12th Manfred Lachs Space Law Moot Court Competition 2003

CASE CONCERNING THE MINERAL EXPLOITATION OF BOZNEMCOVA AND RELATED INCIDENTS

Vesta v. Ceres

PART A: INTRODUCTION

The 12th Manfred Lachs Space Law Moot Court Competition was held during the Bremen IISL Colloquium. The Case Concerning the Mineral Exploitation of Boznêmcová and Related Incidents (Vesta v. Ceres) was written by Michael Davis and Ricky Lee, both from Australia. Preliminaries were held at regional level in Europe (among 5 teams), the USA (among 7 teams) and in Asia Pacific region (among 13 teams).

The Finals were held at the Landgericht, and were as usual judged by three Judges of the International Court of Justice; i.e. H.E. Judge Guillaume, H.E. Judge Koroma and H.E. Judge Vereshchetin.

The German Aerospace Agency DLR and EADS Space Transportation sponsored the IISL dinner, and the University of Bremen has provided support. The IISL is most grateful to them. The famous Ratskeller restaurant in downtown Bremen was the location for the dinner, and the Landgericht kindly provided its beautiful courtroom for the finals.

RESULTS OF THE WORLD FINALS:

- Winner: University of Auckland, New Zealand (Jesse Wilson and Isaac Hikaka
- Runner up: Georgetown University Law Center, Washington DC USA (Amanda Shafer, Petra Vorwig, and Melissa Beiting)
- 2nd runner up: University of Bremen, Germany (Deirdre Ní Chearbhaill, Kamlesh Gungaphul, and Giorgi Kavtaradze)
- Eilene M. Galloway Award for Best Written Brief: University of Bremen, Germany
- Sterns and Tennen Award for Best Oralist: Petra Vorwig, Georgetown University Law Center

CONTACT DETAILS REGIONAL ROUNDS:

USA: SSMITH@sah.com
Europe: Alberto.Marchini@esa.int
Asia Pacific: ricky@myoffice.net.au

PARTICIPANTS IN REGIONAL ROUNDS

USA:
Georgetown University, Washington DC
University of North Carolina, North Carolina
Golden Gate University, California
University of St. Thomas, Miami
University of Virginia , Virginia
Vanderbilt University, Tennessee
Howard University, Washington DC

Europe:
University of Leiden, the Netherlands
University of Jaen, Spain
University of Milan, Italy
Univeristy of Warsaw, Poland
University of Bremen, Germany

Asia Pacific:
China University of Politics and Law
Chulalongkorn University ,Thailand
National University of Singapore
Sophia University,Japan
Tsinghua University, China
University of Auckland, New Zealand
University of Malaya, Malaysia
University of New South Wales, Australia
University of Queensland, Australia
University of Sydney, Australia
University of Technology Sydney, Australia
University of Tokyo, Japan
University of Western Sydney, Australia

JUDGES FOR WRITTEN BRIEFS:
Prof. Joanne Gabrynowicz, USA
Prof. Alexis Goh, Australia
Prof Francis Lyall, Scotland UK
Prof V.S. Mani, India
Ms. Martha Mejia-Kaiser, Mexico
Prof. Maureen Williams, Argentina

JUDGES FOR SEMI FINALS:
Prof. Stephan Hobe, Germany
Ms. Marcia Smith, USA
Dr. Olivier Ribbelink (The Netherlands)

12th Manfred Lachs Space Law Moot Court Competition 2003

CASE CONCERNING THE MINERAL EXPLOITATION OF BOZNEMCOVA AND RELATED INCIDENTS

Vesta v. Ceres

PART A: INTRODUCTION

The 12th Manfred Lachs Space Law Moot Court Competition was held during the Bremen IISL Colloquium. The Case Concerning the Mineral Exploitation of Boznêmcová and Related Incidents (Vesta v. Ceres) was written by Michael Davis and Ricky Lee, both from Australia. Preliminaries were held at regional level in Europe (among 5 teams), the USA (among 7 teams) and in Asia Pacific region (among 13 teams).

The Finals were held at the Landgericht, and were as usual judged by three Judges of the International Court of Justice; i.e. H.E. Judge Guillaume, H.E. Judge Koroma and H.E. Judge Vereshchetin.

The German Aerospace Agency DLR and EADS Space Transportation sponsored the IISL dinner, and the University of Bremen has provided support. The IISL is most grateful to them. The famous Ratskeller restaurant in downtown Bremen was the location for the dinner, and the Landgericht kindly provided its beautiful courtroom for the finals.

RESULTS OF THE WORLD FINALS:

- Winner: University of Auckland, New Zealand (Jesse Wilson and Isaac Hikaka
- Runner up: Georgetown University Law Center, Washington DC USA (Amanda Shafer, Petra Vorwig, and Melissa Beiting)
- 2nd runner up: University of Bremen, Germany (Deirdre Ní Chearbhaill, Kamlesh Gungaphul, and Giorgi Kavtaradze)
- Eilene M. Galloway Award for Best Written Brief: University of Bremen, Germany
- Sterns and Tennen Award for Best Oralist: Petra Vorwig, Georgetown University Law Center

CONTACT DETAILS REGIONAL ROUNDS:
USA: SSMITH@sah.com
Europe: Alberto.Marchini@esa.int
Asia Pacific: ricky@myoffice.net.au

PARTICIPANTS IN REGIONAL ROUNDS

USA:
Georgetown University, Washington DC
University of North Carolina, North Carolina
Golden Gate University, California
University of St. Thomas, Miami
University of Virginia , Virginia
Vanderbilt University, Tennessee
Howard University, Washington DC

Europe:
University of Leiden, the Netherlands
University of Jaen, Spain
University of Milan, Italy
Univeristy of Warsaw, Poland
University of Bremen, Germany

Asia Pacific:
China University of Politics and Law
Chulalongkorn University ,Thailand
National University of Singapore
Sophia University,Japan
Tsinghua University, China
University of Auckland, New Zealand
University of Malaya, Malaysia
University of New South Wales, Australia
University of Queensland, Australia
University of Sydney, Australia
University of Technology Sydney, Australia
University of Tokyo, Japan
University of Western Sydney, Australia

JUDGES FOR WRITTEN BRIEFS:
Prof. Joanne Gabrynowicz, USA
Prof. Alexis Goh, Australia
Prof Francis Lyall, Scotland UK
Prof V.S. Mani, India
Ms. Martha Mejia-Kaiser, Mexico
Prof. Maureen Williams, Argentina

JUDGES FOR SEMI FINALS:
Prof. Stephan Hobe, Germany
Ms. Marcia Smith, USA
Dr. Olivier Ribbelink (The Netherlands)

JUDGES FOR FINALS:
H.E. Judge Gilbert Guillaume, ICJ
H.E. Judge Abdul Koroma, ICJ
H.E. Judge Vladlen Vereshchetin, ICJ

PART B: THE PROBLEM

1. It is the year 2040.

2. The Principality of Ceres was an industrialised coastal State with a population of 25 million. The Republic of Vesta was a predominantly agricultural landlocked State with a population of 37 million that was originally part of neighbouring Ceres but seceded peacefully on 2 May 2014 after a plebiscite. The original Ceresan lunar colony located in the Sea of Tranquillity was divided between Ceres and Vesta on the same date, with the Ceresan half referred to as "Lunar Ceresia" and the Vestan half as "New Vesta". The Ceresan Government had been a strong supporter of the international campaign against terrorism, led by the United States since 2001, while Vesta had maintained its neutrality.

3. Astermine Aerospace Engineering, Inc. ("**Astermine**") was a company incorporated in 2017 in the Federal Islands of Boranatu, a Pacific island nation with a reputation as a tax haven. Since 2025, rising oceans resulting from global warming caused many Boranatuans to resettle as "environmental refugees" in a number of countries, including Ceres and Vesta. The Boranatuan Resettlement Agency, funded by the Ceresan Government, was based in the Ceresan capital of Salmonella. Its primary activity being to act as a coordination and welfare agency for the refugees in Ceres and its neighbouring countries, including Vesta. In Ceres, Boranatuans enjoy full citizenship and rights, but this was not the case in Vesta, where they are naturalised citizens but also subjected to social and economic discrimination. The treatment of Boranatuans in Vesta has been the subject of repeated reports of the Human Rights Commission and the Economic and Social Council of the United Nations.

4. Astermine operated as a registered foreign corporation in Ceres. Under Section 19A of the *Companies Ordinance 2017*, registered foreign corporations are subject to regulation by the Ceresan Corporate Commission as if they are local corporations incorporated in Ceres and are taxed for profits derived from activities in Ceres.

5. Astermine was the largest firm in the Ceresan space industry and was 100% owned by Vestan private interests (most of them Boranatuans who became naturalised Vestans). Astermine received research funding from the National Aeronautics and Space Research Agency ("**NASRA**") of Ceres that, over the past six years, contributed to 60% of its research and development costs.

6. In 2024, the flyby probe *Tombaugh*, a joint project of NASRA and Astermine that was launched from the space station *ISS Beta*, undertook spectral and mineralogical studies on four large asteroids: Atmos, Boznêmcová, Eros and Vesta. It was confirmed through this mission that Boznêmcová was rich in olivine, pyroxene, iron and nickel. It was revealed that Boznêmcová also contained rich deposits of palladium ores and helium-3 deposits, both precious resources that were previously not known to exist on Boznêmcová. The results of these studies were published in scientific e-journals and were available from both NASRA and Astermine's broadband web portals.

7. In 2026, prompted by a world shortage of palladium, Astermine began construction of a robotic mining facility spacecraft, the *Boznêmcová Miner*, in low Earth orbit with components launched from the Earth and assembled in space by Astermine engineers stationed on *ISS Gamma*. It was powered by solar panels and a rechargeable chemical battery (which was recharged only by the solar panels) but its propulsion system was a mixture of chemical thrusters and a newly-developed nuclear engine designed specifically for interplanetary systems.

8. The construction of the components of the *Boznêmcová Miner* was done in-house at Astermine facilities in Ceres. Upon completion they were there transported to Serratis, a developed country bordering Vesta. The ground control facility for these launches was located in Vesta. The launch vehicle was a Ceresan commercial reusable

launch vehicle. The launch facility used was owned by Astermine and located in territory leased by Serratis to Ceres for 99 years, which began in 2023. There were 71 launches scheduled for the construction of the *Miner*.

9. On 31 July 2028, one of the launches, designated with mission number BM-52, was unsuccessful. The reusable launch vehicle used by Astermine lost communications with the ground control facility and plummeted into Botulisia, the capital of Vesta, destroying the 31-storey headquarters of the Vestan Police and Justice Department as well as several surrounding buildings, causing over US$638 million damage and the loss of 231 lives.

10. Outraged by the tragedy, the Vestan Government ordered a full investigation, with which Astermine cooperated. It was soon discovered that the cause of the failure was human error and the two mission control engineers that were found negligent were both Boranatuans with ties to the Boranatuan Resettlement Agency in Ceres. The reason why the trajectory of the launch vehicle was over Botulisia was that the Vestan Airspace Command had provided Astermine with incorrect coordinates on its flight path clearance.

11. Convinced nevertheless that it was a deliberate act of terrorism on the part of Boranatuans, Vesta sent troops to occupy the launch facility used and detained the Boranatuan staff of Astermine at the facility and in Vesta. This forced Astermine to use its older secondary launch facility in Ceres and delayed the completion of the project by two years. Public outrage over the incident resulted in violence and property damage against Ceresans and Boranatuans in Vesta, especially in Botulisia.

12. As a result of the two-year delay in the construction of the *Miner*, the orbital motion of both the Earth and Boznêmcová had taken the asteroid away from its optimal location for capture. As a result, an additional $32 million was spent in redesigning the propulsion system and fuel to allow the *Miner* to reach its destination. The delay also coincided with the discovery of large and previously unknown palladium deposits in South America, causing world palladium prices to fall around 12% from the prices originally projected at the time of the return of the *Miner*.

13. Vesta demanded compensation from Ceres for the damage caused by BM-52. Negotiations between the two countries, mediated by the Secretary-General of the United Nations, resulted in Ceres paying US$860 million compensation to the Vestan Government on 14 November 2028. This payment was made by Ceres on an *ex gratia* basis while denying any liability to pay compensation under international law, and was expressed to be in full and final settlement of any claim by Vesta for damage to persons killed or injured by the incident as well as for damage to buildings and property. As part of the negotiated terms of settlement Vesta returned the recovered wreckage and components to Ceresan authorities, which returned them to Astermine.

14. In April 2030, the Vestan popular press noted that 211 workers and emergency services staff, or 77% of the total number who worked on the crash site of BM-52, had developed various forms of cancer. Eventually it was discovered in October 2030 that the payload of BM-52 was the nuclear propulsion engine to be used on the *Boznêmcová Miner*.

15. By April 2035, a further 534 people who worked in offices around the area of the crash were diagnosed with cancers which were probably linked to the radioactive fallout from BM-52. The radioactivity from the crash caused property prices in Botulisia to plummet by an average 60% in the four months from October 2030 to February 2031. The cost of cleaning up the radiation poisoning took four months and cost US$128 million. The devastation to the business sector as a result of the property crash and its inability to access a significant number of office buildings during the clean-up caused the Vestan economy to go into recession with economic growth at an average –1.9% per annum for the next three years instead of the +2.7% per annum originally forecast by the International Monetary Fund or the +3.4% per annum originally forecast by the Vestan Government.

16. Vesta proceeded to claim compensation from Ceres through diplomatic channels for the environmental damage, the fall in property prices, the subsequent economic recession and the creation of a trust fund for victims whose cancer may be linked to the incident. Ceres maintained that the settlement of 14 November 2028 was a full and final settlement of all existing and potential claims and that, in any event, Ceres was not liable to pay compensation for such heads of damages.

17. On 2 May 2036, a rocket-based missile hit and destroyed several buildings in the central business district of Salmonella and killed 1,016 people. Investigations undertaken by Ceresan authorities as well as investigators from the European Union indicated that the public activist group, Vestan Victims of Astermine ("**Astervic**"), was responsible for the attack. There was evidence (available to the Ceresan Government) that Vesta may have been indirectly financing the operations of the group, though it ceased funding the organisation after the attack and condemned it.

18. In response to what was seen by Ceres to be an act of state-sponsored terrorism, Ceres retaliated by attacking several Vestan watchtowers and forts along the border within the following two weeks. On 30 May 2036, the Vestan national communications satellite was destroyed in space by the use of space-based Ceresan laser technology, previously used as part of a Ceresan global navigational satellite system that Ceres claimed was being used by Vesta to plan an armed attack on Ceres. Both countries also began stationing defensive installations and batteries on the Moon along the border between Lunar Ceresia and New Vesta. The United Nations brokered a peace agreement between the two countries and Ceres subsequently removed their defensive installations on the Moon, but the Vestan facilities remained.

19. Despite the setback as a result of the launch failure of BM-52, the *Boznêmcová Miner* was completed in 2029 and arrived at Boznêmcová in 2032. The mining was in two stages: the first involved the extraction of ores and, after some preliminary processing, were collected in large canisters that were fired back to Earth orbit for collection from the space stations. Once Boznêmcová became small enough in mass, the *Boznêmcová Miner* fired its engines and moved the asteroid from its orbit and slowly migrated it to Earth orbit for a more extensive exploitation of its resources (an experimental process called "total capture mining"). The *Boznêmcová Miner* returned to Earth orbit with the asteroid in March 2035.

20. Most of the unused portions of the asteroid, containing mainly metallic compounds and various rocks, were used to produce concrete for the new Ceresan lunar colony to be located near Lake Armstrong. However, many fragments remained in orbit and occasionally caused interference to Vestan satellite transmissions, forcing their operations to move their satellites and install additional shielding to future satellites, significantly reducing their lifespan as well as the increased costs of constructing and launching new replacement satellites.

21. By Special Agreement, Vesta and Ceres bring their dispute before the International Court of Justice. Vesta seeks declarations that:

    (i) Ceres is liable to Vesta for the payment of compensation for radiation damage and consequent economic losses caused by the failure of the BM-52 launch;

    (ii) The destruction of the Vestan communications system by space-based lasers on 30 May 2036 was unlawful and entitles Vesta to compensation from Ceres for the damage sustained;

    (iii) Ceres has violated international law by destroying an asteroid; and

    (iv) All other relief sought by Vesta in its memorials and oral submissions should be granted and that all claims and relief sought by Ceres should be denied.

22. Ceres seeks declarations that:

    (i) Ceres is not liable to Vesta in relation to the launch failure of BM-52;

(ii) If Ceres was liable to Vesta in relation to the launch failure of BM-52, that liability was fully extinguished by the payment of US$860 million to the government of Vesta and, in any event, the heads of damage claimed by Vesta are not recoverable;

(iii) The destruction of the Vestan communications satellite system did not cause Ceres to violate any applicable international legal principles;

(iv) The continuing presence of Vestan military facilities and installations in New Vesta is unlawful; and

(v) All other relief sought by Ceres in its memorials and oral submissions should be granted and claims and relief sought by Vesta should be denied.

23. The *Boznêmcová Miner* was registered in accordance with the 1968 Registration Convention and lists Ceres as the state of registry, except that the instrument of registration lodged did not indicate the launching States of the *Miner*.

24. Serratis has separately and peacefully settled any claims between Vesta and Serratis and between Ceres and Serratis on the basis that Serratis was not a launching State of the *Boznêmcová Miner*.

25. Ceres and Vesta are both parties to the 1967 Outer Space Treaty, the 1972 Liability Convention, the 1968 Rescue Agreement and the 1975 Registration Convention. Vesta became a member of the United Nations when it became independent from Ceres in 2014. Ceres was a founding member of the United Nations in 1945. Vesta has signed and ratified the 1979 Moon Agreement but Ceres has never signed it or recognised it as being part of international law.

26. Ceres and Vesta are both members of the International Monetary Fund, the International Bank for Reconstruction and Development (the World Bank), the International Telecommunication Union and the World Trade Organisation.

PART C: FINALISTS' BRIEFS

A. WRITTEN BRIEF FOR VESTA

AGENTS:

Amanda Shafer, Petra Vorwig, and Melissa Beiting, Georgetown University Law Center, Washington DC, USA

ARGUMENT

I. INTRODUCTION

The serious injury Vesta has suffered at the hand of Ceres requires that Ceres be made to compensate for such injury. International law must be brought to bear on Ceres, a nation that continues to show complete disregard for Vesta's interests and for its own international obligations. Therefore, Vesta requests this Court to find Ceres liable for the damages caused by the radiation leaked from the BM-52 crash and those caused by Ceres' destruction of Vesta's communications satellite. Furthermore, Vesta requests this Court find Ceres in breach of the Outer Space Treaty for appropriating a celestial body in the form of the Boznêmcová asteroid.

II. CERES IS LIABLE FOR THE PHYSICAL DAMAGE AND ECONOMIC LOSSES TO VESTA RESULTING FROM THE RADIATION LEAKED FROM THE BM-52 CRASH SITE.

Ceres breached international treaty law when the BM-52 launch vehicle, carrying the nuclear propulsion engine for the *Boznêmcová Miner* ("*Miner*"), crashed into Botulisia, resulting in the immediate death of 231 people and inducing cancer in another 745 people from radiation poisoning. Ceres should be held liable for all of the damages that resulted from the radiation contamination because Ceres was the launching State of the BM-52.[1] Furthermore, the health problems, loss in property value and economic recession suffered by Vesta directly resulted from the radiation contamination leaked from the nuclear engine on board the BM-52. Because these damages were discovered long after the initial crash and were the result of the radiation rather than the direct impact of the launch vehicle, the settlement of November 2028 did not extinguish Vesta's right to seek further compensation.

A. Ceres is liable for the damage caused to Vesta by the BM-52 crash because it is the launching State under the Outer Space Treaty and the Liability Convention.

Ceres is liable for the radiation damage and consequent economic loss under Article VII of the Outer Space Treaty and Article II of the Liability Convention because Ceres is the launching State for the BM-52. Both the Outer Space Treaty and the Liability Convention adopt the same four categories of launching State, under all of which a State may be held internationally liable for damage caused to another State by the launched space object.[2] These categories include States that (1) launch a space object, (2) procure the launch of a space object, (3) represent the territory from which the space object is launched or (4) own the facility from which it is launched. Ceres qualifies as the launching State for the BM-52 because the BM-52 was launched from Ceresan territory and because Ceres procured the launch of the BM-52. Ceres has recognized its status as the launching State by registering the BM-52 launch and the 70 other launches associated with the *Boznêmcová Miner*[3] under the Registration Convention.[4]

1. *Ceres is a launching State because the BM-52 launched from Ceresan territory.*

Ceres is a launching State liable for the crash of the BM-52 because the launch occurred on Ceresan territory that was leased from Serratis under a 99-year lease.[5] Though the Compromis does not state the terms of that lease, similar leases have provided the leasing State with "complete jurisdiction and control over and within said

---

[1] *See* Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, art. VII, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty]; Convention on International Liability for Damage Caused by Space Objects, Oct. 9, 1973, art. I, T.I.A.S. No. 7762, 961 U.N.T.S. 2389 [hereinafter Liability Convention]; Convention on Registration of Objects Launched into Outer Space, Jan. 14, 1975, T.I.A.S. 8480, 1023 U.N.T.S. 15 [hereinafter Registration Convention]

[2] *See* Outer Space Treaty, *supra* note 1, art. VII; Liability Convention, *supra* note 1, art. I; BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 637-38 (1997).

[3] Compromis, ¶ 23; Clarifications to the Compromis, ¶ 8.

[4] Registration Convention, *supra* note 1, art. II.

[5] Compromis, ¶ 8.

areas."[6] If a similar term was applied in Ceres' lease, Ceres had complete jurisdiction and control over the territory from which the BM-52 was launched. Though many commentators recognize that such a lease provision does not transfer sovereignty in the land,[7] the definition of a launching State in Article I of the Liability Convention does not clarify what level of control a State must have over the launching territory in order to qualify as a launching State.

Article 31 of the Vienna Convention on the Law of Treaties ("Vienna Convention on Treaties") instructs that "[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[8] Under the Outer Space Treaty and the Liability Convention, "a State from whose territory or facility a space object is launched" is a launching State.[9] Ceres had control over the territory from which the BM-52 was launched and should not be allowed to skirt its responsibility based on a narrow interpretation of the word "territory." Such an interpretation would undermine the "victim-oriented concept of liability" established under the Liability Convention.[10] As the State in control of the territory from which the BM-52 was launched, Ceres qualifies as a launching State and therefore must be held liable for any damage caused by the BM-52.

2. *Ceres is a launching State because it procured the launch of the BM-52.*

Ceres also qualifies as a launching State because it procured the launch of the BM-52 by materially participating in the development of the *Boznêmcová Miner*, to which the BM-52 was carrying a component, and by supplying the launch vehicle to Astermine.[11] In order to procure a launch, a State must make an effort or take the initiative in bringing about such a launch.[12] Ceres has been deeply involved in the initiation, development and execution of the *Boznêmcová Miner* project. Ceres' National Aeronautical Space and Research Agency (NASRA) conducted jointly with Astermine the initial mineralogical studies of the Boznêmcová asteroid that ultimately led to the mining project and the need to launch the BM-52.[13] NASRA has also contributed funds to Astermine's research projects.[14] Finally, Ceres contributed the launch vehicle in which all of the components for the *Boznêmcová Miner* were to be carried into outer space, but instead crashed into Botulisia.[15] The launch vehicle was critical to the launch itself and evidences Ceres' participation in procuring the launch of the BM-52.[16]

3. *Ceres has recognized its status as a launching State by registering the BM-52 launch under the Registration Convention.*

Ceres has acknowledged its liability for each of the launches associated with the *Boznêmcová Miner* by registering each component of the *Miner* as well as the completed *Miner* in accordance with the Registration Convention.[17] Article II of the Registration Convention states, "when a space object is launched into Earth orbit or beyond, the *launching State* shall register the space object."[18] Article I of the Registration Convention adopts the same definition of a launching State established in the Outer Space Treaty and the Liability Convention, which includes States from whose territory a space object is launched and a

---

[6] Lease of Lands for Coaling and Naval Stations: Agreement between the United States of America and the Republic of Cuba for the Lease to the United States of Lands in Cuba for Coaling and Naval Stations, T.S. 418 (1903).

[7] SIR ROBERT JENNINGS & SIR ARTHUR WATTS, OPPENHEIM'S INTERNATIONAL LAW 563 (9th ed. 1992).

[8] Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations, May 23, 1969, art. 31(1), 115 U.N.T.S. 331, [hereinafter *Vienna Convention on Treaties*].

[9] Liability Convention, *supra* note 1, art. I.

[10] Susanne U. Reif, *'Project 2001': Conclusions and Recommendations of the 'Working Group on Privatization' with Regard to Issues of International Space Law*, PROCEEDINGS OF THE FORTY-FOURTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 3, 7 (2001).

[11] Compromis, ¶ 5, 8.

[12] Motoko Uchitomi, *State Responsibility/Liability for "National" Space Activities: Towards Safe and Fair Competition in Private Space Activities*, PROCEEDINGS OF THE FORTY-FOURTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 51, 52 (2001) [hereinafter *State Responsibility for National Activities*].

[13] Compromis, ¶ 6.

[14] Compromis, ¶ 5.

[15] Compromis, ¶ 8.

[16] Commentators disagree over what level of participation a State must exhibit to establish procurement, but even the most strict interpretation would consider provision of a major component of the launch as procuring the launch. *State Responsibility for National Activities*, *supra* note 12, at 52.

[17] Clarifications to the Compromis, ¶ 8.

[18] Registration Convention, *supra* note 1, art. II (emphasis added).

State which procures the launching of a space object.[19] Article I also defines a space object to include "component parts of a space object as well as its launch vehicle and parts thereof."[20] Ceres voluntarily registered each of the *Miner*'s component parts, including the nuclear engine and the launch vehicle for the BM-52. By deciding to become the registration State for the *Miner* and all of its component parts, Ceres acknowledged its status as the launching State as defined under the Registration Convention and its responsibilities as the launching State under Article II of that Convention. As the launching State for the BM-52 and the State responsible for the nuclear engine on board, Ceres must be held liable for the radiation damage caused by that engine.

B. Ceres is absolutely liable for all damage caused in Botulisia under Article II of the Liability Convention.

The Liability Convention creates two scenarios for liability: absolute liability for damage caused on the surface of the Earth and fault-based liability where damage occurs other than on the surface of the Earth.[21] Such damage may include "loss of life, personal injury or other impairment of health; or loss or damage to property of States or of persons."[22] All 745 instances of cancer, the lost property value, the cost of the clean-up and the economic recession fall under the definition of damages provided by the Liability Convention, and all occurred on the surface of the Earth. As a result, Ceres should be held absolutely liable for this damage.

1. *The 745 cases of cancer directly resulted from the radiation leaked from the BM-52 and Vesta must be compensated for the associated health costs.*

Though the damage to the health of hundreds of Vestans did not become apparent for several years, the unequivocal cause of the health problems was the nuclear engine in the hold of the BM-52 . A total of 745 people either working to clean up the crash site or working in the offices around the crash were diagnosed with cancer.[23] These injuries represent personal injuries that must be compensated under the Liability Convention.[24] The fact that the cancers developed several years after the crash does not reduce their compensability because the negotiating history of the Convention indicates that all negotiating States agreed nuclear damages were included in the Convention's definition of damage.[25] Such recognition would include the possibility of latent damage that would still be covered under the Convention.

2. *Vesta's loss in property value occurred solely as a result of the radiation contamination and must be compensated under the Liability Convention.*

The 60% loss in property value following discovery of the radioactive contamination also qualifies as "loss or damage to property of States or of persons" under Article I of the Convention. If the crash had not occurred, the value of the property surrounding the crash site would not have changed, and Vesta would not have suffered any loss attributable to radiation leaked from the nuclear engine.

3. *The economic recession also directly resulted from the radiation contamination and subsequent clean-up requiring Ceres to compensate Vesta for its loss.*

Ceres is also absolutely liable for the economic recession Vesta suffered as a result of the business disruption and clean-up because the economic decline was a direct loss of property under Article I of the Liability Convention. The International Court of Justice, (I.C.J.) recognized the need to protect a State's economic interests in the Fisheries Jurisdiction Case.[26] Like the value of the property surrounding the crash site, the Vestan recession represents a loss in the value of the economic assets held by Vesta. If the crash had not occurred or Vesta had been notified of the radiation at the time of the crash so that both could have been

---

[19] *Id.*, art. I.

[20] *Id.*

[21] "A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight." Liability Convention, *supra* note 1, art. II. "In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible." *Id.*, art. III.

[22] *Id.*, art. I(d).

[23] Compromis, ¶ 14, 15.

[24] Liability Convention, *supra* note 1, art. I.

[25] BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 323-24 (1997).

[26] *Fisheries Jurisdiction Case* (U.K. v. Ice.) 1974 I.C.J 1, 26-27.

cleaned up at the same time, business would not have suffered such a significant disruption and the contamination could have been limited. Had both the business disruption and the contamination been reduced, the economy would have grown by at least 2.7% each year over the three years under consideration.[27] Instead, the property value dropped dramatically due to the contamination and the Vestan economy experienced a three-year recession.

Though Ceres may attempt to characterize the damages sought as indirect, these damages directly resulted from the radiation that leaked from the nuclear engine on board the BM-52. Had the crash not occurred, 745 Vestans would not have suffered radiation poisoning. Had Botulisia not been contaminated with radiation, the property value would have remained the same. Finally, but for Vesta's need to clean up the radiation contamination, businesses could have continued to operate and the economy would not have entered into recession.

4. *Ceres should be made to pay for the health, property and economic damage Vesta suffered in order to return Vesta to the condition which would have existed had the radiation not leaked from the BM-52 crash.*

Ceres should also compensate Vesta for all health, property and economic damages in order to satisfy Article XII of the Liability Convention. Article XII requires the liable State "to provide such reparation in respect of the damage as will restore the person, . . . State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred."[28] Prior to the crash, Botulisia had a generally healthy population, a thriving business district and an expanding economy. Though the radiation contamination was not discovered for several years, the cost of the clean up and the disruption of business sent the Vestan economy plummeting. In the Chorzów Factory Case, the I.C.J. required Poland to pay reparations to Germany for seizing property that had been contracted to Germany in the Treaty of Versailles.[29] The Court required Poland to "wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed" by making reparations. [30] If the radiation had not been released, the Vestan government and its citizens would not have suffered these losses. Ceres, like Poland, must compensate Vesta for these losses in order to return Vesta to the condition that would have existed if the BM-52 launcher, carrying a nuclear engine had not crashed into Botulisia.[31]

C. Ceres cannot be exonerated under Article VI of the Liability Convention because Vesta did not act with gross negligence.

Ceres cannot be exonerated from liability under Article VI(1) of the Liability Convention because Vesta's miscalculation of the flight path does not qualify as gross negligence, nor was the act "done with the intent to cause damage."[32] Gross negligence requires more than a calculation error; it requires a reckless disregard for the risk created by the action.[33] The incorrect coordinates provided by the Vestan Airspace Command do not, without affirmative evidence of recklessness, rise to the level of gross negligence. Therefore, Ceres should not be exonerated under Article VI of the Liability Convention

D. Ceres is also liable for all of the damages caused by the BM-52 crash under Article VI of the Outer Space Treaty.

Article VI of the Outer Space Treaty requires States to "bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such

---

[27] The International Monetary Fund ("IMF") IMF prediction has been used because it represents a more conservative prediction than that provided by the Vestan government and is internationally recognized as providing accurate predictions.

[28] Liability Convention, *supra* note 1, art. XII. *See also Case Concerning the Factory at Chorzów* (Ger. v. Pol.), P.C.I.J. No. 13.

[29] *Id.* at 31.

[30] *Id.* at 47.

[31] *Id. See also Corfu Channel Case*, (U.K. v. Alb.), 1949 I.C.J. 4, at 244 (providing compensation for the injuries and deaths of British naval personnel); *Trail Smelter Arbitration* (U.S. v. Can.), 3 R.I.A.A. 1905, 1907 (1941) (requiring Canada to compensate the United States for the reduction in value of land affected by pollution originating in Canada).

[32] Liability Convention, *supra* note 1, art. VI(1).

[33] The definition of gross negligence applied in the United States and several European countries emphasizes the need for much more than simple indifference to one's duty. *See* DAN B. DOBBS, THE LAW OF TORTS § 147 (2000); CHRISTIAN VON BAR, THE COMMON EUROPEAN LAW OF TORTS § 243 (1998).

activities are carried on by governmental agencies or by non-governmental entities."[34] In determining what is a national activity, noted space law scholar Bin Cheng explains that territorial jurisdiction over the launch activity and the launching entity overrides any other State's jurisdiction, including quasi-territorial jurisdiction and personal jurisdiction.[35] Ceres had territorial jurisdiction over Astermine's launch facility as the leaseholder for the territory and therefore must bear international responsibility for all of the launch activities, including the BM-52.[36]

Ceres also failed to fulfill its supervisory role mandated under Article VI of the Outer Space Treaty. Article VI requires "the appropriate State" to authorize and continually supervise the launch activities of non-governmental entities.[37] Many international scholars have recognized that the term "appropriate State" incorporates more than just the State of nationality.[38] Specifically, the State that exercises jurisdiction and control over the private enterprise would qualify[39] as would a State where the space object's components were produced.[40] Ceres had territorial jurisdiction over the nuclear engine that was launched by the BM-52 because all of the components for the *Boznêmcová Miner* were produced at Astermine's facilities in Ceres.[41] As the State with the strongest jurisdictional tie to the launch, Ceres must bear responsibility for all of the launch activities that occurred, including the crash of the BM-52.

As the launching State for the BM-52, Ceres must be held absolutely liable under the Liability Convention for all of the damages that resulted from the radiation leaked by the crash. Ceres must also be held liable for the damages as the State responsible for the launch activities of its nationals under the Outer Space Treaty.

III. THE INITIAL SETTLEMENT IS NOT FINAL WITH REGARD TO THE NEWLY DISCOVERED HEALTH AND ECONOMIC DAMAGE CAUSED BY THE BM-52 LAUNCH FAILURE.

The settlement reached immediately after the crash of the BM-52 does not bar Vesta's current request for damages under the Liability Convention or general principles of international law because Vesta was not aware of the nuclear engine on board the BM-52 at the time of the settlement. As a result, the settlement does not extinguish Ceres' liability for the radiation damages. Furthermore, Ceres failed to alert Vesta to the potential for nuclear contamination as required by the Principles Relevant to the Use of Nuclear Power Sources in Outer Space ("NPS Principles")[42] and customary international law.

A. Ceres can still be held liable for the radiation damage under the Liability Convention because Vesta did not agree to forego any future claims.

As required under Article IX of the Liability Convention,[43] Vesta sought compensation for the damage caused by the BM-52 disaster through diplomatic channels. Vesta and Ceres negotiated a settlement of US$860 million with the help of the Secretary-General of the United Nations (U.N.). In that settlement Ceres denied any liability for the damage, and payment was said to be "in full and final settlement of any claim by Vesta for

---

[34] Outer Space Treaty, *supra* note 1, art. VI.

[35] Bin Cheng, *Article VI of the 1967 Space Treaty Revised: "International Responsibility," "National Activities," and "The Appropriate State,"* 26 J. SPACE LAW 7, 23 (1998). *See also State Responsibility for National Activities*, *supra* note 12, at 52.

[36] Compromis, ¶ 8.

[37] Outer Space Treaty, *supra* note 1, art. VI.

[38] *See* Dr. Karl-Heinz Böckstiegel, *The Term "Appropriate State" and "Launching State" in Space Treaties – Indicators of State Responsibility and Liability for State and Private Space Activities*, PROCEEDINGS OF THE THIRTY-FOURTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 13, 14 (1991) [hereinafter *The "Appropriate State" and "Launching State" in Space Treaties*]; Michel Bourély, PROCEEDINGS OF THE TWENTY-NINTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 159 (1986).

[39] *The "Appropriate State" and "Launching State" in Space Treaties*, *supra* note 38, at 14.

[40] Eilene Galloway observed during a working group appointed to study the problems of interpreting the Outer Space Treaty, "The point would seem to be correct that there may be several 'appropriate states' with responsibilities under Article VI. Is it not doubtful, however, that the State Party whose only connection with the particular space activity was that some components or space instruments were produced on its territory would often be one of the 'appropriate states'?" Dr. Istvan Herczeg, *Problems of Interpretation of the Space Treaty of 27 January 1967: Introductory Report*, PROCEEDINGS OF THE TENTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 108 (1967).

[41] *The "Appropriate State" and "Launching State" in Space Treaties*, *supra* note 38, at 14.

[42] G.A. Res. 47/68, U.N. GAOR, 47th Sess., U.N. Doc. A/RES/47/68 (1992) [hereinafter *NPS Principles*].

[43] "A claim for compensation for damage shall be presented to a launching State through diplomatic channels." Liability Convention, *supra* note 1, art. IX.

damage to persons killed or injured by the incident as well as for damage to buildings and property."[44] By denying liability, Ceres remains open to a claim under the Liability Convention, despite its original payment.[45] Furthermore, the condition placed on the payment only relates to the specific incident known to both parties at the time, namely the crash of the BM-52. Even though Ceres knew the crash would result in radiation contamination and significant future damage,[46] Vesta was unaware of this potential and therefore should not be assumed to have negotiated away all future claims arising from that contamination.

B. Even if the original settlement is found to be binding, Article X of the Liability Convention allows Vesta to amend its claim for damages having learned of the full extent of the radiation damage.

Article X allows a victim State to "revise its claim and submit additional documentation [after the initial claim] until one year after the full extent of the damage is known."[47] The full extent of the radiation damage did not become apparent until 2035 when all 745 instances of cancer and the full extent of the economic recession became apparent.[48] Upon learning of these damages, Vesta made several attempts to claim compensation[49] in accordance with the Liability Convention.[50] Though the damages did not reveal themselves for two years after the accident, Vesta made an initial claim for damages within one year of the accident as required under Article X(1).[51] Article X(3) allows Vesta to revise that claim up to one year after the full extent of the damage is known.[52] Upon learning of all of the damage in 2035, Vesta sought compensation well within the one-year limit imposed by Article X of the Liability Convention.

C. Ceres failed to notify Vesta of the highly dangerous nuclear payload that crashed into Botulisia and therefore should pay for the damages caused by this blatant omission.

Under principles of equity,[53] Ceres should not be allowed to skirt its responsibility to the Vestan citizens who suffered serious health and financial damage as a result of its failure to warn Vesta of the risk of radiation contamination. Ceres had a duty to warn Vesta that it faced serious harm from the nuclear engine on board the BM-52.[54] In the Corfu Channel Case, the I.C.J. held Albania responsible for damages caused to British war ships when Albania failed to warn Britain of mines located in the Corfu Strait. The Court determined that, based on their proximity to highly guarded territory, Albania should have known about the mines and therefore should have warned ships passing through the Strait.[55] Like Albania, Ceres should have known of the potential for radiation contamination because it knew the BM-52 carried a nuclear engine and should have warned Vesta of the danger.

The duty to warn of possible nuclear accidents resulting from space objects has become customary international law in the NPS Principles.[56] Customary international law develops from *opinio juris* and state practice.[57] *Opinio juris* with regard to a State's duty to warn of nuclear harm has been established by Principle 5 of the NPS Principles, which were adopted by consensus. Principle 5 states that "[a]ny State launching a space object with nuclear power sources on board shall in a timely fashion inform States concerned in the event this space object is malfunctioning with a risk of re-entry of radioactive materials to the Earth."[58] State

---

[44] Compromis, ¶ 13.

[45] *See* CUMULATIVE DIGEST OF UNITED STATES PRACTICE IN INTERNATIONAL LAW, 1981-88, at 237 (1989).

[46] Ceres had registered each component of the *Bo_nêmcová Miner* as well as the entire Miner. Clarifications to the Compromis, ¶ 8. Furthermore, Ceres was intimately involved in the BM-52 launch and, therefore, knew that the nuclear engine was on board when it crashed into Botulisia.

[47] Liability Convention, *supra* note 1, art X(3).

[48] Compromis, ¶ 15.

[49] Compromis, ¶ 16.

[50] Liability Convention, *supra* note 1, art. IX.

[51] The crash occurred on July 31, 2028 and Vesta sought compensation within three months after the accident. Compromis, ¶ 9, 13.

[52] *Id.*, art. X(3).

[53] Article 38 of the International Court of Justice Statutes allows the Court to decide cases based on principles of equity. Statute of the International Court of Justice, June 26, 1945, art. 38, T.S. No. 993, 3 Bevans 1179.

[54] *Corfu Channel Case*, (U.K. v. Alb.), 1949 I.C.J. 4, at 244.

[55] *Id.*

[56] *NPS Principles*, *supra* note 42.

[57] *See North Sea Continental Shelf Cases* (F.R.G. v. Den.; F.R.G. v. Neth.), 1969 I.C.J. 3; *Military and Paramilitary Activities in and Against Nicaragua* (Nicaragua v. United States of America), 1986 I.C.J. 14, 97. [hereinafter *Military Activities in Nicaragua*].

[58] *NPS Principles*,, *supra* note 42, principle 5.

practice has also developed since the NPS Principles were adopted. For example, Russian officials voluntarily warned Chile and Bolivia when the launch of the plutonium-powered Russian Mars 96 probe failed in 1996 sending the satellite's fuel into their territory.[59] Under this principle, Ceres had a responsibility to warn Vesta of the nuclear power source on board the BM-52 as soon as the mission control engineers knew the BM-52 was going to crash. Ceres at least had a duty to notify Vesta that a nuclear power source had landed in Botulisia.

Ceres must be held liable for the damages resulting from the radiation contamination, despite the original settlement, because Vesta did not agree to forego claims for future damages by accepting the settlement. Furthermore, Ceres should not be allowed to avoid the consequences of its failure to warn Vesta of the potential for radiation contamination as required under customary international law.

IV. THE DESTRUCTION OF THE VESTAN COMMUNICATIONS SYSTEM BY A SPACE-BASED LASER ON MAY 30, 2036 WAS UNLAWFUL AND ENTITLES VESTA TO COMPENSATION FROM CERES FOR THE DAMAGE SUSTAINED.

Ceres' use of a space-based laser against Vesta's communications system was a violation of both international treaty law, in the form of the United Nations Charter ("U.N. Charter") and the Outer Space Treaty, and customary international law. Such violations cannot be excused as a legitimate self-defense measure under Article 51 of the U.N. Charter or as a valid countermeasure under customary international law because the attack Ceres responded to was not perpetrated by Vesta. Ceres' actions were also unnecessary to alleviate any perceived threat presented by the communications satellite. Finally, destruction of valuable Vestan property, critical to Vestan communications systems was disproportionate to Ceres' perceived threat. Since the destruction was a direct action by the Ceresan government, Ceres is liable for the damage resulting from the satellite's destruction.

A. Ceres' destruction of Vesta's communications satellite violates the U.N. Charter and the Outer Space Treaty.

Ceres' use of its space-based laser to destroy Vesta's communications satellite violates numerous obligations under international law. First, Ceres' use of force against Vestan property violates Article 2(4) of the U.N. Charter. Second, Ceres' action violated the basic principles of due regard and cooperation identified in the Outer Space Treaty as well as the Treaty's specific prohibition against stationing weapons of mass destruction in outer space.[60]

1. *Ceres violated Article 2(4) of the U.N. Charter when it used force against Vestan property without following the dispute settlement procedure established under Article 33 of the Charter.*

Ceres violated Article 2(4) of the U.N. Charter when it fired a space-based laser at Vesta's communications satellite. Article 2(4) forbids U.N. Members "from the threat or use of force against the territorial integrity or political independence of any State."[61] Ceres' attack on Vesta's satellite equates to an attack on Vesta's territorial integrity because the Vestan government owned and operated the satellite.[62] Though the satellite was located in space, Ceres' attack was equivalent to an attack on a Vestan government building or installation, and Ceres should be held responsible for violating one of the most fundamental principles in the U.N. Charter.

Article 2(4) also requires States to refrain from using force "in any other manner inconsistent with the Purposes of the United Nations."[63] Ceres engaged in a direct act of force against Vestan property in retaliation for activities over which Vesta had no control.[64] Ceres' attack directly contravenes the U.N.'s purpose established in Article 1(1) of the Charter to "bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the

---

[59] *See* David L. Chandler, U.S. Said to Fumble Space Debris Alert, Boston Globe, Dec. 4, 1996, at A1. Russia also sent a note verbale to the United Nations to warn of the potential hazard. NANDASIRI JASENTULIYANA, INTERNATIONAL SPACE LAW AND THE UNITED NATIONS (1999).

[60] Outer Space Treaty, *supra* note 1, art. IV.

[61] U.N. CHARTER art. 2, para. 4.

[62] Compromis, ¶ 18.

[63] U.N. CHARTER art. 2, para. 4.

[64] The missile that struck Salmonella was launched by an independent organization based in Vesta, but the Vestan government was unaware of the group's plans to attack Ceres, nor did the Vestan government participate in the attack. Compromis, ¶ 17.

peace."[65] By taking direct military action against Vesta's satellite without any consultation with Vesta, Ceres eliminated any opportunity to settle its dispute peacefully. Rather than directly attack Vesta's satellite, Ceres had an obligation to seek reconciliation with Vesta under Article 33 of the U.N. Charter.[66] Ceres failed to meet this obligation and, as a result, should be held liable for the destruction of the satellite.

2. *Ceres violated Article I of the Outer Space Treaty when it destroyed Vesta's communications satellite, interfering with Vesta's ability to use and explore outer space.*

Ceres violated Article I of the Outer Space Treaty when it destroyed Vesta's communications satellite. Article I of the Outer Space Treaty states that "outer space . . . shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law."[67] Ceres' action against Vesta's satellite directly interfered with Vesta's ability to use and explore outer space. Communications satellites, such as the one Ceres destroyed, are integral to Vesta's developing industry. Article I is particularly applicable to the present case because it ensures that developing nations, such as Vesta, will have full opportunity to benefit from all that outer space has to offer. As indicated in the *travaux preparatoires* and the negotiating history of the Outer Space Treaty,[68] the negotiators intended to protect developing States from exactly the type of interference Ceres perpetrated on Vesta.

Such intentions were reiterated 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 (Declaration on Use of Outer Space). [69] Article 3 of the Declaration on Use of Outer Space encourages States with developed space capabilities "to contribute to promoting and fostering international cooperation on an equitable and mutually acceptable basis" with particular attention given to the interests of developing countries.[70] As a developed nation, Ceres had a responsibility to consider the interests of Vesta, a developing nation. Instead, Ceres took advantage of its developed status to eliminate a valuable component of Vesta's industry. The goals of the Outer Space Treaty should not be undermined by a developed State's disregard for international law.

3. *Ceres violated Article IX of the Outer Space Treaty when it failed to give due regard to Vesta's interest in maintaining its communications satellite.*

Ceres' actions violated Article IX of the Space Treaty which requires Ceres to "conduct all [its] activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other State Parties to the Treaty."[71] Vesta had an interest in maintaining its satellite in orbit for use in commercial and government endeavors. Ceres had a responsibility to respect that interest when acting in outer space, but failed to do so. As stated above, the I.C.J. recognized that a State must give consideration to the economic well being of another State,[72] which Ceres failed to do prior to destroying Vesta's satellite.

4. *Ceres' use of its space-based laser violated the strict prohibition against weapons of mass destruction in outer space established in Article IV of the Outer Space Treaty.*

Not only did Ceres ignore the general principles of respect and cooperation that are fundamental to the Outer Space Treaty, but Ceres also violated the specific prohibition against placing weapons of mass destruction into outer space established in Article IV of the Outer Space Treaty.[73] The laser Ceres used to destroy Vesta's satellite had sufficient power to exact massive amounts of damage, as shown by its ability to completely destroy a large communications satellite. Weapons of mass destruction have traditionally been defined by the amount of damage they are capable of inflicting rather than as specific categories of weapons, such as nuclear or chemical weapons.[74] Although the laser was not used against

[65] U.N. CHARTER art. 1(1).
[66] *Id.*, art. 33.
[67] Outer Space Treaty, *supra* note 1, art. I.
[68] BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW, at 234-36 (1997).
[69] G.A. Res. 122, U.N. GAOR, 51st Sess., U.N. Doc. A/RES/51/122.
[70] *Id.*
[71] Outer Space Treaty, *supra* note 1, art. IX.
[72] *Fisheries Jurisdiction Case* (U.K. v. Ice.) 1974 I.C.J 1, 26-27.
[73] Outer Space Treaty, *supra* note 1, art. IV.
[74] *See* Eilene Galloway, *International Institutions to Ensure Peaceful Uses of Outer Space*, INTERNATIONAL CO-OPERATION AND CONTROL: FROM ATOMS TO SPACE, 143, 156. The United Nations Commission for Conventional Armaments also defined weapons of mass

humans, its effect on the satellite evidences the laser's destructive capability. Ceres' decision to maintain and use a weapon capable of such power in outer space directly contravenes Article IV's prohibition against stationing weapons of mass destruction in outer space, as well as Article I and IX of the Outer Space Treaty.[75] As a result, Ceres should be held liable for such violations.

B. Ceres' action against Vesta's communications satellite cannot be excused under Article 51 of the U.N. Charter because it was not a valid form of self-defense.

Ceres' attack on Vesta's communications satellite fails to qualify as a valid self-defense measure because it did not meet the requirements established in Article 51 of the U.N. Charter, nor was it necessary and proportional to defend against the perceived threat posed by Vesta's satellite. Article 51 establishes each State's inherent right of self-defense if faced with an armed attack.[76] Upon exercise of this right, the State is required to immediately report the action to the U.N. Security Council. Ceres' actions failed to meet the definitional requirements of Article 51 when it acted without an armed attack launched by Vesta.

In addition to the requirements set out in Article 51 of the U.N. Charter, customary international law has developed to require actions in self-defense to be both necessary and proportional to the attack on the defending State.[77] Ceres' destruction of Vesta's satellite meets neither of these requirements because Ceres had a less destructive option of negotiations available and because there was no previous attack against which proportionality could be measured.

Even if Ceres had sufficient evidence to prove Vesta's satellite was being used to plan an attack, Ceres had no right to destroy it under a theory of anticipatory self-defense. Anticipatory self-defense has never been accepted as a tenet of international law and therefore cannot support Ceres' illegal actions against Vesta's property.

1. *Ceres' destruction of the communications satellite was not in response to an armed attack perpetrated by Vesta.*

In order for Ceres' attack to qualify as a legitimate self-defense measure, Ceres must have responded to an actual armed attack committed by Vesta.[78] Ceres justified its destruction of Vesta's satellite solely on its uncorroborated evidence that Vesta was using the satellite to plan an attack.[79] This justification does not establish a prior attack perpetrated by Vesta as Article 51 of the U.N. Charter requires. In Military and Paramilitary Activities in Nicaragua (Nicaragua), the United States attempted to justify financial and military support for the Nicaraguan "contras" as a collective self-defense measure authorized under Article 51 of the U.N. Charter. The I.C.J. rejected this argument, holding that the United States had not been the victim of an armed attack at the hands of Nicaragua.[80] Similarly, Ceres had not experienced an attack by the Vestan government prior to destroying Vesta's satellite, but rather relied on its own evidence that Vesta was planning an attack.

Even if Ceres had sufficient evidence that Vesta was using the satellite to plan an attack, a State cannot act against another until there is evidence of aggression against the potential victim State.[81] The purpose of the U.N. Charter as stated in Article 1 is "to take effective collective measures for the prevention and removal of threats to the peace."[82] Ceres' only evidence pointed to a *possible* attack. Ceres did not have evidence that troops were amassing or that Vesta was mobilizing weapons against Ceres.[83] Allowing States that perceive a threat to act on that evidence without consulting the U.N. or the other State would undermine the cooperative nature of the U.N. Charter. If a State were allowed to destroy another State's property based on uncorroborated evidence of a possible attack, the attacked State would never have an opportunity to prove their lack of ill intent nor would the international community have an

---

destruction to include "atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned." BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW, at 530 n.23 (1997) (citing U.N. Doc. S/C.3/32/Rev.1).

[75] Outer Space Treaty, *supra* note 1, art. IV.

[76] U.N. CHARTER art. 51.

[77] *Air Services Agreement of March 1946* (U.S. v. Fr.), R.I.A.A. vol. XVIII, 417 (1979) [hereinafter *Air Services Agreement]; Military Activities in Nicaragua, supra* note 56, at 103.

[78] *Id.*

[79] Compromis, ¶ 18.

[80] *Military Activities in Nicaragua, supra* note 56, at 103.

[81] *Id.*

[82] U.N. CHARTER art. 1(1).

[83] Compromis, ¶ 18.

opportunity to pressure the offending State to change course peacefully.

The fact that Ceres had experienced a prior missile attack does not support its actions against Vesta's satellite because Vesta was not involved in the attack as the I.C.J. required in Nicaragua.[84] The I.C.J., relying on Article III of the Definition of Aggression set forth by the U.N. General Assembly,[85] held that self-defense measures can be taken only when the initial attack occurs through "the sending by or on behalf of a State of armed bands, groups, irregulars or mercenaries, which carry out acts of armed force against another State of such gravity as to amount to an actual armed attack conducted by regular forces."[86] Though Ceres claims to have evidence that Vesta provided funding to Vestan Victims of Astermine ("Astervic"), [87] the Compromis indicates that Vesta had no idea the money provided to the Better Vesta Foundation was being passed on to Astervic.[88] Ceres should not be allowed to justify an otherwise illegal attack on another State with information that cannot be corroborated. Furthermore, indirect funding provided without the knowledge of Vesta does not equate to sending armed bands on behalf of Vesta, as required in *Nicaragua*.

Ceres' destruction of the communications satellite should not be justified as self-defense because too much time had passed since the missile attack to be reasonably related to that missile attack. Ceres initially retaliated against Vesta's watchtowers and forts within two weeks after the missile struck Salmonella. It was not until four weeks after the missile attack that Ceres destroyed Vesta's communications satellite with its space-based laser.[89] A self-defense measure must be reasonably related to the original attack or States will have a license to attack a threatening State long after the original threat has dissipated. Ceres' attempt to justify its actions as self-defense is further weakened by the fact that it had already destroyed several of Vesta's watchtowers. Even if Ceres' initial attacks on the watchtowers are deemed to be legitimate self-defense measures, Ceres' attack on Vesta's communications satellite went beyond a valid self-defense measure, and Ceres should be held liable for the damage.

2. *Ceres' destruction of Vesta's satellite was neither necessary nor proportional as required under customary international law.*

Ceres' response to the perceived threat posed by the satellite was neither necessary nor proportional to the threat and is therefore an invalid self-defense measure. In the Air Services Agreement, the arbitration panel defined the element of necessity to include considerations of less destructive alternatives, such as negotiations. Proportionality, on the other hand, is to be determined based on any injury Ceres may have suffered as a result of Vesta's actions.[90] Vesta had not attacked Ceres prior to Ceres' destruction of the satellite nor did Ceres have any proof that any attack was imminent. Ceres should have consulted with Vesta rather than destroying Vesta's satellite. Such destruction was not necessary to protect Ceres' interests because a less harmful approach was available through diplomatic negotiations with Vesta.

Destruction of Vesta's communications satellite was also disproportionate to the perceived breach of international law. The concept of proportionality recognizes a State's need to restore equality in power between the parties in order to encourage negotiation toward a solution.[91] Ceres had yet to suffer actual harm as a result of any use of the satellite and had more than restored equality by attacking Vestan watchtowers and forts immediately after the missile attack on Salmonella.[92] By destroying the satellite without an attack by Vesta, Ceres gained a power advantage over Vesta in direct contravention of the purpose of valid self-defense. Furthermore, Ceres had not suffered any damage, yet proceeded to destroy a valuable satellite, representing an integral part of Vesta's communications infrastructure and developing industry. As a result, Ceres cannot be excused from liability for the damage caused to Vesta's communications infrastructure and economic well-being.

---

[84] *Military Activities in Nicaragua*, *supra* note 56, at 103. *See also Case Concerning the Gabcikovo-Nagymaros Project* (Hungary v. Slovakia), 1997 I.C.J. 7 (stating internationally illegal actions can be justified "if taken in response to a previous international wrongful act of another State and must be directed against that State.").

[85] *Military Activities in Nicaragua*, *supra* note 56, at 103 (citing G.A. Res. 3314).

[86] *Id.*

[87] The Compromis states, "There was evidence (*available to the Ceresan Government*) that Vesta may have been indirectly financing the operations of the group." Compromis, ¶ 17 (emphasis added).

[88] Clarifications to the Compromis, ¶ 13.

[89] *Id.*

[90] *Air Services Agreement*, *supra* note 76, at 443-36.

[91] *Id.*

[92] Compromis, ¶ 18.

3. *Ceres' actions cannot be justified under the invalid concept of anticipatory self-defense.*

Ceres' destruction of Vesta's satellite cannot be excused as anticipatory self-defense because such a concept is not an element of international law. Neither *opinio juris* nor State practice has developed to establish anticipatory self-defense as customary international law. *Opinio juris* cannot exist as acts of preemptive self-help have been summarily rejected by the I.C.J. In the Corfu Channel Case, the I.C.J. condemned Britain's attempt to sweep the mines laid in the Corfu Strait over Albania's objections, stating that respect for territorial sovereignty is an essential foundation of international relations.[93]

Similarly State practice has not developed sufficiently to establish customary international law. Although the United States and Israel[94] has launched attacks under the auspices of anticipatory self-defense, the acts of a few States does not create customary international law. As the I.C.J. stated in the Fisheries Case, when certain States adopt a practice while others disagree, such practice does not rise to the level of international law.[95] As a result, Ceres cannot claim that its attack on Vesta's communications satellite was lawful as a preemptive strike designed to ward off a future attack from Vesta. Such unprovoked acts of force directly contravenes the basic principles of the U.N. Charter and should not be sanctioned in this situation.

Ceres' failure to meet the requirements of a valid self-defense measure as established in Article 51 of the U.N. Charter and developed through customary international law, bars it from justifying destruction of Vesta's satellite. Ceres' actions were a direct use of aggression without Vesta's provocation, and as a result, Ceres should be held responsible for Vesta's losses.

C. Ceres' action against Vesta's communications satellite was not a legitimate countermeasure under customary international law.

Ceres' destruction of Vesta's communications satellite constitutes an invalid countermeasure because it represented an irreversible use of force[96] and was not preceded by an effort to negotiate.[97] Countermeasures are intended to restore equality between the parties to a dispute as a means of encouraging negotiation. In order to facilitate such use, countermeasures must be reversible and must be suspended as soon as the original violation has ended.[98] They are similarly limited by necessity and proportionality.[99] Ceres' use of its space-based laser created irreversible damage to Vesta and should not release Ceres from liability. Furthermore, Ceres failed to contact Vesta prior to use of the laser, thereby undermining the process of peaceful negotiations encouraged by the concept of countermeasures. Such failure, in combination with the disproportionate and unnecessary nature of Ceres' action, bars Ceres from justifying its destruction of Vesta's satellite as a legitimate countermeasure.

D. Ceres must compensate Vesta for the destroyed satellite under Article III of the Liability Convention.

Article III of the Liability Convention establishes a system of fault-based liability under which Ceres is required to compensate Vesta for the loss of its satellite.[100] Where damage is caused "elsewhere than on the surface of the Earth to a space object of one launching State . . . by a space object of another launching State, the latter shall be liable only if the damage is due to its fault."[101] Ceres, as the launching State for the space-based laser, is liable for the damage caused to Vesta's satellite. Ceres has admitted firing the laser at the satellite and is therefore directly at fault for the damage caused.[102]

V. CERES HAS VIOLATED THE OUTER SPACE TREATY BY MINING AND CAPTURING THE BOZNĚMCOVÁ ASTEROID.

[93] *Corfu Channel Case*, (U.K. v. Alb.), 1949 I.C.J. 4, at 244.

[94] In 1956, Israel invaded the Egyptian Sinai Peninsula claiming fear of an imminent Egyptian attack. The United States similarly argued the need to preempt a possible terrorist attack originating in Afghanistan as a reason for invading the country in 2001.

[95] *Fisheries Jurisdiction Case* (U.K. v. Nor.) 1974 I.C.J. 1.

[96] *See* Draft Articles on Responsibility of State for Internationally Wrongful Acts, G.A.O.R., 56th Sess., Supp. No. 10, U.N. Doc. A/56/10, art. 49 [hereinafter *Draft Articles*].

[97] *Gabcikovo-Nagymaros*, *supra* note 83, at 7

[98] *Draft Articles*, *supra* note 93, art. 49.

[99] *Gabcikovo-Nagymaros*, *supra* note 83, at 7.

[100] Liability Convention, *supra* note 1, art. III.

[101] *Id.*

[102] Compromis, ¶ 18.

Ceres, through the actions of Astermine, has violated Articles I, II and IX of the Outer Space Treaty by removing the Boznêmcová asteroid from available use to any other State. Such unilateral appropriation of a celestial body contravenes the fundamental tenet of cooperation upon which the Treaty is based. Ceres further threatened the safety of those occupying Earth by introducing extraterrestrial material into Earth's atmosphere without first determining the safety of such an endeavor. Such disregard for the economic and safety interests of other States must be discouraged, and therefore Ceres must be held responsible for its violations of international treaty law.

A. Ceres violated the express prohibition against appropriation outlined in Article II of the Outer Space Treaty by appropriating the Boznêmcová asteroid.

Ceres violated Article II of the Outer Space Treaty, first, by mining the asteroid and, second, by capturing the asteroid for complete exploitation. Article II states that "outer space, including the Moon and other celestial bodies, is not subject to national appropriation . . . by means of use or occupation."[103] The *Miner*'s initial mining of Boznêmcová qualifies as appropriation by use in violation of Article II.

The Boznêmcová asteroid is a celestial body that cannot legally be appropriated by use. The asteroid is a celestial body first because its size and fixed orbit through the solar system equate more to a body such as the Moon rather than specks of dust and rock floating in space.[104] Furthermore, this asteroid is not equivalent to easily controlled movable property as shown by Astermine's need to mine the asteroid down to a manageable size prior to moving it into Earth's atmosphere.[105] Astermine used the asteroid for its own benefit by extracting significant portions of the asteroid for use on Earth. By removing such large amounts of the asteroid, Astermine made the asteroid worthless to any other State.

Astermine further appropriated the asteroid by moving it into Earth orbit in order to more thoroughly exploit it.[106] Even if mining some material from a celestial body is found reasonable, the complete removal of such a celestial body from its orbit clearly violates Article II of the Outer Space Treaty. By moving the asteroid into Earth orbit, Astermine removed the celestial body from use by any other State. Such complete appropriation flouts the Outer Space Treaty's primary purpose to maintain outer space, including the Moon and other celestial bodies, "free for exploration and use by all States without discrimination of any kind, on a basis of equality."[107]

B. Ceres' appropriation ignored the principle of equal access to outer space expressed in Article I of the Outer Space Treaty.

By appropriating the Boznêmcová asteroid, Ceres also violated Article I of the Outer Space Treaty, which designates outer space, including the Moon and all celestial bodies as the "province of mankind." Article I requires that all exploration should be "carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development."[108] This language creates an international obligation on the part of technologically advanced States, such as Ceres, to ensure that less developed States, such as Vesta, can partake of the wealth outer space has to offer. These obligations do not require States to share all material that is removed from outer space,[109] but the principle of equality expressed in the Outer Space Treaty implies that Ceres should have at least notified other States of Boznêmcová's valuable mining potential rather than destroying the asteroid after extracting all of the valuable minerals. Furthermore, Ceres had an obligation to preserve some portion of the asteroid for use by other States.

C. Ceres violated Article IX of the Outer Space Treaty by introducing extraterrestrial material into Earth's environment and by leaving asteroid fragments in orbit to interfere with Vesta's satellite capabilities.

The first stage of mining, during which canisters containing mined material were fired down to Earth,[110] violated Article IX of the Outer Space Treaty because Astermine performed only

[103] Outer Space Treaty, *supra* note 1, art. II.
[104] Virgiliu Pop, *A Celestial Body is a Celestial Body is a Celestial Body . . .*, PROCEEDINGS OF THE FORTY-FOURTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 100, 105 (2001).
[105] Compromis, ¶ 19.
[106] Compromis, ¶ 19.
[107] Outer Space Treaty, *supra* note 1, art. I.
[108] *Id.*
[109] N. Jasentuliyana, *Article I of the* Outer Space Treaty *Revisited*, 17 J. SPACE LAW 129, 139-40 (1989).
[110] Compromis, ¶ 19.

preliminary processing on the extracted ore prior to introducing it into Earth's environment, and Ceres failed to apply appropriate measures to avoid contamination of the environment.[111] Such limited processing could not ensure that the canisters were free of materials that would contaminate the environment. Ceres' disregard for the integrity of Earth's environment was a violation of Article IX of the Outer Space Treaty.

Mining of the asteroid not only barred access to the asteroid but also left fragments of the asteroid in Earth orbit causing interference to Vestan satellite transmissions, increased costs of shielding future satellites and reduced satellite viability.[112] This aspect of the Ceresan mining effort violated Article IX in that the State responsible for space activities is required to undertake international consultations before proceeding with an activity the State knows will interfere with the outer space activities of another State.[113] Ceres, as the State responsible for authorizing and supervising the *Miner*'s activities, should have known that the project would result in debris that would ultimately interfere with Vesta's satellite transmissions.

Vesta could not have requested consultation under Article IX because Astermine, under the control of Ceres, did not publish its plans to mine Boznêmcová as required under Article XI of the Outer Space Treaty. Article XI requires States conducting activities in outer space to inform the Secretary-General of the United Nations, the public, and the scientific community of the nature, conduct, locations and results of such activities.[114] Although Astermine published the results of the *Tombaugh* probe in scientific e-journals and made them available on NASRA's and Astermine's web sites, Ceres failed to inform the U.N. of its plans to mine and ultimately capture the entire Boznêmcová asteroid.[115] Furthermore, greater effort should have been made to alert the public, particularly other States that might be affected, of the plan to destroy the asteroid. Astermine's destruction of the asteroid violated the basic principles of freedom to explore and access to the wealth outer space has to offer. Because Ceres was in the best position to control Astermine, Ceres should be held responsible for all of the treaty violations that resulted from Astermine's mining and ultimate destruction of the Boznêmcová asteroid.

VI. THE CONTINUING PRESENCE OF VESTAN DEFENSE FACILITIES IN NEW VESTA IS LEGAL.

Vesta's decision to maintain military facilities on the Moon does not violate international law because Vesta has a right to defend against Ceres' aggressive actions which continue to threaten Vesta. As a result, Vesta's facilities on the Moon do not violate international law.

A. Vesta had a right to defend itself against Ceres' aggression under Article 51 of the U.N. Charter.

Vesta's facilities on the Moon represent a valid self-defense measure in response to Ceres' repeated attacks. As described above, a valid self-defense measure must respond to an attack by another State; it must be necessary and proportional to the original attack and the defending State must alert the U.N. Security Council immediately after acting.[116] Vesta had been repeatedly attacked by Ceres prior to erecting its facilities on the Moon. The fact that a peace settlement was brokered did not reduce the potential threat arising from Ceres' space-based laser.[117] Furthermore, the facilities were necessary to protect New Vesta from possible attack as Ceres had shown its willingness to act aggressively in space.[118] The facilities also represent a proportionate response because they did not damage any Ceresan property unlike Ceres' actions against Vesta's watchtowers and communications satellite. Though the Compromis is silent on Vesta's notification, the fact that a peace deal was ultimately brokered indicates that the U.N. learned of the facilities soon after they were constructed.

B. Ceres cannot challenge any perceived violation of the Moon Treaty because Ceres is not a party to that agreement.

Article 34 of the Vienna Convention on Treaties specifically states that "[a] treaty does not

[111] Compromis, ¶ 19.
[112] Compromis, ¶ 20.
[113] Outer Space Treaty, *supra* note 1, art. IX.
[114] *Id.*, art. XI.
[115] Compromis, ¶ 6.
[116] U.N. CHARTER art. 51; *Military Activities in Nicaragua*, *supra* note 56, at 103.
[117] The Ceresan military maintained control over space-based laser. Clarifications to the Compromis, ¶ 5.
[118] Ceres had previously attacked Vesta's communications satellite with its space-based laser. Compromis, ¶ 18.

create either obligations or rights for a third State without its consent."[119] Ceres has never signed the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies[120] and, under Article 34, has no right to challenge a perceived violation of that treaty.

VII. CONCLUSION

For the foregoing reasons, Vesta requests this Honorable Court to find Ceres liable for the medical costs associated with the 745 Vestans who developed cancer from radiation poisoning, the cost Vesta expended to clean up the radiation, the loss in property value caused by the radiation and the economic recession resulting from the business disruption caused by the radiation. Furthermore, Vesta requests Ceres be made to compensate Vesta for loss of its communications satellite and be held responsible for violating the Outer Space Treaty when it destroyed the Boznêmcová asteroid.

SUBMISSIONS TO THE COURT

For the foregoing reasons, the Government of Vesta, Applicant respectfully requests the Court to adjudge and declare that:

1. Ceres is liable to compensate Vesta for the health damage, clean up costs, lost property value and economic recession caused by the radiation leaked from the BM-52 crash.
2. Ceres violated international law when it destroyed Vesta's communications satellite with a space-based laser and must be made to compensate Vesta for that loss.
3. Ceres also violated international law when it mined and ultimately destroyed the Boznêmcová asteroid.
4. Vesta is not violating international law by maintaining defensive facilities on the Moon.

---

[119] *Vienna Convention on Treaties.*, art. 34.

[120] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, G.A. Res. 34/68, U.N. Doc. A/RES/34/68; Compromis, ¶ 25.

B. WRITTEN BRIEF FOR CERES

AGENTS:

Jesse Wilson and Isaac Hikaka, University of Auckland, New Zealand

ARGUMENT:

I. INTRODUCTION

This case concerns a dispute between Ceres and Vesta with respect to five issues. First, there is a dispute as to whether Ceres is absolutely liable to Vesta in relation to the launch failure of the BM-52 in light of the twin facts that a Vestan facility was involved in the launch and that gross negligence by Vestan nationals caused the crash. Second, a dispute has arisen as to whether liability in relation to the crash has been extinguished by the settlement agreement of 14 November 2028. Third, this Court must determine whether consequent economic losses incurred throughout a national economy over a three-year period is a recoverable head of damage. Fourth, the question of whether the respondent properly exercised the inherent right to anticipatory self-defence in the face of a threat of attack must be addressed. Finally, this Court must determine whether the presence of military bases on the Moon is in violation of the clear words of the Outer Space Treaty. Ceres seeks a declaration ordering the removal of the lunar military installations and argues that all relief sought by the applicant must be denied. The Principality of Ceres respectfully submits to the Court's findings in this matter.

II. CERES IS NOT LIABLE TO VESTA FOR DAMAGE CAUSED BY THE LAUNCH FAILURE OF THE BM-52

Ceres submits that, given the absence of fault on its part, the only course of action by which Vesta might hold Ceres responsible is to argue that Ceres is absolutely liable for any damage caused by the launch failure of the BM-52. Ceres properly acknowledges that it is a launching state for the purposes of the Liability Convention. [1] However, Ceres submits that it is not liable to Vesta for damage caused by the launch failure of the BM-52. Liability is denied on two independent bases. First on the basis that Vesta was a joint launching state of the BM-52 and second, even if Vesta is not a launching state, Ceres is exonerated from liability because the damage resulted from gross negligence by Vestan nationals.

A. Vesta is also a launching state of the BM-52

Ceres submits that both itself and Vesta were launching states of the Boznemcova Miner. It further submits that one launching state in a joint launch cannot hold a fellow launching state in the same launch absolutely liable. Furthermore, since Vesta is a launching state it cannot make a claim for damages under the Liability Convention.

Vesta qualifies as a launching state of the BM-52 for two independent reasons. First, under Article 1(c)(2) of the Liability Convention it is a state from whose facility a space object is launched.[2] The ground control facility for the BM-52 launch was situated in Vesta. On the basis that this facility controlled all aspects of the launch of the BM-52, the facility was so fundamental that it was a launch facility for the purposes of the Liability Convention. The operation of the facility in Vesta caused the space object to take off in Ceres. Without it the launch would not have been able to be undertaken. The centrality of this facility to the launch process is evidenced by the impossibility of Astermine continuing its launch programme after occupation by Vestan troops of the facility until Astermine reopened an equivalent facility. It is indeed common that a launch facility and a ground control facility are geographically distant and on a proper construction of the Liability Convention both are launch facilities.[3] The facility is connected to Vesta by the fact that is situated within Vestan territory and Vesta exercises jurisdiction over the facility.

Second, Vesta procured the launching of a space object under article 1(c)(i) of the Liability Convention. Procure means to bring about, by paying for a launch or otherwise making it happen.[4] Ceres submits that the provision of the ground control facility was an act of procurement. The facility was situated in Vesta and staffed exclusively by Vestan nationals. The sole purpose

---

[1] Convention on International Liability for Damage Caused by Space Objects, *entered into force* Oct 9, 1973 24 U.S.T. 2389, T.I.A.S No.7762 (hereinafter the "Liability Convention").

[2] Liability Convention, *supra* note 1, Article 1(c)(2).

[3] See for example the US space programme, which has its launch facility in Florida but its ground control facility in Texas.

[4] K.H. Bockstiegel, "The Term "Launching State" in International Space Law" (1994) 37 Proc. Colloq. L. Outer Sp. 80. Stephen E. Doyle, "Legal Aspects of International Competition in Provision of Launch Services" (1987) 30 Proc. Colloq. L. Outer Sp. 203.

of the facility was to effect space launches. Ceres submits that as Vesta exercised control and jurisdiction over a facility that had the sole purpose of effecting space launches, Vesta brought about any launches controlled by this facility and thus has procured the launches.

Third, Vestan nationals procured the launch of the space object. Prior to the submergence of the Federal Islands of Boranatu, Astermine Aerospace Incorporated was a legal person by reason of its incorporation in that state.[5] A corporation exists by reason of the imprimatur of a state. As recognised by the US appellate decision in *Matimak Trading v Khalily*, "a stateless corporation is an oxymoron".[6] The non-existence of the state of incorporation means that Astermine no longer enjoys the protection of the corporate veil.[7] Accordingly it is proper for this Court to take account of the ownership interests of Vestan nationals and their responsibility for procuring the launch.

Under the Liability Convention Vesta is therefore a launching state.[8] Furthermore, Vesta is deemed by Article V(3) to be a participant in a joint launch, which states that:

> "3. A State from whose territory or facility whose space object is launched shall be regarded as a participant in a joint launching."[9]

The fact that the instrument of registration does not specify Vesta as a launching state is immaterial for two reasons. First, the instrument of registration is not the authoritative mechanism for assigning status as a launching state. The determination of which state or states were launching states must be made primarily in accordance with the relevant provisions of the Liability Convention. Second, Article II(2) of the Registration Convention[10] acknowledges that where there are two or more launching states only one launching state is required to register the space object.

Having established that Vesta and Ceres are both launching states of the BM-52, Vesta may not seek to hold Ceres absolutely liable for damage caused by the failure of the launch under Article II of the Convention. Article II contemplates absolutely liability in cases of damage by a launching state to an unconnected state. Article V and Article VII rebut any suggestion that one launching state can impose absolute liability on another launching state.[11] As a starting point, both participants in a joint launch are jointly and severally liable for any damage resulting from the launch.[12] They may conclude an agreement apportioning liability between themselves before the launch,[13] however no such agreement was concluded by Vesta and Ceres.

Moreover, compensation under the Liability Convention for damage caused to the nationals of a launching state is barred by Article VII. If Vesta is a launching state then it follows that Vesta cannot claim compensation on behalf of its nationals under the Liability Convention.[14] Citizens are expected to claim compensation through domestic mechanisms. This might involve either litigation in the domestic justice system or reliance on insurance arrangements as between the government and the commercial launch parties.[15]

B. Ceres is exonerated from absolute liability

If this Court were to hold that Vesta was not a launching state of the BM-52, Ceres would nevertheless be exonerated from absolute liability under Article VI of the Liability Convention. Article VI provides that a state may be exonerated from absolute liability where the damage was caused wholly or partly by the gross negligence or deliberate act of the claimant State or any persons it represents. Ceres argues that the provision of incorrect flight coordinates by Vestan Airspace Command was a causative factor leading to the crash and was the causative factor which led the BM-52 to crash into a highly populated city. This was an act of gross negligence.

Given that the term "gross negligence" is not defined in the Liability Convention, it is necessary to approach the issue by reference to principles of tort law as they have evolved in

---

[5] *Barcelona Traction, Light and Power Company Limited Case (Belgium v. Spain) (Second Phase)* (1970) I.C.J. Rep. 3.

[6] especially *Matimak Trading Co. v. Khalily* 118 F.3d 76 (2d Cir. 1997), *cert. denied* 118 S. Ct. 883 (1998).

[7] Mark Baker "Lost in the Judicial Wilderness: The Stateless Corporation After Matimak Trading" 19 Nw. J. Int'l L. & Bus. 130.

[8] Liability Convention, *supra* note 1, Article 1(c)(ii)

[9] Liability Convention, *supra* note 1, Article V(3).

[10] Convention on Registration of Objects Launched in Outer Space, Jan 14, 1975, 28 U.S.T. 695, T.I.A.S. 8480, 1023 U.N.T.S. 15 (hereinafter the "Registration Convention").

[11] Liability Convention, *supra* note 1, Articles V and VII.

[12] Liability Convention, *supra* note 1, ArticleV(1).

[13] Liability Convention, *supra* note 1, Article V(2).

[14] Liabilty Convention, *supra* note 1, Article VII(a).

[15] Background Paper for the United Nations Committee on the Peaceful Uses of Outer Space, *Review of the Concept of the 'Launching State'* A/AC 105/768, 21 January 2002.

various national jurisdictions.[16] In both common law and civil law[17] traditions, gross negligence or *culpa lata* (in the Roman Law tradition) is distinguished from negligence simpliciter by the element of outrageousness that is associated with gross negligence.

In *McLaren Transport v Somerville*, Tipping J framed the test as being whether 'the level of negligence is so high that it amounts to an outrageous and flagrant disregard for the plaintiff's safety.'[18] This test is an objective one, as explained by Salmon LJ in *Herrington's* case:

"In my opinion a construction [which defines gross negligence as] acts or omissions which the [person] either knows of but chooses to disregard or which ought to be so obvious to the ordinary man as to be inescapable is a proper one."[19]

The approach of Megaw J, considering the issue in the context of a shipping contract, rejected a subjective test of negligence, saying that:

> "Gross carelessness ... [is] is the doing of something which in fact involves a risk, *whether the doer realises it or not*; and the risk being such, having regard to all the circumstances, that the taking of that risk would be described in ordinary parlance as reckless.... If the risk is great, and the probable damage great, recklessness may readily be a fair description, however much the doer may regard the action as justified and reasonable.... The only test, in my view, is an objective one."[20] [Original emphasis]

Also, malicious intent is not properly a requirement for the test of gross negligence. Article VI(1) of the Liability Convention already covers acts done with malicious intent through the use of the words 'from an act or omission done with intent to cause damage.' Were the Court to hold that a malicious intent was required to satisfy the test of gross negligence under the Liability Convention then they would be causing a part of article VI to have no effect.

The amount of property at stake is a key factor in assessing the reasonableness or otherwise of a person's conduct, as has being acknowledged by Kirby P in *Legal & General Insurance Australia Ltd v Eather*:

"What is a 'reasonable precaution' ... will depend upon the circumstances. The greater the value of the property at risk of loss, the greater will be the obligation to take stringent precautions. The greater the foreseeable risk of a loss occurring in the circumstances, the greater will be the obligation to take precautions. The greater the possibility of precautions being take, the more readily will a court infer that they ought to have been taken."[21]

Applying these principles to the present case, there is a strong basis for holding that the damage resulted from gross negligence on the part of Vestan Airspace Command for three reasons. The function of an airspace command is to provide flight path coordinates that ensure aircraft are routed in such a manner that the potential for damage is minimised. The Vestan Airspace Command however, gave coordinates that in fact resulted in the greatest possible amount of damage being caused. But for these incorrect coordinates the BM-52 would not have plummeted into Botulisia. It is submitted that this negligence, fundamentally breaching the duty of the airspace command, is gross negligence and not mere negligence simpliciter. The extraordinary gravity of the risk is such that the Court can readily hold that it was reasonable to take stringent precautions. No such precautions were evident and no satisfactory explanation of the incident has been forthcoming form Vestan Airspace Command. It appears from the findings of the enquiry that had access to all the relevant evidence and the cooperation of Astermine the reason for the failure was human error. The absence of back-up measures in the event of human error suggests further systemic failures on the part of Vestan Airspace Command. In other words it was grossly negligent to design a command system for space launches which was so susceptible to human error and which provided no checks on such an eventuality. Despite the serious nature of space launches, the Vestan Airspace Command took an irresponsible approach towards ensuring the safe launch of the space object. Its failures are outrageous and as such constitute gross negligence. Therefore Ceres submits that it should be exonerated from absolute liability due to the fact that the damage resulted from the gross negligence of Vestan nationals.

III. THE SETTLEMENT OF 14 NOVEMBER 2028 FULLY EXTINGUISHED

[16] Marc Firestone, *Problems in the Relations of Disputes Concerning Damage Caused in Outer Space*, 59, TUL. L. REV. 747 (1985), p.761

[17] Daniel Howard "An Analysis of Gross Negligence" 37 Marq. L. Rev. 334, 337 (1953-1954).

[18] [1996] 3 NZLR 424

[19] [1971] 2 QB 107, 125; [1971] 1 All ER 897, 906

[20] *Shawinigan Ltd v Vokins & Co Ltd* [1961] 1 WLR 1206, 1214; [1961] 3 All ER 396, 403

[21] (1986) ANZ Insurance Cases, 60,749, 74,506

ANY CERESAN LIABILTY TO VESTA IN RELATION TO THE LAUNCH FAILURE OF THE BM-52

Ceres submits that even if it were liable to Vesta in relation to the failure of the BM-52, any such liability was fully extinguished by the settlement of 14 November 2028 (hereafter "the settlement"). Both Vesta and Ceres are bound to fulfil in good faith their obligations under this settlement therefore the Vestan claim is inadmissible.

A. The settlement is binding at international law

The "full and final settlement" is a treaty concluded between the two states. The requirement that the duly authorised agreement be in writing is satisfied on the facts before the Court.[22] The respective foreign ministries of both states negotiated the agreement.[23] The settlement is a treaty under Article 26 Vienna Convention on the Interpretation of Treaties.[24] The principle of *pacta sunt servanda* requires that agreements are to be observed.[25] Article 26 of the Vienna Convention provides that, 'every treaty in force is binding upon the parties to it and must be performed in good faith.'[26] The settlement was a bilateral treaty between Ceres and Vesta. In exchange for compromising its claim Vesta received a payment of monetary compensation which was fixed by negotiations between the parties. In exchange Ceres received the recovered wreckage and components of the BM-52 and an agreement in good faith that liability had been extinguished as between the parties. The treaty remains in force for the benefit and burden of both parties. Vesta cannot resile from the treaty and claim compensation in respect of the BM-52 crash.

In respect of the settlement's coverage of the damage, Ceres submits that the scope of the settlement and the scope of the Liability Convention are coextensive. The scope of the settlement relates to "any claim by Vesta for damage to persons killed or injured by the incident as well as for damage to buildings and property." Claims for the injuries suffered by its nationals as a result of radiation and damage to properties and buildings caused by the crash are covered by the clear terms of the settlement itself. Should Vesta attempt to bypass the terms of the settlement by reframing its claim, for instance as a claim for pure economic loss, then the heads of damage will fall outside the ambit of Article I as discussed below under submission III. All 'damage' allowed under the Liability Convention is provided for by the settlement. Accordingly, any damage which falls outside the terms of the settlement must be outside the Liability Convention.

B. The settlement is not invalidated by error or fraud

The settlement is not vitiated by reason of error. If Vesta were to assert that an error vitiated Vesta's consent to the settlement, Ceres submits that such an argument is misconceived for two reasons. First, Vesta assumed the risk that its assumptions as to the gravity of the damage might prove erroneous. Second, there is no mistake in the treaty. The treaty simply provides for a payment to extinguish claims that may arise from the incident. Third, during the four-month period between the date of the crash and the settlement, Vesta ought reasonably to have been expected to diligently investigate the crash in order to determine its nature, gravity and consequences. It is noteworthy that Vesta had exclusive possession of the recovered wreckage and components of the BM-52 during this period. Vestan troops were also in occupation of the launch facility. Furthermore, Ceres and Astermine provided full cooperation with Vestan government investigations. Vesta was therefore the best placed to make an estimate on the amount and type of damage and negotiate accordingly. It is not now open for Vesta to resile from the settlement by invoking its own lack of diligence as an invalidating factor.[27] Also, any claim put forward by Vesta that the settlement is vitiated by fraud is without merit. It is common ground between the parties that Ceres did not know that the BM-52 was carrying a nuclear payload.[28]

C. Any claim would be time-barred

Ceres rejects any suggestion that Vesta was entitled under Article X of the Liability Convention to revise its claim to take account of new

---

[22] Manfred Lachs Space Law Moot Court Competition 2003, Statement of Facts, p.2 §16.

[23] Manfred Lachs Space Law Moot Court Competition 2003, Additional Facts, p.1 §1.

[24] UN Charter Article 33, Vienna Convention on the Law of Treaties Between States and International Organisations or Between International Organisations, Article 26, *opened for signature* May 23 1969, U.N. Doc. A/Conf.39/27, 8 L.L.M.629.

[25] Vienna Convention, *supra* note 22, Article 26.

[26] *Id.*

[27] Temple of Preah Vihear 1961 ICJ.

[28] Manfred Lachs Space Law Moot Court Competition 2003, Additional Facts, p.1 §7.

information after the claim had been settled on 14 November 2028. Ceres submits, first, that Article X does not allow revision after a settlement has been finalised. Article X(2) states:

> "If, however, a State does not know of the occurrence of the damage or has not been able to identify the launching State which is liable, it may present a claim within one year following the date on which it learned of the aforementioned facts; however, this period shall in no event exceed one year following the date on which the State could reasonably be expected to have learned of the facts through the exercise of due diligence".[29]

This provision plainly envisages a situation in which a claim has not been submitted within the limitation period due to the fact that the damage or other essential facts were not reasonably discoverable by stipulating that the limitation period runs from the date of reasonable discoverability. It does not allow a final settlement to be reopened on the basis that one state has discovered information that has ratcheted up the amount of reparations. That would be contrary to the essential nature of a settlement agreement. Vesta assumed the risk of greater damage being discovered in exchange for a prompt payment of compensation and avoiding the risks associated with pursuing a contestable legal claim.

In any event, Article X(2) does not apply in this case because a diligent investigation on the part of Vesta would have discovered the radioactive contamination of the crash site. The applicable question is on what date did the damage become reasonably discoverable? Ceres submits that several factors suggest that a prudent state would have discovered the damage more than one year prior to 29 October 2035 when Vesta presented its fresh claim to Ceres. First, Astermine had fully cooperated with the Vestan government investigation. In the absence of any suggestion that Astermine mislead the Vestan authorities, it is proper to conclude that Vesta had the opportunity to discover the radiation damage. Second, Vesta was in the best position of the parties to determine the extent of the damage. Vesta retained possession of the recovered wreckage and components of the space object as well as occupying the launch facility. They had detained the staff of the facility who would have been able to assist the Vestan authorities in their inquiries. Third, in the event of such a major accident involving the launch failure of a space object, any reasonable state would have checked the crash site for traces of radioactivity. The failure to take such an obvious and presumably straightforward measure suggests that Vesta was not sufficiently diligent to entitle it to rely on Article X(2)

[29] Liability Convention, *supra* note 1, Article X(2).

IV. THE HEADS OF DAMAGE CLAIMED BY VESTA ARE NOT RECOVERABLE

Vesta seeks to recover for consequent economic loss suffered as a result of the crash of the BM-52. Ceres submits that consequent economic loss is not recoverable under the Liability Convention.

Article I(a) of the Liability Convention provides that:

> "The term 'damage' means loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organisations;"[30]

Ceres submits that consequent economic loss is neither damage to persons nor damage to property. Rather, the damage that Vesta alleges, namely the fall in property prices and the subsequent economic recession, is damage that does not exist in any physical or moral sense but is damage only to an intangible economic position.[31] The Liability Convention is clear in that the damage must be suffered by either a person or property of a state or international intergovernmental organisation.[32] The consequent economic loss Vesta is seeking to claim for is more properly described as being 'pure economic loss' as the harm is caused to an economic interest well removed from the physical damage. Therefore it is a type of damage not recoverable under the Liability Convention.

Furthermore, the damage in the recession in the Vestan economy, whilst linked to the crash, was also influenced by a variety of other factors. Given the dynamism and unpredictability of an economy it is wholly speculative to attempt to assess what, if any, profits may have been made from the multitude of transactions and exchanges in the Vestan economy.[33] In order to claim compensation for damage, there "must be a causal link between

[30] Liability Convention, *supra* note 1, Article I(a).

[31] David P. Lewis, "The Limits of Liability: Can Alaskan Oil Spill Victims Recover Pure Economic Loss" 10 Alaska L. Rev. 87 (1993).

[32] Liability Convention, *supra* note 1, Article I(a)

[33] *McCrae v Commonwealth Disposals Commission* (1951) 84 CLR 377.

the unlawful act and the damage for which compensation is claimed."[34] The Vestan government's counter-productive response to the crisis illustrates this point. The stigmatisation of ethnic Boranatuans and Ceresans by Vesta led to widespread violence and property damage against those groups.[35] Vesta also provocatively used military forces to occupy private facilities and irresponsibly alleged that the crash was the result of Boranatuan terrorism.[36] These actions must have exacerbated the recession by increasing economic instability and lowering investor confidence. Attribution of the consequent economic loss solely to the crash would be fallacious because it ignores the other factors that have played a part in leading to the loss. If the Court were to allow Vesta to recover for the consequent economic loss they would be inequitably burdening Ceres by forcing upon them to pay for indirect damage.

Finally, allowing recovery for consequent economic losses as to do so would floodgates to indeterminate liability.[37] The requirement that only physical or moral damage is recoverable is a valuable control device that ought to remain in place for policy reasons. The fact that the state parties did not specifically include economic loss as a category in Article I provides a sound reason to respect their policy decision.[38] Should the Court allow Vesta to recover for the consequent economic loss it has suffered, it would impose upon launching states a liability virtually unrestricted in scope. For instance, other states that suffered economic loss as a flow-on consequence of damage to the Vestan economy might also have a potential claim. In an inter-dependent global economy, the consequences would be extraordinary. At the least, indemnity insurance premiums would rise substantially and this would impose massive costs on private space actors and the market actors that utilise their services. Ceres submits that expanding liability beyond the limited categories in Article I would create indeterminacy.[39]

V. CERES DID NOT VIOLATE INTERNATIONAL LAW IN RELATION TO THE DESTRUC-TION OF BOZNEMCOVA

Ceres submits that the destruction of the Boznemcova was not contrary to international law. Ceres does not dispute that it had jurisdiction over and is internationally liable for the activities of the Boznemcova Miner.

A. The Respondent is not bound by the Moon Treaty or any principles therein

Ceres submits that this issue must be determined under the Outer Space Treaty and customary international law. Ceres cannot be bound by the terms of the Moon Treaty because it is not a state party due to the principle of *pacta tertiis nec nocent nec prosunt.*[40] The principles of the Moon Treaty, such as the Common Heritage of Mankind, could not be said to form part of customary international law because neither state practice nor *opinio juris* can be proven.[41] In particular the leading space powers have not accepted the principle of the Common Heritage of Mankind as being a binding customary norm.[42]

B. The mining activities were not contrary to the interests of mankind

The use of outer space and its resources is allowed under international law subject to certain requirements. Article I of the Outer Space Treaty[43] affirms that, 'outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States.'[44] Certain limitations on the freedom to exploit outer space set out under Article I include that the exploitation must be in the interests of mankind, that usage must be on the basis of equality and without discrimination. [45] Article IX restricts the use of outer space to prevent

---

[34] *Lafico and Burundi* 96 ILR 279 (1994) 323.

[35] Manfred Lachs Space Law Moot Court Competition 2003, Statement of Facts, p.2 §11.

[36] *Id.*

[37] Lakshman Guruswamy, Sir Geoffrey Palmer et al, *International Environmental Law and World* Order, (St. Paul, Minnesota, West Group, 1999), p.651.

[38] *Travaux preparatoires* of the Liability Convention, A/AC.105/C.2/SR.118.

[39] *Ultramares Corp v Touche Niven & Company*, 255 N.Y. 17 (1931).

[40] Vienna Convention on the Law of Treaties, *supra* at n22, Art.34.

[41] North Sea Continental Shelf Case [969] ICJ Reports 4.

[42] Danilenko, "The Concept of the "Common Heritage of Mankind" in International Law", Annals of Air and Space Law Vol XIII (1988) 262, 263.

[43] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan 27 1967 18 U.S.T. 2410 (hereinafter the "Outer Space Treaty").

[44] *Id.* Article I.

[45] Milton Smith,*The Commercial Exploitation of Mineral Resources in Outer Space*, Space Law: Views of the Future, 45 (1988) 47.

harmful interference with the activities of other states.[46]

Ceres submits that the mining operation carried out on the Boznemcova was not contrary to any of these constraints. A cost-benefit calculation is required to determine the legality of the activity.[47] Ceres submits that the mining of the Boznemcova was in the interests of all mankind for three reasons.

First, the mining project produced valuable palladium reserves with which to supply the world market. Palladium is a valuable and scarce commodity. As Milton Smith has observed, the requirement that states must use celestial bodies 'without discrimination of any kind, on a basis of equality'[48] is not a strict or narrowly prescribed requirement:

> "It imposes no requirement for direct sharing of benefits in any specific manner, but requires only that space activities be beneficial in a very general sense."[49]

One example is that scientific discoveries ought to be made public so that the knowledge may be disseminated.

The requirement of equality and non-discrimination is satisfied because there is no suggestion that these resources were sold in a discriminatory or non-free market manner. Astermine did not act unreasonably or purport to exclude particular nations from purchasing palladium. Whether or not every state received the same amount of palladium is immaterial to determining the legality of the mining operation. Each individual state was free to purchase palladium at prices that were determined by how much other states were prepared to bid for the same resource. States would have made varying choices based on their economic capabilities and needs.

Second, the mining project advanced the state of scientific knowledge by successfully applying the new technique of total capture mining. The advancement of scientific knowledge is an important interest of all mankind which is explicitly recognised in Article I of the Outer Space Treaty.[50] This knowledge was publicised through freely available e-journals and web portals.

Third, one of the applications of resources from Boznemcova was the manufacturing of concrete for use in the Ceresan lunar colony. This use of the Boznemcova advanced a legitimate interest of mankind in the exploration and development of human settlement on the moon. Human settlement is, from a long-term perspective, crucial to the consolidation of human achievements in space and will greatly improve the prospects for further achievements to take place.[51] This is recognised by the preamble of the Outer Space Treaty which states that the state parties to the Treaty are:

> *"Inspired by the great prospects opening up before mankind as a result of man's entry into outer space [and] recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes."*[52]

The new Ceresan lunar colony is a peaceful installation that will increase the human presence on the moon. Accordingly, it is to be expected that the new colony will increase the productive capacity of the moon. Given the prohibitive costs of transporting large quantities of material from the Earth to the moon, which would be one possible alternative to using materials from Boznemcova, the mining of the asteroid provided a cost-effective benefit to mankind.

Ceres notes that costs were also associated with the mining of Boznemcova but nonetheless submits that such costs do not outweigh the benefits to other countries. Specifically, Ceres addresses three potential costs of the destruction of Boznemcova. First, it might be asserted that the destruction of the asteroid lessened the value of the 'province of mankind' by eliminating one constituent part of it.[53] Such an argument would rest on an unrealistic interpretation of the international legal framework on outer space. All productive activities incur opportunity costs in that a given resource is no longer available to be used for a different purpose or to remain untouched. If the

---

[46] *Id.* Article IX.

[47] Marietta Benko, and Kai-Uwe Schrogi, 'Article I of the Outer Space Treaty Reconsidered After 30 Years: "Free Use of Outer Space" vs. "Space Benefits"', in Gabriel Lafferranderie (ed.), *Outlook on Space Law Over the Next 30 Years: Essays Published for the 30th Anniversary of the Outer Space Treaty*, (Kluwer Law International, 1997) p.70.

[48] Outer Space Treaty, *supra* note 4o, Article I.

[49] Milton Smith, *supra* note 37, p.46.

[50] Article I: 'There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.'

[51] Marietta Benko and Kai-Uwe Schrogi, *Article 1 of the Outer Space Treaty Reconsidered after 30 Years: "Free Use of Outer Space*, Outlook on Space Law over the next 30 Years: Essays Published for the 30th Anniversary of the Outer Space Treaty 67 (1997) 71.

[52] Outer Space Treaty, *supra* note 43, Preamble.

labeling of outer space as the 'province of mankind' is taken to mean that any destruction of any part of outer space is prohibited, then that interpretation would place extraordinary restraints on human development. Indeed it would thwart objectives which are specifically endorsed by the relevant treaties and conventions, including the desirability of scientific advancement, human exploration and the peaceful use of outer space. It is more plausible and pragmatic to treat the destruction of an insignificant part of that province as not inherently objectionable. The legality or otherwise of such an action should be evaluated by taking into account all the circumstances rather than being unlawful *ab initio*.

Second, Vesta might point to the negative externalities of Astermine's destruction of the asteroid to assert that the costs outweigh the benefits that accrued to mankind from the mining of the asteroid. These negative externalities include damage to satellites from space debris and the increased costs of maintaining and constructing satellites due to the impact of space debris. Ceres however questions whether the creation of space debris as a byproduct of a space activity is sufficient in itself to make that activity unlawful. Such as result would unreasonably inhibit human activity in outer space, as the amount of space debris has continuously increased with man's exploitation of space.[54] Although this space debris is a significant problem, it would be too drastic for this honourable Court to effectively hold that the creation of space debris is contrary to international law. The unusual consequences of such a claim are readily apparent. On the basis that space debris is composed in part of mission-ended satellites, rocket bodies, and fragments resulting from break-up of operational components, Ceres asks whether any space launch is *prima facie* unlawful if such debris is foreseeable? Space debris is akin to pollution in terms of its deleterious effects. On this analogy, it is more prudent to explore methods of abatement or regulation rather than holding that pollution is illegal *per se*. Ceres does not at this point make any submissions on the question of whether space debris would give rise to a well-founded claim for reparations because no such claim has been presented. It does, however, reject the extraordinary contention that activities producing space debris are contrary to international law.

[54] Stephen Gorove, "Pollution and Outer Space: A Legal Analysis and Appraisal" 5 N.Y.U. J. Int'l L. & Pol. 54.

C. The asteroid was not subjected to national appropriation

Article II of the Outer Space Treaty prohibits the national appropriation of outer space and celestial bodies.[55] Ceres further submits that Astermine did not nationally appropriate Boznemcova by means of use, occupation or claim of sovereignty. It is submitted that private entities cannot make any recognised claims to territory in outer space and therefore no assertion of ownership by a private entity could amount to national appropriation within the meaning of Article II. The eminent jurist Stephen Gorove has argued that "national appropriation" has the limited meaning that naturally attaches to the plain words of Article II.[56] Article II prohibits appropriation by states. Ceres did not assert ownership or take any other action amounting to appropriation.

Even if the actions of private entities are covered by Article II, appropriation by occupation or claim of sovereignty may be reasonably ruled out on the basis that the facts disclose no basis for such an argument. This leaves the issue of whether the "total capture mining" of Boznemcova constituted appropriation by use.

The mining activities on Boznemcova constituted exploitation of resources which does not equate with appropriation. As a matter of law, mining celestial bodies does not constitute appropriation. There is a sound distinction between "acquisition of sovereignty and of resources."[57] Article II of the Outer Space Treaty prohibits the former but not the latter. The exploitation of resources in outer space is therefore a lawful activity subject to certain usage constraints, which have been previously discussed. The Outer Space Treaty does prevent the creation of proprietary rights *"in* situ by some form of occupancy."[58] In principle the availability of the resources of outer space and celestial bodies is comparable to the access by states to the resources of the high seas.[59] Astermine was therefore constrained only by the requirements of Article I and Article IX of the Outer Space Treaty.[60]

Ceres submits that economic and scientific development is a legitimate purpose for acquiring mineral resources, pursuant to the freedom of

[55] Outer Space Treaty, *supra* at n43, Article II.

[56] Stephen Gorove "Interpreting Article II of the Outer Space Treaty" 37 Fordham L. Rev. 349,352 (1968-1969).

[57] J.E.S. Fawcett, *Outer Space: New Challenges to Law and Policy*, 12 (1984)

[58] J.E.S. Fawcett, *supra* note 44, 13

[59] Outer Space Treaty, *supra* note 43, Article XI(7).

exploration and use provided under Article I of the Outer Space Treaty. The diminution of a body of resources as a result of use is properly described under law as extraction and exploitation, not appropriation. Therefore Ceres submits that national appropriation of Boznemcova did not occur and that the key question relates only to the usage constraints on exploitation. In other words, if the exploitation of Boznemcova was in the interests of mankind then Astermine did not act contrary to international law.

VI. CERES DID NOT VIOLATE INTERNATIONAL LAW BY DESTROYING THE VESTAN NATIONAL COMMUNICATIONS SYSTEM ON 30 MAY 2036

Ceres submits that its military action against the Vestan National Communications System was justified on the basis of self-defence under Article 51 of the United Nations Charter. If the Applicant were to argue that the action was inconsistent with Ceres' obligations under the International Telecommunications Union, Ceres submits that the telecommunications in question constituted a threat to Ceresan national security under Article 34 of the Constitution of the International Telecommunications Union. Ceres denies any claim that positioning laser weapons in Earth orbit is unlawful *per se*. The Outer Space Treaty prohibits only weapons of mass destruction from being deployed in orbit.[61]

A. Justification under Article 51 of the United Nations Charter

The use of force is prohibited by Article 2(4) of the Charter subject to two well-recognised exceptions. The first exception relates to authorisation by the United Nations Security Council acting pursuant to Chapter VII. The second exception is self-defence under Article 51. Article 51 provides that if an armed attack occurs nothing shall impair the inherent right to self-defence.[62] The use of the term "inherent" recognises that the right to self-defence existed at international law prior to the Charter and that the ambit of self-defence at customary international law is relevant to the interpretation of Article 51.

Ceres relies on two alternative grounds for justifying its actions. First, the destruction of the satellite was an act of anticipatory self-defence against a potential attack by the Vestan military. Second, the destruction of the satellite was in self-defence against an attack by the Vestan-based terrorist group, Astervic.

1. Anticipatory self defence against Vesta

Ceres submits, first, that there is a customary right to anticipatory or preemptive self-defence in certain limited circumstances based on the *Caroline Incident*.[63] Following the exchange of diplomatic notes between the United Kingdom and the United States, this was accepted as reflecting an existing norm of customary international law. The threat in the *Caroline Incident* was a vessel ferrying supplies and reinforcements to Canadian rebels.[64] This right survives under Article 51 notwithstanding the use of the words "if an attack occurs". These words are capable of meaning that the right to self-defence is triggered if an attack is an immediate probability. Any practical construction of Article 51 would necessarily entitle states to act preemptively in a situation similar to that in the *Caroline Incident*. The practicality of *Caroline* is of the utmost relevance in the present context of military technology. The stark reality for states in the age of ballistic missiles, weapons of mass destruction, information warfare and highly mobile military units is that the first strike might be the only strike. The time horizon between the mobilisation of military forces and the actual attack is more truncated than at any time in human history and the level of firepower capable of being applied has also increased exponentially.[65] The point in time when defeat can be averted and the survival of a state secured is before the missiles or bombs strike.

Having established the existence of the right to preemptive or anticipatory self defence, Ceres submits that the threat posed by Vesta and the Ceresan military response were within the ambit of the Caroline doctrine and Article 51 of the United Nations Charter. The criteria by which the action ought to be evaluated are whether there was an overwhelming necessity to act whether the state

[61] Outer Space Treaty, *supra* at n43, Article IV(1).

[62] Charter of the United Nations, June 26, 1945, Can TS 1945 No.7.

[63] John Moore. *A Digest of International Law*, 409, 412, vol.II (1986). The principles of the Caroline Incident are derived from an exchange of diplomatic documents between the United States and Great Britain in 1842.

[64] *Id.*

[65] Rex Zedalis, "Preliminary Thoughts on Some Unresolved Questions Involving the Law of Anticipatory Self-Defence" (1987) 19 Case W. Res. J. Int'l L. 129, 131. Zedalis offers the examples of the Cuban Missile Crisis of 1961 and the 1981 Israeli strike on the Tamuz I nuclear reactor as reflecting the danger of weapons of mass destruction.

purporting to rely on the right to self defence acted proportionately.[66]

The discovery by Ceres of evidence that Vesta was planning to use its communications satellite for an armed attack on Ceres created a military necessity to act. The likelihood of an armed attack by another state is a threat of the highest order for a state. Article 51 is not self-executing; it requires value judgement and action on behalf of states based on their good faith interpretation of their international legal obligations and the application of those obligations to the facts as they appear to them.

Second, the threat was immediate. It therefore required decisive and robust action on the part of Ceres. As discussed above, orbital weapons have fundamentally changed the time horizon in which military strikes can be made. An attack by Vesta could have been carried out soon after the political decision to do so. Given the heightened state of tensions as a result of the terrorist strike from Vesta and the open hostilities along the border, it appeared that full-scale war was imminent. In this context, with the Ceresan capital having been bombarded by a missile and Ceresan and Vestan troops engaging each other in combat, a Vestan attack would not have been subject to the delays that might ordinarily be expected when one state makes a decision to attack another. Vestan forces were already mobilised and the political atmosphere within appeared ready to sanction the use of force against Ceres. Moreover, a standard mobilisation of soldiers by Ceres would be too slow in comparison to the speed of an orbital attack and at any rate would be entirely ineffective as a means of defence. Ceres could not have been expected to compromise its military situation by leaving itself open to attack while it attempted to avert the attack by diplomacy.

The issue of proportionality can be dealt with relatively briefly. If Ceres' submissions in relation to the existence of a military necessity to act in response to an immediate threat are accepted, then it is difficult to deny that the Ceresan strike was proportionate. The destruction of a satellite system is not an excessive response to a threat of armed attack. The strike caused no human casualties and only moderate economic damage by comparison with convention warfare on the Earth's surface.[67] By severing the linkage on which Vestan command and control systems relied, the Ceresan attack might be properly characterised as a "surgical strike" in the sense that it involved the destruction of a specific target in order to disable a large number of military threats.

2. Self defence against Vestan-based terrorists

Ceres submits that the missile strike against Ceres on 2 May 2036 constituted an "armed attack" giving rise to a right of self defence. The terrorist attack is attributable to Vesta for several reasons. The decision of this Court in *Diplomatic and Consular Staff in Tehran* case is authority to the effect that a state can have conduct imputed to it as a result of having breached a relevant obligation at international law. In that case, the hostage taking was attributed to Iran not because the hostage takers were agents of the state but instead because Iran had breached its international obligations by not recognising the special protection to which diplomatic staff are entitled and by not bringing the crisis to an end. In the instant case, Vesta breached its obligations under United Nations Security Council Resolution 1373 and therefore can be held responsible by Ceres for the missile attack on 2 May 2036.[68] Specifically, Vesta acted inconsistently with SCR 1373 by failing to actively suppress terrorist groups; failing to deny Astervic safe havens within Vesta; failing to take active measures to deny the supply of weapons; providing funds or allowing its funds to be distributed to a terrorist group.[69]

Alternatively, customary international law with respect to the attribution of state responsibility for terrorist groups has evolved in the context of the "war on terrorism". In response to the terrorist attacks on September 11 2001, the United States, with the tacit acquiescence or overt approval of a substantial majority of states, justified its invasion of Afghanistan on the basis of self defence.[70] There was no suggestion that the Taliban regime had ordered the attack or that the Al Qaeda operatives were de facto agents for the state of Afghanistan. Afghanistan had, however, failed to eliminate Al Qaeda. The North Atlantic Treaty Organisation invoked Article 5 of its Charter, recognising that the

[66] *Legality of the Threat or Use of Nuclear Weapons*, 1996 I.C.J., 1.

[67] Ilia Kuskuvelis, *The Method of Genetic Effectiveness and the Future of the Military Regime of Outer Space*, Space Law: Views of the Future, 97 (1988) 83.

[68] United Nations Security Council Resolution 1373, adopted 28 September 2001.

[69] *Id.*

[70] Peter Rowe "Responses to Terror" (2002) 3 Melbourne Journal of International Law 301.

terrorist incident was an armed attack attributable to a state. Other states made declarations of support. State practice can be found in this incident. Opinio juris is also found in the supportive response from other states. On this basis, Vesta is analogous to Afghanistan. Vesta failed to suppress Astervic and indirectly funded the group. Astervic remains at large and constitutes a continuing threat. Ceres was therefore justified in attacking infrastructure which might be used by the terrorists to coordinate further attacks.

B. Justification for cutting off private telecommunications under the Constitution of the International Telecommunications Union

Ceres properly concedes that an empowering provision to cut off private telecommunications under the Constitution of the International Telecommunications Union would not provide a good defence against a claim based on Article 2(4) of the United Nations Charter. However, if Vesta were to press a claim based on the illegality of cutting off telecommunications, Ceres relies on Article 34 of the Constitution as a justification for the action. Article 34 provides that:

> "1. Members reserve the right to stop the transmission of any private telegram which may appear dangerous to the security of the State ... provided that they immediately notify the office of origin of the stoppage of any such telegram or any part thereof, except when such notification may appear dangerous to the security of the State.
> 2. Members also reserve the right to cut off any other private telecommunications which may appear dangerous to the security of the State...."[71]

Based on the foregoing analysis under submission V(a), Ceres submits that the intercepted Vestan communications appeared dangerous to the security of Ceres and that Ceres was therefore justified in cutting off these communications by destroying the satellite which relayed them. Given the circumstances as discussed under submission V(a) above, Ceres was justified in not giving notice. Alternatively, the note verbale to the President of the United Nations Security Council constituted adequate notice of the stoppage of communications.

VII. THE ONGOING PRESENCE OF VESTAN MILITARY INSTALLATIONS ON THE MOON IS UNLAWFUL

Article IV of the Outer Space Treaty expressly demilitarises the moon. It states that:

"The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden".[72]

The plain meaning of this provision is clear. The Vestan bases are military installations that have never been used for any non-military purpose. On this ground alone, Vesta's installations are manifestly unlawful. Furthermore, Article IV provides that 'the moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes.'[73] Ceres submits that 'peaceful' in this context means non-military. Subject to explicit exemptions for military personnel engaged in scientific or certain purposes, Article IV bars military activities and installations on the moon. This provides a further basis for holding that the Vestan military facilities are illegal.

Ceres submits that an alternative interpretation of 'peaceful' as meaning 'non-aggressive' is, in the words of Bin Cheng, 'needless, wrong and potentially, noxious.'[74] It should be noted, however, that irrespective of the construction given to the term 'peaceful', this Court would nevertheless need to reconcile this interpretation with the subsequent sentence which explicitly bans military installations by name.

The interpretation of 'peaceful' as meaning 'non-aggressive' is needless in the sense that it deprives the article of any true purpose. Such a construction would propose in effect that the state parties agree to prohibit that which is already illegal. Aggression is unlawful both on Earth and in outer space by reason of Article 2(4) of the United Nations Charter.[75] It is superfluous to reaffirm the application of the United Nations Charter and international law because Article III acknowledges that:

"States Parties to the treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law,

---

[71] Constitution of the International Telecommunications Union, article 34.

[72] Outer Space Treaty, *supra* note 43, Article IV.

[73] Outer Space Treaty, *supra* note 43, Article IV.

[74] Bin Cheng, *Studies in International Space Law*, (Oxford, Clarendon Press, 1997) 520.

[75] Charter of the United Nations, *supra* at n61, Article 2(4).

including the Charter of the United Nations ..."[76]

The exemption for military personnel would also be redundant since military bases would presumably be unobjectionable insofar as they were used only for 'non-aggressive' purposes.

This interpretation is also wrong because it is clearly inconsistent with the extrinsic materials relating to the drafting of the provision and the *opinio juris* of the majority of states. The primary proponent of this construction was the United States who approached the issue as a matter of national security during the Cold War.[77] In light of the facts that the United States was a minority during the drafting process and that the end of bipolar nuclear confrontation makes such a contrived approach to Article IV inappropriate, Ceres submits that this Court ought not to acknowledge such an interpretation as valid.

The extent to which defining peaceful as 'non-military' would thwart the intentions of state parties is evident when the almost identical language of the Antarctic Treaty is evaluated. Article I of the Antarctic Treaty closely mirrors Article IV(2).[78] The deployment of military bases and weapons in Antarctica would plainly be undesirable and unintended by the states parties to that treaty. The same logic and language would, however, apply equally to the Antarctica Treaty as the Outer Space Treaty. This court ought not to abandon the clear meaning of 'peaceful' as non-military in order to allow states to deploy military forces in areas specifically set aside as being 'exclusively peaceful' under the puzzling and murky guise of acting in a 'non-aggressive' manner.

Second, Ceres submits that it is not open to Vesta to terminate its adherence to the Outer Space Treaty under the Vienna Convention. Ceres submits that the only aspects of the Vienna Convention that may be relevant are the ability for a state to withdraw in the event necessity or with the occurrence of a fundamental change of circumstances. With regard to the first aspect, it is submitted that there is no state of necessity requiring a Vestan withdrawal. Even if a state of necessity did exist, ie at the time of hostilities between Ceres and Vesta, such state of necessity does not terminate a treaty, rather it exonerates a state from its responsibilities under the treaty as long as the condition of necessity exists.[79] Given that a state of hostilities no longer exists, any exoneration Vesta may have had the benefit of has long since expired, and therefore Vesta is in material breach of the Outer Space Treaty. With regard to the first aspect, it is submitted that the International Court of Justice was correct when it observed that the changed circumstances must be of such a nature that "their effect would radically transform the extent of the obligations still to be performed".[80] There are no changed circumstances that radically transform the extent of the obligations Vesta holds; namely to remove their illegal military installations from the Moon. Therefore Vesta must remove these installations forthwith.

VIII. CONCLUSION

For the reasons stated above, it is proper for the questions presented to this Court to be answered in favour of the Respondent. Accordingly, all declarations sought by the Respondent ought to be granted and the relief sought by the Applicant must be denied.

SUBMISSIONS TO THE COURT

For the foregoing reasons, the Government of Ceres, Respondent, respectfully requests the Court to adjudge and declare that:

(i) Ceres is not liable to Vesta in relation to the launch failure of BM-52.

(ii) If Ceres was liable to Vesta in relation to the launch failure of BM-52, that liability was fully extinguished by the payment of US$860 million to the government of Vesta

(iii) In any event, the heads of damage claimed by Vesta are not recoverable.

(iv) The destruction of the Vestan communications satellite system did not cause Ceres to violate any applicable international legal principles.

(v) Ceres did not contravene international law by destroying the Boznemcova.

---

[76] Outer Space Treaty, *supra* note 43, Article III.

[77] Bin Cheng, *supra* note 55, 515

[78] The Antartic Treaty, December 1 1959, 402 U.N.T.S 71, Article I(1): "Antarctica shall be used for peaceful purposes only. There shall be prohibited, *inter alia*, any measures of a military nature, such as the establishment of military bases and fortifications".

[79] *Case concerning the Gabcikovo-Nagymaros Project (Hungary v Slovakia) (Judgement)*, [1997] ICJ Reports, 58, para.101.

[80] *Id.* para.104.

(vi) The continuing presence of Vestan military facilities and installations in New Vesta is unlawful.