

**THE LAWYER AT THE MOON: ENVIRONMENTAL PERSONALITY
EXPLORATION FOR CELESTIAL BODIES**- Riddhi Kapadni¹**Abstract**

The growth of the global commercial industry threatens the preservation, through contamination and the exploitation of the resources, of settings such as the lunar surface and other celestial bodies. Journeys to space will become routine in the next decades, but currently outside polluters are not responsible. With the space agreements of the United Nations providing for minimal enforcement of offenders, the existing international legal regime is weak. The increasingly popular concept of environmental personality provides a remedy by revisiting the significance of a legal person in the United Nations external space, space liability and the Moon treaties. Using the International Court of Justice, outdoor environmental activists can seek to recognise celestial bodies as legal entities, acquire third-party rights to safeguard the moons' rights, and seek environmental degradation damages. This comment advances a new way of thinking to safeguard alien ecosystems through the investigation of disputed and advisory channels within the International Court of Justice.

Introduction

Mankind is on the verge of a new industrial age, one in which valuable natural resources, production, and research will take place outside earthly bounds. Humanoid aliens will mine asteroids and alter or colonise pristine celestial planets for economic advantage. There is currently no efficient method for enforcing environmental regulations on heavenly planets, leaving them open to pollution and exploit with no consequences. This is a critical problem because the immense material resources of outer space have the potential to profoundly change the Earth's economy and current geopolitical conflicts. While it is uncertain when or

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where the first human colony on another celestial world will take place, the growing number of national and economic players engaged in accomplishing such a goal makes it appear likely. The global endeavour to keep a population of humans aboard the International Space Station for over two decades illustrates the viability of this concept.

The Issue

New government space projects and commercial enterprises have assured that space will become much more congested in the future years. The activity will not be restricted to just scientific research. Business players are already attempting to exploit celestial bodies for revenue. While tourism looks to be the best start for spacefaring consumers, the objective of national space programmes and space entrepreneurs is resources exploitation, lunar colonisation, and well beyond. The Moon is thought to be a plentiful supply of Helium-3, with a few hundred tonnes being enough to fulfil Earth's energy demands for a full year.² In the space mining and colonisation businesses, there is a motive to establish a track record of success in order to attract investment in a capital-intensive area, making the neighbouring Moon's energy reserves an enticing destination for early commercial expeditions. The commercial space race has the potential to produce the first trillionaire, leaving little opportunity for consideration of the environmental impacts on distant regions.³

There is no need for a legal framework to control activities and hold malicious people accountable if there are no direct consequences. To grasp the problem that the practical solution of alien environmental manhood is seeking to tackle, this Article will first explain the practical problems of extraction and contamination.

1. Extraction

As the potential of exploiting resources in outer space becomes financially practical, the risk of exploitation grows dramatically. In this respect, exploitation is defined as the harvest and use of planetary resources for non-scientific reasons, perhaps without regard for the long-term effect of such operations. The global space economy presently generates \$350 billion in

² Niklas Reinke, No Helium-3 from Moon – Commentary on the Current Moon Debate, in DLR COUNTDOWN #3 25 (2007); see also Fabio Tronchetti, Legal Aspects of Space Resource Utilization, in HANDBOOK OF SPACE LAW (Frans von der Dunk & Fabio Tronchetti eds., 2015).

³ Tiffany Terrell, Physicist Says Asteroid Mining Ventures Will Spawn First Trillionaire, GLOBAL NEWSWIRE (Jan. 30, 2018), <https://perma.cc/J75M-87NA>.

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income, which is anticipated to increase to \$1 trillion by 2040.⁴ Planetary Resources, a newer entry, is expressly concentrating on the private mining of asteroids through space mining.⁵ Others, like SpaceX and Blue Origin, have embraced a 'all of the above' strategy, with broad ambitions to market space and support future space colonisation.⁶

Commercial players may be less concerned with adopting pollution mitigation or prevention measures, and they may conduct launch actions from countries with low restrictions in order to maximise profits.⁷ Government trips to space in the past have been performed for scientific objectives, with American and Soviet space programmes employing planetary protection procedures for landers to avoid future contamination.⁸ The expanding commercial business raises the possibility of a far more congested outer space with less adherence to procedure. Already, commercial space enterprises are launching hundreds of satellites, threatening the low Earth orbit environment, with little thought given to their safe decommissioning. Although sustainable use and exploitation of extraterrestrial resources would be desirable, the hazardous character of the space industry, along with inadequate present regulation, is likely to result in a disaster of the commons.

2. Contamination.

Contamination has a strong tradition in human exploration, and space is no different. Contamination, as used in this Article, involves the introduction of alien chemicals and lifeforms into extraterrestrial settings. Recent instances highlight the dangers of contamination in an uncontrolled industry. A private rocket carrying a lunar lander collapsed on the Moon's surface in February 2019.⁹ At the time of launch, international regulators had

⁴ Investing in the Final Frontier, MORGAN STANLEY (July 2, 2019), <https://perma.cc/9FUJ-432V>.

⁴ Redefining Natural Resources: Why Asteroids, PLANETARY RECOURSES, <https://perma.cc/363C-ZKKZ>.

⁵ Others, like SpaceX and Blue Origin, have embraced a 'all of the above' strategy, with broad ambitions to market space and support future space colonisation.

⁶ Caroline Delber, SpaceX Says There Are No Laws on Mars, So Maybe Elon Musk Will Be President, POPULAR MECHANICS (Oct. 30, 2020), <https://perma.cc/338Z-TY6K> (discussing SpaceX's terms of service which claim Mars is a free planet and that no Earth-based government has authority over Mars).

⁷ LOTTA VIIKARI, THE ENVIRONMENTAL ELEMENT IN SPACE LAW: ASSESSING THE PRESENT AND CHARTING THE FUTURE 51 (2008).

⁹ Loren Grush, Why Stowaway Creatures on the Moon Confound International Space Law, THE VERGE (Aug. 16, 2019), <https://www.theverge.com/2019/8/16/20804219/moon-tardigrades-lunar-lander-spaceil-arch-mission-foundation-outer-space-treaty-law>.

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no idea that the rocket was carrying thousands of tardigrades, a terrestrial organism famed for its capacity to live almost anywhere.¹⁰The Arch Mission Foundation's creator, Nova Spivack, admits to squeezing tardigrades onto the SpaceIL lander at the very last second without reporting the nature of the inclusion to SpaceIL.¹¹However no comprehensive research of the effects of putting tardigrades into the lunar atmosphere has been conducted, they are the only organism built to occur the vacuum of space.¹²The tardigrades offer a limited immediate threat since they are in a state of cryptobiosis in space, unable to breed and with their metabolism kept to a minimum, but there is worry that the next species transported to the Moon may not be as innocuous.¹³Yet, the Arch Mission Foundation's efforts breach current planetary protection guidelines, which are procedures established by the international Committee on Space Research (COSPAR) and national space agencies to prevent planetary contamination.¹⁴There seems to be no documented repercussions for the negligent private actors engaged in the tardigrade launch, indicating a minimal danger to following commercial actors and raising the possibility of future contamination or exploitation.

Although the Earth's atmosphere in view of carbon emissions and other contaminants has proved to be rather resilient, our neighbours' atmospheres are considerably more vulnerable. Twenty Apollo mission landings would actually have doubled lunar emissions; similarly thin is Martian atmosphere.¹⁵The possible climatic change on the lunar surface may

⁹ Hannah Osborne, Thousands of 'Indestructible' Tardigrades Could Be Living on the Moon After Crashing on the Lunar Surface, NEWSWEEK (Aug. 6, 2019), <https://perma.cc/8JDY-G8HU>.

¹⁰ Chris Taylor, 'I'm the First Space Pirate!' How Tardigrades Were Secretly Smuggled to the Moon, MASHABLE (Aug. 8, 2019), <https://perma.cc/98W5-JTVY> (noting that Spivack considers himself to be the first space pirate after his smuggling of the tardigrades).

¹¹ Joseph Stromberg, How Does the Tiny Waterbear Survive in Outer Space, SMITHSONIAN MAGAZINE (Sept.

11, 2012), <https://perma.cc/FNF2-74DT>; Jason Daley, A Crashed Spacecraft Might Have Put Earth's Most Indestructible Organisms on the Moon, SMITHSONIAN MAGAZINE (Aug. 7, 2019), <https://perma.cc/KR99-TW6Z>.

¹² Ari Shapiro, Thousands of Tardigrades are Stranded on the Moon After a Failed Lunar Mission, NPR (Aug. 8, 2019), <https://perma.cc/L4GB-J4CD>.

¹³ COSPAR, The COSPAR Panel on Planetary Protection Role, Structure and Activities, 205 SPACE RSCH.

¹⁵ See Manfred Hintz, *Environmental Aspects of Settlements on the Moon and Mars Planetary Protection*, 34 PROC. L. OUTER SPACE 59, 60 (1991).

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easily be predicted when considering the magnitude of a lunar mining operation or colony. Adequate biological or chemical pollutants can create releases of carbon that can begin a hazardous process.

Different players have put up major environmental crimes, especially terraforming, which have established an Earthlike biosphere on another world. Small measures have already been done to test our capacity to transport earth to other places, for example when China tried to grow cotton on the moon.¹⁶ There is worry that a therapy attempt would harm the targeted planet's natural ecology. Elon Musk, CEO of SpaceX, has proposed that Mars and perhaps nuclear ice deposits should be terraformed on the surface.¹⁷ Musk has many detractors and doubters in the science community to bring Mars to life through terraformatization, especially astrobiologists.¹⁸ Nuclear Mars might lead to a breakdown of natural characteristics, which mankind may want to preserve for upcoming generations. There is also a certain level of alien use to meet human requirements for study and science, but a contamination threshold above which some kind of legal ramification exists should be established. The threshold of contamination can be calculated by taking into account the body's worth and the seriousness of the contamination. On the basis that these bodies have lives, the worth of the alien body can be regulated by the categories of planetary protection priority previously defined by COSPAR.¹⁹

The Legal Issues

If there is an adequate regulatory framework or method of enforcement to restrict the actions of future polluters, possible harm from exploitation and pollution might be minimised. While regulations to protect extraterrestrial environments may be possible through allowable and planetary protection systems, the requirements of political capital and national incentives make regulations a less probable workaround. A few ecologically aware players can instead seek decisions through international litigation, save possible political expenses and offer a more rapid remedy than drawing up legislation. This comment focuses on curing any faults in

¹⁶ Amy Held, *China Tried to Grow Cotton on the Moon, but It Didn't Work*, NPR (Jan. 17, 2019), <https://perma.cc/R67A-BF2N>.

¹⁷ Doyle Rice, *NASA Says We Can't Terraform Mars. Elon Musk Disagrees*, USA TODAY (Aug. 1, 2018), <https://perma.cc/PB84-3THS>

¹⁸ Lucianne Walkowicz, *The Problem with Terraforming Mars: What Do We Lose If We Make the Red Planet Hospitable to Humans?*, SLATE (Sept. 13, 2018), <https://perma.cc/HM3Y-LV5R>

¹⁹ COSPAR, *The COSPAR Panel on Planetary Protection Role, Structure and Activities*, 205 SPACE RSCH.

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standing and causes in international prospective disputes over environmental harm to an alien habitat like the Moon.

1. Failure to regulate

The international framework controlling outer space is inadequate despite decades of increased use and dependence upon outer space as a resource. The United Nations Committee on the Peaceful Uses of Outer Spaces (COPUOS) oversees the United Nations Office for Outer Space Affairs (UNOOSA) and established the five existing outer space treaties of the UN.²⁰ Whereas there were 109 nations party in the first space treaty from 1967, later treaties giving more precise space regulations garnered far fewer support, with only 18 states in the Moon Treaty.²¹ From 1967 to 1979 the five major space treaties all were established and an international regulatory system was not substantially developed in the following years. This regulatory gap has expanded in conjunction with human space usage possibilities and practicalities.

Many states have added their own space rules to international agreements. The Federal Aviation Authority supervises the licencing procedure for space launch in the United States and maritime authority stretches to space ships. In the European Union, Norway, Sweden and Belgium, The Netherlands and France have enacted private space regulations for enterprises. These laws often require private actors to secure permission or comply with a national registry before launching objects into space. These legislations include many other examples at national level. While these national rules impose certain restrictions on commercial participants, there has never been enough development within the international system to that effect. The establishment of autonomous national legislation does not inevitably help the preservation of the sky. Given the enormous resources and money involved, local space companies are more inclined to embark on riskier, but more profitable operations than their foreign counterparts, because the national regulation is leading to the bottom. More commercial companies will be encouraged to enter the sector by increasing the prices of asteroid minerals in combination with decreasing entry barriers as Space technology advances. With no international regulatory system, trading players will be encouraged to advocate with more profits and acquire more leverage among national governments. National

²⁰ *Roles and Responsibilities*, U.N. OFFICE FOR OUTER SPACE AFFAIRS, <https://perma.cc/536N-7FQU>.

²¹ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 U.N.T.S. 3 [hereinafter Moon Treaty].

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governments will also have limited incentives to control their own space sectors, if they are to harm their broader market efficiency. Although national governments are prepared to set up and enforce the working environment system, there is still an international approach to the lack of consistency across national standards.

A terrestrial example of this is seabed mining. In the 1960,⁴⁶ the United Nations adopted the United Nations Convention on the Law of the Sea (UNCLOS), in 1982, after early suggestions to gather minerals in the ocean floor.²² UNCLOS established an international framework for several international maritime legal issues, including the establishment of the International Seabed Authority (ISA) under Part XI of the convention. Article 136 declares, "The [seabed] Area and its resources are the common heritage of mankind." The language of the "common heritage of mankind" reflects the language used to describe the Moon as it was written in the Moon Treaty at the same time.²³ The UNCLOS and ISA results were far from perfect. With limited transparency, ISA has concluded 27 contracts for the mining of 1,4 million square Km, with limited environmental insurance requested by some conservation workers. The ISA has operated with limited transparency.²⁴ A small number of international mining contracts are awarded by ISA closed meetings, and many bigger contracts are awarded by national governments to mine the seabed in their exclusive economic zones with insufficient study into the eventual impact on the environment.

2. International Litigation Unarticulated Base

Without an operational international regulatory framework or analogous national mechanisms, the pursuit of environmental destruction claims under the existing United Nations Space Treaties at the ICJ provides a realistic way to establish accountability and to support the preservation of extraterrestrials. The Treaty language described herein allows a nation to seek money damage when space waste from a second country hits the land or

²² United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

²³ See Frans G. von der Dunk, *The Dark Side of The Moon: The Status of the Moon: Public Concepts and Private Enterprise*, 40 PROC. L. OUTER SPACE 119, 121–22 (1997) (discussing the application of the "Common heritage of mankind" principle to the Moon).

²⁴ Kathryn A. Miller et al., *An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps*, FRONTIERS IN MARINE SCIENCE (Jan. 10, 2018), <https://perma.cc/P963-2GKQ>.

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property of the first nation. When the Treaty language is described below. In the extraterrestrial situation, there is a dilemma when the damage to a planetary organism that no nation has a territorial right to defend occurs. There is a void in current international law practise and scholarship to illustrate how the litigant could have sued for harm in extraterrestrial locations, such the Moon. This article will focus on the solution of this problem by using the legal idea of an environmental person to express what is affected by pollution of the moon and how the position of third parties holds bad actors responsible.

Legal Base

A. Celestial bodies' existing International Law

The United Nations is the principal governing body for international law and regulations over external space. The UN Office is tracking satellite orbiting around the Earth and is working through the five adopted Space Treaty. The United Nations Office for Outer Space Affairs. The Outer Space Treaty and the Moon Treaty are the two treaties most pertinent to this comment. The Outsourcing Treaty provided a starting framework to manage foreign goals in outer space, but it left holes and ambiguities to be fulfilled or refined in following treaties and regulations.

While the moon agreement was adopted less broadly, the space agreement might work together to give a way for an ICJ case, if the court were to decide to read certain terms in the treaties by an environmentally friendly individual. The Moon Treaty still gives convincing evidence of the abolition of the competitive intentions of the international legal community.

1. The Outer Space Treaty.

In its first attempt to create a national outer space scheme, which had been ratified only ten years after Sputnik and two years prior to the landing of Apollo 11, the Convention on Principles of Governance was a tentative agreement on exploration and use of outer space, including the Moon and Other Celestial Authorities.²⁵ It was ratified by 110 countries and is the most commonly accepted source of international space law. The agreement covers all major space-faring nations. Subsequent agreements, such as the Rescue of Astronauts

²⁵ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

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Agreement, the Return of Astronauts and the Return of Objects to Outside Space, later clarified certain aspects.²⁶

The preamble of the Outer Space Treaty recognizes “the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes.”²⁷ This phrase shows how the concept of the environment and the future UN Treaties contradict the historical concepts of nature that serve human needs. It may have looked logical to transplant the legal system governing the property of Earth into outer space in the absence of any fundamental law for external space.

Under Article IX, “States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination”²⁸ Tardigrades introduced are definitely a kind of contamination, but they are yet unknown about the harm they do. Earlier carriages into the Moon during the Apollo missions left human waste bags hypothesising that microbial life might have been brought into the previously sterile lunar surface.²⁹ The notion of environmental person implies that the protection against injury to the celestial body be the same as that afforded by law to all human bodies. Even with strict and restricted harm definitions, which would require potentially irreversible die-off of all native forms of life and introduction by terraform supporters of invasive species of the Earth, these conditions will fulfil.

2. The Moon Treaty.

The Moon Agreement (Moon Treaty) was the final outcome of the five space agreements in the United Nations. Since the Moon Treaty was introduced in 1979, the Outer Space Treaty with 18 states parties was considerably lower than the Outer Space Treaty. As far as the Moon Treaty is concerned, the absence of broad adoption “renders the instrument practically meaningless.”³⁰ India is the only signatory to the Moon Treaty to have a major domestic space programme. France is an initial signatory to the Moon Treaty and a member of the European

²⁶ 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, 672 U.N.T.S. 119 [hereinafter Rescue Agreement].

²⁷ Outer Space Treaty, *supra* note 24.

²⁸ Outer Space Treaty, *supra* note 24, art. IX.

²⁹ Andrew C. Schuerger, John E. Moores, David J. Smith & Günther Reitz, *A Lunar Microbial Survival Model for Predicting the Forward Contamination of the Moon*, 19 *ASTROBIOLOGY* 730, 752 (2019).

³⁰ Lotta Viikari, *Environmental Aspects of Space Activities*, in *HANDBOOK OF SPACE LAW*, 717, 726 (Frans von der Dunk and Fabio Tronchetti eds., 2015).

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Space Agency which is possibly linked by a key member to one of the largest space agencies by the Moon Treaty. With Turkish and Saudi Arabia's accessions in 2012, Venezuela in 2016 and Armenia in 2018, other states steadily continue to join the Moon Treaty. But the Moon Treaty still provides as the ideal representation for the Moon's international aims in the legal framework. The slow rate of acceptance has left the Moons in international law 'vacuum.'

Article 1 of the Moon Treaty states that the treaty applies to the Moon and also "to other celestial bodies within the solar system other than the earth."³¹The operations of space actors are nonetheless governed by bigger international legal systems, such as the ICJ and the Security Council.

B. Environmental Personhood.

It's not another legal challenge to protect the natural from exploitation: various international agreements have aimed to encourage the conservation of earth's resources, ecology and atmosphere. Treaties are typically constructed with exclusions which will subsequently become difficult or provide countries a chance to reject specific rules. Nature and organisations striving to safeguard it have no way of remedying those who benefit from contamination and exploitation without a standing. "Environmental personhood" is a legal way of preserving and controlling natural resources and can be extended to the external spatial setting.

Personhood Important as Solution Recognizing Celestial Bodies.

The judicial application of the notion of environmental personality to the external space framework could generate an effective regulatory regime through the use of the existing Treaty framework. It is doubtful that a large-scale national environmental regulation would be enacted because there was limited support for the Moons Treaty, and potential liability for corporate interests would be threatened. Environmentalists should instead take legal action to promote a judge-led expansion of heavenly rights. While the application to outside space may be novel, the use of tribunals and decisions to list the rights and apply them is a proved approach.

A quick and obvious end in favour of environmental rights of celestial bodies may be achieved by the use of the External Space Treaty and the Space Liability Convention, to

³¹Moon Treaty, *supra* note 20, art. 1.

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which all large space fielding States are participants. Through the language of both accords, it is possible to express that claim can already be submitted on behalf of the celestial bodies - they just have to be made by a judge.

When environmental personalities are applied to external space agencies, liability shall be deterred for actors not preventing pollution by means of suitable protocols for planetary protection. If it considers that the precautions are a good investment to prevent or decrease future liabilities, a commercial space company may take better precautions. In addition, the ICJ could order remedying efforts or finances but it is difficult to stop as we have seen with the invasive species on Earth as soon as contamination happens.

International Court of Justice –Jurisdiction

The ICJ has competence to give consultative views and to consider contentious cases pursuant to the UN Charter.³²Members of the United Nations are immediately subject to the ICJ's authority so that the moon Treaty is not ratified in so many nations. Today, 74 countries, including Japan, Canada and numerous European Space Agency members, have accepted obligatory jurisdiction from the ICJ.³³In the last few years, the ICJ has considered disputed environmental matters including an Ecuador claim in 2008 against Colombia for herbicidal aerial spraying and an Argentina claim against Uruguay for Uruguay pollution.³⁴Although the two lawsuits have ultimately been abandoned, they show the ICJ's initial determination and potential for compensatory damage to environmental claims. What is new in the court is not the idea of environmental claims but the definition and idea of an environmentally friendly third party.

Article 33 of the United Nations Charter provides for the allocation of judicial authority over uneven space claims to conflicts between the nations addressed to the ICJ.³⁵The Convention on Space Liability makes countries liable for private parties' actions that are launched from within their territory. In 1984, before refining the terminology, and formalising the text in 1998, the International Law Association drafted a proposal for a Convention on the Settlement of Space Law Disputes.

³²U.N. Charter arts. 92, 94–96.

³³*Declarations Recognizing Jurisdiction of the Court as Compulsory*, INT'L CT. JUST., <https://perma.cc/CB6H-8FUD>.

³⁴*Pulp Mills on the River Uruguay (Arg. v. Uru.)*, Provisional Measures, 2007 I.C.J.

³⁵U.N. Charter art. 33; see also VIIKARI.

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The ICJ could otherwise reach a similar conclusion through its ability to give advisory opinions without the need of a contested case. There are multiple benefits in the consultative opinion: a single country would not be necessary to commence the process, to avoid producing an immediate loser, and to provide a chance to establish a legal system, without confining the ICJ to a set of facts.

Presently, there are 17 United Nations specialist agencies¹⁵⁸, which are the specialised agencies best placed to ask for advisory opinions given their standard experience in the International Civil Aviation Organisation and the UN. Due to its external space knowledge, the most German United Nations body to ask for a consultative opinion is UNOOSA, although its status is not the specialised agency, and thus its ability to request a consultative opinion. In general, agencies could do more, since objection nations taking advantage of space exploitation can paralyse committees.

Ideally, an agency would want clarification as to whether the word "juridical person" might be understood as inclusive of environmental persons in the various treaties. The Space Liability Treaty would be the most relevant treaty for this phase of the consultative opinion since damages would then arise. The second section of the application for a consultative opinion is aimed at understanding who can launch a legal action in the ICJ on behalf of legal entities. Although the conventional response might be based on the nationality of the legal person, the spatial treaties would restrict the skies as part of any country. The ICJ may acknowledge that any state that has a responsibility to make a claim against a contravener under the Outer Space or Space Liability Treaties. The ICJ may recognise that the natural person has the ability to bring suit on behalf of environmental individuals under the concept of "common legacy" that was previously discussed in a similar way to that of New Zealand; however, this appears unlikely as the ICJ would probably warn against a flooding of individual claims. In addition to States parties, the United Nations organisations themselves would probably be the next best claimants.

Benefits and Comparative Value of an Advisory Opinion.

The ICJ may be more prepared to take a step forward to protect the celestial organ's surroundings. Within the context of an advisory opinion, The ICJ would not be scared either to lose legitimacy or to see nations removed from its jurisdiction immediately. Furthermore,

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providing an advisory opinion is a fundamentally forward-looking effort; adjudication between States parties is not essential and thus prevents the possibly unwanted vision of immediate loser creation in the field of prior legal uncertainty.

In it is less valuable to secure favourable advisory opinions compared to favourable contentious case opinions. Specific parties are not binding on the opinion and the monetary losses precedent for extraterrestrial harm cannot be given. The risk limit for the ICJ, with fewer political repercussions in making potentially controversial rulings, is partly to redeem the value of the consultative opinion. The disputed case perhaps provides environmentalists a better approach in order to raise substantial worldwide attention to the problem and possibly to mend the comparative advantages and risks.

Flaws

A major advance in the ICJ's jurisdiction would be the implementation of the environmental personality for celestial bodies. It would probably extend the boundaries of the Court's power to order serious damage or administrative action. A stronger ICJ may be needed as the world grows more connected and a certain space authority is important if international war is to be avoided. The ICJ may not be a perfect option in the lack of an International Committee provided for in the Moon Treaty, but could be one of the only solutions now accessible.

Countries are clearly interested in fostering the development and early supremacy of their space industry. The United States has often adopted legislation to encourage the development of its space sector economically¹⁵⁹, and acknowledged the possible growth-restricting factors in cooperation with the international regime. The probable denial or refusal of the US to comply with ICJ judgements constitutes a significant shortcoming of the scheme.

The US declined to pay damages, after the ICJ found in favour of Nicaragua vs. the U.S. Despite decades of previous compliance, the US contested the Court's authority.³⁶ While the United Nations Security Council has the right to implement the judgements of the court, the United States is a permanent member with a veto, a status it has often used to fight restitution initiatives. Undetermined US compliance may undermine the effectiveness of the ICJ judgement for the protection of celestial bodies, in particular considering its withdrawal from

³⁶See *Abram Chayes, Nicaragua, the United States, and the World Court*, 85 COLUM. L. REV. 1445 (1985) (noting that in 1985, the U.S. terminated its Declaration of Aug. 26, 1946, which had provided for the compulsory jurisdiction of the ICJ).

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the Paris Agreement. Whilst the overall business can be more global in character, major trade players based across the USA, for example SpaceX and Blue Origin, are more sheltered from judgement. However, it must collaborate in the international law of outer space in the wording of the Outer Space Treaty to which the United States has a party. The US, at least in principle, would be obliged to the ICJ in so far as the law is dictated by advisory opinions and litigious holdings.

A defence assertion that international law requires mining on the moon would be a final problem. The text of the Outer Space Treaty and the Moon Treaties can be interpreted as permitting resource extraction from celestial entities. Although lunar resources can't be claimed as property while still on the Moon, extracted resources can be claimed. This interpretation may lead to a judgement of the ICJ in favour of a defending extractor, but would not foreclose contaminating arguments. Although the text of the Treaties can be employed in order to enable private property, innovative and generous interpretations of the United Nations treaties are needed to identify adequate gaps. Article II of the Outer Space Treaty states that "outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."³⁷This language is strongly classified as a foreign-territorial language in subsequent agreements and potentially excludes the rights to natural objects in the outer space. The Outer Space Treaty also calls on States Parties to enforce the Treaty by outlawing, by extension private property. The US Court of Appeals for the 9th Circuit has rejected attempts by private persons to claim asteroids in the future, stating that an individual cannot charge a NASA parking fee for landing in an asteroid he claimed to possess.³⁸ The district court found that it was not essential that the United States was not a party to the stricter Moon Treaty, the Plaintiff "failed to demonstrate that either statement establishes legal basis for his claim of a private property right on an asteroid."³⁹In practise, the United States and other space-shipping nations have seized samples from external space agencies that represent national governments' own property. In contrast to the large-scale mining activities envisioned, the national space agencies have collected samples of relatively tiny amounts of materials for scientific reasons under tight standards for preventing cross-contamination. The

³⁷Outer Space Treaty, supra note 24, art. II.

³⁸Nemitz v. NASA, 126 F. App'x 343 (9th Cir. 2005).

³⁹ Nemitz v. United States, No. CV-N030599-HDM (RAM), 2004 WL 3167042, at *1 (D. Nev. Apr. 26, 2004), aff'd sub nom. Nemitz v. NASA, 126 F. App'x 343 (9th Cir. 2005).

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collection of extraterrestrial samples is simultaneous with the scientific presence in the Antarctic, with scientific objectives for the use of all human resources. The spirit and the direct reading of the UN Space Treaties does not fit into private exploitation and profit-building colonisation.

Alternative Remedies.

1. Creation of Moon Authority.

The development of a moon authority could resolve many of the challenges highlighted in this study as well as other legal outdoor problems.⁴⁰ Such a body may supervise processes to allow, conserve and prevent contamination. Article 11 of the Moon Treaty authorises that authority, however the narrow adoption of the Moon Treaty is perhaps prohibitive for the organization's development. Any endeavour to form an International Moon Authority should address the difficulties that prevented moon treaties from being adopted, particularly the friction between countries which can utilise celestial resources and the still-developing space technology nations. It may be better to form an administrative agency for the protection of celestial bodies that the ICJ and the environmental person should be utilised. If the potential earnings are trillions of dollars, any administrative organization's vulnerability to regulatory capture is serious.⁴¹

2. Permanent Court of Arbitration.

The Permanent Court of Arbitration (PCA) is a widely mentioned alternative to ICJ conflict resolution. In contrast to the ICJ, the PCA may consider claims from private parties and so eliminate the necessity to agree to make claims in the ICJ.⁴² If the PCA had been made for the first time, the PCA's efforts would be less likely to advance international law and create a reputation. The PCA is also less member-states and has no obligatory competence.

Conclusion

Even if an advisory opinion on the issue of standing was not sufficiently clear or a litigation was inappropriate, it would lead to action within the international community by initiating

⁴⁰ Blake Gilson, Note, *Defending Your Client's Property Rights in Space: A Practical Guide for the Lunar Litigator*, 80 FORDHAM L. REV. 1367, 1403–04 (2011).

⁴¹ This refers to the idea that regulatory agencies can be "captured" by the influence of lobbyists from the industries they seek to regulate in order to coopt them to meet the industry's goals.

⁴² Dispute Resolution Services, PERMANENT COURT OF ARBITRATION, <https://perma.cc/8VHG-MSVG>.

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such a claim. With the opportunity to be responsible for its alien exploits, states and private actors can start to create their own legal systems independently. While legislation with the accused could not be as attractive as a type of environmental justice created by the judiciary, discussions on a regulatory or legal framework would at least highlight the concerns that exist. The US and other nations can comfortably come up with the Moon Treaty if a less predictable ICJ ruling is the alternative.

More widely, outside space offers a *carte blanche* for a new way of conceptualising the interaction between mankind and environment. On earth, we are tied to tradition and fear that the established concepts of standing and harm will take us away from them. However, just as a pair of courageous nations came for the stars, some daring nations are now rethinking what nature means. The inclusion of the environmental personality allows mankind a chance to test the legal notion, instead of destroy it, as a way of preserving the environment and imagining a new way of life.

Although alien human residents cannot realise the dividends of conserving celestial entities for decades, it is likely that the Moon's environmental personality will benefit. It is likely that an ICJ judgement in favour of environmental personality has a reflection on the world community. The environment may be seen by nations as a new international norm to be followed. The achievement of an external environmental management space regime can, alternatively, provide a roadmap for the development of climate change control systems on Earth. The Agreement was an untested step forward, but a space project may be an example of international collaboration on the environment that may be reproduced at home.

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