

COLLABORATION IN THE EXPLORATION OF OUTER SPACE: USING ADR TO RESOLVE CONFLICTS IN SPACE

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I. INTRODUCTION

History may remember the year 2004 as the year when the world once again contemplated the creation of outer space¹ law. On January 14, 2004, President Bush announced new goals in the pursuit of space exploration.² Those goals included a return to the moon by 2020 and using it as a launching point for missions into

¹ No clear legal boundary has been established as to what constitutes outer space, although the international community has indicated a desire to define such a boundary. *Report of the Legal Subcommittee on its Forty-First Session Held in Vienna From 2 to 12 April 2002*, U.N. Committee on the Peaceful Uses of Outer Space, 45th Sess., U.N. Doc. A/AC.105/787, at 10 (2002) (reporting on attempts to define boundaries of outer space, where some members stated that a lack of such a definition would give rise to disputes between countries, while others felt that a rigid definition would not respond effectively to technological issues associated with outer space). See, e.g., R. Thomas Rankin, Note, *Space Tourism: Fanny Packs, Ugly T-Shirts, and the Law in Outer Space*, 36 SUFFOLK U. L. REV. 695, 698 (2003) (defining outer space, arbitrarily, at 100 nautical miles). But see James A. Beckman, *Citizens Without a Forum: The Lack of an Appropriate and Consistent Remedy for United States Citizens Injured or Killed as the Result of Activity Above the Territorial Air Space*, 22 B.C. INT'L & COMP. L. REV. 249, 253 (1999) (“[I]n recent years, due to immense strides in technology and space activities, the term ‘outer space’ has been defined by treaty law as territory which is beyond the sovereign claim, laws, or control of any one nation.”). The majority, accepted by most nations, now accept that the boundary between outer space and air space should be near the lowest altitude (perigee) at which artificial earth satellites can remain in orbit without being destroyed by friction with the air. See Lubos Perek, *Scientific Criteria for the Delimitation of Outer Space*, 5 J. SPACE L. 111, 118 (1977). A few minorities have called for an approach based upon the theoretical limit of an air flight, rather than the lowest possible perigee rule of a satellite. For a review of the various theories regarding the demarcation, see John C. Kunich, *Planetary Defense: The Legality of Global Survival*, 41 A.F. L. REV. 119, 130 (1997); Bin Cheng, *The Legal Status of Outer Space and Related Issues: Demilitarization of Outer Space and Definition of Peaceful Use*, 11 J. SPACE L. 93, 93-95 (1985). See also *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, Article I [hereinafter *Outer Space Treaty*]. For purposes of this Note, the boundary is not necessarily important, only that it should apply to any space activity not already under the jurisdiction of maritime and air space law. I will simply refer to space law in this Note to connote the area I am covering.

² George W. Bush, Remarks by the President on U.S. Space Policy at NASA Headquarters: President Bush Announces New Vision for Space Exploration Program, (Jan. 14, 2004), <http://www.whitehouse.gov/news/releases/2004/01/20040114-3.html> (Jan. 14, 2004).

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deeper space, including manned missions to Mars.³ On January 3, 2004, the first Mars rover, Spirit, landed safely on the Martian surface. Twenty-one days later, its twin rover, Opportunity, landed on the opposite side of the planet.⁴ Although the European Space Agency (“ESA”) had sent their own probe to Mars, the Beagle 2, it was not heard from after its scheduled landing.⁵ However, on January 14, 2005, the ESA succeeded when its Huygens probe successfully landed on the surface of Titan, one of Saturn’s moons.⁶ On June 21, 2004, SpaceShipOne became the first private-venture craft⁷ to leave earth’s atmosphere and enter space.⁸ SpaceShipOne made two consecutive flights into sub-orbital space in a two week span in June and captured the Ansari X Prize⁹ of \$10 million.¹⁰ There has also been mounting interest recently for the idea of building a space elevator to replace the shuttles to carry payloads into space.¹¹ With these new developments,¹² further space exploration appears to be underway and will continue expanding in the

³ *Id.* The goals set out by the President include extended human missions to the moon as early as 2015. The President hopes to develop a new spacecraft, the Crew Exploration Vehicle, by 2008, and to retire the current Space Shuttle fleet in 2010.

⁴ Full coverage of the mission by the two rovers available at <http://marsrovers.jpl.nasa.gov/home/index.html>. The mission for the two rovers originally had been three months. However, as of the writing of this Note (over a year later), the two rovers are still in operation and continue their long, successful mission exploring the red planet.

⁵ The Beagle 2 was due to land on December 25th, 2003. However, nothing was heard from it and the mission was presumed lost a few months later. Information on the Beagle 2 and its mission available at <http://www.beagle2.com/index.htm> (last visited January 23, 2005).

⁶ *Europe Reaches New Frontier: Huygens Lands on Titan*, http://www.esa.int/SPECIALS/Cassini-Huygens/SEM01QQ3K3E_0.html (last visited January 23, 2005).

⁷ SpaceShipOne was built by engineer Burt Rutan and financed by Paul Allen, co-founder of Microsoft.

⁸ Space was defined as an altitude of 100km (62 miles). A report on this flight by the pilot and some great pictures can be found at <http://www.richard-seaman.com/Aircraft/AirShows/SpaceShipOne2004>. This was the maiden flight of the craft.

⁹ Information on the Ansari X Prize is available at <http://www.xprize.org> (last visited January 24, 2005).

¹⁰ *Id.* Along with other rules, the prize required that a spacecraft make two trips within two weeks into sub-orbital space. Several other contenders were underway when SpaceShipOne made its flights, though none had even made a trial flight by the time SpaceShipOne won the prize.

¹¹ See, e.g., Brad Lemley, *Space Elevator: Going Up*, *DISCOVER*, July 2004, at 32. The article summarizes the advantages and benefits of a space elevator, and discusses the way in which such an elevator would be built and the progress being made. In the article, one of the proponents of the idea (and researcher in the field) mentions how private enterprises may be willing to fund the program if its safety and efficiency are shown.

¹² The successes listed are only those projects which involve landings on other celestial bodies. The number of spacecrafts and successes go far beyond that, including several orbiters on other planets (including Saturn, Mars, and Jupiter) and other celestial objects (including meteors and asteroids).

near future. Although treaties exist for the use of outer space, no substantive law exists,¹³ and the increase in outer space activity will require clearer and more expansive laws and regulations regarding activity and liability for damages caused by such activities.¹⁴

With discussions of further human exploration into outer space, and possible colonization and permanent presence on the moon and Mars (along with the robotics sent to these celestial bodies),¹⁵ nations need to reconsider the type of law that will be used if and when incidents occur involving either machinery or persons from different nations. Which laws apply if objects from different nations collide on Mars? Which laws apply if a tort occurs between two individuals from different states on the moon or on Mars? The substantive law does not yet exist, but even when it does, alternative dispute resolution (“ADR”) procedures, whereby parties may have more options for substantive and procedural laws, may provide a better method for resolving conflicts,¹⁶ may prove more beneficial than litigation.

Many claimants may not want the application of laws from individual states,¹⁷ as they may be forced to use another state’s substantive laws.¹⁸ Furthermore, determining whose laws to use may prove difficult.¹⁹ If the place where the claim arises is space or a celestial body – which no state may claim sovereignty over²⁰ –

¹³ Generally, the treaties refer to international law and the law of participating states to deal with conflicts in space situations. See *Convention on International Liability for Damage Caused by Space Objects*, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187, Article XII [hereinafter *Liability Convention*] (providing that compensation under the Convention is to be determined in accordance with international law and the laws of equity and justice); see also *Outer Space Treaty*, *supra* note 1, Article III. States are to carry out exploration and use of outer space in accordance with international law.

¹⁴ See, e.g., Glenn H. Reynolds, *Space Law in the 21st Century: Some Thoughts in Response to the Bush Administration’s Space Initiative*, 69 J. AIR L. & COM. 413 (Spring 2004) [hereinafter Reynolds, *21st Century*] (discussing the need for legal regimes to be established regarding liability, space environmental issues, property rights, and space tourism).

¹⁵ See *supra* note 2.

¹⁶ See, e.g., Helen Shin, Comment, “*Oh, I have slipped the surly bonds of earth*”: *Multinational Space Stations and Choice of Law*, 78 CAL. L. REV. 1375 (1990) (arguing for the benefits of arbitration procedures, which are more flexible than judicial proceedings), discussed further in *infra* Sec. III.B.i.

¹⁷ See *infra* Sec. III.B.

¹⁸ *Id.* See also *Liability Convention*, *supra* note 13, Article XI.

¹⁹ See, e.g., Shin, *supra* note 16.

²⁰ See *Outer Space Treaty*, *supra* note 1, Article II. Article II sets forth that outer space and all celestial bodies are not subject to appropriation by claim of sovereignty by any means.

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choice of law becomes more complicated than resolving such an issue in claims arising within space stations.²¹

While the creation of a wide body of substantive and procedural law for outer space remains necessary,²² the use of arbitration and other ADR methods in resolving outer space disputes should prove highly effective.²³ Outer space law, although encompassing and using aspects of international law,²⁴ should not rely solely on rules for settling international disputes. Like maritime and admiralty law, the law of space needs to become a separate and distinct area of law,²⁵ with its own governing rules and procedures specifically tailored to meet the challenges of space conflicts.²⁶ However, making substantive law would be complicated and may not be fea-

²¹ See, e.g., Shin, *supra* note 16; see also Scott F. March, Note, *Dispute Resolution in Space*, 7 HASTINGS INT'L & COMP. L. REV. 237 (1983-84) (proposing codification of a dispute resolution code to adjudicate disputes among crewmembers aboard United States spacecraft. March, however, believes it would be problematic to attempt a multinational dispute resolution code because of conflicting and varying legal systems and objectives).

²² See *supra* note 13; See also Marc S. Firestone, *Problems in the Resolution of Disputes Concerning Damage Caused in Outer Space*, 59 TUL. L. REV. 747 (1984) (discussing the need to develop a rational and uniform law for outer space by international organizations). In the meantime, the international community needs to develop a methodology to resolve questions of liability. Firestone proposes an international convention providing for such doctrines. *Id.* at 771-72.

²³ Several articles have been written by proponents of alternative dispute resolution for space conflicts. See, e.g., Phillip D. Bostwick, *Going Private with the Judicial System - Making Creative Use of ADR Procedures to Resolve Commercial Space Disputes*, 23 J. SPACE L. 19 (Winter 1995) (discussing how creative uses of mediation and arbitration may prove beneficial to both sides of a dispute in private commercial businesses in the space industry); see also I. H. Ph. Diederiks-Verschoor, *The Settlements of Disputes in Space: New Developments*, 26 J. SPACE L. 41 (Winter 1998) (studying the settlement of disputes in space and the tribunals and options available, including the establishment in 1994 of the International Court of Air and Space Arbitration, which is currently the only international arbitration organization for air and space); see also March, *supra* note 21.

²⁴ See, e.g., *Liability Convention*, *supra* note 13, Article XII (stating that liability for damage "shall be determined in accordance with international law and the principles of justice and equity.").

²⁵ See GLENN H. REYNOLDS & ROBERT P. MERGES, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* 27-43 (2nd ed. 1998) (discussing the roots of space law and the similarities between maritime and admiralty law and space law).

²⁶ See *supra* note 22. Although outer space problems resemble those in maritime and admiralty claims, outer space differs from the high seas and may require a set of laws to handle those differences. See Van C. Ernest, Note, *Third Party Liability of the Private Space Industry - To Pay What No One Has Paid Before*, 41 CASE W. RES. L. REV. 503, 533 nn. 203-08 (1991) (discussing the similarities between maritime and admiralty law and space law. Ernest points out the similarities in the requirements to register vessels, the advantages of the maritime system, and citing to proposals by other scholars for using maritime law as a model for space law).

sible in the near future.²⁷ Currently, international law predominantly regulates claims between foreign states, while national law regulates claims when the parties to the action and launching state are all part of the same nation.²⁸

This Note will explore in detail the use of ADR procedures for claims brought under the Convention on International Liability for Damage Caused by Space Objects of 1972 (“Liability Convention”), pointing out the benefits and effectiveness of the procedures. This Note will also explore the problems with the Liability Convention, and will suggest modifications to improve the ADR procedures set forth therein. By drawing on the ADR procedures from the Liability Convention as an example, this Note will suggest that the use of ADR procedures to resolve most outer space conflicts would be most desirable. Although ADR procedures currently exist to resolve certain claims, improvements in such procedures are necessary, and may work even better once more substantive laws are put into place and states and individuals get a better understanding of what kinds of liability, responsibilities, and rights each state, entity, or third-party has in space.

Part II of this Note will discuss existing laws and regulations in space law, with a focus on The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of January 1967²⁹ (“Outer Space Treaty”) and the Liability Convention. Part III will analyze the Liability Convention and discuss space law commentators’ analyses of the Convention. Part IV will focus on the arbitration and ADR provisions in the Liability Convention. The section will also compare the Articles in the Liability Convention to those of the United Nations Commission on International Trade Law Model Law on International Commercial Arbitration (“UNCITRAL Model Law”). Finally, Part V will propose how the creation of a new agreement, with provisions similar to those laid out in the Liability Convention, with modifications, may improve the process of ADR in resolving conflicts arising from outer space disputes.

²⁷ The treaties themselves, and the Liability Convention in particular, took many years to draft and were drafted after prolonged discussion. The Liability Convention took nearly ten years to draft, and the drafters purposely left out any substantive law, since none could be agreed upon. See Shin, *supra* note 16. Such being the case, it is unlikely that the creation of purely substantive laws could be agreed upon before it becomes an absolute necessity.

²⁸ For example, the Commercial Space Launch Activities, 49 U.S.C. § 701 (2003) [hereinafter CSLA], discussed *infra* in Sec. II.2, controls when it comes to U.S. citizens and launches licensed by the U.S.

²⁹ *Outer Space Treaty*, *supra* note 1.

II. BACKGROUND: THE CURRENT STATE OF SPACE LAW

A. Treaties and Agreements

The current state of space law is governed by international treaties and agreements.³⁰ Five primary United Nations treaties and agreements regulate space law.³¹ Of the five, the core treaty is the Outer Space Treaty, which generally details how states may use and explore outer space.³²

The Outer Space Treaty, seeking to create a cooperative international environment for exploration, lays out some basic principles for space exploration.³³ For example, Article I states that space is the province of all mankind, that there shall be free access, free exploration and free use.³⁴ Article I further provides that “[s]tates shall facilitate and encourage international cooperation” in scientific investigations.³⁵ Article II prohibits any nation from claiming sovereignty over any part of outer space.³⁶ Article III states that activities are to be carried out in accordance with international laws in order to promote international cooperation, understanding, and to maintain international peace and security.³⁷ The Outer Space Treaty’s provisions apply to both governmental and non-governmental entities.³⁸ Notably, Article VII of the Outer Space Treaty sets forth the liability provisions, providing that a launching state will be internationally liable for damage caused by its outer space activities to a foreign state or a person of a foreign state.³⁹ However, the treaty does not provide for domes-

³⁰ Details on all the treaties and agreements between nations along with other updates and resolutions which exist may be found at the Office for Outer Space Affairs’ website, which is available at <http://www.oosa.unvienna.org/SpaceLaw/spacelaw.htm>.

³¹ A list of the five treaties and some introduction on them available at <http://www.oosa.unvienna.org/SpaceLaw/treaties.html>.

³² *Outer Space Treaty*, *supra* note 1.

³³ *See id.*, Article III.

³⁴ *Id.*, Article I.

³⁵ *Id.*, *supra* note 1, Article I.

³⁶ *Id.*, *supra* note 1, Article II.

³⁷ *Id.*, *supra* note 1, Article III.

³⁸ *Outer Space Treaty*, *supra* note 1. Article VI provides that States shall bear international responsibility for national activities whether the activities are done by governmental agencies or non-governmental entities.

³⁹ *Id.*, Article VII.

tic liability in the event that a launching state causes damages to its own citizens.⁴⁰

Although the Outer Space Treaty contains provisions on liability, they are limited. In 1972, the Liability Convention supplemented the Outer Space Treaty by laying out guidelines for settling disputes. It sets forth more expansive and detailed rules for the procedures, compensation, and liability of nations for damage caused by a launching state's space objects.⁴¹

The Liability Convention deals primarily with state responsibility.⁴² The state where the launched vehicle is registered has jurisdiction over the vehicle and is responsible for its activity.⁴³ The state also presents claims for damages under the Liability Convention for entities registered to launch under its auspices, as only states are able to bring claims under the Liability Convention.⁴⁴

The other three major agreements providing for the use and exploration of space include: The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space of April 1968,⁴⁵ which governs the return and rescue of fallen astronauts and space objects; The Convention on the Registration of Objects Launched into Outer Space of January 1975,⁴⁶ which created a central registry for all launching nations to register space objects; and The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,⁴⁷ which detailed the property rights regarding the moon.

Collectively, the five treaties and agreements seek to create and promote the peaceful and cooperative exploration of space. The treaties and agreements are particularly aware and considerate

⁴⁰ It has been pointed out that the Outer Space Treaty is silent as to the rights of a nation's own citizens when that nation is responsible for the torts. It is presumed that a state will retain jurisdiction over its citizen and apply its own laws. See Beckman, *supra* note 1, at 271.

⁴¹ *Liability Convention*, *supra* note 13.

⁴² The Liability Convention states that a damaged state may bring a claim against the launching state. However, there is no mention of individuals or private entities being allowed to bring a claim for damages. For the a further discussion on the inability of private entities from bringing claims, see Rankin, *supra* note 1, at 706-7 (commenting on how the Liability Convention precludes individual claims to be brought for damages under the treaty).

⁴³ *Liability Convention*, *supra* note 13, Article I.

⁴⁴ See Rankin, *supra* note 1.

⁴⁵ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, T.I.A.S. 6599.

⁴⁶ Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. 8480.

⁴⁷ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 3, 18 I.L.M. 1434.

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of the rights of underdeveloped nations which are currently incapable of exploring space.⁴⁸

B. The United States' Commercial Space Launch Activities Act

In addition to the international treaties set forth above, the United States has passed legislation in the form of the Commercial Space Launch Activities Act of 1984⁴⁹ ("CSLA") and the Amendments to the Act in 1988⁵⁰ to deal with licenses, registration, and insurance required of private commercial launches. The United States has also limited the right of private space crafts to gain licenses for launch and re-entry from foreign territories.⁵¹ As of the writing of this Note, Congress has passed new legislation amending the CSLA⁵² which would establish a regulatory framework for commercial human space travel within the Federal Aviation Administration.⁵³

III. ANALYSIS OF THE LIABILITY CONVENTION

Although the Liability Convention sets forth ways in which to settle disputes, the Convention is not the exclusive means to seek redress. While a member state *may* bring a claim for damages under the Liability Convention, it may also seek redress in the

⁴⁸ See, e.g., Richard Berkley, *Space Law Versus Space Utilization: The Inhibition of Private Industry in Outer Space*, 15 WIS. INT'L L.J. 421, 427 n.41 (1997) (discussing the presence of the Common Heritage of Mankind principle, and how developing nations lobbied for its inclusion).

⁴⁹ CSLA, *supra* note 28.

⁵⁰ 49 U.S.C. § 2603-2623 (1988).

⁵¹ CSLA, *supra* note 28, § 701-04 (2003) (restricting use of foreign space facilities).

⁵² Commercial Space Launch Amendments Act of 2004, H.R. 5382, 108th Cong. (2004).

⁵³ The House of Representatives passed H.R. 5382 on November 20, 2004, and on December 9, 2004, the Senate approved the bill in its last action before adjourning. The bill has been sent to the President, and awaits his signature. H.R. 5382 will help promote the emerging commercial human space flight industry by putting it on a more solid regulatory footing. It will also make it easier to launch new types of reusable suborbital rockets by allowing the Federal Aviation Administration to issue experimental permits that can be granted more quickly and with fewer requirements than licenses. One of the primary reasons for these changes arises from the recent flight of SpaceShipOne, which made the first private sub-orbital flight in September 2004, and won the Ansari X Prize. Soon after the flight, another prize was announced: the America's Space Prize, which will award \$50 million to the first team who builds a spacecraft capable of taking a crew of at least five people to an altitude of 400 kilometers and complete two orbits of the Earth at that altitude. In other words, an orbital spacecraft, which is the logical step following the accomplishment of the suborbital flights by SpaceShipOne.

courts or administrative tribunals of the launching state.⁵⁴ Still, a state may not present a claim under the Liability Convention while pursuing the same claim in the launching state's courts or administrative tribunals.⁵⁵ Even with the option, the Liability Convention generally offers a better forum for the claimant, since the launching state's tribunals and courts may not be the most favorable.⁵⁶ There is usually a fear of bias from the launching state's courts and agencies,⁵⁷ as well as possible unfavorable substantive law and capped awards.⁵⁸

A. Procedures for Bringing a Claim Under the Liability Convention

The procedures for filing a claim under the Liability Convention are set forth under Articles X through XIV. The timeline for filing a claim for damages is prescribed under Article X, which serves as a statute of limitations: a claim must be filed within one year after the occurrence of the damage, or one year after the state could reasonably have learned of the damage incurred.⁵⁹ Even if the full extent of the damage is unknown, the limitation applies; however, the claimant state is entitled to revise the claim after the

⁵⁴ *Liability Convention*, *supra* note 13, Article XI. Section 2 of article XI reads:

Nothing in this Convention shall prevent a State, or natural or juridical persons it might represent, from pursuing a claim in the courts or administrative tribunals or agencies of a launching State. A State shall not, however, be entitled to present a claim under this Convention in respect of the same damage for which a claim is being pursued in the courts or administrative tribunals or agencies of a launching State or under another international agreement which is binding on the States concerned.

⁵⁵ *Id.*

⁵⁶ *But see* Stanton Eigenbrodt, *Out to Launch: Private Remedies for Outer Space Claims*, 55 J. AIR L. & COM. 185 (Fall 1989) (commenting that the statute of limitations set by the Liability Convention precludes the opportunity for an individual to use both the Liability Convention and the municipal courts – either at once or one after the other. Since a one year limitation exists, if a case is brought to the launching state's courts, it will likely go over the one year period prescribed by the Liability Convention. Eigenbrodt argues that individual entities are better off going straight to municipal courts, rather than going through the Liability Convention.).

⁵⁷ *See id.*

⁵⁸ *See id.* Some countries cap tort liability as well as awards for damages, while others have higher or unlimited limits. For example, as Eigenbrodt points out, punitive and other damages are recoverable in the United States, while the Soviet Union determines damages based on societal costs rather than personal loss. *Id.* at 95. If a claimant is from a state where uncapped damages may be awarded, suing in a forum where the damages are capped would prove less favorable.

⁵⁹ *Liability Convention*, *supra* note 13, Article X, section 1.

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expiration of the time limit.⁶⁰ The claimant state may bring a claim under the Liability Convention without having exhausted any other local remedies⁶¹ and, as stated above, a claimant state is not prevented from bringing a claim against another state in the launching state's courts or tribunals.⁶²

Under the Liability Convention, a launching state is absolutely liable for damages caused by its space object on the surface of the earth or damages caused to aircraft in flight.⁶³ If the damages occur elsewhere, the launching state is liable for damage based on fault.⁶⁴ The compensation required is to be determined by international law and the principles of justice and equity, and the launching state is to restore the claimant to the condition in which it would have existed had the damage not occurred in an attempt to make the claimant whole.⁶⁵

Although the Liability Convention does not deal directly with commercial or private space vehicles, it provides that a state granting the license is responsible for the damages caused by objects it registered to launch.⁶⁶ Since individuals cannot bring a claim under the Liability Convention,⁶⁷ a state will bring forth the claims for damages against the launching state on behalf of its citizens.⁶⁸

⁶⁰ *Id.*, Article X, section 2.

⁶¹ *Id.*, Article XI.

⁶² *Id.*, Article XI.

⁶³ *Id.*, Article II.

⁶⁴ *Id.*, Article III. Article III reads:

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.

⁶⁵ *Liability Convention*, *supra* note 13, Article XII.

⁶⁶ See *supra* note 42 see also Rankin, *supra* note 1 (discussing the further need for treaties dealing directly with commercial space craft and commenting on how the Liability Convention and the CSLA do not allow for individual claims to be brought for damages).

⁶⁷ See *Liability Convention*, *supra* note 13, Article VIII.

⁶⁸ For a problem with this issue, see Eigenbrodt, *supra* note 56, (discussing how a private person faces two problems: first, she must ask the State to present her claim; second, if not, then it must bring the claim under municipal court). Eigenbrodt points out that municipal courts may be preferable due to the unpredictability of the Liability Convention. *Id.* at 199. Eigenbrodt also mentions how diplomatic relations may theoretically go on forever, thereby disadvantaging an individual claimant. *Id.* at 202. However, since a Claims Commission may be requested within one year after the claim was made, the diplomatic relations would be no different than attempts at settlement discussions.

B. Problems with the Liability Convention

Several problems exist with the procedures and requirements set forth in the Liability Convention. In particular, commentators have discussed the fact that the Liability Convention does not address choice of law issues that arise in this international setting. There has also been criticism of Article II, which sets forth strict and unlimited liability against a launching state whose spacecraft causes damages.⁶⁹

i. Choice of Law

One of the bigger problems with the Liability Convention and space law in general has been the lack of determinative ways to establish the choice of law to be applied in each case.⁷⁰ The problem includes *in rem*⁷¹ and *in personam*⁷² jurisdictional issues, where it is unclear who has jurisdiction over a person, object, or a location where the event occurred.⁷³ Commentators have proposed several solutions to resolve the choice of law issue.

As for jurisdiction over space stations orbiting earth, at least four alternatives have been suggested: 1) control over the station by one nation – the state which registers the vehicle; 2) a multinational space station under the joint jurisdiction of several nations; 3) a multinational space station where each state has total control and jurisdiction over individual modules;⁷⁴ or 4) an international space station under the jurisdiction of an international governmental organization.⁷⁵ One commentator has proposed that the best model for private entities is found in the Space Station Agreement,⁷⁶ which allots jurisdiction over each module in a space sta-

⁶⁹ *Liability Convention*, *supra* note 13, Article II.

⁷⁰ Many commentators have discussed the problem of choice of law in space law, and how it is one of the more serious issues, since some states offer better substantive laws and remedies than others. *See, e.g.*, Shin, *supra* note 16.

⁷¹ *In rem* refers to an action “involving or determining the status of a thing, and therefore the rights of persons generally with respect to that thing.” BLACK’S LAW DICTIONARY (8th ed. 2004).

⁷² *In personam* is an action “involving or determining the personal rights and obligations of the parties” or an action “brought against a person rather than property.” *Id.*

⁷³ *See, e.g.*, *supra* note 70; *see also* Reynolds, *supra* note 25.

⁷⁴ A module is a self-contained section of a spacecraft that performs a specific task.

⁷⁵ *See* Reynolds, *supra* note 25, at 280-82 (laying out the four possibilities and discussing the rights and liabilities of states under each alternative).

⁷⁶ The agreement is signed by the United States, Japan, Canada, and the ESA.

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tion to the state which created it.⁷⁷ Each state which is part of a multinational space station therefore has jurisdiction over only the modules it created. As the commentator admits, however, the proposal also evades other choice of law issues, particularly the problem of jurisdiction over common areas within the station.⁷⁸

Another commentator has proposed a new convention creating a tribunal for arbitration governed by the UNCITRAL Model Law to settle disputes arising in multinational space stations.⁷⁹ The convention would require all states to ratify the convention as a prerequisite to participation in a multinational space station.⁸⁰

However, choice of law concerns in space law goes beyond the scope of space stations. Comparisons with maritime law have been made numerous times regarding jurisdiction as well as other legal issues.⁸¹ In the future, space activity will likely go beyond space stations and modules. The usefulness of maritime law may prove beneficial if and when two separate spacecrafts from different nations make contact – the choice of law proffered in maritime law would seem effective in some of these situations.⁸² As space exploration expands, however, mere state laws will not suffice. For example, if two spacecrafts from different launching states land on Mars and a tort occurs, whose law applies? Should international law apply? What if one of the spacecrafts accidentally fires off exhaust which propels a Martian rock which damages the other spacecraft? Or what if the spacecrafts were assembled on the moon from parts launched by various states? There would be no “launching state” per se in such a situation. Many other problems

⁷⁷ Berkley, *supra* note 48, at 442. Berkley also discusses how maritime law may not be fully appropriate, since it would not satisfy private industries’ predilection for predictability in litigation, since the law of possibly four different states may be used, but only one of them is ultimately used, and the International Court of Justice works on a case by case basis. *Id.* at 441.

⁷⁸ Berkley mentions torts occurring in common areas, which would not be a module under the jurisdiction of any of the individual states. *Id.* at 442.

⁷⁹ Shin, *supra* note 16, at 1414.

⁸⁰ *Id.* at 1413.

⁸¹ *See generally*, Reynolds, *supra* note 25, at 28-41 (providing general background and commentary regarding maritime, air and sea law, including several early articles relating to comparisons between maritime and space law. The book suggests that maritime law would serve as a good initial model for space law to draw upon, including such issues as environmental protection, salvage of crew, and jurisdictional issues that have arisen in maritime law and may be applicable to space law. Similarities as well as some differences are mentioned.); *see also* Ernest, *supra* note 26, at 533 nn. 203-08.

⁸² *See, e.g.*, Reynolds, *supra* note 25, at 28-41 (discussing how maritime law deals with ships boarding other ships if there are significant suspicions as to violations of international laws). *Id.* at 32.

may arise in outer space, and to make decisions based solely on national laws seems restrictive, if not difficult.⁸³

ii. Strict Liability for Damages

Another aspect of the Liability Convention which commentators have discussed is Article II, which provides for strict and unlimited liability for damages caused by the launching state's space objects on Earth or to damage caused to aircraft in flight.⁸⁴ Strict liability has been justified as a necessity for several reasons including: an inability by the claimant to prove negligence by the government,⁸⁵ lack of a negligence standard in the still nascent field of space law⁸⁶ and the notion that the government should bear the burden since it reaps the benefits of being a world leader in space travel.⁸⁷

With the increase in private and commercial spaceflight, however, commentators have proposed the creation of a new scheme for regulating liability.⁸⁸ In particular, the problem lies in the fact that the Liability Convention does not directly apply to private enterprises.⁸⁹ The CSLA and its Amendments have been a good starting point in the United States' attempt to regulate liability;⁹⁰ however, the CSLA only applies to United States registered vehicles and citizens, while other space-faring nations do not yet have such frameworks.⁹¹

⁸³ The main concerns are issues that arise in areas where no one state has jurisdiction, or where it is unclear who may even claim jurisdiction.

⁸⁴ *Liability Convention*, *supra* note 13, Article II.

⁸⁵ Bruce A. Hurwitz, *STATE LIABILITY FOR OUTER SPACE ACTIVITIES IN ACCORDANCE WITH THE 1972 CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS* 29-32 (1992). Hurwitz also discusses the definition of the terms used in the Liability Convention and to what and who the liability applies.

⁸⁶ *Id.*

⁸⁷ *Id.* See also Heather A. Douglas, *Death in Pursuit of Space Travel: An Analysis of Current Methods of Recovery for Families of Astronauts and the Need for Reform*, 26 WHITTIER L. REV. 333, 351-52 (Fall 2004).

⁸⁸ See, e.g., Patrick Collins, *The Regulatory Reform Agenda for the Era of Passenger Space Transportation*, http://www.spacefuture.com/archive/the_regulatory_reform_agenda_for_the_era_of_passenger_space_transportation.shtml (last visited October 10, 2004); see also Wollersheim, Michael, *Considerations Towards the Legal Framework of Space Tourism*, http://www.spacefuture.com/archive/considerations_towards_the_legal_framework_of_space_tourism.shtml (last visited October 10, 2004) (commenting on the need for regulatory reform due to the presence of commercial passengers).

⁸⁹ See *supra* Sec. II.A of this note; see also Rankin, *supra* note 1, at 707.

⁹⁰ See *supra* Sec. II.B and accompanying footnotes.

⁹¹ See Berkley, *supra* note 48, at 428, 441 (discussing the need for regulations and clear standards for private entities to know their potential liabilities and the difficulties of defending against possible suits. Berkley believes the C.S.L.A. and its Amendments serve as a good guide-

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Damage caused by space debris has been another substantial problem for the Liability Convention,⁹² primarily because it has been difficult to determine who is actually responsible and what remedies are available.⁹³ Since responsibility cannot be determined, strict liability is inappropriate. Instead, a market-share liability scheme has been proposed,⁹⁴ based along the lines formulated in the *Sindell v. Abbot Labs* case.⁹⁵ Under this system, states are accountable based on the extent of their use of space, making the principal exploring nations more responsible for their ventures, as they will bear the brunt of the costs should accidents occur.⁹⁶

IV. ADR PROCEDURES AND THE LIABILITY CONVENTION

The primary resolutions proffered by the Liability Convention lie in ADR procedures. ADR has been defined as:

A set of practices and techniques that aim 1) to permit legal disputes to be resolved outside the courts for the benefit of all disputants; 2) to reduce the cost of conventional litigation and the delays to which it is ordinarily subject; or 3) to prevent legal disputes that would otherwise likely be brought to the courts.⁹⁷

The Liability Convention requires that countries in dispute over a claim for damages attempt a “diplomatic solution”⁹⁸ first. Then, if settlements are not reached within one year, either party may request a Claims Commission to be formed.⁹⁹

line, and proposes that all space-faring nations should adopt regulations similar to those laid out in the C.S.L.A.).

⁹² See, e.g., Reynolds, *supra* note 25, at 212-13 (pointing out the problems of legal standing, assessment of damages, and the nature of the liability).

⁹³ See, e.g., Sundahl, Mark J., *Unidentified Orbital Debris: The Case for a Market-Share Liability Regime*, 24 HASTINGS INT'L & COMP. L. REV. 125 (2000) (discussing the possibility for a market-share liability for damage caused by space debris).

⁹⁴ *Id.*; see also Reynolds, *21st Century*, *supra* note 14, at 417.

⁹⁵ *Sindell v. Abbott Lab.*, 607 P.2d 924 (Cal. 1980), *cert. denied*, 449 U.S. 912 (1980) (determining defendant's liability based on market share in offending product).

⁹⁶ See Sundahl, *supra* note 93, at 147-48 (discussing the benefits of market-share liability and how it would encourage launching states to take measures to minimize debris and create technology for debris removal).

⁹⁷ Lieberman & Henry, *Lessons from the Alternative Dispute Resolution Movement*, 53 U. CHI. L. REV. 424, 426 (1986).

⁹⁸ *Liability Convention*, *supra* note 13, Article IX.

⁹⁹ *Id.*, Article XV.

A. Diplomatic Relations

Article IX of the Liability Convention provides that a state shall first present a claim for compensation for damages to the launching state through diplomatic channels.¹⁰⁰ Presumably, the states will settle the claim through negotiations. If the states do not have diplomatic relations with one another, Article IX allows the claimant state to request another state that has diplomatic relations with the launching state to present a claim on its behalf or represent its interest.¹⁰¹ If both the claimant state and the launching state are members of the United Nations, the claimant state may also present its claim through the Secretary-General of the United Nations.¹⁰² By providing these various options, the Convention seeks to promote negotiations above all other alternatives, and it assures that a victim's rights are not violated because of a lack of diplomatic relations between the states.¹⁰³

B. Arbitration Procedures

If diplomatic relations do not result in a settlement of a claim after one year, arbitration procedures may be requested.¹⁰⁴ If reasonable attempts have been made to resolve the dispute through diplomatic relations to no avail, either party may request the establishment of a Claims Commission.¹⁰⁵ Articles XV through XX detail how the Commission will be established, the members forming it, the procedures it is to follow, and the effect of its determinations.¹⁰⁶

The Commission would consist of three members, with each state choosing one member and the Chairman being chosen jointly by the states.¹⁰⁷ Even if there is more than one claimant State, all

¹⁰⁰ *Id.*, Article IX. The relevant section reads: "If a State does not maintain diplomatic relations with the launching State concerned, it may request another State to present its claim to that launching State or otherwise represent its interests under this Convention."

¹⁰¹ *Id.*, Article IX.

¹⁰² *Id.*, Article IX.

¹⁰³ See Hurwitz, *supra* note 85, at 50-51 (discussing how the ability to present a claim via the Secretary-General and other states is an important development in international dispute settlement, since it prevents a lack of diplomatic relations from creating a procedural vacuum).

¹⁰⁴ *Liability Convention*, *supra* note 13, Article XIV.

¹⁰⁵ *Id.*, Article XIV.

¹⁰⁶ *Id.*, Articles XV-XX.

¹⁰⁷ *Id.*, Article XV.

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claimants still only get to appoint one member collectively.¹⁰⁸ In the event that the parties cannot agree on the Chairman, either party may request the Secretary-General of the United Nations to appoint the Chairman.¹⁰⁹ Under Article XV, each party has two months after the establishment of the Commission in which to appoint its Commission member. If it fails to do so, the other party may request the Chairman to constitute the single-member Commission under Article XVI.¹¹⁰ Although the Commission may not consist of more than three members,¹¹¹ the Commission may be made up of a single member, the Chairman. This occurs though, only if one of the parties does not appoint its member within the specified time frame.¹¹²

The Claims Commission formed under the Convention determines its own procedures.¹¹³ There are no standards determining which procedures the Commission may use. Theoretically, the Commission may be free to choose procedures which are unfamiliar to both the claimant and the respondent states.

The parties may agree whether the Commission's decisions are binding.¹¹⁴ Under Article XIX, the decision is final and binding if the parties so agree;¹¹⁵ otherwise, the decision is merely a recommendatory award¹¹⁶ that the parties are to consider in good faith.¹¹⁷ If the parties agree that the decision is not binding, they may seek redress in the launching state's administrative agencies or courts. This result may simply mean wasted time for the claimant, since the claimant had that option from the start. Furthermore, there is no indication that the decision by the Commission holds any weight should the parties decide to disregard the recommendation in such a situation. Therefore, another forum adjudicating the

¹⁰⁸ *Id.*, Article XVII.

¹⁰⁹ *Id.*, Article XV. The article also places a timeframe for such request – it may be made by the parties within four months after the request for establishment of the Commission, and the Secretary-General should make such an appointment within two months.

¹¹⁰ *Liability Convention*, *supra* note 13, Article XVI.

¹¹¹ *Id.*, Article XVII.

¹¹² *Id.*, Article XVI.

¹¹³ *Id.*, Article XVI.

¹¹⁴ *Id.*, Article XIX.

¹¹⁵ *Id.*, Article XIX.

¹¹⁶ *Liability Convention*, *supra* note 13, Article XIX. It has been pointed out that there is no realistic way of making any state execute a recommendatory award. If goodwill is not enough, then the publication will add public opinion, and may add global opinion as to whether the award seems fair or not, which may put political pressure on the liable state. *See Hurwitz*, *supra* note 85, at 60-61.

¹¹⁷ *Liability Convention*, *supra* note 13, Article XIX.

claim may review all issues anew.¹¹⁸ The problems with non-binding (or even non-influential) decisions are apparent: some parties may be hesitant to even enter into costly and time-consuming arbitration proceedings if the judgment may end up being set aside altogether.

An important provision in the arbitration procedures provides that the Claims Commission is to state its reasons for its decision and make a certified copy available to the public.¹¹⁹ This may prove useful if arbitration is taken as a primary procedure for resolving disputes because, in the absence of substantive law and precedents, these decisions may serve as guidelines – persuasive, though not binding – for future disputes. If these decisions are to be written out in detail like judicial opinions, explaining the reasoning and the rules followed, they may serve as a roadmap for future Commissions addressing similar disputes. Although there is currently no indication that decisions by Commissions serve as a guideline, this author would encourage requiring those decisions to be more detailed, with future Commissions encouraged to use them as guidelines.¹²⁰

C. Comparing the Liability Convention's Arbitration Procedures to the UNCITRAL Model Law of Arbitration

The arbitration clauses in the Liability Convention resemble those of the UNCITRAL Model Law.¹²¹ Although differences exist between the two, both attempt to make the rules beneficial and

¹¹⁸ A need for finality and enforcement of determination has been emphasized by Morris D. Forkosch, *OUTER SPACE AND LEGAL LIABILITY* 126-30 (1982). Forkosch proposes the formation of an International Court for Outer Space, which would have jurisdiction over parties and whose determinations would be final and binding on the parties. *Id.* at 121-54. Forkosch suggests a small composition of the court, between seven and eleven members, chosen either by agreement of participating nations, or in some form agreed upon by the nations. *Id.* at 124-25.

¹¹⁹ *Liability Convention*, *supra* note 13, Article XIX.

¹²⁰ Although the decisions would not be binding, it would give participants in space exploration an idea of what kind of liability they would be held to for their actions. For example, even though the *Cosmos 954* incident (discussed further in Sec. IV.D of this Note) was resolved through diplomatic relations, it set certain duties that states have regarding the use of space, including the duty to forewarn (*see infra* note 149). This author will further discuss this issue in Sec. V of this Note.

¹²¹ *UNCITRAL Model Law on International Commercial Arbitration*, at <http://www.uncitral.org/english/texts/arbitration/ml-arb.htm> (last visited January 25, 2005) [hereinafter UNCITRAL].

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fair to both parties, without giving any one party the benefit of its own substantive laws and procedures.¹²²

The default procedure¹²³ for the formation of the arbitration panel under the UNCITRAL Model Law is similar to those of the Liability Convention, with each party choosing one member.¹²⁴ However, the third member is chosen jointly by the selected arbitrators rather than by the parties.¹²⁵ The parties may also agree on the procedure to be followed,¹²⁶ or if such an agreement is not reached, the arbitral tribunal may choose to follow procedures it considers appropriate.¹²⁷ The substantive law to be applied is also determined in such a manner.¹²⁸

The award in the UNCITRAL Model Law shall state the reasons for the decision, although the parties may agree that no reason be given.¹²⁹ Unlike the Liability Convention's Claims Commission's determination, however, the determinations under the UNCITRAL Model Law are binding.¹³⁰

In general, the UNCITRAL Model Law is more flexible than the Liability Convention's procedures. While the UNCITRAL Model Law allows the parties to determine many of the procedures regarding the arbitral tribunal,¹³¹ the Liability Convention has specific procedures to be followed in the formation of such a panel.¹³² One must remember, however, that the primary resolution encouraged by the Liability Convention is not through arbitration,

¹²² The Liability Convention requires using diplomatic relations and jointly choosing members of an arbitral tribunal. Under the UNCITRAL Model Law, the arbitration panel determines the substantive laws to be used. Neither propose the use of one particular party's rules. See *supra* Sec. IV.A and Sec IV.B; UNCITRAL, *supra* note 121.

¹²³ The UNCITRAL Model Law gives a lot more leeway than the Liability Convention. For the most part, the parties are free to agree on many of the procedures, including the manner in which arbitrators are to be chosen (Article 11(2)), the rules applicable (Article 28(1)), and the procedures to be followed (Article 19(1)).

¹²⁴ UNCITRAL, *supra* note 121, Article 11. This is based on the default number of arbitrators under Article 10, which provides for a three member panel. However, Article 10 provides that the parties are free to agree on the number of arbitrators.

¹²⁵ *Id.*, Article 11.

¹²⁶ *Id.*, Article 19(1).

¹²⁷ *Id.*, Article 19(2).

¹²⁸ *Id.*, Article 28.

¹²⁹ UNCITRAL, *supra* note 121., Article 31(2).

¹³⁰ UNCITRAL, *supra* note 121, Article 35. Article 34 and 36 also point out grounds by which an arbitration award may be set aside or should not be recognized. However, these are merely exceptions, while in the Liability Convention, the awards are not binding unless so agreed by the parties. See *supra* Sec. IV.B; *supra* notes 114-116.

¹³¹ See *supra* note 123.

¹³² See *supra* Sec. IV.B.

but rather through diplomatic relations,¹³³ and only after such attempts fail should a party to the claim seek to form a Claims Commission.¹³⁴

Although it has been proposed that an international convention be created with an arbitration panel ruled by the UNCITRAL Model Law,¹³⁵ there are advantages to the Liability Convention's procedures which should be used by arbitration panels. I will later argue that a hybrid of the two models should be used, incorporating aspects from both models while modifying some procedures altogether.¹³⁶

D. Resolutions Under the Liability Convention

The benefits of the manner of the resolution proffered by the Liability Convention, which has been ratified by 82 States,¹³⁷ lie in its ability to resolve conflicts without litigation and adversarial confrontations.¹³⁸ The Liability Convention attempts to resolve matters in a peaceful and collaborative manner at first and then through an arbitration panel. These non-adversarial resolutions to disputes may aid in the formation of more cooperative and collaborative exploration of space.¹³⁹

Some positive aspects of the Liability Convention were highlighted by the *Cosmos 954* satellite disaster.¹⁴⁰ The nuclear powered satellite was launched in 1977 by the Soviet Union.¹⁴¹ On January 24, 1978, the satellite malfunctioned and re-entered earth's

¹³³ See *supra* Sec. IV.A.

¹³⁴ See *Liability Convention*, *supra* note 13, Article XIV.

¹³⁵ See Shin, *supra* note 16 (proposing the creation of a new international convention that would use the provisions from the UNCITRAL Model Law).

¹³⁶ See *infra* Sec. V.

¹³⁷ As of January 1, 2003, 82 states have ratified it, 25 have signed the Liability Convention and two international intergovernmental agencies (ESA and the European Telecommunications Satellite Organization) have accepted the rights and obligations under the Agreement. Information is available at <http://www.oosa.unvienna.org/SpaceLaw/liability.html>.

¹³⁸ The procedures in the Liability Convention are all ADR procedures, although parties to a claim may always take the claim to the launching state's municipal courts and choose to litigate. See *Liability Convention*, *supra* note 13, Article IX.

¹³⁹ See, e.g., Jonathan F. Galloway, *Cooperation, Conflict and Competition in Space Law*, Proceedings of the 46th Colloquium on the Law of Outer Space, 2 (29 Sept. – 3 Oct. 2003, Bremen, Germany) (describing the need for a zero-sum game where everyone benefits, and the need for cooperation, hoping that the human species may one day become a multiplanetary species and think of ourselves as humankind rather than subsets of a species).

¹⁴⁰ See Hurwitz, *supra* note 85, at 113-33.

¹⁴¹ *Id.* at 113.

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atmosphere, crashing and spreading radioactive material over an area of northern Canada approximately the size of Austria.¹⁴² The search and clean-up operation was extremely complicated and was finally completed in March 1978, after radioactive debris had been picked up and the area cleared.¹⁴³ The United States offered Canada assistance in the clean-up immediately, which was accepted, while the Soviet Union's offer to assist did not come until after Canada asked for information about the nuclear reactor.¹⁴⁴ The clean-up cost Canada nearly C\$14 million, while the United States spent between U.S. \$2-2.5 million.¹⁴⁵

Canada billed the Soviet Union for C\$6 million with a claim under the Liability Convention's liability for damages.¹⁴⁶ Negotiations began in February 1980, and after a few sessions,¹⁴⁷ the claim was settled with the Soviet Union agreeing to pay C\$3 million.¹⁴⁸ Accordingly, the claim was settled through diplomatic negotiations, recognized by Article IX of the Liability Convention as the first stage in the presentation of a claim.¹⁴⁹

A few relevant points came out as a result of the *Cosmos* incident.¹⁵⁰ For one, choice of law was never an issue, as neither party's national laws were ever considered; rather, international law was used, and in particular the Liability Convention's rules.¹⁵¹ Moreover, the Soviet Union was willing to settle the claim, without ever contending whether any "damage" within the meaning of the Liability Convention had been caused.¹⁵² The fact that the parties decided to settle rather than create a Claims Commission shows the responsible approach of the parties¹⁵³ and how parties willing

¹⁴² *Id.* at 114.

¹⁴³ *Id.*

¹⁴⁴ *Id.* at 114-15.

¹⁴⁵ Reynolds, *supra* note 25, at 180.

¹⁴⁶ See Hurwitz, *supra* note 85, at 118-20, for a more detailed account of the particular claims levied by Canada against the Soviet Union.

¹⁴⁷ All documents exchanged were made available to the public, pursuant to the Liability Convention's procedures. *See id.*

¹⁴⁸ *Id.* at 125.

¹⁴⁹ *Id.*

¹⁵⁰ Aside from the issues listed, the incident also created duties to upon states to forewarn of impending hazards posed by falling satellites to provide and disclose information, the duty to clean up jointly by the injured and launching states, and to compensate for a certain amount of injury. *See* Reynolds, *supra* note 25, at 181-83.

¹⁵¹ *See* Hurwitz, *supra* note 85, at 128.

¹⁵² *Id.* at 129; *see also* A.F. Cohen, *Cosmos 954 and the International Law of Satellite Accidents*, 10 *YALE J. INT'L L.* 78, 79 (1984).

¹⁵³ *See* Hurwitz, *supra* note 85, at 129.

to reach an agreement will do so by compromise.¹⁵⁴ Among other positive effects, at least one commentator has stated that the incident made the United States and the Soviet Union recognize the need to cooperate and take joint steps in dealing with dangerous items over which they exercise control.¹⁵⁵

E. Using ADR to Resolve Space Conflicts

The benefits of using ADR to resolve liability for damages provides an example of how ADR could and should be used to resolve most legal conflicts in space law. Commentators have pointed out problems with litigation in general and the relief granted therein.¹⁵⁶ Monetary relief, whether sufficient or not, does not necessarily make a party 'whole'.¹⁵⁷ In space, much more cooperation is needed and parties do not always necessarily transact at arms length.¹⁵⁸ If superior forms of relief may be attained (such as cooperation, aid in cleaning disasters, or other creative solutions),¹⁵⁹ a better, more collaborative, and less aggressive environment would be created for space exploration, which was one of the first things agreed upon by states when space travel began.¹⁶⁰

¹⁵⁴ *Id.* at 125.

¹⁵⁵ See Reynolds, *supra* note 25, at 186.

¹⁵⁶ See Thane Rosenbaum, *THE MYTH OF MORAL JUSTICE: WHY OUR LEGAL SYSTEM FAILS TO DO WHAT'S RIGHT* (2004) (discussing the failure of the legal system in the relief it proffers – imprisonment for criminal charges, and monetary awards for civil liability. Rosenbaum discusses how individually tailored results would help heal the wounds and provide better results for both the claimant and the respondent. Possibilities include solutions which go beyond the court room and benefit all of society rather than affecting only the parties involved.).

¹⁵⁷ *Id.*

¹⁵⁸ For example, many ventures into space are joint ventures (such as the Titan mission between ESA and NASA), or, in commercial situations, many of the companies deal with each other for more than one transaction. See, e.g., Bostwick, *supra* note 23.

¹⁵⁹ Such as those proposed by Bostwick, *supra* note 23.

¹⁶⁰ The first article of the *Outer Space Treaty*, *supra* note 1, reads in part:

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

...

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international cooperation in such investigation.

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Another example of the benefits of ADR has been offered regarding resolving commercial disputes.¹⁶¹ One space law scholar has proposed that innovative uses of ADR between private companies may generate better results than litigating the issue.¹⁶² Aside from allowing creative resolutions in the private industry, the use of ADR would also help with the problem of choice of law necessitated by litigation.¹⁶³ By using ADR, the parties could, in each situation, negotiate the substantive and procedural laws to be used, such as in arbitration proceedings modeled after the UNCITRAL Model Law.¹⁶⁴ If no such resolution is arrived at, the choice would be left to the panel.¹⁶⁵

Now that more and more commercial and private enterprises are entering space, a higher degree of cooperation it is especially important and must be introduced.¹⁶⁶ Competition will be in the form of technology and intellectual property, but resolution of these problems should not be taken into courts, where cases may remain for years without resolution.¹⁶⁷ These lengthy delays may further inhibit exploration and advancement by holding a company in court with the possibility of multimillion dollar liability, restraining their ability to continue projects. Additionally, public trust in their ability may decline, and they may be unable to invest in further developments, even if it is highly likely that they will not be held liable. To address this, resolutions must be quicker and more tailored to the limitations of the field.

¹⁶¹ Bostwick, *supra* note 23, at 38-41. Bostwick makes his point by providing a hypothetical example of how creative uses of ADR may allow for better results.

¹⁶² *Id.*

¹⁶³ *See supra* note 70.

¹⁶⁴ *See, e.g.,* Shin, *supra* note 16. Shin proposes a tribunal panel governed by the UNCITRAL Model Law for resolutions aboard a multinational space station. She discusses how “flexibility and impartiality, characteristics not common to litigation, militate strongly in favor of arbitration,” and how international arbitration would be less likely to impinge on a state’s autonomy.” *Id.* at 1413-14

¹⁶⁵ Firestone, *supra* note 22, at 775-77 (analyzing the problems of the Liability Convention and the convention’s inability to come up with a choice of law after ten years of discussion. Firestone proposes the need for clear choice of substantive law for litigating issues regarding damages. His proposals include using the concept of trans-state laws and allowing decision-makers to select or develop rules of law specifically suited to resolve space law disputes, thereby permitting the decision-maker to reject the parties’ national tort laws.).

¹⁶⁶ *See, e.g.,* Galloway, *supra* note 139, at 2.

¹⁶⁷ *See* Miriam R. Arfin, *The Benefits of Alternative Dispute Resolution in Intellectual Property Disputes*, 17 *HASTINGS COMM. & ENT. L.J.* 893, 895 (Summer 1995) (pointing out the disadvantages of litigating intellectual property disputes and discussing the benefits of using ADR and the larger role it is playing in such disputes).

Liability for space claims may easily reach millions of dollars, which could financially cripple a company.¹⁶⁸ Although, under the CSLA, insurance may cover large portions of the liability (with the United States making up for the remainder),¹⁶⁹ the Act only appears to cover damages related to the license granted for launch and re-entry, not the numerous possible claims and accidents which may occur in outer space unrelated to the launched object. Although insurance may also cover such situations, it is unlikely that every company would be able to afford and insure every single contingency that may occur in space, and it is unlikely that the United States or any other state would be willing to take on that liability once the spacecraft is beyond its permission to launch. For example, if a spacecraft assembled in outer space (whether on an orbital station or the moon) is used for exploring a celestial body like Mars, it is unlikely that the United States will accept liability for a collision in Mars's orbit merely because it granted a license for the launched vehicles carrying the parts used to assemble the new spacecraft.¹⁷⁰

Although people will probably not be colonizing the moon or Mars (or other celestial bodies) for a long time to come (even the most optimistic expectations only plan to begin colonization of the moon by 2020¹⁷¹), we must anticipate problems before they arise. ADR procedures for space conflicts should be implemented now, when the area of law is still young and nascent. Using ADR procedures as primary means of resolving conflicts will allow nations and individuals to become acquainted with using such ADR procedures to resolve their conflicts regarding space exploration and travel. In the future, when subsequent conflicts arise, the procedures will then be familiar, if not the preferred methods for resolving such disputes.

F. Possible Problems with Using ADR in Space Law

Although it may prove beneficial in the long run to use ADR processes as primary ways of resolving conflicts in space, the lack

¹⁶⁸ For example, the Cosmos 954 incident cost Canada C\$12 million, with the Soviet Union paying half of that. *See supra* Sec. IV.D. Space project costs also generally range in the tens to hundreds of millions of dollars.

¹⁶⁹ CSLA, *supra* note 49, §701-12.

¹⁷⁰ *See id.*

¹⁷¹ *See supra* note 2.

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of any substantive law or precedents that may inform decisions may hinder commercial enterprises from risking investments in the space industry.¹⁷² The fear of unknown liability may further hinder entrepreneurs and enterprises from taking chances should claims arise and they are uncertain of their rights and responsibilities.¹⁷³ If the decisions made by arbitration panels are not binding, and no substantive law exists to control, then each claim will be based on its own merits to be decided by a new panel of arbitrators, and the parties will remain uncertain as to their liabilities and responsibilities until adjudication of their case.¹⁷⁴

For now, space liability claims have arisen infrequently, since the number of nations now capable of launching spacecrafts into orbit is limited.¹⁷⁵ Most of the liability claims in the past have involved satellites and space debris.¹⁷⁶ However, this will certainly

¹⁷² See, e.g., Rankin, *supra* note 1, at 714 (“Passengers, governments, and commercial operators should all know in advance of liability rules regarding passenger tours to outer space in order to make informed, calculated decisions about such travel.”); see also Firestone, *supra* note 22, at 762-64; Berkley, *supra* note 48, at 428 (“[P]rivate entities must know their potential liability for accidents as well as the difficulty of defense and possibility of being sued in distant and difficult for a.”); Gary Taylor, *Law is Earthbound No Longer as Space Commerce Increases: But There Are Some Rules, Say Lawyers in the Still-Nascent Specialty*, 9/17/90 NAT’L L.J. 1 (col. 2) (“Current international space law agreements basically deal with government responsibility and liability. Regrettably, with respect to issues affecting private liability for commercial space activities, these agreements either do not address the critical issues or do not resolve the issues that are addressed.”).

¹⁷³ Enterprises would not know how to protect themselves or know what is ‘wrong’ or ‘negligent’ conduct if there are no standards laid out. See, e.g., Berkley, *supra* note 48, at 428, 441 (discussing the need for regulations and clear standards for private entities to know their potential liabilities and the difficulties of defending against possible suits).

¹⁷⁴ *Id.*

¹⁷⁵ As of the writing of this note, only a few nations are capable of launching satellites into orbit through the use of a Geosynchronous Satellite Launch Vehicle (GSLV). These nations include: the United States, Russia, China, Japan, France, and India. Additionally, China only recently joined the United States and Russia as the only nations currently capable of sending a human to space and returning him safely. China accomplished the feat on October 16, 2003, when the Shenzhou V capsule landed back on earth safely with its passenger, Yang Liwei, after orbiting the Earth 14 times. See, CNN.com, China’s Astronaut Return’s Safely, available at <http://www.cnn.com/2003/TECH/space/10/15/china.launch> (last visited Jan. 30, 2005).

¹⁷⁶ The main cases that have proven defects in the Liability Convention and problems which may pervade space law in the future concern the crash of the U.S.S.R. *Cosmos 954* satellite into Canadian territory. Other cases that have arisen include the tort liabilities for deaths caused by the *Challenger Mission 51* crash, and the *Xiachang* launch failure. Most other cases simply involve contractual problems – where the contracts do not stipulate or are vague as to which party assumes the risk in cases of failure to launch or failure of a satellite to reach a certain orbit. Other claims for liability have dealt with contractual obligations and failure to deliver cargo into space. See, e.g., Reynolds, *supra* note 25, at 179-89, 308-30 (detailing the accidents of the *Cosmos 954* and *Challenger*, including the opinion in the cases and a discussion of the history before, during, and after the events).

change in the coming years, as more nations join the space-faring community and more objects and crafts are launched into space. The need to create more stable and comprehensive procedures to resolve space conflicts has to be set out before claims begin piling up. The cases that have arisen thus far have been good starting points to figure out the problems and advantages of the current laws.¹⁷⁷

V. IMPROVING ADR PROCEDURES FOR USE IN RESOLVING SPACE DISPUTES

This author proposes creating a new agreement incorporating ADR procedures to resolve most civil space conflicts. The agreement should be a hybrid of the procedures and rules laid out in the Liability Convention and the provisions from the UNCITRAL Model Law, along with some modifications. First, the agreement should provide for a form of diplomatic relations¹⁷⁸ as the first step in resolving civil disputes. If an agreement is not reached, then arbitration procedures may be used.

The first step would include a provision allowing for a third-party state in the negotiations to serve as a type of mediator. This would improve the diplomatic resolution in the Liability Convention.¹⁷⁹ Although diplomats and those negotiating would have extensive training as negotiators, a disinterested third-party should be able to further facilitate the discussions.¹⁸⁰ In case the states do not have diplomatic relations, this would also remove the necessity to seek out a third-party state to present the case, since a third-party would always be present. Of course, there is always a problem of whether third-party states would be willing to be involved in relations between two other states. However, if the procedures required or strongly advised third-party involvement, appointing a

¹⁷⁷ See, e.g., Reynolds, *supra* note 25, at 179-89 (pointing out that the *Cosmos 954* disaster revealed some of the deficiencies with the Liability Convention).

¹⁷⁸ Parties may either negotiate or mediate the claim, both of which may fall under the term "diplomatic relations."

¹⁷⁹ Other provisions regarding diplomatic relations can remain the same as those laid out in the Liability Convention, with the option of choosing arbitration after one year and so forth.

¹⁸⁰ See, Bostwick, *supra* note 23, at 26-30. Bostwick defines the different ADR processes. Mediation is a process where a neutral assists the disputants reach a voluntary, negotiated settlement of their differences. *Id.* at 28-30. Negotiation is a process where the negotiator decides on interests rather than on the negotiator's personal position, invents options for mutual gain, and the result is based on an objective standard. *Id.* at 26-28. See also R. Fisher and W. Ury, *GETTING TO YES* (2d ed. 1991).

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third-party state would not be as problematic. The third-party could be assigned by the Secretary-General of the United Nations, thereby avoiding the problems of finding a truly disinterested third-party state. States who are members of the agreement would also have to serve as mediators for other member states in resolving conflicts. The parties could choose from any of these states,¹⁸¹ or the Secretary-General may choose among them.¹⁸²

The second part of the agreement would involve the use of arbitration procedures. Many of the procedures should resemble those of the Liability Convention, but the agreement should give the parties more leeway in the formation of the arbitral panel, similar to proceedings under the UNCITRAL Model Law.¹⁸³ In particular, the parties may decide upon the number of arbitrators that would form the panel, with three members being the default. Additionally, the parties may first agree as to the procedures and substantive laws to be used, and if they cannot agree, then the decision would be left to the panel.

The arbitration panel's decision under the new agreement should be binding unless otherwise agreed by the parties.¹⁸⁴ This way, the default rule is that the decision is binding rather than recommendatory, which would keep parties from fearing that the whole process could just be a waste of time and effort, while allowing the parties some freedom to decide what is in their best interest. The decisions by the panel should be written out and made public as they are required to be under the Liability Convention. However, this author would encourage requiring those deci-

¹⁸¹ Like the Chairman for the Claims Commission under the Liability Convention, the mediator may be chosen jointly by the parties, and if a decision cannot be made, the decision would be left to the Secretary-General of the U.N. *See, e.g.,* Liability Convention, *supra* note 13, Article XV.

¹⁸² Under Article IX of the Liability Convention, the Secretary-General is empowered with presenting a claim on behalf of a damaged state if both parties are members of the United Nations. Further, the Secretary-General has been entrusted with other special powers, so that allowing the Secretary-General to select a third-party mediator would not be a significant burden. *See, e.g.,* Hurwitz, *supra* note 85, at 208. The manner in which the choice would be made could depend on many factors, including (the) likeliness of bias, neutrality, diplomatic relations between the third-party state with the disputing parties, qualification, and availability. The Secretary-General may even ask for volunteers and choose among them if they qualify, or even pick at random from among eligible states.

¹⁸³ *See supra* Sec. IV.C.

¹⁸⁴ Consider this as opposed to the Liability Convention's current stance, which is merely a recommendatory award to be considered in good faith unless the parties agree for it to be binding. Article 35 of the UNCITRAL Model Law, on the other hand, states that decisions rendered under its rules are binding. The proposal here is a compromise position with the default being binding decisions, but with the possibility of the parties agreeing otherwise in advance.

sions to be more detailed, with future panels encouraged to use them as guidelines. Like judicial opinions, they should explain the reasoning and the rules followed in the proceedings. These decisions may serve as a roadmap for future panels resolving similar disputes. Although the decisions would not be binding on other panels, these decisions may serve as persuasive guidelines for future disputes in the absence of binding substantive law and precedents.

Although the problem with an arbitration panel making both procedural and substantive law decisions is that it may lead to very different results in similar situations,¹⁸⁵ the decision to use arbitration is based on making the process as fair as possible for the parties involved, and therefore a little inconsistency is not fatal – especially since it is unlikely that many cases will be significantly similar in the beginning. If the written decisions by the arbitration panels serve as persuasive guidelines, there would be no fear that decisions would be completely disparate. Instead, each claim would be adjudicated using the most appropriate law and decided on its own merits, with the possibility of creative resolutions which may differ from case to case, depending on the position of the parties.

In suggesting the use of ADR as a procedural basis, the implication is that the substantive law to be applied to each case matters less than the procedure to be taken. In other words, if ADR is used, the parties may agree to the laws to be used. If such an agreement cannot be reached, then the panel determines the laws that it is to follow.¹⁸⁶ Although this may suggest that the panel has a great deal of discretion, this approach is also fairer on several grounds: 1) no one party gains the advantage by selecting its national laws; 2) since the panel consists of members chosen by the parties, the parties may at least presume that the panel is not wholly biased against them; 3) the arbitrators, if truly impartial and well-trained, may be able to select the rules they deem most just and appropriate to the situation at hand, rather than base it on general and abstract set of rules; and most importantly, 4) it would force the parties to be more cooperative and settle on at least a few grounds of substantive and procedural laws rather than leave it in

¹⁸⁵ See, e.g., Shin, *supra* note 16.

¹⁸⁶ Firestone, *supra* note 22. Firestone makes a similar suggestion, stating that using the concept of trans-state laws, allowing decision makers to select or develop rules of law specifically suited to resolve space law disputes, would allow the decision maker to reject the parties' national tort laws.

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the hands of the tribunal, thereby encouraging cooperation among the parties from the outset.

VI. CONCLUSION

While space law moved fast to keep pace with the advancing technology during the late 1960's through the 1970's, space law slowed down during the next two decades. Not until recent developments, including commercial launches, have questions arisen as to how to deal more effectively with private enterprises entering space. The Liability Convention was an important step in the right direction: rather than setting out rules and substantive law to govern liability for damages, it offered solutions through ADR. International law itself has been moving more towards arbitration and other ADR procedures to resolve international conflicts. The success of the UNICTRAL Model Law is an example. Similar to international law, space law is not the law of one nation, nor should it be predominated by any one nation's particular laws. Unlike international law, space belongs to no one, jurisdiction cannot be asserted through presence or situs, and it is a field that should be equally accessible and beneficial to all. The idea that no nation may "claim" any part of space for itself is a step away from national and international laws and closer to a collaborative endeavor in exploring the vast universe. Such being the case, cooperative and collaborative solutions would prove much more beneficial than adversarial approaches. By using ADR as a predominant way to resolve conflicts in space, it may lead to a better and more efficient exploration of space, where people are less worried about liabilities and more about success of missions and the furtherance of human exploration. The creation of an agreement such as the one proposed in this note would be a further step in the right direction on the continuing mission to boldly go where no one has gone before.