
A Stitch in Time Saves Nine - Property Rights and Emergency Access in Outer Space

By Jane Andrews

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The formation of a human right to emergency access (REA) will support human spaceflight activities, advance legal and ethical discourse within the intersection of international human rights law (IHRL) and international space law (ISL), and safeguard human health and well-being across the stars.

Where science fiction has long hinted at the future of human activities in outer space, ongoing technological developments over the past decade under Space 2.0 will soon turn this into a reality. Presently, a long-term space settlement on the Moon, Mars, or other celestial body poses significant economic and scientific challenges. The difficulty and costs of sending materials beyond the earth's atmosphere has been a persistent challenge, while scientists are yet to fully comprehend the effects of extended habitation in space upon the human condition.

As established within the International Space Station (ISS), clear support and cooperation between space faring nations and non-governmental organisations is vital in realising the potential for a human settlement in space and upon other celestial bodies. However, the current international law framework is ill-equipped to deal with issues related to space governance - most notably the issue of property rights in outer space in relation to individual human health, well-being, and safety. Continuing ambiguity herein will facilitate substantial issues in times of emergency or distress. REA as conceptualized within the outer space context comprises several elements:

- 1) A general duty to render assistance to human spaceflight participants in distress;
- 2) The right to emergency assistance from authorities under law, obligating provision of elements essential for continuing survival; and
- 3) Permitting persons in distress to trespass upon vacant property (habitats), qualified only where such an act would not endanger its owners.

The obligation to render assistance is established within both international customary law and international space law (ISL). Accordingly, the formation of REA represents a necessary evolution of this obligation from a human right's based perspective, as attuned to the unique challenges of human survival in space. The international community must endeavour to prevent the further loss of human life in situations where a space installation is rendered uninhabitable - by clarifying the duties and obligations of governments and other stakeholders in respect to the right to adequate housing (RAH), and the right to life (RTL).

Property in Outer Space

Firstly, it is imperative to comprehend and establish what manner of property rights would apply to early settlers across space and other celestial bodies. The notion of 'property' differs in concept across terrestrial settings vis-a-vis the outer space domain.



The prevailing terrestrial common law understanding of property ownership represented through the “bundle of sticks” analogy. In this analogy, certain rights attach to the concept of owning property - including the right of the owner to access the property, enjoy it, and exclude others from accessing it. [The right to exclude individuals](#) and entities from accessing or exploiting the land distinguishes a certain individual as the owner. Therefore, even in a situation of distress the owner possesses the right to exclude an individual in need of assistance, circumvented only by the doctrine of necessity or similar defences to trespass.

There exist numerous examples of communities providing access to property in times of distress. In [Churchill, Manitoba, Canada](#), residents leave their car doors unlocked to allow other residents or tourists that come into contact with a polar bear to seek emergency shelter. However, this practice is a matter of generosity and community custom which has yet to be codified into local law. While such precedents allude to the question of emergency access, it remains that an individual landowner retains the broad right to permit or deny access to their property.

In outer space, property rights are conceived under the ambit and limitations of international law. Herein, general interpretations of the [1967 Outer Space Treaty](#) (OST) and the [1979 Moon Agreement](#) do not allow for the sovereign ownership of land, while also remaining unclear on the issue of private ownership. Article 1 of the OST holds that space shall be used for the “province of all [hu]mankind”, and that States are obliged to ensure free access to celestial bodies. Therefore, it is unlikely that settlers will be able to exclude access to property in the same manner as a traditional home or installation.

Consequently, Article 2 of the OST enshrines the principle of non-appropriation and prohibits claims of sovereignty on the moon or other celestial bodies. Due to continuing State practice and wide ratification of the OST, this view has been recognized as a principle of [customary international law](#). From a strict legalist interpretation, possessing property rights in the conventional sense, where a deed is provided by a government who possesses that authority due to a claim of sovereignty over land, is not available in outer space. Therefore, the exclusion of an individual from one’s land would appear unenforceable.

However, Article 12 of the OST requires access to installations for visitation, as limited; 1) solely to the representatives of other States Parties (astronauts) to the OST; and 2) on a basis of reciprocity. The private owner of the habitat may thus possess the de-facto right to exclude individuals who are not astronauts from accessing their installation. Further, the requirement of States parties and their citizens to specifically accommodate other astronauts draws allusions to the [Third Amendment](#) of the US Constitution, prohibiting the involuntary quartering of soldiers in private homes.

The Moon Agreement further refines the guidelines established under the OST. [Scholars](#) note that the lack of its widespread ratification, and the clear objection to Article 11 of the Agreement, evidences that the Agreement is non-binding, and is not widely considered as an authoritative ISL agreement. Regardless, noting its entry into force and 18 State parties, the Agreement warrants consideration.

Article 11 delineates that outer space is for the “common heritage of [hu]mankind” and that the surface of the moon cannot be owned by any individual, government, or entity. Rather, placement of an object or installation on the surface of the moon does not constitute ownership of the land.

The rights to ownership of installations are outlined in Article 12 of the Agreement, dictating that these installations may be used in the event of an emergency by any individual where there is a threat to human life. Following this interpretation, an individual would not own the surface beneath the installation, and would not have the right to exclude an individual in the event of an emergency situation.



The Right to Adequate Housing and the Right to Life

The inherent hostility of the hard vacuum of outer space, and diverse environments upon various celestial bodies, underscores the RAH and RTL as relevant substantive rights to REA. In a hypothetical scenario where a person's installation is compromised or rendered uninhabitable, the emergency displacement of the person from their housing carries the potential to be catastrophic. The outer space environment is acknowledged as hostile to life - as human beings are unable to survive without a constant and consistent supply of atmosphere and water. Consequently, where human habitats in space have yet to achieve self-sufficiency, the right to housing impacts intimately upon the general RTL.

RAH is enshrined under Article 11 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) and Article 25 of the Universal Declaration of Human Rights. Per General Comment No.4 to the CESR, the scope of RAH moves beyond the mere [right to a roof over one's head](#). RAH is designed to be broad in order to ensure the imposition of positive obligations on a State. It is recognized that the inherent dignity of a person is founded within the [peace and security of housing](#). Further, under the World Health Organisation's (WHO) [Health Principles of Housing](#), RAH pertains to the right to a 'healthy' house that prevents illness or disease transmission.

Absent a clear understanding of the governance or structure of anticipated settlements and human communities in space, RAH facilitates onerous obligations on a myriad of actors and stakeholders in space, including other settlers. Therefore the question of who must provide an individual with adequate housing and secure their RTL may play a role in subsequent relief efforts. Herein, individuals living within an outer space settlement already have their RAH met in a manner which secures and safeguards their health, well-being, and dignity.

RTL is enshrined within Article 6 of the [International Covenant on Civil and Political Rights](#) (ICCPR), which provides for positive duty to protect life, and negative obligation to refrain from violating this right. RTL is interpreted as an absolute and non-derogable right - meaning that the declaration of a [public emergency](#) does not remove the State's obligations to respect, protect and fulfill this right. Further, States must also undertake to [prevent harm](#) from private individuals or entities.

Following an incident, RTL may be violated by a failure to ensure sufficient access to [water and shelter](#). Further, noting the [close association](#) between RTL and RAH, a State must thereafter prove that it had [insufficient resources](#) to address the issue of a lack of housing. Due to the complex, isolated, and hostile nature of outer space, a failure to provide access to water and shelter may be interpreted as constituting a human rights violation.

In the outer space environment, in the split second that an individual becomes "in-distress" and requires assistance - RAH and RTL are engaged. Both rights impose individual positive obligations on States, which may not be appropriate in the context of private settlements in space. Without a clear understanding of individual settlements and installations, it is difficult to comment on how other human spaceflight participants must uphold these human rights provisions. Regardless, property owners may still be expected to render housing assistance following a request for help, where ISL provides a mandate for settlers (State-based or private individuals) to render "assistance" in emergencies.

Mandate to Render Assistance under International Space Law

There exist three areas of ISL which underscore the potential mandate for States to respect, protect, and fulfill REA. These include:

1. [Article 5](#) of the OST;
2. [Article 10](#) of the Moon Agreement; and
3. The contents of the multilateral [2020 Artemis Accords](#) (AA).

These instruments encapsulate broad ISL jurisprudence vis-a-vis the obligation to safeguard human life and well-being under REA, while also highlighting consistent State practice.



Firstly, Article 5 of the OST provides that whilst “carrying on activities” in outer space, the astronauts of one State are obliged to render all possible assistance to another. Notably, astronauts are defined as “envoys of [hu]mankind” and representatives of their States, and distinct from ordinary people under the term “human spaceflight participants”. That means astronauts must assist other astronauts, irrespective of their nationality. Article 5 creates [two obligations](#): A) that astronauts must render assistance to other astronauts; and B) that States must monitor and supervise any phenomena or activity which may cause danger to the life and health of astronauts.

By extension, assistance under the OST may transition into providing adequate housing, as a measure of ensuring the health and safety of an astronaut. Herein, Article 1 and Article 3 of the OST provides that outer space should be used in accordance with international law to promote international cooperation and understanding. This challenges States to interpret the relevance of IHRL instruments to the outer space domain, giving rise to the notion that the OST requires rendering assistance to other astronauts in accordance with IHRL obligations - including RAH and RTL. The OST may therefore be seen as creating the obligation to assist an astronaut in distress.

Secondly, Article 10 of the Moon Agreement is explicit in its offering of shelter to individuals in distress, and in detailing the obligation of all States to adopt practicable measures. However, the continuing absence of major space faring States as parties to the Agreement means that potential applicants should be cautious in holding States to account under its provisions.

Third, while the AA possesses a substantially similar provision, it does not explicitly entail the obligation to offer shelter in installations. This is further undercut by the fact that the AA is a mere set of [declaratory principles](#), rather than a binding international agreement. Section 6 of the Accords provides that signatories commit to taking “all reasonable efforts to render necessary assistance”, which may reasonably be interpreted as the obligation to provide emergency shelter to individuals in distress.

Summary

The OST, the Moon Agreement, and AA collectively provide a legal basis for human spaceflight participants and astronauts to render aid and assistance, and provide shelter in periods of distress. While there exists a clear mandate under ISL to provide assistance in the event of an emergency, potential ambiguities concerning ‘distress’ and ‘reasonable steps’ may give rise to complications when faced with the issue of property rights. These ambiguities may be addressed by reference to key IHRL instruments relevant to the RAH and RTL. Consequently, the interpretation of property rights advanced under IHRL and ISL cannot therefore exclude emergency access, and are not prejudicial to the realization of the REA.

Additionally, the existence of numerous uncertainties may undercut the full realization of a REA. Initial human habitats on the Moon or other celestial bodies will likely be limited in their capabilities, prone to failure, and unlikely to be wholly self-sufficient. Given the high costs and long time-frames involved with transporting resources in space, the ability of States to furnish their citizens with new habitats in a timely and adequate manner may prove unachievable. In this context, the formation of the general obligation to provide assistance in instances of distress provides some clarity in the gradual progression toward the formation of a REA.

The continuing absence of a codified REA within the outer space environment risks violating the rights of human spaceflight participants, and facilitates legal uncertainty over the nature of property rights in space. States must thus endeavour to respect, protect, and fulfill their RAH and RTL across the outer space domain. Clarification within this issue will prove conducive to the long term stability, security, and prosperity of human activities across the final frontier.

