *Article VIII*, I COLOGNE COMMENTARY ON SPACE LAW 154 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds. 2009).

<sup>76</sup> *Corfu Channel (United Kingdom v. Albania) (Merits) 1949 I.C.J. 4 (Apr. 9)*; *Trail Smelter Arbitration (United States v. Canada) 1938/1941, R.I.A.A. 1905*; LOTTI VIHKARI, *THE ENVIRONMENTAL ELEMENT IN SPACE LAW* 150 (2008).

property of another State.<sup>77</sup> The OST gives ownership of objects launched from Earth to Space to the State which has launched such object.<sup>78</sup> The *Novum Organum-1* and its components have been registered by Titan, and are owned by Titan.<sup>79</sup> Therefore, any damage to the artefacts of the *Novum Organum-1* site due to the ongoing regolith processing amounts a continuing wrongful act and must be ceased.

27. Titan has an interest in the preservation of the “priceless and previously intact”<sup>80</sup> *Novum Organum-1* site due to its scientific, historic and cultural significance. This is evidenced in the “irreplaceable character”<sup>81</sup> of objects with such significance. Perovsk may contend that Titan’s preservational interest amounts to appropriation of outer space.<sup>82</sup> Appropriation by occupation involves physical presence *and* the intention to act as sovereign in relation to the occupied location.<sup>83</sup> Titan’s symbolic objects have a physical presence, but do not lead to appropriation since there is no claim to title over the lunar territory.<sup>84</sup>
28. Symbolism does not create a title over the Moon.<sup>85</sup> This may be seen in light of the Soviet Luna 2 placing USSR insignias on the Moon.<sup>86</sup> The US Department of State responded to this act by stating that “[T]he placing of national insignia would not of course constitute a sufficient basis to found a claim of sovereignty over unoccupied land masses.”<sup>87</sup> The non-appropriative nature of objects of historic or cultural significance is also evidenced in Apollo 11 mission crew implanting the US flag, which was a symbol of “national pride in achievement and not to be construed as a declaration of national appropriation”.<sup>88</sup>
29. *Ex aequo et bono* empowers the ICJ to consider equitable principles that exist within the law, in addition to those beyond it.<sup>89</sup> It is in this context that the freedom to use outer space is subject to the principle of

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77 VIHKARI, *id.*

78 Article VIII, OST.

79 *Compromis* § 2.

80 *Compromis* § 21.

81 G.A. Res. 3026 (XXVII), U.N. GAOR, 27<sup>th</sup> Sess., at 71, U.N. Doc. 3026 A (XXVII) (1972).

82 Article II, OST.

83 IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 124-125 (6<sup>th</sup> edn., 1967); Islands of Palmas Case (United States v. the Netherlands) (1928) 2 R.I.A.A. 829.

84 FRANCIS LYALL & PAUL LARSEN, SPACE LAW: A TREATISE 61 (2013).

85 Myres McDougal *et. al.*, *The Enjoyment and Acquisition of Resources in Outer Space*, 111 (5) UNIV. PENN. LAW REV., 544 (1963).

86 *Soviet Rocket Hits Moon After 35 Hours; Arrival Is Calculated Within 84 Seconds; Signals Received Till Moment of Impact*, N.Y. TIMES, September 14, 1959, at 7.

87 *Pentagon Sees Russian’ Shot Confirming ICBM Capability*, N.Y. TIMES, September 15, 1959, at 20.

88 H.R. 11271, 91<sup>st</sup> Cong. § 8 (1969).

89 *infra* § 20.

sustainable development.<sup>90</sup> This principle seeks to “balance environmental protection and economic development in a way that is sustainable for both present generations and the future of humankind.”<sup>91</sup> It also ensures that the “use and exploration” of outer space remains the “province of *all* mankind”. Culture contributes to, and is therefore a part of this principle.<sup>92</sup> States have extended scientific, historic and cultural interests to objects in other similar *res communis* jurisdictions.<sup>93</sup> Such interest has been extended to outer space as well.<sup>94</sup> Thus, Titan can claim the aforementioned interests in the non-functional artefacts as well. Therefore, Perovsk must be compelled to cease its activities for the continuous damage to Titan’s artefacts.

30. Moreover, *ex aequo et bono* may also be relied upon to balance conflicting interests of States in order to reach a fair, just and equitable decision.<sup>95</sup> Accordingly, symbolic significance over space objects of the *Novum Organum-1* must be taken into consideration in deciding Titan’s claim. Therefore, Titan’s need to protect its artefacts must be viewed against Perovsk’s misuse of technology leading to the despoliation of a ‘fragile’<sup>96</sup> lunar environment and consequently to the damage to Titan’s symbolic space objects.
31. Additionally, International law obliges States to prevent transboundary harm and compensate for any damage if such obligation is breached.<sup>97</sup>

90 G.A. Res. 70/82, U.N. GAOR, 70<sup>th</sup> Sess., at 1, U.N. Doc. A/RES/70/82 (2015); G.A. Res. 71/90, U.N. GAOR, 71<sup>st</sup> Sess., at 1, U.N. Doc. A/RES/71/90 (2016).

91 VIHKARI, *supra* note 76, at 129.

92 G.A. Res. 70/1, U.N. GAOR, 70<sup>th</sup> Sess., at 17 & 20, U.N. Doc. A/RES/70/1 (2015).

93 1959 Antarctic Treaty, *entered into force* June 23, 1961, 12 U.S.T. 794, 402 U.N.T.S. 71; United Nations Convention on the Law of the Sea, *entered into force* on Nov. 16, 1994, 1988 UNTS 397, Article 149; Convention on the Protection of the Underwater Cultural Heritage, *entered into force* Nov. 2, 2001, 41 ILM 40.

94 NASA, *Recommendations to Space-Faring Entities: How to Protect and Preserve the Historic and Scientific Value of U.S. Government Lunar Artifacts*, [https://www.nasa.gov/pdf/617743main\\_NASA-USG\\_LUNAR\\_HISTORIC\\_SITES\\_RevA-508.pdf](https://www.nasa.gov/pdf/617743main_NASA-USG_LUNAR_HISTORIC_SITES_RevA-508.pdf); Apollo Lunar Landing Legacy Act of 2013, H.R. 2617, 113<sup>th</sup> Cong (2013); U.S. Naval Research Laboratory, *Vanguard’s Legacy: Vanguard celebrates 50 years in space*, <https://www.nrl.navy.mil/vanguard50/legacy.php>; Beth Laura O’Leary, *One Giant Leap: Preserving Cultural Resources on the Moon* in HANDBOOK OF SPACE ENGINEERING, ARCHAEOLOGY, AND HERITAGE 775 (Ann Darrin & Beth O’Leary ed., 2009); China National Space Agency, *Policies and Announcements*, available at [www.cnsa.gov.cn/n6443408/n6465645/n6465648/c6480839/content.html](http://www.cnsa.gov.cn/n6443408/n6465645/n6465648/c6480839/content.html), *reads*, “The purposes of China’s space industry are: to... improve the scientific and cultural knowledge of the Chinese people...”

95 Delimitation of the Maritime Areas Between Canada and France (St. Pierre and Miquelon), 31 I.L.M. 1149 (1992) § 36.

96 G.A. Res. 69/85, U.N. GAOR, 69<sup>th</sup> Sess., at 2, U.N. Doc. A/RES/69/85 (2014).

97 ILC Articles on the Responsibility of States for Internationally Wrongful Acts, G.A. Res. 56/83, U.N. GAOR, 56<sup>th</sup> Sess., Supp. No. 10, U.N. Doc A/56/10 (2001)

Since any activity on outer space is ultra-hazardous,<sup>98</sup> the ‘precautionary principle’ would prevent Perovsk from disclaiming any knowledge of consequential damage to the lunar environment.<sup>99</sup> Given the wrongful damage to the pristine environment and the priceless site, Perovsk must cease its activities.

### 3. TITAN HAS NOT BREACHED DISCLOSURE NORMS UNDER THE OST.

32. Perovsk has submitted that Titan is responsible for the non-disclosure of its alleged discovery of ilmenite deposits on the Sea of Tranquility. Article XI of the OST provides for disclosure of space activities by all space-faring nations, subject to the feasibility and practicability of the same.<sup>100</sup> Titan submits *first*, there exists no conclusive evidence proving the alleged discovery of minerals [A]; *second*, alternatively, Article XI is a self-judging clause, and is thus not subject to judicial review [B].

#### H. There exists no conclusive evidence proving the alleged discovery of minerals.

33. There is no direct evidence pointing to Titan’s alleged discovery of ilmenite deposits on the Sea of Tranquility. Further, in the *Avena* case, the ICJ held that it was the claimant’s burden to demand evidence exclusively in control of the other party with sufficient specificity, and that in the absence of such demands, the claimant will be held to not have met the burden of proof.<sup>101</sup> Thus, Perovsk has not been able to meet the burden of proof for establishing State responsibility through direct evidence by failing to request Titan to produce any specific evidence.
34. Further, the ICJ cannot rely on mere circumstantial evidence to conclusively establish Titan’s discovery of minerals. The scope of reliance on circumstantial evidence as laid down in the *Corfu Channel Case*,<sup>102</sup> has been circumscribed by subsequent judgments of the ICJ.<sup>103</sup> In the

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[Articles of State Responsibility]; Julio Barboza, *International Liability for the Injurious Consequences of Acts Not Prohibited by International Law and Protection of the Environment*, RECUEIL DES COURS 247, 291 (1994); M. FITZMAURICE, RESEARCH HANDBOOK ON INTERNATIONAL ENVIRONMENTAL LAW, 182, 289, 325 (2010).

98 C.W. Jenks, *Liability for Ultra-hazardous Activities*, RECUEIL DES COURS 147 (1966).

99 Kriebel, *supra* note 22.

100 Article XI, OST.

101 *Avena (Mexico v. U.S.) (Merits)* 2004 I.C.J. 12, 41 (Mar. 31).

102 *Corfu Channel (United Kingdom v. Albania) (Merits)* 1949 I.C.J. 4 (Apr. 9).

103 *Sovereignty Over Pulau Ligitan and Pulau Sipadan (Indonesia v. Malaysia) (Merits)* 2002 I.C.J. 625, 667 (Dec. 17); *Oil Platforms (Iran v. U.S.) (Merits)* 2003 I.C.J. 161, 190 (Nov. 6, 2003); *Military And Paramilitary Activities in and Against Nicaragua (Nicaragua V. USA) (Merits)* 1986 I.C.J. 14 (Jun. 28); Application of the Convention

*Crime of Genocide Case*,<sup>104</sup> the ICJ clarified that using circumstantial evidence to prove specific intent of high level government officials, as opposed to inferring mere knowledge, is difficult. Thus, intention cannot be imputed through mere circumstantial evidence.<sup>105</sup>

**I. In any case, Article XI is a self-judging clause and is not subject to judicial review.**

35. Subsequent State practice is a primary method of treaty interpretation.<sup>106</sup> The State practice regarding disclosure has confirmed that it is not an obligatory provision.<sup>107</sup> In fact, the disclosure norms under the European Space Agency Convention,<sup>108</sup> are implemented on a need-to-know basis, and not as an obligation to ensure scientific co-operation.<sup>109</sup> Further, the Remote Sensing Principles have provided that dissemination of the resulting data *shall* be agreed on “equitable and mutually acceptable terms.”<sup>110</sup> Therefore, in line with subsequent state practice, “feasibility and practicability” must be interpreted as affording discretion to States.<sup>111</sup>
36. This is also supported by the *travaux préparatoires* to the OST.<sup>112</sup> The USSR delegate, in the Legal Sub-Committee of the UNCOPUOS [hereinafter, “LSC”] brought up concerns of inequity in disclosure as nations engaging in space-faring at great expense will be compelled to

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on the Prevention and Punishment of the Crime of Genocide (Bosnia & Herzegovina v. Serbia & Montenegro) (Merits) 2007 I.C.J. 47, 196 (Feb. 26).

104 Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia & Herzegovina v. Serbia & Montenegro) (Merits) 2007 I.C.J. 47, 196 (Feb. 26).

105 Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia & Herzegovina v. Serbia & Montenegro) (Merits) 2007 I.C.J. 47, 196 (Feb. 26); MICHAEL P. SCHARF & MARGAUX DAY, RECONCILABLE DIFFERENCE: A CRITICAL ASSESSMENT OF THE INTERNATIONAL COURT OF JUSTICE’S TREATMENT OF CIRCUMSTANTIAL EVIDENCE, 2 (2010), available at [http://works.bepress.com/michael\\_scharf/2](http://works.bepress.com/michael_scharf/2).

106 Article 31(3)(b), VCLT.

107 DR. DIEDERIKS-VERSCHOOR & DR. V. KOPAL, AN INTRODUCTION TO SPACE LAW, 30 (2008).

108 Convention for the Establishment of a European Space Agency, *entered into force* Oct. 30, 1980, 1297 U.N.T.S. 186, Article III [ESA Convention].

109 Jean Francois Mayence & Thomas Reuter, *Article XI*, in I COLOGNE COMMENTARY ON SPACE LAW 198 (Stephan Hobe *et al.* eds. 2009).

110 Principles Relating to the Remote Sensing of the Earth from Outer Space, G.A. Res. 41/65, Annex, U.N. GAOR, 41<sup>st</sup> Session, U.N. Doc. A/RES/41/65 (1986); Mayence & Reuter, *id.*

111 BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW, 253 (1997).

112 Article 32, VCLT.



yield information to other nations at no cost.<sup>113</sup> This was the basis for introducing discretion in the disclosure norms under Article XI.<sup>114</sup> Therefore, the final assessment of whether a piece of information is viable to be disclosed is to be the decision of the sovereign State alone.<sup>115</sup> Thus, Titan's decision is not subject to judicial review on the criteria of feasibility or practicability.

#### **4. TITAN IS NOT LIABLE TO PEROVSK FOR THE DAMAGE SUFFERED TO THE PROCESSING STATION ON THE SEA OF TRANQUILITY.**

37. In February 2027, Titan sent its rover from the *Mondiale* station to inspect the processing station.<sup>116</sup> An intervening solar event led to the disruption of communication from Earth to the rover.<sup>117</sup> The three-second communication gap prevented timely response once communication was restored.<sup>118</sup> Moreover, the regolith on the site was steeper and looser than previously observed.<sup>119</sup> As a result, the rover accidentally crashed into the processing station.<sup>120</sup>
38. Titan submits that it is not liable for the damage to the processing station, *first*, under the Liability Convention [A]; *second*, under Article VII of the OST [B]; or *third*, under general International law [C].

#### **J. Titan is not liable under the Liability Convention.**

39. *First*, this collision is out of the scope of the Liability Convention [I]. *Second*, alternatively, Titan is not liable under Article III of the Liability Convention [II].

#### **I. Liability Convention is not applicable to the collision.**

40. *First*, both Titan and Perovsk are launching states of the rover [1]; *second*, claims between two launching states are out of the scope of the Liability Convention [2]; *third*, Article III of the Liability Convention does not apply to this event of damage [3].

113 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 5<sup>th</sup> Sess., 73<sup>rd</sup> mtg., September 16, 1966, 7, U.N. Doc. A/AC.105/C.2/SR.73 (October 19, 1966).

114 *Id.*

115 Mayence & Reuter, *supra* note 109, at 197-198.

116 *Compromis* § 20.

117 *Compromis* § 20.

118 *Compromis* § 20.

119 *Compromis* § 20.

120 *Compromis* § 20.

1. *Titan and Perovsk are launching states of the rover.*

41. A “Launching State” under the Liability Convention includes the State from whose “territory or facility the space object is launched”,<sup>121</sup> and the State which “procured the launch of the space object”.<sup>122</sup> The rover that caused damage to the processing station was launched from the *La Mancha* Spaceport in Perovsk’s territory, on a Perovsk-operated rocket.<sup>123</sup> Additionally, the launch has been conducted at Titan’s request.<sup>124</sup> Therefore, Titan and Perovsk are the co-launching states of the rover.

2. *Claims between co-launching States are out of the scope of the Liability Convention.*

42. Perovsk, as a co-launching State of the rover and the sole launching State of the processing station is precluded from claiming against Titan under the Liability Convention. The Liability Convention is a strictly third-party liability instrument.<sup>125</sup> It takes into account joint launching scenarios *only* to the limited extent that “joint liability towards third party” is concerned.<sup>126</sup> Thus, the Convention is only applicable to claims brought by non-participants to the launch of the space object.<sup>127</sup> Therefore, claims between launching States of the same space object are out of the scope of the Liability Convention.<sup>128</sup>

43. Further, allowing claims between co-launching States leads to an internal contradiction within the Liability Convention, and such an interpretation is not allowed by the VCLT.<sup>129</sup> Under the Liability Convention, a claim is inadmissible against a national’s own State.<sup>130</sup> However, all launching States are jointly and severally liable for “all damage caused by the space object”.<sup>131</sup> Therefore, a claim on behalf of a national, by a launching State against a co-launching State would lead to the national’s own launching State being jointly liable for payment.<sup>132</sup> Thus, allowing claims

121 Article I(c)(ii), Liability Convention.

122 Article I(c)(i), Liability Convention; Armel Kerrest, *Remarks on the Notion of a Launching State*, 42 I.I.S.L PROC. 308 (1999).

123 *Compromis* § 9.

124 *Compromis* § 9.

125 Jason R. Bonin, *Responsibility and Liability in International law as a matter of sequence and succession*, 52<sup>nd</sup> I.I.S.L PROC. (2009).

126 Article IV, Liability Convention.

127 Bonin, *supra* note 125.

128 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?*, 52<sup>nd</sup> I.I.S.L PROC. (2009).

129 BIN CHENG, *STUDIES IN INTERNATIONAL SPACE LAW* 307 (2004).

130 Article VII, Liability Convention.

131 Article V, Liability Convention.

132 CHENG, *supra* note 129 at 308.

between co-launching States causes a launching State to be liable to its own nationals under International law,<sup>133</sup> further frustrating the foundation of the Liability Convention as a state-centric liability regime.<sup>134</sup> Such an interpretation is absurd and must be discarded.<sup>135</sup>

44. The *travaux préparatoires* also confirms this proposition.<sup>136</sup> Belgium's "Working paper on unification of certain rules governing liability for damage caused by space vehicles",<sup>137</sup> [hereinafter, "Belgium's Working Paper"] clearly prohibited a launching State from claiming for damage caused in its own territory.<sup>138</sup> Territory was defined as inclusive of any vehicle as well as space object registered by the launching State.<sup>139</sup> On the one hand, the working paper was adopted unanimously by the LSC,<sup>140</sup> and served as the foundation for the Liability Convention.<sup>141</sup> On the other hand the Italian draft,<sup>142</sup> which allowed a launching State to claim against a co-launching State for damage, was rejected by the LSC.<sup>143</sup> This clearly represents the drafters' intention of rendering claims between co-launching States inadmissible under the Liability Convention. Therefore, Titan is not liable under the Liability Convention.

3. *Article III of the Liability Convention does not apply to this event of damage.*

45. Article III only prescribes for compensation when damage has been caused due to the fault of a State to a space object of another "launching State". The definition of a launching State can be located in Article I(c) of the Liability Convention.<sup>144</sup> Since the damaged processing unit was assembled on the Moon and never launched by Perovsk in any manner, it

133 CHENG, *supra* note 129 at 308.

134 Dan St. John, *Trouble with Westphalia in Outer Space: The State-centric liability regime*, 40 DENVER JOURNAL OF INTERNATIONAL LAW AND POLICY 686 (2012).

135 Article 32, VCLT; Makane Moise Mbengue, *Rules of Interpretation*, 31(2) ICSID REVIEW 388-412 (2016).

136 Article 32, VCLT.

137 "Belgium: *Proposal Working paper on the unification of certain rules of liability for damages caused by space devices*" (1963) at U.N. Doc Annex II, 19 U.N. Doc A/AC/C.2/L.7 (1963). [hereinafter, "Belgium Working Paper"].

138 *Id.*

139 Belgium Working Paper, *supra* note 137.

140 Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., Rep. on its 2<sup>nd</sup> Sess., 48<sup>th</sup> mtg., August 5<sup>th</sup>, 1963, 7, U.N. Doc. A/AC.105/C.2/SR.50 (Nov. 30, 1963).

141 *Id.*

142 "Italy: *Working paper – Draft convention concerning liability for damage caused by the launching of objects into outer space*" (1968) at U.N. Doc Annex II, 19 U.N. Doc A/AC.105/C.2/L.40 (June 13, 1966).

143 CHENG, *supra* note 129.

144 Article I(c), Liability Convention.

is not the launching State of the damaged unit. Therefore, Article III cannot be invoked.<sup>145</sup>

46. Further, Perovsk must not be awarded compensation for the damage to the processing unit due to its inherent nature. The damaged processing unit has been constructed solely through lunar materials. Lunar material belongs to all mankind. The ICJ ruling in Perovsk's favor would give them the exclusive right of compensation over this damaged lunar material. Exclusive rights in outer space must be discouraged,<sup>146</sup> since it amounts to an affirmation of *de facto* sovereignty over the parcel of lunar material used to create the processing station. This is expressly prohibited under Article II, OST.<sup>147</sup>

## II. **Alternatively, Titan is not liable under Article III, Liability Convention.**

47. Art III of LIAB imposes liability for damage due to another State's fault.<sup>148</sup> Titan submits, *first*, fault is a negligent act [1]; and *second*, Titan was permitted to inspect the processing unit, and was not negligent [2]; *third*, in any case, there is no proximate causation between the act and the damage [3].

### 1. *Fault is a negligent act.*

48. The term "fault" is not defined in the Liability Convention. Recourse may be taken to general International law to ascertain ambiguous portions of space treaties.<sup>149</sup> Fault is constituted by negligence.<sup>150</sup> The failure to exercise due diligence is negligence.<sup>151</sup> Due diligence standards may be extracted from prior obligations between States.<sup>152</sup> A breach of these obligations triggers State responsibility.<sup>153</sup>

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145 Article III, Liability Convention.

146 Gorove, *supra* note 36.

147 Article II, Liability Convention.

148 Article III, Liability Convention.

149 Article III, Outer Space Treaty; Carl Q. Christol, *The Legal Common Heritage of Mankind: Capturing an Illusive Concept and Applying it to the World Needs*, 18<sup>th</sup> I.I.S.L PROC. 48 (1976).

150 GEORGE T. HACKET, SPACE DEBRIS AND CORPUS JURIS SPATIALIS, 180 (1994); Stephen Gorove, *Liability in Space Law: An Overview*, 8 Annals. Air & Space. L. 376 (1983); HOWARD BAKER, SPACE DEBRIS: LEGAL POLICY AND IMPLICATIONS 84 (1989).

151 Horst Blomeyer-Bartenstein, *Due Diligence* in 10 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 138, 141 (R. Dolzer *et al.* eds., 1981).

152 *2<sup>nd</sup> Report*, ILA STUDY GROUP ON DUE DILIGENCE IN INTERNATIONAL LAW (2016); BIN CHENG, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS, 224 (1953); Russian Claim for Interest on Indemnities (Russia v. Turkey) 1912, 11 R.I.A.A. 42.

153 Article 2, *Commentary to ILC Draft Articles on Responsibility of States for Internationally Wrongful Acts*, 2(2) ILC Yearbook (2001) 31.

2. *Titan was permitted to visit the processing unit and was not negligent.*
49. Titan's act of sending the rover to inspect the processing station does not amount to a breach of its obligation to exercise due diligence. This is because the duty to notify or consult before inspection cannot be inferred from Art IX of the OST since the was conducted post Perovsk's withdrawal from the OST.<sup>154</sup>
50. Further, it is not a part of customary International law. Formation of custom requires state practice and *opinio juris*.<sup>155</sup> The duty to consult under Article IX for activities that may cause potentially harmful interference has not been accepted as custom by the major space faring nations. State practice, in fact, supports the opposite conclusion.
51. This can be evidenced by China's Anti-Satellite tests in 2007, which clearly posed a potential for harmful interference but were conducted without any prior international consultations.<sup>156</sup> Admittedly, calls for consultations were made for the ASAT tests,<sup>157</sup> but it is pertinent to note that *only* Japan invoked the duty to consult under Article IX as a legal obligation.<sup>158</sup> Additionally, both the USA and the USSR conducted similar tests, which were not met with any objections by other States.<sup>159</sup> This is especially significant as these are the only three nations that have conducted such tests in outer space.<sup>160</sup>
52. Therefore, in the absence of consistent State practice regarding notification or consultation,<sup>161</sup> the obligation to consult cannot be said to

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154 *Compromis* § 18, 19

155 MALCOLM N. SHAW, *INTERNATIONAL LAW* 72 (1977).

156 VIHKARI, *supra* note 76, at 61-62.

157 Michael C. Mineiro, *FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations under Article 9 of the Outer Space Treaty*, 34 *JOURNAL OF SPACE LAW* 321, 341 (September 14, 2008).

158 David A. Koplow, *ASAT-isfaction: Customary International Law and the Regulation of Anti Satellite Weapons*, 30(4) *MICHIGAN JOURNAL OF INTERNATIONAL LAW* 1190, 1241 (2009); Theresa Hitchens, *Article IX of the Outer Space Treaty: Data Sharing and Space Situational Awareness*, 2010 5<sup>TH</sup> ELIENE M. GALLOWAY SYMPOSIUM ON "CRITICAL ISSUES IN SPACE LAW" (Dec. 2, 2010), [www.spacelaw.olemiss.edu/events/pdfs/2010/galloway-hitchens-presentation-2010.pdf](http://www.spacelaw.olemiss.edu/events/pdfs/2010/galloway-hitchens-presentation-2010.pdf); *Britain Concerned By Chinese Satellite Shoot-Down*, AGENCE FRANCE-PRESSE, (Jan. 19, 2007). [www.spacewar.com/reports/BritainConcerned-By-ChineseSatelliteShootDown\\_999.html](http://www.spacewar.com/reports/BritainConcerned-By-ChineseSatelliteShootDown_999.html); Richard Spencer, *U.K. Allies Join Protest at China Space Missile*, *THE TELEGRAPH*, Jan. 20, 2007.

159 Mineiro, *supra* note 157, at 345.

160 Mineiro, *supra* note 157, at 346.

161 U.S. Department of Defense News Transcript, DoD News Briefing with Deputy National Security Advisor Jeffrey, Gen. Cartwright and NASA Administrator Griffin, Feb. 14, 2008, [www.spacelaw.olemiss.edu/resources/pdfs/usa193-selected-documents.pdf](http://www.spacelaw.olemiss.edu/resources/pdfs/usa193-selected-documents.pdf); Jessica West, *Back to the Future: The Outer Space Treaty Turns 40*, *THE SPACE REVIEW*, (October 15, 2007), [www.thespacereview.com/article/982/1](http://www.thespacereview.com/article/982/1); Marchisio, *supra* note 12, at 180; Michael J. Listner, *Customary International Law:*

exist under Article IX as custom. The inspection was conducted post Perovsk's withdrawal from the OST. Therefore, Titan is not obliged to exercise this particular obligation towards Perovsk.

53. Further, the duty to notify or consult before inspection is not a compulsory part of the obligation to exercise due diligence.<sup>162</sup> This has been accepted as a general principle of International law.<sup>163</sup> Thus, standards of due diligence are applicable to *all* activities in the international arena. In this light, it is pertinent to note the absence of the need of notification in the Antarctic Treaty.<sup>164</sup> Therefore, notification or consultation is not an essential condition to meet due diligence requirements while carrying out an inspection in similar *res communis* regimes.
54. In the absence of an obligation to notify or consult before the inspection, Titan cannot be held responsible for a breach of the same.<sup>165</sup> Thus, Titan was permitted to inspect the processing station. Further, Titan took into account the lunar topography whilst planning the inspection.<sup>166</sup> The unnaturally steep lunar regolith cannot be attributed to it.<sup>167</sup> Therefore, Titan cannot be held responsible for a breach of due diligence.

3. *In any case, Titan's act is not the proximate cause of damage.*

55. A State is liable for compensation only when the damage is caused "due to its fault".<sup>168</sup> Thus, there must be proximate causation between the breach of a legal obligation imputable to a State and the damage.
56. Proximate causation requires the fulfilment of two elements. *First* the act must be the *conditio sine qua non* of the damage,<sup>169</sup> and *second*, the

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A Troublesome Question for the Code of Conduct?, THE SPACE REVIEW, (Apr. 28, 2014), [www.thespacereview.com/article/2500/1](http://www.thespacereview.com/article/2500/1).

162 Michael J. Listner, *Space Debris Remediation and the Customary Usage of Article IX*, <https://spacethoughtsblog.wordpress.com/2015/11/10/space-debris-remediation-and-the-customary-usage-of-article-ix/>.

163 Timo Koivurova, *Due Diligence*, 3 MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 236, 243 (R. Wolfrum ed., 2012); Alabama Arbitration (United States v. United Kingdom) 1872, R.I.A.A. 125, 129; Pulp Mills, *supra* note 91, at 55; United States Diplomatic and Consular Staff in Tehran (United States v. Iran) (Judgment) 1980 I.C.J. 3, 31 (May, 24).

164 Listner *supra* note 162.

165 Article 1, Articles of State Responsibility.

166 *Compromis* § 20.

167 *Compromis* § 20.

168 Article III, Liability Convention.

169 RENÉ LEFEBER, TRANSBOUNDARY ENVIRONMENTAL INTERFERENCE AND THE ORIGIN OF STATE LIABILITY, 89 (1996); H.L.A. HART & TONY HONORÉ, CAUSATION IN THE LAW (1985).

damage must be reasonably foreseeable.<sup>170</sup> Both the requirements are similar since they are based on compensating damage with a degree of foreseeability to a reasonable man.<sup>171</sup> Remote damages are not compensable.<sup>172</sup> A low-probability event renders the damage unforeseeable, unanticipated and beyond the limits of proximate causation.<sup>173</sup>

57. The susceptibility of space operations to natural forces was recognized by the drafters of the Liability Convention.<sup>174</sup> Moreover, space-faring nations were considered to have *assumed the risk* of damage being caused due to unavoidable forces.<sup>175</sup> Therefore, any chain of causation contingent on low-probability natural events materializing was considered indirect and too remote to warrant compensation.<sup>176</sup>
58. In the present case, the collision was contingent on several low probability events materializing at the same time. *First*, Titan's communication was disrupted by an unavoidable,<sup>177</sup> unpredictable,<sup>178</sup> solar event,<sup>179</sup> *second*, at the *critical* moment when the rover was near enough to the processing station for Titan to not be able to exercise

170 Special Rapporteur on State Responsibility, Second Report of the Special Rapporteur, 16-17, UN Doc. A/CN.4/425 & Corr.1 and Add.1 & Corr.1 (June 9, 1989) (by Mr. Gaetano Arangio-Ruiz); Rep. of the International Law Commission, 58<sup>th</sup> session, May 1- June 9, July 3- August 11, 2006, 157 U.N.Doc. (A/56/10); U.N. GAOR, 61<sup>st</sup> Sess., Supp. No. 10 (2006); HART & HONORÉ, *id.* at 254-290.

171 *The Factory at Chorzów* (Germany v. Poland) (Merits) 1928 P.C.I.J. 57 (Ser. A) No. 17 (Sept. 13); Paul G. Dembling, *Cosmos 954 and the Space Treaties*, 6 JOURNAL OF SPACE LAW 129, 135 (1978).

172 Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia & Herzegovina v. Serbia & Montenegro) (Merits) 2007 I.C.J. 47, 196 (Feb. 26).

173 Rep. of the Int'l Law Comm'n, 53<sup>rd</sup> Sess., April 23- June 1, July 2- Aug. 10, 2001; Article 23, Articles of State Responsibility; VALÉRIE KAYSER, LAUNCHING SPACE OBJECTS: ISSUES OF LIABILITY AND FUTURE PROSPECTS, 48-49 (2010); Bolton v. Stone [1951] AC 850; Valentin Case (Germany v. Venezuela) 10 R.I.A.A. 357, 404 (1903); CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 96 (1982).

174 STEPHEN GOROVE, DEVELOPMENT IN SPACE LAW: ISSUES AND POLICY 149 (1991).

175 Soji Yamamoto, *Space Development in Future Society and Law* (in Japanese) (Chikuma, 1976), 89; A/AC.105/C.2/SR.91 (1968), 2, 4, 12-13; A/AC.105/C.2/SR. 92 (1968), 6-7.

176 Special Rapporteur on State Responsibility, Fourth Report of the Special Rapporteur, 13, U.N. Doc A/CN.4/517 (Mar.15, 2000) (by James Crawford). **Error! Bookmark not defined.**

177 NASA, *Small solar eruptions affect unprotected planets*, <https://www.nasa.gov/content/goddard/small-solar-eruptions-affect-unprotected-planets/>.

178 Space.com, *Sunspots, Solar Flares & Coronal Mass Ejections*, [www.space.com/11506-space-weather-sunspots-solar-flares-coronal-mass-ejections.html](http://www.space.com/11506-space-weather-sunspots-solar-flares-coronal-mass-ejections.html).

179 *Compromis* § 20.

contingencies.<sup>180</sup> *Third*, the regolith near the installation was steeper than previously observed,<sup>181</sup> resulting in the rover colliding into the installation. Thus, the test of foreseeability is plainly not satisfied. If it did, it would follow that any and all damage resulting out of an act, regardless of its remoteness, deserves compensation.

59. Such a regime imputing liability for accidents caused due to these unavoidable natural elements would impose absolute liability for every accident in outer space. This would make space-faring extremely undesirable, and frustrate the purpose of Article III, the Liability Convention. Therefore, there is no proximate causation between the act and the damage.<sup>182</sup> Hence, Titan is not liable for compensation under Article III, the Liability Convention.

#### **K. Titan is not liable under Article VII of the OST.**

60. Admittedly, The Liability Convention does not prejudice a claim under other legal instruments.<sup>183</sup> Article VII of the OST provides for international liability of a launching State whenever its space object damages the interests of other states “on the surface of the Earth, in air space or in outer space”.<sup>184</sup> Ordinarily, in the event of the ICJ declaring that Perovsk is precluded from bringing a claim under the Liability Convention, a claim is admissible, under the principle contained within Article VII of the OST.

61. However, Article VII is not International custom. The requirement of consistent and persistent state practice, laid down in the *North Sea Continental Shelf Case*,<sup>185</sup> is not fulfilled in the present case. In *North Sea*, ICJ rejected 63 instances of State practice as not enough for the formation of custom.<sup>186</sup> Article VII has been invoked as grounds for compensation *only* in one instance, the *Cosmos 954* collision. Even in the *Cosmos 954* collision, compensation was awarded *ex gratia*.<sup>187</sup> Thus, clearly there is not sufficient State practice for the provision to be deemed

180 *Compromis* § 20.

181 *Compromis* § 20.

182 S.S. ‘Lisman’ Disposal of Pecuniary Claims Arising out of the Recent War (United States v. Great Britain) (1914–1918), 3 October 1937, reprinted in R.I.A.A., vol. 3, 1767; R.B. Lillich (ed.), THE UNITED NATIONS COMPENSATION COMMISSION (1995); Gattini, ‘The UN Compensation Commission: Old Rules, New Procedures on War Reparations’, 13(1) EJIL 161 (2002); Heiskanen, ‘The United Nations Compensation Commission’, 293 RECUEIL DES COURS 265 (2002).

183 Article XXIII, Liability Convention.

184 Article VII, OST.

185 *North Sea Continental Shelf* (Germany v. Denmark), 1969 I.C.J. 3 (Feb. 20).

186 *Id.* at § 60-82.

187 Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by “Cosmos 954” (released on Apr. 2, 1981), Art. II and § 14, 33.



as custom. Hence, the principle contained within Article VII is not customary International law.

62. In any case, Article VII is not clear regarding the applicable standard for adjudging liability.<sup>188</sup> Therefore, recourse must be taken to the provisions of the Liability Convention, which seeks to clarify and elucidate upon the principle contained within Article VII.<sup>189</sup> The Liability Convention is *lex specialis* with respect to Article VII.<sup>190</sup> Therefore, liability for outer space accidents must only be adjudged on the basis of “fault”.
63. As elaborated above,<sup>191</sup> Titan’s act of sending the rover does not constitute fault. Therefore, Perovsk’s claim for compensation for the damage to their rover is not recoverable under Article VII.

#### **L. Titan is not liable under general International law.**

64. General International law does not impose strict liability for damage to other states.<sup>192</sup> States are only obligated to exercise due diligence in their conduct towards other states.<sup>193</sup> As elaborated above, the obligation of due diligence in space does not include the duty to notify or consult before an inspection.<sup>194</sup>
65. Moreover, general International law does not widen the scope of damage to include unforeseeable or remote damages.<sup>195</sup> The damage suffered to Perovsk’s processing station was unforeseeable at the time of the act.<sup>196</sup> Therefore, Titan is not liable for damage under general International law.

#### **SUBMISSIONS TO THE COURT**

For the foregoing reasons, the Republic of Titan, the Respondent, respectfully requests the ICJ to adjudge and declare that:

1. Perovsk’s activities on the Moon violated international law as it failed to consult with Titan.
2. Perovsk must be compelled to cease its lunar processing and production activities, the despoliation of the *Novum Organum-1* site, and the impermissible appropriation of the Moon.

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188 Armel Kerrest and Lesley Jane Smith, *Article VII*, I COLOGNE COMMENTARY ON SPACE LAW 142 (2009).

189 *Paragraph 4*, Preamble, Liability Convention.

190 Kerrest and Smith, *supra* note 188, at 144.

191 *Infra* § 52-53.

192 Patricia Birnie, Alan Boyle and Catherine Ridgewell, *State Responsibility for environmental damage*, INTERNATIONAL LAW AND THE ENVIRONMENT 216 (2009).

193 *Id.*

194 *Infra* § 44-49.

195 Birnie and Boyle, *supra* note 192, at 217.

196 *Infra* § 50-54.

3. Titan is not internationally responsible for the violation of disclosure obligations under the OST.

Titan was permitted to inspect Perovsk's processing stations and it is not liable to Perovsk for damages incurred to its property on the Moon.