



A pragmatic approach to sovereignty on Mars



Sara Bruhns, Jacob Haqq-Misra*

Blue Marble Space Institute of Science, 1001 4th Ave, Suite 1006, Seattle, WA 98154, United States

ARTICLE INFO

Article history:

Received 29 October 2015

Received in revised form

16 May 2016

Accepted 25 May 2016

Available online 30 May 2016

Keywords:

Mars

Space colonization

Outer space treaty

Sovereignty

Planetary parks

ABSTRACT

Rising interest in Mars colonization from both private and public sectors necessitates a renewed discussion about sovereignty in space. The non-appropriation principle of the Outer Space Treaty currently prohibits any sovereign claims to celestial bodies, but it remains unclear how this principle should be applied to the peaceful colonization of Mars. Here we develop a pragmatic approach to guide the settlement of Mars, which is based upon a “bounded first possession” model with mandatory planetary parks. Scientists, experts, and leaders will establish planetary park locations and regulations through worldwide community solicitation in order to protect sites of scientific, aesthetic, historical, cultural, environmental, spiritual value. Colonization parties may occupy limited plots of martian land and may claim exclusive economic rights within this zone, while still refraining from any claims to sovereignty. All colonists remain under the legal jurisdiction of their host nation, with conflicts to be resolved diplomatically or through a temporary tribunal system composed of representatives from other Mars colonies. We also propose the formation of a Mars Secretariat as an administrative body with limited power to facilitate communication among parties. Our model for Mars colonization remains consistent with the Outer Space Treaty, but we also recommend revisiting or amending the non-appropriation and province of mankind principles to resolve the ambiguity of how nations, corporations, and individuals may utilize the resources of space.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

As national space agencies and private aerospace corporations develop the technology to send larger groups of humans into space for longer periods of time, Mars colonization faces an increasingly probable future. A more significant human presence in space will test the resilience of the Outer Space Treaty (OST), which entered into force in 1967, just before humans landed on the Moon. Thus far, the OST has been successful in maintaining peaceful international relations in space. The OST decrees that “the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind” to ensure that space is “free for exploration and use by all States.” Specifically, the OST explicitly states that “outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means,” a requirement known as the *non-appropriation principle* of the OST [1]. Any celestial bodies must be used for exclusively peaceful purposes, and no State may launch

weapons into space. States are also responsible for all national activities, whether governmental or otherwise, liable for any damage caused by their space objects, and must not contaminate celestial bodies. The OST has been upheld thus far and provides the primary legal requirements for any further exploration, including colonization, of Mars [2].

Current colonization proposals from organizations such as SpaceX and Mars One may be inconsistent with the principles of the OST. Commercial interests may drive private corporations toward the profitable use of space resources [2], despite objections that such actions would violate the non-appropriation principle [1]. The current international legal environment mandates that each nation is responsible for any spacecraft launched from their territory, and any corporation venturing into space would likely continue to fall under the jurisdiction of its nation of incorporation [1,2]. However, the possibility remains that a multinational corporation could establish operations that circumvent the OST in order to gain priority access to space resources. Even if a corporate actor falls within jurisdiction of the OST, enforcement of the OST may prove difficult for the first few colonies that develop on Mars. In the event that any such corporations land on Mars and begin claiming resources, such actions will be much more difficult to modify if guidelines on legal colonization and utilization of space are never

* Corresponding author.

E-mail addresses: smb9cn@virginia.edu (S. Bruhns), jacob@bmsis.org (J. Haqq-Misra).

established beforehand.

Ehrenfreund et al. [3] recognize the importance of approaching Mars settlement with an emphasis on working to balance the diverse perspectives among scientific, governmental, and private interests. Their approach recommends gathering information on all potential stakeholders, cooperatively developing a timeline and drafting agreements, and legally establishing a system that remains flexible to accommodate changing and new interests as they arise. The goal is to adhere to the OST and balance science exploration and use by government and industry while minimizing any harmful environmental impacts of colonization. In particular, Ehrenfreund et al. [3] discuss possible models for space exploration by drawing upon the Antarctic Treaty System (ATS) and the UN Convention on the Law of the Seas (UNCLOS) as examples of successful sharing of international resources. This attention to the diverse interests of stakeholders in the martian landscape represents a compromise approach to the issue, where inclusivity based upon contemporary international treaties seeks to forestall future conflict.

The commercial potential of celestial resources is a powerful incentive, and Collins [4] argues that corporations will inevitably colonize with sufficient economic motivation. However, the OST suggests a common property approach through the *province of mankind principle*,¹ which limits the reward incentive to offset the cost and risk of pioneering colonists. This may discourage investment and productive use of planetary resources, which ultimately could be harmful or restrictive to the future of humanity. Collins [4] proposes that private property claims be permitted in order to encourage the efficient preparation of Mars for human habitation, either through modification of the OST or by other actions of international governing bodies such as the United Nations. In order to reward as many pioneers as possible, Collins [4] suggests a model of “bounded first possession by landfall” (hereafter, “Bounded Possession”) of limited plots of land, controlled by private bargaining and litigation, as one possible option. This would allow national space agencies or private corporations to make small exclusive claims to martian land, allowing for the development of settlements and industry but still leaving plenty of surface area for future colonists. Such a policy would require modification of the non-appropriation principle of the OST in order to legally permit sovereign claims to space resources [1]. Another option proposed by Collins [4] is a “Mars Tax,” collected in some way from the use of Mars, which would be distributed to all nations in the spirit of the province of mankind principle of the OST. A Mars Tax would allow Mars to be used by those for whom it is most profitable, but the portion of these profits paid as a Mars Tax would thus provide direct benefits to all nations, not just those with spacefaring technology. The use of a Bounded Possession system or a Mars Tax, either separately or in tandem, would require amendment to or replacement of the OST, but solutions such as these may provide the strongest motivation for the productive development of space.

Scientific objectives have formed the basis for nearly all space exploration up to now, and the collective interests of scientists will also shape the future direction of any policies that govern the exploration of Mars. Scientists hold a broad range of views on colonization [5]. Some are enthusiastic about a more prolonged and personal experience with the planet [6,7], while others are troubled over the inevitable contamination [8]. Cockell and Horneck [6,7] suggest a “planetary park” system that preserves land for scientific, cultural, and aesthetic purposes. These parks would represent a diverse portion of Mars’ terrain and would be regulated to

minimize human contamination. These parks may also fulfill the OST province of mankind principle, perhaps opening the possibility to free industries and nations from any “common property” stipulations and allow the development of property ownership elsewhere on Mars. Cockell and Horneck put forth a list of suggested park locations that represents the most scientifically valuable land on the planet. While a planetary park system focuses on protecting the scientific and aesthetic value of Mars, this solution may also appeal to corporate interests as a compromise between protecting environmental interests and allowing private use of resources.

We propose a model for Mars exploration and settlement that combines many aspects of these approaches. We consider the successes and shortcomings of the ATS and UNCLOS as models for cooperative sovereignty in space [3], we discuss a system of exclusive economic claims under a Bounded Possession policy [2,4], and we incorporate a planetary park system designated though assessment by the worldwide community of scientists, experts, and leaders [6,7]. Regardless of our opinions on the ideals of land ethics, we propose our model on the pragmatic assumption that private space industry colonization missions will be carried out as intended. We assume that colonization is inevitable, and that restricting sovereignty may pose as many as or more problems than allowing it. We present our “Bounded Possession with Planetary Parks” system as one possible solution toward resolving the issue of sovereignty on Mars. Our model allows the global community to establish a planetary park system prior to humans landing on Mars, which colonists must respect. Parties landing on Mars will be allowed to claim a limited amount of land, and only as much as they can reasonably use. This provision is reminiscent of ideas described by John Locke in his *Second Treatise on Government*, where the valuation of land is proportional to the amount of human labor invested in it. The colonies will be self-governing and independent, but must obey the guidelines of the planetary parks, follow procedures for making an exclusive economic claim, and respect the boundaries of other colonies. Our model also includes a “Mars Secretariat”, an exclusively administrative body, to facilitate communication between the colonies and act as a mediator in the event of conflict between parties. Any conflicts that cannot be resolved between the parties involved will be addressed by a temporary tribunal led by representatives from the other colonies and facilitated by the Mars Secretariat. This model of Bounded Possession with Planetary Parks allows for colonization to proceed in a cooperative manner while mitigating conflict escalation.

2. Cooperative sovereignty on Earth today

The Outer Space Treaty prohibits nations from declaring sovereign claims on any celestial bodies. One motivating factor for this provision, drafted in the midst of the Cold War, is that sovereign claims in space could foster militarization and escalate conflict between nations [9,10]. While disputes over sovereignty are plentiful in history, there are also several examples of situations where sovereign nations work together cooperatively to achieve mutual goals, instead of generating conflict about borders and control. The concept of “cooperative sovereignty” even suggests that cooperation among states is a critical element of the notion of sovereignty itself in an increasingly interdependent world [11]. The ATS and UNCLOS both provide contemporary examples of models based upon principles of cooperative sovereignty.

The Antarctic Treaty System provides a constructive model of nations cooperatively managing land for solely scientific purposes. Nations party to this treaty have surrendered their economic and sovereign interests in favor of preserving natural, unspoiled land and furthering science for the benefit of all nations. Drafted in 1959 after tensions about land claims escalated near conflict, the ATS

¹ We use the phrase “province of mankind principle” to remain consistent with the phrasing of the Outer Space Treaty, although “humankind” would be a more preferable term to include in any revisions of the OST.

Download English Version:

<https://daneshyari.com/en/article/5126888>

Download Persian Version:

<https://daneshyari.com/article/5126888>

[Daneshyari.com](https://daneshyari.com)