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The Legal Status of Mars and *The Martians*' Claims to Areas of Mars

Legal Reality Check Report

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The Legal Status of Mars and *The Martians'* Claims to Areas of Mars

Executive Summary

Currently it is impossible to base any claim to private ownership over a part of Mars on any specific rule of *international law* overriding the fundamental provision of Article II of the 1967 Outer Space Treaty, whereas that same Article precludes any application of *national law* allowing such private ownership over a part of Mars, as Mars cannot be considered part of any country's national territory and therefore subject to that country's domestic law on private ownership of 'land'.

Pursuant to Article VI of the Outer Space Treaty, private entities can enjoy the baseline freedom provided by Article I thereof *only* following authorization and supervision by a sovereign nation. Yet, following Article II, that freedom does not include any potential law allowing for private ownership of 'land' in outer space.

Consequently, even as the laser beam activities so far undertaken with respect to Mars by *The Martians* are not illegal under either international space law or domestic UK space law, including activities which could be argued to qualify as (at least an embryonic form of) factual possession, currently it is impossible to translate such factual possession into legal ownership by *The Martians* of parts of Mars – even merely prospectively.

Arguments that private ownership of 'land' and private commercial activities on Mars, would help preserve peace and international security, and that the international character of private ownership through *The Martians* would avoid a violation of Article II and align very well with the requirement of Article I that "[t]he 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", may carry moral and even political weight, yet so far they do not carry any legal relevance without proper agreement on the part of the international community.

While under current international space law the impossibility to recognize any legal validity of *The Martians*' approach to private ownership of 'land' on Mars is not necessarily eternal in nature, it requires at least a large majority of major spacefaring nations to change that to the extent desired and necessary, further to having been convinced by *The Martians* of the general appropriateness, fairness, and feasibility of its plans for future ownership of 'land' on Mars.

1. The Legal Status of Mars

As of now, the legal status of Mars as relevant also for the various claims of *The Martians* is determined by the 1967 Outer Space Treaty. This Treaty has been ratified by 110 countries, including all major spacefaring countries such as the United Kingdom. Since the Treaty qualifies as customary international law, also non-parties are generally required to comply with its provisions.

The Treaty was drafted primarily to contain threats to peace and international security resulting from the Cold War (and secondarily to preserve opportunities for scientific activities in, and exploration of, outer space), and the prospects of both substantial projects for human settlements on celestial bodies and commercial interests in exploiting water and other mineral resources there were essentially left untouched.

The above also means that private ownership of 'land' in outer space, not an issue considered relevant in the 1960s or even 1970s, is basically not addressed. Such private ownership has, almost by definition, always been regulated by domestic law applicable to the territory of the country concerned. Each country has for instance its own, different laws on the extent to which, and by means of which processes, a private person or entity can come to own land, and his/her rights (for instance, to treasures or minerals found there, or to be compensated in case of nationalization for the purpose of a highway or railroad track) respectively obligations (for instance, to accept right of way of others, or not to harm neighbours) in respect of such land.

Noting that it also by its own terms applies to Mars, the 1979 Moon Agreement presented an effort to address issues of potential exploitation and habitation of celestial bodies in workable detail. However, with only 18 countries parties to it and none of them being major spacefaring countries such as the United Kingdom, it can largely be ignored here as it does not provide for globally applicable rules regarding activities on Mars.

Within the 1967 Outer Space Treaty, six provisions are fundamental in spite of not being tailored to address the legal status of Mars, activities conducted on it and claims to areas thereof, whether by countries themselves or by their citizens, including if organized in private associations, companies or other organizations.

First, and most importantly, Article II provides: "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." A Statement of the Board of Directors of the International Institute of Space Law (IISL) clarified this provision specifically for the Moon, but since Mars, like the Moon, is included in the notion of 'celestial bodies', so far it applies to Mars as well. Consequently, Article II means that no country can treat activities (having an effect) on Mars as if they are activities (having an effect) on its own national territory. In legal terms, it cannot appropriate the legal authority to apply any of its national laws, statutes, regulations or common law to any part of Mars as such.

Since, further to Article II, no part of outer space can be considered national territory, national law on private ownership of land cannot apply to any part of Mars either. Any pretension of a country to have the sovereign right to entitle anyone else to 'own' a part of Mars, whatever further arguments would or could be put forward in its defence, would effectively violate the prohibition of "national appropriation by claim of sovereignty, by means of use or occupation, or by any other means".

Second, Article I confirms that the freedom of activity is the baseline legal principle for outer space, as the "exploration and use of outer space" are the "province of all mankind". This, of course, includes Mars. Limitations to that freedom cannot be presumed, and can only be derived from international treaties or customary international law binding upon the countries concerned. Importantly, however, this freedom is only available to *countries*, not as such to private entities or intergovernmental organizations.

Following from the above, any future development of new, different and/or additional rules of international law fundamentally requires the consent of the sovereign countries to be bound by such law. Neither the Committee on the Peaceful Uses of Outer Space (COPUOS) nor even the United Nations as such, not so far mandated by their respective memberships to autonomously create new international law, can do so without the general – and likely by necessity formalized – agreement of their member countries.

In conjunction with Article II, Article I makes Mars essentially into what is often referred to as a 'global commons' or *res communis*: a fundamentally international realm where all countries are entitled to undertake activities as long as not specifically prohibited or conditioned by applicable international law but which no single country can claim legal control over to the exclusion of any others. This is crucially different therefore from a status of *terra nullius*, which historically allowed a country subject to certain conditions to claim a piece of land on Earth legally considered non-occupied.

Thus, the freedom of activities for countries in outer space under Article I does not extend to a right for a country to apply its domestic laws on private possession of land, as Article II would constitute the relevant internationally agreed limitation to that baseline freedom here. Article I, in other words, cannot be used as an argument to obtain private property rights over 'land' on Mars.

Third, Article VI, as the mirror-side to Article I, holds countries internationally responsible for "national activities in outer space", including on Mars, also if undertaken by private entities, and positively obliges those countries to authorize and continuously supervise such private activities, without which authorization and supervision the latter would in principle be illegal.

Consequently, more than two dozen countries have by now developed national space legislation incorporating systems of authorization and supervision of private activities in outer space considered "national" by the country in question. The United Kingdom for example has adopted a 1986 Outer Space Act and a 2018 Space Industry Act to address such private activities in outer space. It should be noted, however, that the absence of any authorization or supervision, whether in law or in practice, does not absolve the country concerned from its international responsibility.

Article VI requires countries to ensure that the rules of the Outer Space Treaty, including prominently that of Article II as explained, are not violated by private initiatives from their own nationals or conducted from their own territory, as further confirmed by UN General Assembly Resolution 68/74.

Fourth, as following from the baseline legal principle of freedom of Article I, the establishment of "stations, installations, equipment and space vehicles" by countries on celestial bodies is perfectly legal, albeit under Article XII subject to inspection by "representatives of other States Parties to the Treaty". This right to visit is only limited by the requirement to "give reasonable advance notice", so "that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited".

Though stations, installations, equipment or space vehicles are allowed to land on a celestial body under Article XII, and under Article VI and relevant national space law this right may even be enjoyed by proxy by private organizations, so far the usage of that right as such may not result in private possession of a part of Mars.

Fifth, while as a consequence of Article II countries are unable to exercise their legal powers on the basis of 'territory' in outer space, Article VIII provides them with the possibility to register objects launched into outer space and then allows them to apply domestic law on a 'quasi-territorial' basis to those objects, very much like ships or aircraft carrying the flag of such a country. For instance, the United States by way of the 1990 Patents in Space Act extended the scope of national patent legislation to space objects registered in the United States. This would also apply to any space objects sent to Mars, whether for purposes of human habitation or not.

Though national space law under Article VIII may allow for registration of a space object landing on Mars also of a private organization, and entitle the registering country to exercise jurisdiction over such space object, such "occupation" of a part of Mars cannot currently translate into a right to apply domestic law on private ownership of land over such a part and/or over time transform into ownership thereof otherwise.

Sixth and final, Article III provides that, at least to the extent that specific rules of space law do not dictate otherwise, general international law, explicitly including the United Nations Charter, would apply to outer space and activities conducted therein.

This however means that the status of outer space as a *res communis* cannot be changed by 'importing' into outer space different (and historical) concepts such as *terra nullius*. For the same reason, landmark judgements of international courts and tribunals such as the 1928 Island of Palmas case, the 1931 Clipperton Island case or the 1931 Eastern Greenland case, currently are not relevant as precedents for outer space.

Thus, finally, in the absence of any specific rules in the Outer Space Treaty creating private property rights over any 'land' situated on Mars, as a consequence of especially Article II, whatever general international law might otherwise possibly applicable under Article III so far cannot result in private ownership of 'land' on Mars.

In sum: currently it is impossible to base any claim to private ownership over a part of Mars on any specific rule of *international law* overriding the fundamental provision of Article II of the Outer Space Treaty, whereas that same Article precludes any application of *national law* allowing such private ownership over a part of Mars, as Mars cannot be considered part of any country's national territory and therefore subject to that country's domestic law on private ownership of 'land'.

2. The Claims of *The Martians* Summarized

The claims of *The Martians* were summarized by Dr. Philip Davies, its Founder and Director, as follows. *The Martians* is a group of individuals from countries all over the world with the first and foremost aim "to provide millions of people from all nations with an equitable opportunity to provide their family descendants with a real possibility of actual titled ownership of vast areas of land on Planet Mars", as further supported by the establishment of Mars Register LTD, a UK registered limited company (Company number 13407809), for which Dr. Davies is the appointed Director. Both the group and the company are legally established in the United Kingdom; the fact that individuals from many countries are involved is legally speaking irrelevant, since the activities and claims at issue are undertaken by and funnelled through these two entities.

All activities which *The Martians* have undertaken with respect to Mars as well as any assertion of claims to parts of Mars further to those activities take place within the framework of space law and the legal status of Mars as summarized in paragraph 1, and therefore have to be assessed from that vantage point as to their relevance, legitimacy, and legal effects and consequences.

Both the activities and the ensuing claims have been set out in more detail in the document *Mars Claim – Background and Strategy*, drafted by Dr. Philip Davies. Unless indicated otherwise, all quotes used in this paragraph are taken from that document.

The **actual 'physical' activities** concern "the repeated application of strong laser beams to deliver a very small controlling influence upon the geo-atmosphere of Mars", where "a targeted strong laser beam from Earth to Mars would result in powerful photons impacting the Martian surface and, sporadically, assisting in the liberation of CO2 into the atmosphere". The existence, read creation of an atmosphere on Mars is generally considered a crucial precondition for sustained human presence on Mars – the so-called 'terraforming' with the aim to make "Mars more habitable for human settlement". It should be noted already that the term *terra* legally speaking refers to land on Earth.

In more detail, Dr. Davies explains in *Mars Claim – Background and Strategy*:

> Since March 2010 I have been frequently targeting the Planet Mars with high power lasers. I started with class III lasers but soon progressed to class IV (the most powerful lasers). Using some of the world's most powerful portable lasers, attached to an astronomical telescope with an auto - tracking mount, I have targeted Mars for 15-30 minutes, twice weekly (sometimes more) for most weeks when Earth-to-Mars light-time is less than 15 minutes (and Mars is targetable in the evening/night/early morning sky. On average, over the course of those 11+ years, I have applied strong laser-light to Mars on almost 20 weeks per annum. (…)
>
> We use lasers up to 5000mW (5W) in strength, but usually use 1000mW and 3500mW blue lasers when Mars >20 degrees in the sky and 750mW red laser when Mars is <20 degrees (Rayleigh scattering is more pronounced against short wavelength blue light through the greater air-mass that low angles involve.... hence orange/red sunsets)
>
> We only use a highly visible green laser to deliver morse coded messages to Mars – this powerful 100mW EVO laser is controlled via an android smart-phone app that offers morse-code capability.
>
> (…) [W]hen Mars is closest to earth (at "Opposition" when light time to Mars is about 3 minutes) (…) the laser beam (depending on the divergence of the particular laser) may be 10–30 times the diameter of the planet, yet there are still 300 photons per second hitting each square metre of the effective surface area of Mars (300

> million per Sq Km per second). A very sensitive receptor on Mars could detect these photons. Some of these photons will impact dry ice (CO2) on the surface of Mars. Sublimation (dry ice to gas) is an ongoing natural process, but our lasers will encourage a bit more. On a much larger scale, just as with Elon Musk's proposal, sufficient CO2 release could trigger a greenhouse effect (and generate an atmosphere that removes the need for astronauts to wear pressure suits).

Further information on the scientific and operational aspects of *The Martians*' activities is provided at Mars for Sale – Science Issues and a presentation on Mars for Sale.

As for the **legal claims** asserted next, given that these activities of *The Martians* qualify as activities which, though undertaken by humans on and from Earth, are directed predominantly and intentionally to outer space and aimed at realizing certain effects there, with a view to Article VI of the 1967 Outer Space Treaty it first has to be noted that they would qualify as "activities in outer space". Given moreover that *The Martians* and Mars Register are UK-based private entities, these activities would qualify as "national activities in outer space" for which the United Kingdom would be responsible.

This would be confirmed by the 1986 Outer Space Act, which applies as per Section 1(c) to "any activity in outer space", which in turn at least in principle requires a UK license pursuant to Sections 3–6 and 13 of that Act to comply with the requirement of "authorization and continuing supervision" of Article VI of the Outer Space Treaty.

In this respect, *Mars Claim – Background and Strategy* claims, with regard to the regulatory involvement of the UK authorities, the following:

> Our use of these very powerful lasers is entirely legal. We perform outdoor laser activity when the only commercial airport within 40km of us is closed. We are outside the UK's defined notification zone (CAA: CAP 736 notification zone). We use a flight-radar app to raise awareness of approaching aircraft. We check ISS position and in-the-sky satellite position data (from Celestrak). We target and lock on Mars via the astronomical telescope with auto-tracking mount. The powerful laser is aligned to the telescope and so tracks Mars, thus leaving our eyes free to roam the skies (and flight-radar) in search of anything moving or blinking. If anything moves or blinks in the sky (or anyone approaches on ground) the laser goes off.
>
> The CAA are aware of our activity. The UK Space Agency is especially aware of our activity: they have confirmed that we do not need a license for this.

As to the last point: Section 3(3) of the 1986 Outer Space Act indeed allows the UK Secretary of State to "except (…) persons or activities from the requirement of a license if he is satisfied that the requirement is not necessary to secure compliance with the international obligations of the United Kingdom".

Thus, on the one hand clearly at present the UK government does not consider the activities of *The Martians* described above so far as, in and of themselves, violating "the international obligations of the United Kingdom", in other words: as a violation of current international space law. This would be in line with the provisions of Articles II, I and VI of the 1967 Outer Space Treaty, which provide for the baseline freedom of activities for countries, only to be limited by specific international law (in this case, addressing the application of laser beams to Mars), and allows countries to provide their private sector in turn with the possibility to enjoy elements of that baseline freedom.

On the other hand, the decision of the UK government not to require a license does not take away its responsibility under Article VI to ensure that activities of *The Martians* would continue to comply with international space law. This means that, once additional

activities of *The Martians* would be planned with regard to Mars, the UK government would essentially have to reassess the current waiver of the licensing obligation.

This brings analysis to the claims pursued by *The Martians* and their legal value, parameters and ramifications. The core of those claims, as far as Mars itself is concerned, in a legal sense is stated by *Mars Claim – Background and Strategy* as follows:

> If such an action could be sustained (frequent laser applications) over many years, then this activity (if combined with an administrative/governance plan for the Martian land) could perhaps satisfy a reasonable definition of de-facto possession of the barren land on Mars.

This "de-facto" possession" is then to somehow lead to "titled ownership" in the hope that "in perhaps 150 years, this claim [would] be successful in gaining title registration". Thus, a fundamental differentiation is inserted into the overarching claim of *The Martians* as between the present legal situation and a future one.

As for the **present legal situation**, *de facto*, that is factual, possession is an essentially non-legal subjective assessment of a real-life situation of control by someone over an asset or item. Such claim to factual possession may not be illegal *per se*, but that does not mean much as long as it has not been formally acknowledged as translating into *de jure*, that is properly legal, ownership. It is such legal ownership that brings with it the protection by law of all the rights following therefrom, that is property rights such as exclusive control and non-interference by others with the asset or item held in ownership, and allows legal owners to sue anyone infringing such property rights in appropriate courts and tribunals and to have any resulting judgements actually enforced.

In other circumstances and contexts, factual possession indeed could be and often was translated into *de jure*, that is properly legal, ownership. *Mars Claim – Background and Strategy* in this respect specifically references a 1963 paper by the international law scholar McDougal which "delineates, via case studies, the necessary strength of claims of possession that have been required to gain legal title to lands (on Earth) of varying geographical/geological quality" and proceeded to "consider(…) the possibility of national and private acquisitions of celestial land and the application of similar possession-criteria to define eligibility for land registration".

Beyond the claim directly based upon the physical activities of *The Martians*, *Mars Claim – Background and Strategy* advances two broader arguments for transformation of its claim of factual possession of 'land' on Mars into legal ownership:

(1) Private ownership of 'land' on Mars, including appropriate possibilities for non-harmful commercial exploitation of space resources and other private commercial activities, would help preserve the relevance of, and abidance by, the 1967 Outer Space Treaty, in particular in preserving the interests of peace and international security further to Articles III and IV in order "to keep us all safe from aggressive space weaponization".

(2) The international character of private ownership of a large number of individuals coming from many different countries all over the world as funnelled through *The Martians*, sometimes referred to by notions such as "an equitable pan-multinational claim", would avoid violation of the prohibition of "national [that is presumed to equate with 'single-nation'] appropriation" of Article II of the 1967 Outer Space Treaty, and would, more positively, align very well with the requirement of Article I that "[t]he 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".

The key role which the United Nations might then (have to) play in acting as holding "in trust" the "legal title to be registered to All Mankind" would serve as a further guarantee against 'single-nation' or other 'selfish' ownership with regard to land on Mars.

***However**: the merit of all such claims, and the extent therefore to which legal ownership of parts of Mars as aimed for by* The Martians *would be(come) feasible, ultimately is to be decided within the framework of international space law as analysed in paragraph 1, which gives rise to two major conclusions.*

First, the translation of factual possession into legal ownership is an important element of the law regarding the registration of land and ownership thereof by private entities or citizens in many countries – but rarely in exactly the same manner and/or to the same extent. This would also apply to the basic question whether the activities conducted by *The Martians* with respect to Mars and/or whether the broader arguments put forward by *Mars Claim – Background and Strategy* would or should indeed give rise to a formal recognition of legal ownership.

However, more importantly, as such registration and ownership of land remains a matter of national law applicable in each case to the territory of the country concerned only, pursuant in particular to Article II of the 1967 Outer Space Treaty also the granting of legal ownership on the basis of factual possession cannot be applied to outer space.

Second, in the absence of any specific clause in the Outer Space Treaty or other relevant globally applicable treaties formally 'importing' into outer space the possibility of private ownership of 'land', whether pursuant to a validated claim of *de facto* possession or otherwise, international space law does not currently substitute this sovereign right of individual countries to determine the legal regime for obtaining *de jure* ownership over land with an international regime allowing for such *de jure* ownership.

Apart from treaties, as reflected by Article 38(1) of the Statute of the International Court of Justice, generally considered to present the sources of public international law, "international custom, as evidence of a general practice accepted as law" could also give rise to such a legal regime providing for the possibility of private ownership of land in outer space. Yet, this remains theory so far as no evidence exists of either state practice or acceptance thereof as law on the matter: no single country, let alone the overwhelming majority of spacefaring nations, has ever indicated in the face of in particular Article II of the Outer Space Treaty that it condones or would condone such private ownership and/or acknowledge the grant thereof by another country to *its* citizens.

As for the **future legal situation**, the above analysis and conclusions of the present legal situation have been more or less acknowledged by *Mars Claim – Background and Strategy*, which then proceeds to argue that this may change in the future, for instance "in perhaps 150 years". For such a change to occur however, (one of) the specific developments with regard to the international legal framework addressed in more detail in paragraph 3 will be required; the elapse of time itself will not be sufficient to create this situation whereby *The Martians*' claim would "be successful in gaining title registration" and transform the factual possession into legal ownership and all it entails.

In sum: while the activities so far undertaken with respect to Mars by *The Martians* are not illegal under either international space law or domestic UK space law, including activities which could be argued to qualify as (at least an embryonic form of) factual possession, currently it is impossible to translate such factual possession into legal ownership by *The Martians* of parts of Mars – even merely prospectively.

3. Towards Realization of the Claims of *The Martians*?

As analysed in paragraph 2, the current state of international space law does not allow the claims of *The Martians* to 'land' on Mars to be translated into legal ownership. Not even the passage of time as such could give rise to such a transformation without further ado. Honouring even 'provisional', 'prospective' claims and providing a present-day registration thereof with legal value in terms of legal ownership would still run counter to the fundamental obligation under Article II of the 1967 Outer Space Treaty which is for countries to desist from any legal action which could be interpreted as claiming exclusive jurisdiction and control over (parts of) Mars, as it already takes a legal 'mortgage' on the future legal situation pertaining to the planet.

However, international space law is not 'written in stone', is not by definition eternally unchangeable, which raises the fundamental question of the possibilities for *The Martians* to change that body of law to accommodate possible future transformations of the current claims for factual possession into legal ownership.

Most fundamentally, further to Articles II, I and VI of the 1967 Outer Space Treaty as analysed before, such changes can only be brought about by sovereign nations acting together (as opposed to any intergovernmental organization, including the United Nations, or non-governmental organization such as *The Martians*) and if such changes are to apply comprehensively, without the opposition of the major spacefaring nations.

Of course, those changes should as much as possible take away the current legal obstacles to private ownership of land on Mars as analysed in paragraphs 1 and 2 in order to achieve the ultimate objective of *The Martians*. It is in this context that *The Martians* would have to use the meta-legal arguments already put forward to convince a sufficient number of major spacefaring countries of the appropriateness, fairness, and feasibility of its activities and approach. To reiterate, these meta-legal arguments as per *Mars Claim – Background and Strategy* were, succinctly phrased:

(1) factual possession by *The Martians* of parts of Mars would or should logically transform into legal ownership of those parts;

(2) private legal ownership over 'land' on Mars as per *The Martians*' aims would promote the use of outer space in the interest of peace and international security; and

(3) the approach to such private legal ownership taken by *The Martians* would ensure that all countries and their populations have a fair chance to benefit from the exploration and use of outer space as the "province of all mankind".

Generally speaking, there would be four possible paths to achieve such changes to the present regime of international space law, noting that they would not necessarily be mutually exclusive or even always easy to distinguish from each other.

First, countries always have the opportunity to conclude an entire new treaty creating new rules. To the extent such new rules would conflict, or potentially conflict, with existing rules pertaining to the same issue, the principle of *lex posterior derogat legi priori* ('later law supersedes earlier law on the same issue') would in principle ensure that the new treaty, at least for the countries ratifying it, would actually be successful in establishing a new regime. The major benefit of this approach is that a group of likeminded countries can relatively quickly agree on a new text.

However, when it comes to superseding (relevant parts of) the 1967 Outer Space Treaty by means of a new treaty, the principle of *lex posterior derogat legi priori* does not apply without further ado. The particular nature of the Outer Space Treaty as a foundational

document applicable to a certain 'geographical' realm and, in conjunction therewith, its generally recognized character as representing customary international law causes its provisions at least as a default to still apply also to countries that chose to draft a treaty deviating from those provisions.

Consequently, the new treaty could only fundamentally change the legal effect of such current provisions as provided by Articles II and I if an overwhelming majority of countries, in particular including (almost) all major spacefaring nations, would adhere to such a new treaty, so as to truly supersede the older regime. Until such overwhelming adherence would be achieved, any initial group of pioneering countries ratifying it would legally speaking find themselves in between two different and to some extent irreconcilable regimes they are supposed to both comply with at the same time. This would give rise to rather complex legal and meta-legal issues and developments which need not be further addressed here, but certainly will contribute to the unlikelihood that such an initiative will be undertaken, let alone be successful in the foreseeable future.

Second, less disruptive than the first path but still formalized in nature, countries can amend the 1967 Outer Space Treaty, notably of course Articles II and I, instead of trying to more fundamentally 'overwrite' it. Article XV provides in this respect: "Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it."

This approach by definition will involve also countries (at least initially) not interested in any change, likely causing (further) delays in terms of any amendment that carries the consent of at least a majority of the parties to the Outer Space Treaty. However, for the same reason it is more likely that a balanced agreement would result, which would thus be more likely to receive the consent of the international community at large, and the problems discussed above which would arise with regard to the current customary international law-status of especially Articles II and I would be lessened to that extent.

It has to be noted, nevertheless, that the general likelihood of a substantially relevant number of countries to discuss amendments to the Outer Space Treaty is currently fairly slim. Many countries fear that, in opening up the Treaty to amendments even in a context and to an extent which they, as such, might perhaps be sympathetic to, also many provisions which they consider of crucial importance for the future of peaceful and beneficial uses of outer space would be put on the table and thereby be put at risk.

Third, a much less formal and more limited path towards changing the international legal framework and environment would be to focus on a (re)interpretation of, especially, Articles II and I of the 1967 Outer Space Treaty, at least as a first step. Such a (re)interpretation would preferably take the form of a UN General Assembly Resolution. It would allow countries to declare that, without fundamentally doing away with the prohibition of actual "national appropriation" of a part of Mars or with the fundamental "freedom of exploration and use" also ruling on Mars and while acknowledging furthermore the continued application of other applicable rules of space law, some form of private ownership should be allowable.

Such a declaration could (and preferably should) also indicate how, for instance, proven factual possession of a sufficiently substantial nature, compliance with the lofty principle that "[t]he 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", and compliance with other relevant rules of international (space) law should allow for the acknowledgement of legal ownership.

Most importantly, in order for such an approach to work, however, the declaration should at least set out how proper registration of individual claims, in particular if successful, should be arranged – preferably at the international level. This would likely require a second step, given the general reluctance of sovereign nations to accept an international registration of valuable assets, even if there have been some successful examples in international law which may provide some guidance (as well as some hope) in this case.

Fourth, an incremental bottom-up approach might be tried, by which sympathetic individual countries would already allow under domestic law some form of registration, which for the time being should occur in a provisional manner in order not to violate straight away the key provisions of the 1967 Outer Space Treaty analysed before.

By thus carefully indicating the way ahead on the issue of possible private ownership of land on Mars, presumably limited to the general parameters of the approach which *Mars Claim – Background and Strategy* has set out, such countries can gauge the general reaction of the rest of the world community, can initiate or engage in international discussions as relevant, and potentially convince other countries to follow suit. If protests from other countries generally remain absent, the potential for a novel set of international rules on the issue by way of customary international law may arise, a process which also has some interesting precedents in general international law.

National law on matters of outer space and space activities certainly constitutes a major example of the "international custom, as evidence of a general practice accepted as law" that would create customary international law. Thus, the above approach may, if successful, ultimately lead to a change in the customary international law underlying the current Articles II and I of the Outer Space Treaty sufficient to effectively supersede the effects of those clauses.

Regardless of the (combination of) path(s) chosen, *The Martians* would, one way or another, have to use the meta-legal arguments provided by *Mars Claim – Background and Strategy* to convince the major spacefaring nations of the appropriateness, fairness, and feasibility of its plans for future ownership of 'land' on Mars.

It is in this context only that the United Nations, most notably COPUOS, might be useful to the extent of providing the (most obvious) forum for discussing, among relevant member countries, any future developments possibly accommodating *The Martians*' claims. This may or may not take the form of a regime allowing for a 'pan-multinational claim'. Yet, that again is ultimately for the member countries to decide – which holds true even more for any distinct role that these international organizations may be interested in, and capable of performing, as acting on behalf of the international community of nations as a whole for instance in the context of setting up a new regime providing the United Nations with some form of ownership over 'land' on Mars and/or an actual registration system to accommodate and regulate private ownership.

Whatever (combination of) approach(es) is taken, the largest chance of success would likely be to exclusively focus on Mars, singling that planet out as it were from the broader scope of the Outer Space Treaty in terms of addressing all celestial bodies and leaving, by that token, the applicability of the Treaty to, among others, the Moon untouched. In spite of its current marginal relevance in terms of international space law, it may be illustrative to note that the 1979 Moon Agreement in Article 1(1) contemplates such an

approach: "The provisions of this Agreement relating to the Moon shall also apply to other celestial bodies within the solar system, other than the Earth, except insofar as specific legal norms enter into force with respect to any of these celestial bodies."

Along the lines of any of the above approaches, wherever meeting all fundamental requirements as set out above, it would certainly be possible that appropriation of 'land' on Mars would ultimately become an accepted and legally codified phenomenon. *If* that will happen, the new paradigm might in turn well follow the moral, ethical and philosophical approach taken by *The Martians*, including as of today any 'provisional registration' of relevant claims, to establish the desired measure of legal ownership. *Whether* that will ultimately happen or not, and if so to what extent, is largely beyond the scope of this analysis focused on the current legal parameters and conditions.

In sum: while under current international space law the current impossibility to recognize any legal validity of *The Martians*' approach to private ownership of 'land' on Mars is not necessarily eternal in nature, it requires at least a large majority of major spacefaring nations to change that to the extent desired and necessary, where generally four paths would be available for those countries to proceed to the extent duly convinced by *The Martians* of the general appropriateness, fairness, and feasibility of its plans for future ownership of 'land' on Mars.