

MANFRED LACHS SPACE LAW MOOT COURT COMPETITION 2022

TEAM NO. 3

IN THE INTERNATIONAL COURT OF JUSTICE

AT THE

PEACE PALACE, THE HAGUE

**Case Concerning Registration and
Damages Involving Objects Manufactured in Space**

Candidia

v.

Xenovia

ON SUBMISSION TO THE INTERNATIONAL COURT OF JUSTICE

MEMORIAL FOR THE RESPONDENT

XENOVIA

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LIST OF ABBREVIATIONS

| | |
|--------|---|
| AI | Artificial Intelligence |
| ARSIWA | 2001 Articles on Responsibility of States for Internationally Wrongful Acts |
| ARRA | 1968 Agreement on Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space |
| CTC | Convention on International Interests in Mobile Equipment |
| ICJ | International Court of Justice |
| IISL | International Institute of Space Law |
| ILC | International Law Commission |
| ISS | International Space Station |
| ITU | International Telecommunication Union |
| LEO | Low-Earth Orbit |
| LIAB | 1972 Convention on International Liability for Damage Caused by Space Objects |
| OST | 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies |
| PCIJ | Permanent Court of International Justice |
| REG | 1975 Convention on Registration of Objects Launched into Outer Space |

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| SAP | Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets |
| SAR | Space Assets Registry |
| SDMGs | UN COPUOUS Space Debris Mitigation Guidelines 2007 |
| UN | United Nations |
| UN COPUOS | United Nations Committee on the Peaceful Uses of Outer Space |
| UNGA | General Assembly of the United Nations |
| VCLT | 1969 Vienna Convention on the Law of Treaties |

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QUESTIONS PRESENTED

I. Whether Xenovia acted in accordance with international law by attempting to obtain physical possession and control of Valerian 806;

II. Whether Xenovia is liable for the loss of lives on board Candidia's cargo plane, the loss of the aircraft, and the loss of revenues from the destruction of Valerian 806 under the OST and general international law; and

III. Whether Candidia is liable for the loss of Fenix-3 under the OST and general international law.

STATEMENT OF FACTS

1. The State of Candidia (Candidia), only recently became an independent nation. Under its National Legislation on Space Affairs (**NLSA**), Candidia allows prospective companies to carry out space activities within its jurisdiction and submit their own reports, without further verification, to obtain authorisation. Candidia is party to the 1967 Outer Space Treaty (**OST**) and the 1968 Rescue and Return Agreement (**ARRA**).
2. The State of Xenovia (Xenovia) is a neighbouring nation to Candidia, offering geosynchronous orbit launch capabilities to several other countries due to its strategically located position near the Equator. In addition, Xenovia boasts a skilled workforce and expertise in space-related technologies and 3D printing technologies. Xenovia is party to the OST, ARRA, the 1972 Liability Convention (**LIAB**) and the 1976 Registration Convention (**REG**).
3. Candidia and Xenovia are competitors within the space market. Candidia, through a State-owned Investment Fund actively seeks the ownership of satellite systems through the commercial acquisition of their owners or operators. Candidia has also gained a reputation of acting as a flag of convenience for satellite operators by setting low thresholds in terms of fees, tax and information on the functioning of spacecrafts. Candidia refuses to disclose pertinent information, such as the identities of the owners of its space objects, and its laws provide that the identity of company shareholders and owners of financial accounts are not subject to disclosure. Candidia's banking laws allow for creditors to execute documents on behalf of their debtors.

4. In 2022, Candidia set up a national registry of space objects, but this is incomplete and not up to date.

5. In 2023, Selada, Inc., a company incorporated in the State of Safrandia (Safrandia), obtained financing for the Pacem Space Station (Pacem) from Alendularia S.A., a company incorporated in Xenovia. The security agreement operates under the laws of Xenovia, using the remedies available to creditors under the 2005 Cape Town Convention (**CTC**) and 2012 Space Assets Protocol (**SAP**).

6. In 2024, Candidia notified the International Telecommunication Union (**ITU**) of its intention to launch a constellation, which would comprise of satellites manufactured on Candidian territory and others manufactured on-orbit using 3D printing. The ITU replied that the time for processing filings could be as long as seven years.

7. In 2025, Pacem, owned and operated by Selada, Inc., was constructed using 3D printing. Components of Pacem were launched from Safrandia, Xenovia, Candidia and other nations. None of these components were individually registered in any State.

8. After the components were launched, but prior to its assembly in outer space, Selada, Inc. moved its corporate charter and headquarters to Candidia to benefit from its low tax laws.

9. Prior to its move to Candidia, Selada, Inc. had been granted a licence to operate Pacem for five years by the government of Safrandia. This five-year period commenced on 1 July 2026. The

licence also specified that, within six months from the formal commencement of operations, Pacem should be registered in Safrandia's national registry and this should be notified to the UN.

10. In 2026, Candidia and Xenovia ratified the CTC and SAP. In 2027, the regime under the CTC and SAP became applicable. The Space Asset Registry Foundation was also established as a Supervisory Authority.

11. Whilst operating from Candidia, the shareholders of Selada, Inc. directed that the research conducted on board Pacem be considered proprietary information and should not be broadly shared with the international community.

12. Additionally, Selada, Inc. undertook the 3D printing of satellite components from materials supplied by companies under contract with it. Some of these components were used in the Valerian constellation of small satellites.

13. Valerian satellites benefit from AI technologies and are capable of reprogramming to modify their functions and change their orbit. Each satellite weighs 100kg and is designed to operate for about three years. Although Valerian satellites are autonomous, they are deployed from Pacem and are de-orbited by propulsion controlled from Pacem.

14. In February 2029, Selada, Inc. conducted a risk analysis which concluded that there was a 1 in 5,000 chance that any component of a Valerian satellite would survive atmospheric re-entry

and reach the surface of the Earth. As per Candidia's laws, this information was not verified further.

15. The lack of an effective Space Traffic Management system was highlighted by the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) and the ITU as a significant pressing issue. At the 2030 meeting of UNCOPUOS, in a bid to address this issue, Xenovia announced its commitment towards developing a fleet of robotic space objects, owned and operated by a public-private partnership, Fenix LLC, in which Xenovia has a 50% equity share. The space objects would provide much-needed services, such as the on-orbit refuelling, repair and repositioning of satellites. Candidia alleged that these satellites were a potential military weapon. Xenovia denied these allegations and formally announced that its activities would be used for peaceful purposes.

16. On 29 July 2031, after the licence issued by Safrandia had expired, Pacem deployed the Valerian 806 satellite, owned by Candidia. The satellite had equipment leased to several customers and was utilised in the private secure network of the Safrandian Government.

17. On the same day, Selada, Inc. notified Alendularia S.A. that it would be defaulting on its payments, specifically its payment due on 1 August 2031. In response, Alendularia S.A. gave Selada, Inc. a 90-day period within which to comply.

18. Selada, Inc. failed to comply with this notice period and, on 1 November 2031, Alendularia S.A. contracted with Fenix LLC to obtain physical possession and control of Valerian 806 and

relocate it to another orbit. Valerian 806 was chosen since it constituted property of Selada, Inc., and it was the least disruptive means of satisfying the debt owed by Selada, Inc. to Alendularia S.A.

19. The Fenix-3 satellite, owned by and registered in Xenovia, manoeuvred towards Valerian 806, unaware that the satellite had a weak structure. The section of the Valerian 806 satellite which was grabbed, crumpled, and a fuel line was ruptured, resulting in an explosion that destroyed both satellites.

20. As a result of the explosion caused by the Valerian 806 satellite, a fragment of the Fenix-3 satellite that survived atmospheric re-entry struck a cargo plane of Candidia in flight, leading to the loss of lives of all nine persons on board.

21. Both Candidia and Xenovia conducted investigations into the accident. Xenovia, who has a reputable workforce with training in space activities and 3D printing technologies, concluded that the accident was owing to the weak structure of the Valerian 806 satellite because of its fabrication in low gravity. Candidia maintained that the basic structure of the Valerian 806 satellite was proper, but this conclusion was contingent on the materials used to construct the satellite being compliant with contract specifications.

22. Xenovia filed a request for the telemetry data of Valerian 806, which was refused by Candidia. Xenovia concluded in its post-accident report that this refusal of Candidia to produce

crucial evidence leads to the inference that the services offered by Valerian 806 to Safrandia were military in nature.

23. Xenovia also filed a formal request for consultation through diplomatic channels, which Candidia rejected.

SUMMARY OF ARGUMENTS

A. XENOVIA ACTED IN ACCORDANCE WITH INTERNATIONAL LAW BY ATTEMPTING TO OBTAIN PHYSICAL POSSESSION AND CONTROL OF VALERIAN 806 AND IS NOT LIABLE TO CANDIDIA FOR ANY ALLEGED DAMAGES

1. Xenovia, through the Fenix-3 satellite and in reaction to a default on payments to its national company Alendularia S.A., lawfully attempted to obtain physical possession and control of Valerian 806 under the OST and the remedies of the CTC and SAP. Further, Xenovia is not liable to Candidia for the loss of lives on board Candidia's military cargo plane, the loss of the plane itself or the loss of revenues resulting from the destruction of Valerian 806.

2. Selada, Inc. is a company incorporated and headquartered in Candidia. This makes it a national of Candidia. The conference of Candidian nationality on Selada, Inc. has the consequence that Candidia is responsible for the activities of Selada, Inc. in outer space under Article VI OST. Therefore, when explaining the duties and rights of Selada, Inc. in its space activities, the responsibility of Candidia is invoked.

3. Xenovia acted in accordance with the OST in its lawful possession of Valerian 806. Substantively, Xenovia complied with its Article IX OST obligations. This included its obligation to enter consultations of which the requirements were not met. Indeed, Xenovia has no reason to believe that harmful interference would occur due to the physical possession of satellites being a routine element of Xenovia's commercial on-orbit servicing operations. Xenovia did not foresee inherently weak structures being placed on-orbit which could not withstand normal possession operations. Further, Xenovia discharged its due regard duty by exercising its rights in the least disruptive manner. Xenovia, in fulfilment of the debt owed by Selada, Inc., chose to possess an

asset which did not affect the operation of Pacem. Finally, Xenovia respected Article VIII OST's conferral of jurisdiction and control, but submits that Candidia did not have such rights over Valerian 806 due to its inferred non-registration.

4. Xenovia also acted in accordance with the remedies set out under CTC and SAP, which apply to the security agreement. The agreement was governed by Xenovia's laws. Xenovia, therefore, submits that it was correct to pursue the CTC remedy of possession since this was incorporated into the security agreement. First, Valerian 806 and Pacem were space assets for the application of the SAP. Second, the agreement was validly constituted for the purposes of the CTC. Third, Valerian 806 was the correct asset to obtain given its ownership by Selada, Inc. Moreover, Selada, Inc.'s non-payment was sufficient to amount to default under the CTC, the possession was a 'commercially reasonable' course of action pursuant to the criteria established in Article XVII SAP and there were no other competing interests over Valerian 806 and thus no other interest had priority.

5. Further, Xenovia is not liable to Candidia under Article VII OST and LIAB and has no duty to make reparation to Candidia under general international law for any of the damages alleged.

6. Under Article VII, liability is only imposed if it is proved that the damages were caused by Xenovia and the Fenix-3 satellite, which is not the case. Instead, the damage was a direct consequence of Candidia's failure to adhere to standards encompassed in its obligation to authorise and continuously supervise under Article VI OST. Moreover, the damages were not foreseeable by Xenovia which is a key requirement for causation to be established in international law. Finally,

indirect damages cannot be claimed under the OST, which only permits direct damages to be claimed for. Liability can also not be claimed under LIAB because Candidia is not a party to the treaty.

7. International law recognises international responsibility with a duty to pay reparation in the instance of a wrongful act attributable to the State. Xenovia does not meet the requirements for such a duty. First, there was no breach of international obligations in Xenovia's lawful possession of Valerian 806 under the OST or the CTC and SAP. Xenovia's conduct in outer space was peaceful, and vital to the effective realisation of non-binding international sustainability standards with its on-orbit servicing capabilities. Xenovia was also entitled to operate its space activities with a degree of satisfaction that national companies were authorised and are being supervised correctly, and thus it cannot be held responsible for the failings of other States in this regard.

B. CANDIDIA IS LIABLE FOR THE LOSS OF FENIX-3.

1. Candidia is liable for the damage caused to Fenix-3 under Article VII OST and is under a duty to make reparation to Xenovia pursuant to general international law.

2. The conditions for liability under Article VII OST are that Candidia has launched or procured the launch of Valerian 806, Valerian 806 is a space object, Valerian 806 caused the damage and the damages are recoverable under the OST. Since these criteria are fulfilled, Candidia is liable for the damage caused under Article VII OST by Valerian 806.

3. First, Candidia procured the launch of Valerian 806 since Candidia owns the object and derived benefit from the satellite. It can be inferred that Candidia caused the object to be launched

through some financial arrangement with Selada, Inc. Second, Valerian 806 is a space object given that it is an object launched into space for the purposes of a mission. Third, the fact that Valerian 806 caused damage is satisfied in the employment of the *res ipsa loquitur* maxim where obvious causation is apparent. There is also the requisite proximate causation, given that damage occurring due to weak oversight of national entities in space was foreseeable. Fourth, the damages are recoverable because it is sufficiently certain that, had Candidia acted according to its international obligations, the damages would not have occurred.

4. Further, Candidia has a duty to pay reparation for the damage to Fenix-3 under general international law. Candidia's wrongful acts included a failure to properly authorise and supervise the activities of its national entity pursuant to Article VI OST. Second, Candidia did not ensure Selada, Inc.'s compliance with Article IX OST owing to its failure to correspond to internationally recognised practices regarding information sharing to avoid mistrust among space-faring nations. Third, Candidia failed in its due diligence obligations under general international law by failing to adopt legal rules to prevent foreseeable harm. Finally, this conduct is attributable to Candidia through the duty to authorise and continuously supervise being placed on a State organ. Therefore, under ARSIWA Article 4, the omission is attributable to Candidia and Candidia is under an obligation to make full reparation for the injury caused by the internationally wrongful act according to Article 31 ARSIWA.

ARGUMENTS

A. XENOVIA ACTED IN ACCORDANCE WITH INTERNATIONAL LAW BY ATTEMPTING TO OBTAIN PHYSICAL POSSESSION AND CONTROL OF VALERIAN 806 AND IS NOT LIABLE TO CANDIDIA FOR ANY ALLEGED DAMAGES

Xenovia, through the Fenix-3 satellite and in reaction to a default on payments to Alendularia S.A., a national company of Xenovia (A.1.), lawfully attempted to obtain physical possession and control of Valerian 806 under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (**OST**) (A.2.),¹ under the Convention On International Interests In Mobile Equipment (**CTC**)² and the Protocol to the Convention On International Interests In Mobile Equipment On Matters Specific To Space Assets (**SAP**)³ (A.3.). Further, Xenovia is not liable to Candidia for the loss of lives on board Candidia's military cargo plane, the loss of military plane itself or the lost revenues resulting from the destruction of Valerian 806 (A.4.).

A.1. Xenovia, through Alendularia S.A. and Fenix LLC, interacted with Candidia through Selada, Inc.

Selada, Inc. is a company incorporated and headquartered in Candidia.⁴ This makes it a national of Candidia. In defining the term 'national', recourse may be had to the understanding of the concept under general international law.⁵ While essentially an institution of the internal laws of

¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, entered into force Oct.10, 1967, 610 U.N.T.S. 205.

² Convention on International Interests in Mobile Equipment, entered into force Mar.1, 2006, U.N.T.S 2307.

³ Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets, Mar. 9, 2012.

⁴ Compromis §10.

⁵ Horst Bittlinger, *'Private space activities – questions of international responsibility'* 30 I.I.S.L. PROC. 191, 193 (1987); Michael Gerhard, *Article VI* in I COLOGNE COMMENTARY ON SPACE LAW 118 (Hobe et. al., eds., 2009)).

States,⁶ *Nottebohm* confirmed that a State's definition of nationality is not one which must be internationally accepted without question.⁷ For companies, there is a *prima facie* assumption of nationality to the State under the laws of which the company has been incorporated and to which consequently it owes its legal existence.⁸ Another criterion is the company having its headquarters in that State.⁹

Selada, Inc.'s incorporation in Candidia and the location of Selada, Inc.'s headquarters in Candidia therefore confirm that Selada, Inc. is a national company of Candidia. Moreover, there are genuine links between Candidia and Selada, Inc.,¹⁰ including that Selada, Inc. provides services for Candidia in the on-orbit manufacture of commercial satellites.¹¹ The conferment of Candidian nationality on Selada, Inc. has the consequence in international law that Candidia is responsible for the activities of Selada, Inc. in outer space under Article VI OST.¹² This Article forms part of the accountability provisions within the OST, which highlight the risk that a State adopts when it or its nationals act unlawfully in outer space.¹³

⁶ *Barcelona Traction, Light and Power Company Ltd, (Belgium v. Spain)* I.C.J. 1970 I.C.J. 3, 33, 34 and 37.

⁷ *Nottebohm (Liechtenstein v. Guatemala)* 1955 I.C.J. 4, 23.

⁸ *Ahmadou Sadio Diallo (Republic of Guinea v Democratic Republic of the Congo)*, Preliminary Objections, ICJ Reports 2007 p 582, 596.

⁹ *Barcelona Traction*, *supra* no 6, §42.

¹⁰ LASSA FRANCIS OPPENHEIM, ROBERT JENNINGS & ARTHUR WATTS, *OPPENHEIM'S INTERNATIONAL LAW* 861 (9 ed., 1996).

¹¹ *Compromis* §15.

¹² Article VI OST imposes responsibility on States for the activities of their nationals; See Stephan Hobe and Kuan-Wei Chan, *Legal status of outer space* in *ROUTLEDGE HANDBOOK OF SPACE LAW* 37 (Jakhu and Dempsey eds., 2017).

¹³ TANJA MASSON-ZWAAN AND MAHULENA HOFFMANN, *INTRODUCTION TO SPACE LAW* 68 (4th edn, 2019).

Therefore, when explaining the duties and rights of Selada, Inc. in its space activities, the responsibility of Candidia is invoked.

For the same reasons above, Alendularia S.A. is a national company of Xenovia, since it is incorporated and headquartered in Xenovia.¹⁴ Alendularia S.A. contracted with Fenix LLC, a public-private partnership in which Xenovia has a 50% equity share,¹⁵ to obtain possession and control of Valerian 806 owing to Selada Inc.'s default in payment. Xenovia does not contest responsibility for the actions of these private actors, because all acts conducted by them were lawful under international law (A.2. and A.3.).

A.2. Xenovia acted in accordance with the Outer Space Treaty by attempting to obtain physical possession and control of Valerian 806

Xenovia acted in accordance with the OST in its lawful possession of Valerian 806. Substantively, Xenovia complied with its Article IX OST obligations (A.2.1.), including its obligation to enter consultations and to pay due regard to the interests of other States. Xenovia also acted in accordance with Article VIII OST which allows States to exercise jurisdiction and control over a registered space object (A.2.2.).

A.2.1. Xenovia acted in accordance with Article IX OST

Under Article IX OST, a State must enter consultations only if it has reason to believe that a planned activity might cause harmful interference.¹⁶ Article IX OST also mandates that States shall

¹⁴ Compromis §14.

¹⁵ Compromis §9.

¹⁶ Article IX, OST.

conduct all their activities in outer space with due regard to the corresponding interests of other State Parties to the Treaty.¹⁷ Xenovia's actions were compliant with Article IX OST.

A.2.1.1. Xenovia had no obligation to enter consultations

For this obligation to apply, the State must have reason to believe that its planned activity might cause harmful interference. Xenovia rejects that it had reason to believe harmful interference would occur, and thus consultations were not necessary.

The concept of harmful interference is not defined in the OST. 'Harmful' retains its ordinary meaning, namely causing or capable of causing significant harm.¹⁸ The normal understanding of interference denotes an 'intervention without invitation or necessity'.¹⁹ Therefore, Xenovia must have had reason to believe that their action might have caused significant harm. Xenovia operates a fleet of robotic satellites providing on-orbit refuelling, repair and repositioning services.²⁰ On-orbit services are considered beneficial in improving the operational life and performance of space objects.²¹ Consequently, the physical apprehension of satellites on-orbit is a vital component of the commercial service and a routine aspect of its operation.²² In the past, similar operations such

¹⁷ *Id.*

¹⁸ Sergio Marchisio, *Article IX*, in 1 COLOGNE COMMENTARY ON SPACE LAW 177 (Hobe et. al., eds., 2009).

¹⁹ OXFORD ENGLISH DICTIONARY (2nd ed. 2004).

²⁰ Compromis §9.

²¹ Isabella Hatty, *Viability of On-Orbit Servicing Spacecraft to Prolong the Operational Life of Satellites*, JOURNAL OF SPACE SAFETY ENGINEERING 2 (2022).

²² Ewan Wright, *Legal Aspects Relating to On-Orbit Servicing and Active Debris Removal* in ON-ORBIT SERVICING: NEXT GENERATION OF SPACE ACTIVITIES 160 (Annette Froehlich ed., 2020).

as Astroscale’s ELSA-d mission have indicated that the rendezvous of two satellites is feasible.²³ Moreover, it is a fact that objects in LEO are considered ‘reachable’.²⁴

Xenovia’s skilled workforce is well-versed in space-related technologies, and therefore had no reason to assume that this possession would cause damage.²⁵ Rather, the weak structure of Valerian 806, through the lack of appropriate materials being utilised in its construction,²⁶ as well as Candidia’s reliance on the technical reports of Selada, Inc. without further verification²⁷ led to the incident.

Therefore, Xenovia acted in accordance with Article IX since there was no duty on Xenovia to enter consultations with Candidia and it had no reason to believe that harmful interference would occur.

A.2.1.2. Xenovia complied with its duty to pay due regard to the interests of other States under Article IX OST

A definition of the due regard principle is not found in space law. However, persuasive elaboration in general international law has defined the due regard requirement as including refraining from interfering with other States in their freedom to use outer space.²⁸ State consideration should also

²³ Astroscale, Astroscale’s ELSA-d mission successfully completes complex rendezvous operation < <https://astroscale.com/astrocales-elsa-d-mission-successfully-completes-complex-rendezvous-operation/> > last accessed 11 July 2022.

²⁴ Defence Advanced Research Projects Agency, Phoenix (Archived) < <https://www.darpa.mil/program/phoenix> > last accessed 27 January 2022.

²⁵ Compromis §2.

²⁶ Compromis §19.

²⁷ Compromis §1.

²⁸ M/V “Norstar” (Panama v. Italy), Judgment, 2019 I.T.L.O.S 512, §199 (April 10); Daniel Goedhuis, *Legal aspects of the utilisation of Outer Space*, 17 NETHERLANDS INTL L. REV. 33 (1970).

be followed with some consultation.²⁹ Xenovia considers due regard to have been paid to the interests of Candidia when its national actors, Fenix LLC and Alendularia S.A., were obtaining physical possession of Valerian 806, since the object possessed by Fenix LLC was chosen as an asset least disruptive to Candidia and Selada, Inc.'s space activities. Indeed, the possession of Valerian 806 did not have any bearing on the operation of Pacem or the rest of the Valerian constellation.

A.2.2. Xenovia acted in accordance with Article VIII OST

Jurisdiction and control in outer space are awarded to the State of Registry of a space object.³⁰ Without the essential requirement of national registration under Article VIII OST, no jurisdiction and control over the space object is feasible.³¹ There is no indication that Valerian 806 was registered by Candidia. First, Candidia's national registry is incomplete and not up to date.³² Second, Candidia is not a party to the Registration Convention (**REG**)³³ which imposes an obligation on States to register their space objects.³⁴ Third, the facts are silent as to Valerian 806's registration status, whereas the State of Registry for Fenix-3 is plainly given.³⁵ Fourth, Xenovia takes Candidia's support of and the requirement that satellite operators use the Space Assets

²⁹ Chagos Marine Protected Area Arbitration (Mauritius v. United Kingdom), Award, Perm. Ct. Arb. 2011-03, at 519 (March 18); Vishakha Gupta, *Critique of the International Law on Protection of the Outer Space Environment*, 14 *ASTROPOLITICS* 24 (2016).

³⁰ Article VIII, OST.

³¹ Bernhard Schmidt-Tedd and Stephan Mick, *Article VIII* in *I COLOGNE COMMENTARY ON SPACE LAW* 152 (Hobe et. al., eds., 2009)).

³² Compromis §7.

³³ Convention on Registration of Objects Launched into Outer Space, entered into force 15 Sep. 1976, 1023 U.N.T.S 15.

³⁴ Article II, REG.

³⁵ Compromis §17 and §15.

Registry (SAR) to register satellite interests as detrimental to national registration processes.³⁶ The use of the SAR does not supplement Article VIII's conferral of jurisdiction and control on registering States.³⁷ Further, in the absence of identifying data provided by Candidia on the identities and nationalities of registrants, Xenovia had no grounds to consider that Valerian 806 was registered.

Jurisdiction means the legislation and enforcement of rules in relation to a space object,³⁸ and control means the exclusive right to 'direct, stop, modify or correct the space object and its objectives'.³⁹ Xenovia, being a party to REG, recognises the importance of the explicit link between registration and jurisdiction and control. Candidia possesses neither right in relation to Valerian 806 and, therefore, Xenovia is not in violation of any right to jurisdiction and control that Candidia has by possessing Valerian 806 and enacting its rights under A.3.

A.3. Xenovia acted in accordance with the remedies under the Cape Town Convention and Space Assets Protocol in attempting to obtain physical possession and control of Valerian 806

Selada, Inc., a company incorporated in Candidia⁴⁰ and bearing Candidian nationality (A.1.), defaulted on payments due to Alendularia S.A., a company incorporated in Xenovia, under a security agreement between the two parties which operates under Xenovian law.⁴¹ The agreement itself incorporates the remedies set out in the CTC and SAP, although it does not operate under

³⁶ Compromis §3.

³⁷ Oliver M. Ribbelink, *The Protocol on Matters Specific to Space Assets* 1 EUROPEAN REV. PRIV. L. 42 (2004).

³⁸ Gabriel Lafferranderie, *Jurisdiction and Control of Space Objects and the Case of an International Inter-governmental Organisation (ESA)*, 54 ZLW 231 (2005).

³⁹ *Id.*, 230.

⁴⁰ Compromis §10.

⁴¹ Compromis §14 and 16.

those Conventions directly. The possession and control of the Valerian 806 satellite was necessary to satisfy the debt owed.

Xenovia was therefore justified in attempting to obtain such possession and control in terms of the remedies set out in Article 8(1)(a) of the CTC.⁴² Further, Selada, Inc. was in default in terms of Article 11(2) of the CTC. The possession of Valerian 806 was also a commercially reasonable solution in terms of the same.

A.3.1. The security agreement operates under the laws of Xenovia

The security agreement between the parties operates under Xenovian law and, although it incorporates the remedies available under the CTC and SAP, it does not operate under the CTC or SAP. The agreement was entered into in 2023, whereas Xenovia and Candidia became parties to the CTC and SAP in 2026, with the regimes becoming operative in 2027.⁴³ Since the application of the CTC or SAP is not retroactive⁴⁴ and the agreement was not registered,⁴⁵ the provisions of the CTC and SAP apply only insofar as transposed into the agreement.

As a result, the following sections will illustrate how Xenovia acted in accordance with the security agreement, and consequently, in accordance with the CTC and SAP.

⁴² Compromis §14.

⁴³ Compromis §10 and §3.

⁴⁴ Vienna Convention on the Law of Treaties, entered into force 27 Jan. 1980, U.N.T.S 1155, Article 28 (VCLT).

⁴⁵ Article XVII (3), SAP.

A.3.2. The security agreement incorporates the remedies under the CTC and the SAP

As the creditor, Alendularia S.A. was awarded the remedies set out under the CTC and SAP in the event of the default of the debtor. The remedies under the CTC and SAP apply if the following requirements are met:⁴⁶ (i) a security agreement has been concluded;⁴⁷ (ii) the agreement relates to a space asset;⁴⁸ (iii) the agreement must be constituted according to the requirements of the CTC;⁴⁹ and (iv) the debtor must be situated in a Contracting State at the time of the conclusion of the agreement.⁵⁰ The requirement that the debtor be situated in a Contracting State to the CTC is fulfilled since Selada, Inc. is incorporated in Candidia.⁵¹

The CTC requires that the security agreement: (i) is in writing; (ii) relates to an object which the chargor has power to dispose of; (iii) enables the object to be identified; and (iv) enables the secured obligations of the debtor to be determined.⁵²

Selada, Inc. and Alendularia S.A. entered into a security agreement,⁵³ therefore the first requirement is immediately satisfied.

⁴⁶ SANAM SAIDOVA, SECURITY INTERESTS UNDER THE CAPE TOWN CONVENTION ON INTERNATIONAL INTERESTS IN MOBILE EQUIPMENT (2018) 7.

⁴⁷ Article 2(2), CTC.

⁴⁸ Article 2(3), CTC.

⁴⁹ Article 7, CTC.

⁵⁰ Article 3(1), CTC.

⁵¹ Article 4, CTC; SAIDOVA, *supra* no 46, at 8.

⁵² Article 7, CTC.

⁵³ Compromis §14.

A.3.2.1. Pacem and Valerian 806 are space assets for the purposes of SAP

The SAP applies to ‘space assets’, which are defined as ‘any man-made uniquely identifiable asset in space or designed to be launched into space’ and includes satellites.⁵⁴ Space assets are distinct from ‘space objects’ and the definition of one does not necessarily apply to the other.⁵⁵ Pacem is a space asset since it is a space station.⁵⁶ The Valerian 806 satellite was manufactured using a 3D printer onboard Pacem, from materials owned by Selada, Inc.⁵⁷ Therefore, Valerian 806 also satisfies the definition of a space asset for the purposes of the application of the SAP.

A.3.2.2. Valerian 806 was the correct asset to obtain

The security agreement relates to Pacem,⁵⁸ which Selada, Inc. had the power to dispose of as its owner.⁵⁹ A person has the power to dispose of an object when, under a national law or the Convention, that person is entitled to override the rights of the owner in transferring the object to another.⁶⁰ Candian law allows for creditors to execute documents on behalf of their debtors.⁶¹ Selada, Inc. was a creditor of Candidia, having been mandated to construct Valerian 806 for it. Valerian 806 was still in Selada, Inc.’s possession on 29 July 2031, which is the same day Selada defaulted on its debt.⁶² Therefore, Selada, Inc. had the power to dispose of Valerian 806.

⁵⁴ Article Ik(i), SAP.

⁵⁵ Paul B. Larsen, *Future Protocol on Security Interests in Space Assets* 67 J. AIR L. COMMERCE 1087 (2002).

⁵⁶ Compromis §10.

⁵⁷ Compromis §12.

⁵⁸ Compromis §14

⁵⁹ Compromis §10; Roy Goode, *The International Interest as an Autonomous Property Interest*, 1 EUROPEAN REVIEW OF PRIVATE LAW 24 (2004).

⁶⁰ Roy Goode, *The Power to Dispose Under the Cape Town Convention and Aircraft Protocol*, 6 CAPE TOWN CONVENTION JOURNAL 4 (2017).

⁶¹ Compromis §6.

⁶² Compromis §16.

Additionally, Valerian 806 was a more viable space asset to possess than Pacem. Valerian 806 was 3D printed on board Pacem.⁶³ It is a general principle of international law that the manufacturer of an object acquires ownership thereof.⁶⁴ Consequently, since the 3D printer and materials used to construct Valerian 806 were owned by Selada, Inc., it can be deduced that Selada, Inc. is also an owner of Valerian 806.⁶⁵ Moreover, although the satellite operates with AI technologies,⁶⁶ it was both deployed⁶⁷ and intended to be de-orbited by propulsion controlled from Pacem.⁶⁸ The operation of Pacem was indispensable to both the manufacture and the de-orbit of Valerian 806. It was therefore under Selada, Inc.'s possession, with the consent of Candidia.⁶⁹

As a result, Selada, Inc. had the power to dispose of Valerian 806, and Valerian 806 was, therefore, the correct asset to obtain under the remedies provided under the CTC and SAP.

A.3.3. Selada, Inc.'s failure to meet the contractual payments constitutes default under the CTC

Article 8(1)(a) CTC provides that in the event of a default, the chargee may take possession or control of any object charged to it. Such a remedy is only available if the debtor has agreed to it prior in writing.⁷⁰ If the agreement states that 'all remedies under the Convention' shall apply, this

⁶³ Compromis §12.

⁶⁴ Michael Chatzipanagiotis, *3D Printing Using Material from Celestial Bodies: A Method to Circumvent the Non- Appropriation Principle?* 67 I.I.S.L PROC. 1 (2016).

⁶⁵ Gabrielle Leterre, *Back to the Future: Roman Law and Ownership of Objects Created on Celestial Bodies*, 71 I.I.S.L PROC. 2 (2020).

⁶⁶ Compromis §12.

⁶⁷ Compromis §15.

⁶⁸ Compromis §13.

⁶⁹ Compromis §15.

⁷⁰ ROY GOODE, OFFICIAL COMMENTARY ON THE CAPE TOWN CONVENTION AND PROTOCOL THERETO ON MATTERS SPECIFIC TO SPACE ASSETS, 60 (4th edn, 2019).

is sufficient to signify consent.⁷¹ Seeing as the agreement between Selada, Inc. and Alendularia S.A. incorporates this clause,⁷² Article 8 applies. As a result, based on the principle *pacta sunt servanda*, the decision to take possession and control of Valerian 806 was permissible in terms of the CTC.

Consequently, the event of a default in terms of the CTC is required for the creditor to be justified in seeking a remedy. In terms of the Convention, it is a common practice to treat the debtor's failure to meet scheduled payments as 'default'.⁷³ Selada, Inc.'s failure to meet the scheduled payments as well as the subsequent designated period, therefore, constitutes 'default'.

A.3.4. Possession of Valerian 806 was commercially reasonable

The SAP requires that the remedies set forth under Article 8(3) CTC be executed in a commercially reasonable manner, which is defined as a remedy exercised in conformity with a provision of the agreement, except where such a provision is 'manifestly unreasonable'.⁷⁴ A remedy will only be manifestly unreasonable when it is exercised outside a contractual provision.⁷⁵

There are several factual reasons why the possession of Valerian 806 was a commercially reasonable remedy. Firstly, this possession was the least intrusive means of satisfying the debt in outer space since the possession of a single satellite is logistically easier than that of an entire space

⁷¹ *Id.*

⁷² Compromis §14.

⁷³ Luftiee Ametova, *International interest in space assets under the Cape Town Convention*, 93 ACTA ASTRONAUTICA 217 (2013); RL MILLER AND WE HOLLOWELL, BUSINESS LAW: TEXT & EXERCISES 439 (2010).

⁷⁴ Article XVII (1), SAP.

⁷⁵ GOODE, *supra* no 70, at 72.

station. Secondly, Valerian 806 had value since it offered a service, and the proceeds deriving from that service could be utilised by the creditor in fulfilment of the debt. Lastly, Valerian 806 was deployed into outer space just four months prior to the possession operation.⁷⁶ Given that it was intended to operate for three years,⁷⁷ possession was a commercially viable option for the creditor since the satellite could have continued to offer its services. In the absence of a prior agreement to obtain command codes to the satellite,⁷⁸ the only remaining means of repurposing or reclaiming the satellite was through physical possession. A creditor's pursuit of the only remaining remedy available under Article 8(3) CTC cannot be held manifestly unreasonable since otherwise the creditor would have no other recourse under a valid security agreement.

Therefore, possession of Valerian 806 was a commercially reasonable and thus an appropriate remedy under the SAP.

A.3.5. There are no other competing interests which have priority over Valerian 806

Although the interest over Pacem and Valerian 806 was not registered in the SAR, seeing as there are no other competing interests which have been registered under the SAR, the priority rules set out in the CTC do not apply.⁷⁹ Rather, the security agreement itself ensures that the consequences of the general principle of *pari passu* ranking do not apply in this scenario,⁸⁰ and that Alendularia S.A. remains entitled to the debt owed before any other creditors of Selada, Inc.

⁷⁶ Compromis §15.

⁷⁷ Compromis §13.

⁷⁸ Article XIX, SAP.

⁷⁹ GOODE, *supra* no 70, at 120.

⁸⁰ SAIDOVA, *supra* no 46, at 2; General principles of law as recognised by civilised nations are a source of law recognised by this Court as per Article 38(1)(c) of the Statute of the I.C.J.

Further, there was no public service notice regarding the use of Valerian 806. Were a public service notice filed, this would have merited the postponement of the possession of the asset as per Article XXVII (3) SAP. As a result, the conclusion above follows.

The registration of a security agreement is not a *sine qua non* condition for the validity of that agreement.⁸¹ Indeed, there was no need for the agreement to be registered since it operated under Xenovian law. Hence, the fact that the agreement was not registered has no bearing on the validity of the security interest at stake.

A.4. Xenovia is not liable to Candidia for any alleged damages

In light of the conclusion above that Xenovia acted in accordance with international law, the issue of Xenovia's potential liability will now be addressed. Xenovia is not liable for the damages alleged by Candidia, namely the loss of lives on board Candidia's military cargo plane, the loss of the plane itself and the lost revenues resulting from the destruction of Valerian 806. Xenovia is not liable under Article VII OST (A.4.1.), the Liability Convention (**LIAB**)⁸² (A.4.2.) and is not under a duty to pay reparation to Candidia under general international law (A.4.3.).

⁸¹ Sjef Van Erp, *The Cape Town Convention: a Model for a European System of Security Interests Registration?* 1 EUROPEAN REV. PRIV. L. 97 (2004); Kristin van Zwieten, *The Insolvency Provisions of the Cape Town Convention and Protocols: Historical and Economic Perspectives*, 1 CAPE TOWN CONVENTION J. 58 (2012).

⁸² Convention on International Liability for Damage Caused by Space Objects, entered into force Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 13810.

A.4.1. Xenovia is not liable under Article VII OST

Article VII OST establishes the general rule on liability for damage from space activities.⁸³ Both Xenovia and Candidia are parties to OST and bound to perform its provisions in good faith.⁸⁴ Article VII OST provides that ‘each State that launches or procures the launching of an object into outer space and each State Party from whose territory or facility an object is launched is internationally liable for damage to another State Party by such object or its component parts on the Earth, in air space or outer space’.⁸⁵ Xenovia accepts that it might be considered to have procured the launch of Fenix-3 and that Fenix-3 is a space object. However, Xenovia is only liable under Article VII OST if it is proven that Fenix-3 caused the damage (A.4.1.1.). There is no causal link between Fenix-3 and the resulting damages, and therefore Xenovia is not liable. Further, economic loss is not damage covered by Article VII OST and all damages do not meet the standard for the recoverability of damages upheld in *Bosnia* (A.4.1.2.).

A.4.1.1. Fenix-3 did not cause the damage

Under Article VII OST, causation must be established.⁸⁶ The grounds for causation under general international law are applicable when establishing causation under the OST.⁸⁷ Causation in international law requires a proximate causal link between the damage and the activity from which

⁸³ MANFRED LACHS, *THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW-MAKING* 113 (Masson-Zwaan and Hobe eds., 2010).

⁸⁴ Article 26, VCLT.

⁸⁵ Article VII, OST.

⁸⁶ Arnel Kerrest and LJ Smith, *Article VII* in *I COLOGNE COMMENTARY ON OUTER SPACE* 141 (Hobe et al eds., 2009).

⁸⁷ *Id.*

the damage resulted for liability to be established.⁸⁸ Proximate causation requires a natural and foreseeable sequence between the act and the damage.⁸⁹

The explosion of Valerian 806 and the re-entry of debris into Earth's atmosphere was not a foreseeable result of Xenovia's possession operation.⁹⁰ This is because Xenovia could not have foreseen Valerian 806's weak structure; an inherent defect in the satellite as concluded by the Xenovian investigation.⁹¹ Xenovia could not have foreseen damage as Xenovia believed that (i) the satellite was authorised appropriately, and (ii) that possession operations were expected by Candidia.

i. Xenovia was entitled to expect appropriate authorisation under Article VI OST

A weak satellite incapable of being repossessed was not foreseeable as Xenovia believed that the Article VI OST requirement of authorisation entailed the assurance from States that their space activities were safe. State practice repeatedly affirms safety as a key component of the authorisation requirement.⁹² This includes a degree of independent verification of materials procured for use by private entities⁹³ which Candidia's NLSA did not provide for.⁹⁴ This

⁸⁸ Stephen Gorove, *Cosmos 594: Issues of Law and Policy*, 6 J. SPACE LAW 141 (1978).

⁸⁹ *Naulilaa Incident (Portugal v. Germany)* 1928, 2 R.I.A.A. 1011, 1031 (June 30); BIN CHENG, *GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS* 241 (1987); *CME Czech Republic B.V. v. The Czech Republic*, Partial award and separate opinion, 2001 I.I.C. 61 §170 (Sept. 13).

⁹⁰ *Compromis* §17.

⁹¹ *Compromis* §19.

⁹² Gerhard, *supra* no 5, at 118; see Space Industry Regulations, 29 July 2021, No. 792, Part 3, Chapter 3: Grant of a Licence (U.K.); Launch License, 14 C.F.R. §415 at Subpart C (Safety Review and Approval for Launch From a Federal Launch Range) and Subpart F (Safety Review and Approval for Launch of an Expendable Launch Vehicle From a Non-Federal Launch Site) (U.S.); Act on the National Space Development Agency of Japan (Law No. 77 of 2016) (Japan).

⁹³ Space Industry Act, 15 March 2018, Chapter 5 (U.K.); Order of the Minister of Economic Affairs of 7 February 2008, Art. 4 (Netherlands).

⁹⁴ *Compromis* §1.

widespread State practice can be a subsidiary means of interpretation under Article 31(3) VCLT to clarify the substance of a treaty obligation.⁹⁵ Moreover, Article VI OST requires a continuing assurance that the substance of the authorisation requirement is being met.⁹⁶ Therefore, Xenovia was entitled to operate its space activities with the satisfaction that national space activities were conducted in a safe manner. A satellite whose build quality was weak through fabrication in a low-gravity environment⁹⁷ and which could not withstand normal pressures of a possession operation was not foreseeable.

Further, Xenovia's significant expertise in space activities and 3D printing technologies⁹⁸ meant that it was equipped to complete thorough investigations and develop state-of-the-art space objects capable of possessing Valerian 806.⁹⁹ There was no reason to foresee harm from the possession.

ii. It was reasonable that Candidian satellites would be prepared for possession

Candidia's satellite should have been prepared for a possession operation for two reasons. First, Xenovia communicated its intention to launch on-orbit servicing satellites at the 2030 UNCOPUOS meeting, and this communication was received by Candidia.¹⁰⁰ Second, Candidia was party to a treaty in which possession was a viable remedy.¹⁰¹ Therefore, a default by its national company would mean possession operations likely commenced.

⁹⁵ Article 31(3), VCLT; this Article has been confirmed to have customary status in *Kasikili/Sedudu Island (Botswana/Nambia)* 1999 I.C.J. 1059 §18 (Dec. 13) and *LaGrand (USA v. Germany)*, Judgment, I.C.J. Rep 104, §501 (June 27).

⁹⁶ Gerhard, *supra* no 5, at 119; Article VI OST.

⁹⁷ Compromis §19.

⁹⁸ Compromis §2.

⁹⁹ Compromis §9.

¹⁰⁰ Compromis §9.

¹⁰¹ Compromis §3; see A.3.2.

Xenovia operated under the assumption that newly manufactured satellites were suitable for possession operations, and therefore harm was not foreseeable. Hence, in the absence of causation, Xenovia cannot be liable for the damages alleged by Candidia.

A.4.1.2. Lost revenues are not recoverable under the OST

Candidia claims damages for the lost revenues resulting from the destruction of Valerian 806. These damages are not recoverable under the OST. This is because the phrase ‘caused by’ a space object in Article VII OST relates only to direct physical damage or impact.¹⁰² Therefore, consequential damage where the damage does not flow directly and immediately from the act, but only from the consequences of such act, is not covered.¹⁰³ The lost revenues accumulated over time once Candidia’s contractual obligations became unfulfilled, and thus Xenovia is not liable for these damages.

Even if financial losses were included in the scope of Article VII OST, profits that are speculative or that are only possible cannot be recognised as compensable damage.¹⁰⁴ There is no evidence that Candidia has provided evidence as to specific profits it expected to collect from the operation of Valerian 806 and, therefore, the alleged loss of revenues from the destruction of Valerian 806 are not compensable under Article VII OST.

¹⁰² Stephen Gorove, *Cosmos 954: Issues of Law and Policy*, 6 J. SPACE L. 141 (1978); FRANS VON DER DUNK, HANDBOOK OF SPACE LAW 48, 53 and 84 (von der Dunk and Tronchetti eds., 2015).

¹⁰³ *Id.*

¹⁰⁴ *Manolium Processing v. Belarus*, Final Award, 2021 P.C.A., §665 (June 22); *Micula v. Romania*, Final Award, 2013 I.C.S.I.D ARB/05/20, §1006ff (Dec. 11).

Further, in *Bosnia* it was held that, for damages to be recoverable, there must be ‘a sufficient degree of certainty’ that if a State had acted according to its obligations under international law the damages would not have occurred.¹⁰⁵ In this case, Xenovia did not depart from its international obligations (A.2. and A.3.). Therefore, even if a causal link is established, the award of damages to Candidia is precluded.

A.4.2. Xenovia is not liable under LIAB

A separate regime of liability is established under LIAB which builds on the Article VII OST liability regime.¹⁰⁶ However, since Candidia is not a party to LIAB, this Convention is not applicable as a treaty cannot create rights and obligations on a third State without its consent.¹⁰⁷ Nevertheless, even if it were applicable, Xenovia would still not be liable under LIAB for the forthcoming reasons.

Article III LIAB establishes a fault-based liability regime for damage caused in outer space.¹⁰⁸ Although the concept of ‘fault’ is uncommon in international law,¹⁰⁹ Xenovia submits that fault means a breach of an international obligation, done intentionally or with negligence.¹¹⁰ As above in A.2. and A.3., Xenovia did not breach any of its international obligations in conducting a

¹⁰⁵ Concerning Application of the Convention on the Prevention and Punishment of the Crime Of Genocide (*Bosnia And Herzegovina V. Serbia And Montenegro*), 2007 I.C.J., §462 (Feb. 26).

¹⁰⁶ Armel Kerrest and Lesley Jane Smith, *Article II (LIAB)* in II COLOGNE COMMENTARY ON SPACE LAW 119 (Hobe et. al., eds., 2009)).

¹⁰⁷ Article 34, VCLT; *Austro-German Customs Union Case*, Advisory Opinion, 1931 P.C.I.J. 41, §48 (May 19); *Factory at Chorzow (Germany v. Poland)*, Judgement, 1928 P.C.I.J. 13, §34 (Sept. 13).

¹⁰⁸ Article III, LIAB.

¹⁰⁹ Joel A. Dennerley., ‘*State Liability for Space Object Collisions: The Proper Interpretation of ‘Fault’ for the Purposes of International Space Law*’ 29 EUROPEAN J. OF INT’L L. 291 (2018).

¹¹⁰ Bin Cheng, *supra* no 89, 225; see also BLACK’S LAW DICTIONARY 738 (4 edn., 1968).

possession operation. Therefore, Xenovia has not met the standard of fault requirement required for liability under Article III LIAB.

For damages caused ‘on the surface of the Earth or to an aircraft in flight’, fault is not a requirement of liability under Article II LIAB.¹¹¹ However, the damage must still be ‘caused by’ a space object.¹¹² Therefore, the analysis in A.4.1.1., drawing on the grounds for causation in international law, further supports that Xenovia is not liable as a matter of Article II LIAB.

A.4.3. Xenovia is not liable under general international law

The Articles on Responsibility of States for Internationally Wrongful Acts 2001 (**ARSIWA**) stipulate that an internationally wrongful act of a State entails the international responsibility of that State.¹¹³ ARSIWA is a codification of customary international law principles, confirmed by widespread State practice and *opinio juris* attesting to their customary status.¹¹⁴ This Court has specifically relied upon ARSIWA before.¹¹⁵ Thus, the principles enshrined in ARSIWA are binding on all States, including Xenovia. An internationally wrongful act has two constituent elements. First, it should be attributable to a State under international law¹¹⁶ and, second, it should

¹¹¹ Kerrest and Smith, *supra* no 106, at 125.

¹¹² *Id.*, 126.

¹¹³ G.A. Res 56/83, U.N. GAOR, 56th Sess., supplement No. 10, Article 1, UN Doc A/56/83 (2001).

¹¹⁴ G.A. Res. 65/96, Responsibility of States for internationally wrongful acts: Comments and Information received from Governments (May 14 2010).

¹¹⁵ See Case Concerning Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Cro. v. Ser), 2015 I.C.J. 3 (Feb. 6); Obligations Concerning Negotiations Relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v. U.K.) 2016 I.C.J. 833 (Oct. 5).

¹¹⁶ JAMES CRAWFORD, BROWNIE’S PRINCIPLES OF INTERNATIONAL LAW 524 (9th edn., 2019).

constitute a breach of an international obligation of the State.¹¹⁷ The legal consequences of meeting these elements include a duty to make reparation for damage caused by the wrongful act.¹¹⁸

Xenovia did not commit a wrongful act and, therefore, has no duty to make reparation to Candidia. Xenovia lawfully sought possession and control of Valerian 806 under private international law, owing to the default of payment by Selada, Inc. (A.3.). Further, Xenovia acted in accordance with the provisions of the OST in the possession of Valerian 806 (A.2.).

In contrast to being wrongful, the activities carried out by Fenix LLC are beneficial and exclusively for peaceful purposes.¹¹⁹ Such purposes conform to the aspirations of the Preamble to the OST which, under Article 31 VCLT, should evidence the purposive interpretation of the Treaty.¹²⁰ Further, on-orbit servicing satellites such as Fenix-3 facilitate the realisation of sustainable space activities, an important goal of States as evidenced by Article IX OST, the Space Debris Mitigation Guidelines (**SDMGs**)¹²¹ and the Long-Term Sustainability Guidelines (**LTSGs**).¹²² Therefore, Xenovia has not only acted in accordance with its obligations under international law, but its space activities are a positive contribution to the realisation of peaceful and sustainable activities in outer space.

¹¹⁷ Article 2, ARSIWA.

¹¹⁸ Articles 31 and 34-39, ARSIWA; *Life Insurance Claims (Germany v. United States of America)* 1924 7 R.I.A.A. 91, 112 (Sept. 18).

¹¹⁹ *Compromis* §9.

¹²⁰ Article 31, VCLT.

¹²¹ UN COPUOS, *Space Debris Mitigation Guidelines*, 62/217 (22 Dec. 2007) (hereinafter **SDMGs**).

¹²² UN COPUOS, 2019. “Draft guidelines for the long-term sustainability of outer space activities.” UN document A/AC.105/C.1/L.367. Available online at https://www.unoosa.org/res/oosadoc/data/documents/2019/aac_105c_11/aac_105c_11_367_0_html/V1804974.pdf (Last accessed Jan 22, 2022) (hereinafter **LTSGs**).

No internationally wrongful act can therefore be attributed to Xenovia, and this is essential for Xenovia to possess a duty to make reparation under general international law.

B. CANDIDIA IS LIABLE FOR THE LOSS OF FENIX-3.

The explosion of Valerian 806 resulted in the destruction of Xenovia's Fenix-3 satellite.¹²³ According to Xenovian experts, the weak structure of Valerian 806 was the cause of the damage and a possession operation should have resulted in the successful repositioning of a small satellite. Candidia is liable for the damage caused under Article VII OST (B.1) and has a duty to make reparation to Xenovia under general international law (B.2).

B.1. Candidia is liable for the loss of Fenix-3 under Article VII OST.

Xenovian and Candidia are parties to OST and are bound to perform its provisions in good faith.¹²⁴ In space law, Article VII OST constitutes the *lex generalis* for liability in outer space activities.¹²⁵ Under Article VII OST, liability is unlimited in time, amount and location.¹²⁶ Article VII OST applies in tandem with Article VI OST,¹²⁷ meaning that a State's international liability extends to public and private activities including commercial space activities.¹²⁸

¹²³ Compromis §17.

¹²⁴ Article 26, VCLT.

¹²⁵ IRMGARD MARBOE, LEGAL ASPECTS OF PLANETARY DEFENCE 292 (2021).

¹²⁶ Kerrest and Smith, *supra* no 86, at 142.

¹²⁷ CHRISTIAN BRUNNER AND ALEXANDER SOUCEK, OUTER SPACE IN SOCIETY, POLITICS AND LAW 325 (2011).

¹²⁸ Bin Cheng, *Article VI of the Outer Space Treaty Revisited: "International Responsibility", "National Activities" and the "Appropriate State"* 26 JOURNAL OF SPACE LAW 7, 9 (1998).

Article VII OST provides the following conditions for liability; Candidia must have launched or procured the launch of Valerian 806, or it must have been launched from Candidia's territory or facility (B.1.1.); Valerian 806 must be a space object (B.1.2.); Valerian 806 must have caused the damage (B.1.3.); and the damages must be recoverable (B.1.4.). Since these criteria are fulfilled, Candidia is liable for the damage caused under Article VII OST.

B.1.1. Candidia procured the launch of Valerian 806

Liability attaches to a State Party that procures the launch of a space object.¹²⁹ Candidia is liable on the basis that they procured the launch of Valerian 806. Although Article VII OST does not define procurement,¹³⁰ recourse may be had to general rules of interpretation which include the ordinary meaning of the word.¹³¹ The term 'procurement' is defined as to 'pay', 'prompt', or 'cause'.¹³² Therefore, to procure the launch of an object refers to a State which has caused the launch to take place.¹³³ This assessment can be supported with evidence of some benefit derived by the State from the satellite.¹³⁴

Candidia procured the launch of Valerian 806 by virtue of the fact that it is the owner of Valerian 806.¹³⁵ The ownership of a satellite constitutes a legal title, whereby under national rules the owner

¹²⁹ Article VII, OST.

¹³⁰ Stephen Gorove, *Toward a Clarification of the Term Space Object - An International Legal and Policy Imperative*, 21 JOURNAL OF SPACE LAW 11 (1993).

¹³¹ Article 31, VCLT; Oil Platforms (Islamic Republic of Iran v. United States of America) 1996 I.C.J. 812 (Dec. 12); Territorial Dispute (Libyan Arab Jamahiriya v. Chad) 1994 I.C.J. 21 (Feb. 3).

¹³² Michael Chatzipanagiotis, *Registration of Space Objects and Transfer of Ownership in Orbit* 56 ZLW 235 (2007).

¹³³ *Id*; Armel Kerrest and Lesley Jane Smith, *Article I (Definitions) LIAB* in I COLOGNE COMMENTARY ON OUTER SPACE 114 (Hobe et al eds., 2009); see INGO BAUMANN AND LESLEY JANE SMITH, *CONTRACTING FOR SPACE: CONTRACT PRACTICE IN THE EUROPEAN SPACE SECTOR* (2011).

¹³⁴ Chatzipanagiotis, *supra* no 132, at 235.

¹³⁵ Compromis §15.

may operate the satellite, collect revenues derived from such operation and dispose of it as they may.¹³⁶ Valerian 806 was leased to multiple customers and was a component of a Safrandian military network,¹³⁷ hence Candidia derived benefit from the ownership of the satellite and it can be easily inferred that Candidia brought the Valerian 806 satellite into being through some financial arrangement with Selada, Inc. Additionally, given that Selada, Inc. was incorporated in Candidia upon the launch of Valerian 806, Candidia further ‘caused’ the launch to happen by permitting Selada, Inc. to establish itself in the State.¹³⁸

The ‘launch’ in this case was a deployment from Pacem.¹³⁹ Deployment falls under the definition of a launch, which includes being brought into orbit through a space station,¹⁴⁰ given that numerous States have accepted their status as launching State for satellites deployed from the International Space Station (ISS).¹⁴¹ This approach is in line with the evolutionary approach to treaty interpretation in general international law.¹⁴²

Candidia is therefore the launching State of Valerian 806.

¹³⁶ Jean François Mayence, *The Relevance of the Concept of Ownership in Space Activities and their Regulation* in OWNERSHIP OF SATELLITES: A SIMPLE LEGAL FACT WITH COMPLEX CONSEQUENCES 45 (Mahulena Hoffman ed., 2017).

¹³⁷ Compromis §15.

¹³⁸ MASSON-ZWAAN AND HOFFMANN, *supra* no 13, at 27; Peter van Fenema, *The Unidroit Space Protocol, the Concept of ‘Launching State’, Space Traffic Management and the Delimitation of Outer Space*, 28 AIR AND SPACE LAW 278 (2002).

¹³⁹ Compromis §15.

¹⁴⁰ RAM S. JAKHU AND JOSEPH N. PELTON, SMALL SATELLITES AND THEIR REGULATION 13 (2014).

¹⁴¹ See Online Index of Objects Launched Into Outer Space, United Nations Office for Outer Space Affairs, http://www.unoosa.org/oosa/osoindex/search-ng.jsp?lf_id=., see (ST/SG/SER.E/1002 (United Kingdom)), (A/AC.105/INF/447 (Paraguay)) and (A/AC.105/INF/448 (Mauritius)).

¹⁴² Sondre Torp Helmersen, *Evolutionary Treaty Interpretation: Legality, Semantics and Distinctions*, 6 EUROPEAN J. LEGAL STUDIES 127 (2013); Dispute regarding Navigational and Related Rights (Costa Rica v. Nicaragua) 2009 I.C.J. 213, §64-66 (Sept 29).

B.1.2. Valerian 806 is a space object

Under Article VII OST, the damage must be caused by a ‘space object’.¹⁴³ Although the OST does not define space object, reference can be made to the writings of highly qualified publicists as a subsidiary means of determining a rule of law.¹⁴⁴ In this respect, a space object refers to any object which has been launched for a mission into outer space.¹⁴⁵ Further, numerous authors maintain that a space object includes satellites.¹⁴⁶ Accordingly, given that Valerian 806 is a satellite, it constitutes a space object.¹⁴⁷ The fact that some of its components were 3D printed in space does not inhibit its classification as a space object.¹⁴⁸

B.1.3. Valerian 806 caused damage

Damage in this instance was the destruction of Fenix-3.¹⁴⁹ According to Article VII OST, a direct causal link is required between the space object and the resulting damage.¹⁵⁰ Here, the generally recognised maxim of *res ipsa loquitur* is engaged since there is obvious damage.¹⁵¹ It is undisputed that the explosion of Valerian 806 caused the destruction of Fenix-3.¹⁵²

¹⁴³ Articles VII and VIII OST; Article V, ARRA.

¹⁴⁴ Article 38 (1)(d), I.C.J. Statute; Land, Island and Maritime Frontier Dispute (El Salvador v. Honduras: Nicaragua intervening) 1992 I.C.J. 75 §592 (Sept. 11); Legal Consequences for States of the Continued Presence of South Africa in Namibia (South Africa v. Namibia) 1971 I.C.J. 16 §48 (June 21).

¹⁴⁵ Vladimir Kopal, *Some Remarks On Issues Relating To Legal Definitions Of "Space Object", "Space Debris" And "Astronaut"*, 2 INTERNATIONAL INSTITUTE OF SPACE LAW 101 (1994).

¹⁴⁶ Paul S. Dempsey, *Liability for Damage Caused by Space Objects under International and National Law*, XXXVII ANNALS AIR AND SPACE LAW 340 (2012); see BIN CHENG, *STUDIES IN INTERNATIONAL SPACE LAW* 464 (1997); also see Ricky J. Lee, *The Liability Convention and Private Space Launch Services*, XXXI ANNALS AIR AND SPACE LAW 361 (2006).

¹⁴⁷ Compromis §12 and §13; Michael Chatzipanagiotis, *Artificial Intelligence and Liability in International Law*, 71 I.I.S.L. PROC. 6 (2020).

¹⁴⁸ Lucien Rapp, Maria Topka, Lucas Mallowan, *Which Jurisdiction for Private In-space Assembled Autonomous Platforms?* 56 JOURNAL SPACE POLICY 6 (2021).

¹⁴⁹ Compromis §17.

¹⁵⁰ Kerrest and Smith, *supra* no 86, at 141.

¹⁵¹ See Corfu Channel Case (UK v Albania) 1949 I.C.J. rep 4 §22 (April 9).

¹⁵² Compromis §17.

Causation in international law is confirmed by a foreseeable and natural sequence between the act or omission and the damage.¹⁵³ In this case, it was foreseeable that a Valerian satellite would be possessed as the satellite was under a security agreement in which possession was a viable remedy.¹⁵⁴ Combined with a national authorisation regime which did not ensure the safety of Selada, Inc.'s activities, a situation where a State would engage a possession remedy and damage the satellite because of a weak and unsafe structure was foreseeable. Therefore, causation is established for the purposes of Article VII OST.

B.1.4. The damages are recoverable

The damages to Fenix-3 are recoverable under Article VII OST as direct damage to another State Party. Further, there is a sufficient degree of certainty that, if Candidia has acted according to its international obligations, then the damage to Fenix-3 would not have occurred.¹⁵⁵ This is because, if Candida had acted according to the recognised international practice of ensuring the safety of space activities,¹⁵⁶ Valerian 806 would have been successfully possessed.

Candidia has therefore fulfilled the criteria for international liability under Article VII OST and is liable for the damage caused to Fenix-3.

¹⁵³ See A.4.1.1.

¹⁵⁴ Compromis §3; see A.3.2.

¹⁵⁵ Bosnia, *supra* no 105, at 462; see A.4.1.3.

¹⁵⁶ See A.4.1.1. (i).

B.2. Candidia has a duty to make reparation to Xenovia under general international law

Candidia also has a duty to make reparation to Xenovia under ARSIWA. As elaborated in A.4., ARSIWA liability requires that a State commits a wrongful act which is triggered according to the satisfaction of two elements: first, the act must constitute a breach of an international obligation of the State¹⁵⁷ (B.2.1.), and second, the conduct must be attributable to the State (B.2.2.).¹⁵⁸ If a State commits a wrongful act, international law dictates that reparation shall be given in the form of both restitution and compensation.¹⁵⁹

B.2.1. Candidia breached its international obligations

Candidia committed several wrongful acts in the operation of its space activities. Candidia breached its Article VI OST obligations (B.2.1.1.), its Article IX OST obligations (B.2.1.2.) and its due diligence obligations under general international law (B.2.1.3.).

B.2.1.1. Candidia's breach of its Article VI OST obligations was a wrongful act

Under Article VI OST, Candidia bears international responsibility for the activities of its nationals in outer space. Selada, Inc. was a national company of Candidia conducting activities in outer space (A.1) and Candidia had an obligation to authorise and continuously supervise such activities. For Article VI OST to apply, Selada, Inc.'s activities must be space activities, Candidia must be the appropriate State (i), and Candidia should have failed to appropriately authorise and continually supervise Selada, Inc. (ii).

¹⁵⁷ Article 2, ARSIWA.

¹⁵⁸ *Id.*, Art 2(a).

¹⁵⁹ Art 31, ARSIWA.

- i. *Selada, Inc.’s activities are Candidia’s national space activities and Candidia is the appropriate State to supervise them*

Selada, Inc.’s activities have already been attributed to Candidia under public international space law (A.1.). Thus, Candidia is responsible for Selada, Inc.’s space activities. Absent a definition of activities as required by Article VI OST, Xenovia contends that ‘activities’ includes the manufacture of objects in space, which in this case includes the manufacture of Valerian 806 on board the Pacem Space Station.¹⁶⁰ It is an objective fact that Selada, Inc. carried out activities in outer space.¹⁶¹

Further, Candidia must be considered the appropriate State to authorise and continuously supervise Selada, Inc. The appropriate State is the one that has the legal capacity to exercise control over the national actor.¹⁶² Based on the analysis in A.1. where it was concluded that Selada, Inc. was a national company of Candidia, it can be concluded that Candidia has the legal capacity to exercise control over Selada, Inc. and is therefore also the appropriate State.

- ii. *Candidia did not authorise and continuously supervise Selada, Inc. appropriately*

Article VI OST requires that a State authorises and continuously supervises the space activities of non-governmental entities. In terms of authorisation, the OST does not define the contents of authorisation.¹⁶³ However, authorisation should ensure that the activity in question conforms with the provisions of the OST and that it is safe.¹⁶⁴ Xenovia contends that Candidia failed to

¹⁶⁰ Bin Cheng, *International Responsibility and Liability for Launch Activities*, XX ANNALS OF AIR & SPACE LAW 6 (1995).

¹⁶¹ Compromis §10 and §11.

¹⁶² Gerhard, *supra* no 5, at 117.

¹⁶³ *Id.*, 118.

¹⁶⁴ *Id.*, 118.

comply with Article VI OST, given that the authorisation and continuing supervision requirement contains both a duty to ensure the safety of national space activities.

iii. Candidia did not ensure the safety of Selada, Inc.'s space activities

Xenovia contends that the lack of independent verification on Candidia's part did not fulfil the obligation on Candidia to ensure the safety of Selada, Inc.'s activities. Instead, the authorisation process adopted by Candidia was designed to be attractive to commercial entities.¹⁶⁵

By failing to independently verify the quality of materials procured for use by its national entity to build Valerian 806,¹⁶⁶ Candidia compromised the structural rigidity of the satellite and should have foreseen such an outcome. Further, amongst space-faring States, a practice has evolved whereby States aim to have adequate laws in place to ensure the safety of their space activities, which in turn minimises risks of damage.¹⁶⁷ Candidia's NLSA failed to meet these standards, through a lack of independent verification and by solely relying on the technical submissions from applicant companies.¹⁶⁸ Consequently, the risk of material non-compliance with the specification of said materials was amplified. Debris risks therefore increased to pose a greater threat than the likelihood details in Selada, Inc.'s risk analysis.¹⁶⁹ Hence, a risk of harm was entirely foreseeable without proper verification of construction materials, and adequate national processes should have been adopted to mitigate the risks of this foreseeable harm.

¹⁶⁵ Compromis §1.

¹⁶⁶ Compromis §1.

¹⁶⁷ Alan Shaw and Peter Rosher, *Micro Satellites: The Smaller the Satellites, the Bigger the Challenges?* 41 AIR AND SPACE LAW 319 (2016); Irmgard Marboe, *National space law* in HANDBOOK OF SPACE LAW 142, 146, 148, 151, 155 and 158 (von der Dunk and Tronchetti eds., 2015).

¹⁶⁸ Compromis §1.

¹⁶⁹ Compromis §13.

Further evidence of what may constitute ‘safe’ space activities can be found in soft law instruments. The SDMGs, for example, recommend that a Space Debris Mitigation Plan is established and documented for each space project, including measures intended to minimise the hazard related to satellite malfunctions.¹⁷⁰ These were not adopted by Candidia, and thus further evidence is adduced that Candidia’s actions did not meet the threshold of safe space activities.

Finally, a conclusion that Candidian space activities were not safe is further supported by Candidia’s reputation as a ‘flag of convenience’ State,¹⁷¹ as well as the failure of Candidia to release telemetry data which would have provided evidence as to the health and functioning of the Valerian 806 satellite.¹⁷²

B.2.1.2. Candidia’s breach of its Article IX OST obligations was a wrongful act

The requirements of the Article IX OST due regard principle have been elaborated in section A.2.1.2., and include an obligation on Candidia to refrain from interference with other States in their freedom to use outer space.¹⁷³ The UN GEE report on adequate transparency measures represents internationally recognised practices with regards to the obligation on States to pay due regard in the context of militarisation.¹⁷⁴ This report highlighted the importance of both information exchanges on national space security matters and other related national activities,¹⁷⁵

¹⁷⁰ UN COPUOS, Space Debris Mitigation Guidelines, 62/217 (22 Dec. 2007).

¹⁷¹ Compromis §7; see Matthew J. Kleiman, *Patent Rights and Flags of Convenience in Outer Space*, 23 AIR AND SPACE LAWYER 4 (2011).

¹⁷² Compromis §19.

¹⁷³ Marchisio, *supra* no 18, at 176.

¹⁷⁴ UN Doc. A/68/189 (29 July 2013).

¹⁷⁵ *Id.*, paras. 37–38.

as well as the exchange of information on basic orbital parameters to avoid misperceptions and mistrust.¹⁷⁶ In this case, Candidia withholds the identities and nationalities of space object owners,¹⁷⁷ does not share information concerning research on the Pacem Space Station¹⁷⁸ and refused access to the preserved telemetry records from Valerian 806.¹⁷⁹ Therefore, Candidia also failed to adhere to internationally recognised standards which have developed around the implementation of due regard requirements in international law.

B.2.1.3. Candidia's violation of its due diligence obligation was a wrongful act

The duty of due diligence is a cornerstone principle of general international law imposed on States to prevent private actors from causing damage to foreign nationals.¹⁸⁰ In this respect, States have a duty to minimise risks to their best possible extent¹⁸¹ by adopting and enforcing legal rules to prevent harm.¹⁸² Candidia's national law processes did not meet this standard due to the lack of independent verification of national entities (B.2.1.1.).

¹⁷⁶ *Id.*, paras. 39–41.

¹⁷⁷ Compromis §7.

¹⁷⁸ Compromis §11.

¹⁷⁹ Compromis §19.

¹⁸⁰ Robert P. Barnidge Jr, *The Due Diligence Principle under International Law*, 8 INTERNATIONAL COMMUNITY LAW REVIEW 93 (2006); IAN BROWNLIE, SYSTEM OF THE LAW OF NATIONS: STATE RESPONSIBILITY (Part 1) 161 (1983); Case Concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay) 2010 I.C.J., §55 and §56 (Apr. 20); Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica) 2015 I.C.J. §706 (Dec. 17).

¹⁸¹ Chatzipanagiotis, *supra* no 147, at 4.

¹⁸² Art. 3 of Draft Articles on Prevention of Transboundary Harm from Hazardous Activities with commentaries, G.A., 53rd Sess., U.N. Doc. A/56/10, 152 (2001).

The standard of diligence required by a State is dependent on the degree of risk of the activity.¹⁸³ In this case, a national company of Candidia had a security agreement which incorporated a remedy for possession upon default by that company.¹⁸⁴ The exercise of these remedies was likely in the event of a default by Selada, Inc. Therefore, Candidia had an obligation under general international law to take either technical or legislative steps to minimise the harm caused in the event of these possession remedies being exercised.

Further, in fulfilment of their duty of due diligence under international law, States have a duty to adopt and implement domestic laws which incorporate accepted international standards.¹⁸⁵ Sections B.2.1.1. and B.2.1.2 provide evidence of accepted international standards which Candidia failed to meet.

B.2.2. The conduct was attributable to Candidia

The second requirement of responsibility under general international law is attribution of the conduct to a State (B.2.). The explosion of Valerian 806 was the direct result of Candidia's failure to meet the standards imposed by its duty to authorise and continually supervise Selada, Inc. in its space activities. An omission is explicitly attributable to the State in the same way as an act.¹⁸⁶ The wrongful acts detailed above are attributable to Candidia in two ways. First, through Selada, Inc. being a national company of Candidia which entails the international responsibility of

¹⁸³ Ioana Bratu, Arno R. Lodder, Tina van der Linden, *Autonomous Space Objects and International Space Law: Navigating the Liability Gap* 18 (3) *INDONESIAN J INT'L L* 442 (2021); Draft articles on Prevention of Transboundary Harm, Article 3, 154.

¹⁸⁴ *Compromis* §14.

¹⁸⁵ Draft Articles on Prevention of Transboundary Harm, *supra* n 182, 153 §4.

¹⁸⁶ Article 2, ARSIWA.

Candidia under Article VI OST (A.1.) and, second, through the requirement to authorise and supervise being placed on a State organ exercising legislative and executive function; a means of attribution under Article 2 AWSIWA.¹⁸⁷

Section B.2. has detailed several wrongful acts committed by Candidia which, when combined with the attribution of conduct to Candidia, result in a wrongful act being attributed to Candidia. Candidia is therefore under obligation to make full reparation for the damages caused to Fenix-3 in accordance with Article 31 ARSIWA.

¹⁸⁷ Article 4, ARSIWA.

SUBMISSIONS TO THE COURT

For the foregoing reasons, Xenovia, the Respondent, respectfully requests the Court to adjudge and declare that:

- i) That Xenovia, the Respondent, acted in accordance with international law by attempting to obtain physical possession and control of Valerian 806;
- ii) That Xenovia, the Respondent, is not liable to Candidia, the Applicant, for any alleged damages under international law; and
- iii) That Candidia, the Applicant, is liable for the loss of the Fenix-3 satellite.