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# Case – Fusion F/L

**He-3 would cycle back into highly radioactive particles and not create any energy revolution**

**Close in 07** (Frank, theoretical physicist at Univ Oxford, “Fears over factoids”, http://physicsworld.com/cws/article/indepth/30679)

Given that the amount of helium-3 available on Earth is trifling, it has been proposed that we should go to the Moon to mine the isotope, which is produced in the Sun and might be blown onto the lunar surface via the solar wind. Apart from not even knowing for certain if there is any helium-3 on the Moon, there are two main problems with this idea – one obvious and one intriguingly subtle. The first problem is that, in a tokomak, deuterium reacts up to 100 times more slowly with helium-3 than it does with tritium. This is because fusion has to overcome the electrical repulsion between the protons in the fuel, which is much higher for deuterium– helium-3 reactions (the nuclei have one and two protons, respectively) than it is for deuterium– tritium reactions (one proton each). Clearly, deuterium–helium-3 is a poor fusion process, but the irony is much greater as I shall now reveal. A tokomak is not like a particle accelerator where counter-rotating beams of deuterium and helium-3 collide and fuse. Instead, all of the nuclei in the fuel mingle together, which means that two deuterium nuclei can rapidly fuse to give a tritium nucleus and proton. The tritium can now fuse with the deuterium – again much faster than the deuterium can with helium-3 – to yield helium-4 and a neutron. So by bringing helium-3 from the Moon, all we will end up doing is create a deuterium– tritium fusion machine, which is the very thing the helium aficionados wanted to avoid! Undeterred, some of these people even suggest that two helium-3 nuclei could be made to fuse with each other to produce deuterium, an alpha particle and energy. Unfortunately, this reaction occurs even more slowly than deuterium–tritium fusion and the fuel would have to be heated to impractically high temperatures that would be beyond the reach of a tokomak. And as not even the upcoming International Thermonuclear Experimental Reactor (ITER) will be able to generate electricity from the latter reaction, the lunar-helium-3 story – like the LHC as an Armageddon machine – is, to my mind, moonshine.

**Helium-3 would be useless once it is returned to the Earth from the moon – transporting the He3 destroys it**

Williams in 07 (Mark, writer for Technology Review published by MIT, “Mining the Moon”, 23 Aug, http://www.technologyreview.com/printer\_friendly\_article.aspx?id=19296)

Close points out that in a tokamak--a machine that generates a doughnut-shaped magnetic field to confine the superheated plasmas necessary for fusion--deuterium reacts up to 100 times more slowly with helium-3 than it does with tritium. In a plasma contained in a tokamak, Close stresses, all the nuclei in the fuel get mixed together, so what's most probable is that two deuterium nuclei will rapidly fuse and produce a tritium nucleus and proton. That tritium, in turn, will likely fuse with deuterium and finally yield one helium-4 atom and a neutron. In short, Close says, if helium-3 is mined from the moon and brought to Earth, in a standard tokamak the final result will still be deuterium-tritium fusion.

The Helium-3 fusion reaction would require heat six-times the sun, this is impossible to attain on earth

Williams in 07 (Mark, writer for Technology Review published by MIT, “Mining the Moon”, 23 Aug, http://www.technologyreview.com/printer\_friendly\_article.aspx?id=19296)

Second, Close rejects the claim that two helium-3 nuclei could realistically be made to fuse with each other to produce deuterium, an alpha particle and energy. That reaction occurs even more slowly than deuterium-tritium fusion, and the fuel would have to be heated to impractically high temperatures--six times the heat of the sun's interior, by some calculations--that would be beyond the reach of any tokamak. Hence, Close concludes, "the lunar-helium-3 story is, to my mind, moonshine."

Time frame for case solvency is 20-50 years – there is also no mapping of the *resources* on the moon extending the timeframe further

David in 10 (Leonard, Space.com columnist, “Is Mining Rare Minerals on the Moon Vital to National Security?”, 4 Oct, http://www.space.com/9250-mining-rare-minerals-moon-vital-national-security.html)

All this being said, a question: On the 20- to 50-year timeframe, are there valuable or strategic resources on the moon? "It is not possible to fully predict what will be important in the future, but I expect the answer is yes," Pieters said. "Resource knowledge is one aspect of lunar exploration that certainly drives the non-US space-faring nations. It is disappointing that planners in our [U.S.] space program have not invested in that scope or time scale," Pieters added. "Other than the flurry over looking for water in lunar polar shadows, no serious effort has been taken to document and evaluate the mineral resources that occur on Earth’s nearest neighbor. Frustrating!"

Seeking He-3 draws capital resources from effective solutions right now and drives the myth the our power shortage can be solved with a single source of power

Blankenhorn in 11 (Dana, business and technology reported, “Is Fusion a Threat?,” RenewableEnergyWorld.com, 6 May, http://www.renewableenergyworld.com/rea/blog/post/2011/05/is-fusion-a-threat)

The most audacious plan is from former astronaut and Senator Harrison Schmitt. He wants $15 billion to return to the Moon and mine its Helium-3, which could simplify the [fusion energy process](http://www.popsci.com/science/article/2011-05/former-apollo-astronaut-says-moon-mining-could-solve-global-energy-crisis). A third of the money would go into new heavy-lift vehicles, a third to a demonstration plant, and the remaining third to a Moon base and operating costs. What's wrong with all this? Nothing, in theory, except for two things: It competes with things that work for scarce capital, and could thus slow progress on things like the smart grid, needed to make intermittent resources as valuable as oil and gas are now. It continues the myth that only big point sources of power can scale to deal with our real problems.

**Helium-3 mining from the moon will not be affordable for several decades**

**Morrow in 11** (John, Writer, Quora.com, <http://www.quora.com/Just-how-feasible-is-to-mine-Helium-3-on-the-Moon/answer/John-Morrow>)

Economically feasible? Absolutely not. The cost of constructing and maintaining a moon base, plus the astronomical (pun intended) cost of actually transporting materials to and from the moon would render it utterly pointless. Current costs (depends on who you ask) are something like $5,000-$10,000 per pound to put something into low earth orbit - nowhere near the moon. Efforts are underway to lower that (some cool stuff being done in the private sector) but there is no conceivable way that you could do this economically anytime in the next several decades.

# Case – Nuke Detection F/L

Alternatives to He-3 exist now

McElroy in 10 (Molly, American Association for the Advancement of Science, “AAAS Workshop Explores How to Meet Demand for Helium-3 in Medicine, Industry, and Security,” 23 April, <http://www.aaas.org/news/releases/2010/0423helium3.shtml>)

Richard Kouzes, a laboratory fellow in the Pacific Northwest National Laboratory in Richland, Washington, said that alternatives for helium-3 for national security had to fit certain parameters. For instance, neutron detection systems have to physically fit into existing detection systems, which use long tubes containing helium-3. Some possible alternatives to helium-3 are detectors filled with boron trifluoride (BF3) or lined with boron, which are two “existing alternatives that can be deployed today,” Kouzes said. Plastic fibers coated with lithium-6 are another possible alternative. Kouzes has tested these alternatives and said that they potentially will work for deployment, but that they will require hardware and software modifications and integration testing.

New technologies are coming to the market that will greatly reduce demand for He-3 additionally new reserves are opening

McElroy in 10 (Molly, American Association for the Advancement of Science, “AAAS Workshop Explores How to Meet Demand for Helium-3 in Medicine, Industry, and Security,” 23 April, <http://www.aaas.org/news/releases/2010/0423helium3.shtml>)

Across all helilum-3 uses, AAAS workshop participants said that they could be more efficient at recovering existing and unused systems containing helium-3. Some industries, such as neutron detection systems for national security, have already made strides in developing alternatives that could be put into use soon while other industries have some ideas for alternatives. “While the demand for helium-3 from the post-9/11 homeland security sector is pretty large, we’ve seen dramatic growth in the uses of helium-3 in several different industries,” said Tannenbaum, the workshop organizer. “It’s unfortunate that all of these demands came online at about the same time, and all well after we stopped making the tritium that decays to helium-3. “In the short-term, things may look bleak for the sectors that rely on helium-3. However, several exciting new non-helium-3 technologies are coming on line in the next 12-18 months that will significantly decrease demand, and we should soon see some new helium-3 supplies come on to the market.”

He-3 extracted from natural gas is more efficient and produces up to 5 million liters in the US alone

Shea and Morgan in 10 (Dana and Daniel, Specialists in Science and Technology for the Congressional Research Service, “The Helium-3 Shortage: Supply, Demand, and Options for Congress,” Congressional Research Service, http://assets.opencrs.com/rpts/R41419\_20101222.pdf)

Natural gas reservoirs typically contain impurities as well as the primary component of natural gas, methane. In some cases, these impurities include significant amounts of helium (up to several percent). Suppliers of natural gas often extract this helium in order to increase the energy content of their natural gas and improve its combustion. When a reservoir is relatively helium-rich, it can be economic to purify the extracted helium and sell it as a commodity. In fact, natural gas is the primary commercial source of helium. Domestic natural gas producers extract approximately 80 billion liters of helium each year. 32 Since 1960, the federal government has maintained a stockpile of raw (unpurified) helium at a facility near Amarillo, Texas. 33 The original purpose of the stockpile was to ensure the availability of helium for national security uses. In the Helium Privatization Act of 1996 (P.L. 104-273), Congress mandated the sale of all but a small portion of the stockpile by 2015. At the end of FY2009, however, more than 500 billion liters of helium remained in the stockpile. 34 Helium extracted from natural gas, including helium stored in the national helium stockpile, consists mostly of helium-4 but also includes a small proportion of helium-3. The natural gas industry has not historically separated the helium-3 from the helium-4 because, until recently, the federal supply of helium-3 was perceived to be already greater than the likely demand. An important cost consideration is that some of the processes required to extract helium-3 from natural gas are already undertaken in the production of natural gas and commodity helium. Helium-containing natural gas is purified by liquefaction—cooling it to a temperature at which the natural gas becomes liquid but the helium remains a gas. The helium is separated and then purified by further liquefaction—cooling to a still lower temperature at which the impurities become liquid. The most likely processes for separating helium-3 from helium-4 take place at even lower temperatures, so the fact that helium produced from natural gas is already very cold becomes an important cost advantage. If separation of helium-3 from natural gas took place in conjunction with other natural gas processing, much of the energy required for cooling, and much of the cost of infrastructure and equipment for liquefaction and separation, would already be built into the cost of processing the natural gas. Separation of helium-3 from helium-4 has been demonstrated on a laboratory scale. 35 Public or private investment in process engineering and development would likely be needed before moving to full-scale production. The amount of helium-3 that could be extracted on a large scale would depend on several factors: access to helium supplies, the proportion of helium-3 in the source helium, the capacity of the processing equipment, and the efficiency of the extraction process. The U.S. Geological Survey estimates total U.S. helium reserves and resources to be 20.6 trillion liters. 36 Natural gas reservoirs vary in the proportion of helium-3 they contain. A study conducted in 1990 by the Department of the Interior found ratios of helium-3 to helium-4 that ranged from 70 to 242 parts per billion. 37 These figures imply U.S. helium-3 reserves and resources of between 1 and 5 million liters. 38 Because of the factors discussed above, any cost estimate for helium-3 extraction from natural gas is inexact. According to one estimate, the energy cost, not including the cost of infrastructure and equipment, might be about $12,000 per liter. 39 Most of this cost, however, would be to separate the commodity helium from the natural gas. Starting with cooled commodity helium, in conjunction with regular natural gas processing, the incremental energy cost of separating out the helium-3 might be $300 per liter. 40 Another source estimates $34 per liter, again excluding the cost of infrastructure and equipment. 41 The difference between these two estimates appears to be their different assumptions about heat exchange efficiency, an issue whose resolution may require development of a prototype processing system. Over and above these energy costs, the cost of a helum-3 extraction plant is estimated to be tens of millions of dollars. 42 Although U.S. helium-3 reserves and resources are large, the rate at which refiners already extract commodity helium from natural gas limits the amount of helium-3 that could be available per year at the lower cost range ($34 or $300 per liter plus infrastructure and equipment). According to one expert, separating helium-3 from all domestically produced helium would make available about 26,000 liters of helium-3 per year. 43 Producing more than this amount would draw on natural gas that would not otherwise be processed to extract commodity helium, and as a result, the higher cost estimate ($12,000 per liter plus infrastructure and equipment) would apply.

# Case – China F/L

**China is seen as a threat to recreate the fantasy of a bi-polar world this construction ensures unnecessary violence**

**Pan in 2004** (Chengxin, Political Science Prof@ Australian National University, “*The China Threat” in American Self-Imagination: The Discursive Construction of Other as Power Politics*, Alternatives, vol 29 pp. 305-331, ebsco)

Thus understood, by its very uncertain character, China would now automatically constitute a threat to the United States. For example, Bernstein and Munro believe that "China's political unpredictability, the always-present possibility that it will fall into a state of domestic disunion and factional fighting," constitutes a source of danger.s^ In like manner, Richard Betts and Thomas Christensen write: If the PLA [People's Liberation Army] remains second-rate, should the world breathe a sigh of relief? *Not entirely. . . .* Drawing China into the web of global interdependence may do more to encourage peace than war, but it *cannot guarantee* that the pursuit of heartfelt political interests will be blocked by a fear of economic consequences. . . . U.S. efforts to create a stable balance across the Taiwan Strait might deter the use of force under certain circumstances, but certainly not all.54 The upshot, therefore, is that since China displays no absolute certainty for peace, it must be, by definition, an uncertainty, and hence, a threat. In the same way, a multitude of other unpredictable factors (such as ethnic rivalry, local insurgencies, overpopulation, drug trafficking, environmental degradation, rogue states, the spread of weapons of mass destruction, and international terrorism) have also been labeled as "threats" to U.S. security. Yet, it seems that in the post-Cold War environment, China represents a kind of uncertainty par excellence. "Whatever the prospects for a more peaceful, more democratic, and more just world order, nothing seems more uncertain today than the future of post-Deng China,"55 argues Samuel Kim. And such an archetypical uncertainty is crucial to the enterprise of U.S. self-construction, because it seems that only an uncertainty with potentially global consequences such as China could justify U.S. indispensability or its continued world dominance. In this sense, Bruce Cumings aptly suggested in 1996 that China (as a threat) was basically "a metaphor for an enormously expensive Pentagon that has lost its bearings and that requires a formidable 'renegade state' to define its mission (Islam is rather vague, and Iran lacks necessary weights)."

**US discourse on China is a self-fulfilling prophesy – while pretending to be objective these discourses are predetermined for war**

**Pan in 2004** (Chengxin, Political Science Prof@ Australian National University, “*The China Threat” in American Self-Imagination: The Discursive Construction of Other as Power Politics*, Alternatives, vol 29 pp. 305-331, ebsco)

More specifically, I want to argue that U.S. conceptions of China as a threatening other are always intrinsically linked to how U.S. policymakers/mainstream China specialists see themselves (as representatives of the indispensable, security-conscious nation, for example). As such, they are not value-free, objective descriptions of an independent, preexisting Chinese reality out there, but are better understood as a kind of normative, meaning-giving practice that often legitimates power politics in U.S.-China relations and helps transform the "China threat" into social reality. In other words, it is self-fulfilling in practice, and is always *part* of the "China threat" problem it purports merely to describe. In doing so, I seek to bring to the fore two interconnected themes of self/other constructions and of theory as practice inherent in the "China threat" literature—themes that have been overridden and rendered largely invisible by those common positivist assumptions. These themes are of course nothing new nor peculiar to the "China threat" literature. They have been identified elsewhere by critics of some conventional fields of study such as ethnography, anthropology, oriental studies, political science, and international relations.\* Yet, so far, the China field in the West in general and the U.S. "China threat" literature in particular have shown remarkable resistance to systematic critical reflection on both their normative status as discursive practice and their enormous practical implications for international politics. It is in this context that this article seeks to make a contribution.

# China Extensions

**The realist understand of China is based on essentialist and ahistorical interpretations of China**

**Pan in 2004** (Chengxin, Political Science Prof@ Australian National University, “*The China Threat” in American Self-Imagination: The Discursive Construction of Other as Power Politics*, Alternatives, vol 29 pp. 305-331, ebsco)

Having examined how the "China threat" literature is enabled by and serves the purpose of a particular U.S. self-construction, I want to turn now to the issue of how this literature represents a discursive construction of other, instead of an "objective" account of Chinese reality. This, I argue, has less to do with its portrayal of China as a threat per se than with its essentialization and totalization of China as an externally knowable object, independent of historically contingent contexts or dynamic international interactions. In this sense, the discursive construction of China as a threatening other cannot be detached from (neo)realism, a positivist. ahistorical framework of analysis within which global life is reduced to endless interstate rivalry for power and survival. As many critical IR scholars have noted, (neo) realism is not a transcendent description of global reality but is predicated on the modernist Western identity, which, in the quest for scientific certainty, has come to define itself essentially as the sovereign territorial nation-state. This realist self-identity of Western states leads to the constitution of anarchy as the sphere of insecurity, disorder, and war. In an anarchical system, as (neo) realists argue, "the gain of one side is often considered to be the loss of the other,"'' and "All other states are potential threats."' In order to survive in such a system, states inevitably pursue power or capability. In doing so, these realist claims represent what R. B. J. Walker calls "a specific historical articulation of relations of universality/particularity and self/Other." The (neo) realist paradigm has dominated the U.S. IR discipline in general and the U.S. China studies field in particular. As Kurt Campbell notes, after the end of the Cold War, a whole new crop of China experts "are much more likely to have a background in strategic studies or international relations than China itself. "" As a result, for those experts to know China is nothing more or less than to undertake a geopolitical analysis of it, often by asking only a few questions such as how China will "behave" in a strategic sense and how it may affect the regional or global balance of power, with a particular emphasis on China's military power or capabilities. As Thomas J. Christensen notes, "Although many have focused on intentions as well as capabilities, the most prevalent component of the [China threat] debate is the assessment of China's overall future military power compared with that of the United States and other East Asian regional powers."'' Consequently, almost by default, China emerges as an absolute other and a threat thanks to this (neo) realist prism.

**The construction of China as a threat is necessary for the US to feel like it has a reason for being – it is a gaurentee of conflict for no reason**

**Pan in 2004** (Chengxin, Political Science Prof@ Australian National University, “*The China Threat” in American Self-Imagination: The Discursive Construction of Other as Power Politics*, Alternatives, vol 29 pp. 305-331, ebsco)

Certainly, I do not deny China's potential for strategic misbehavior in the global context, nor do I claim the "essential peacefulness" of Chinese culture." Having said that, my main point here is that there is no such thing as "Chinese reality" that can automatically speak for itself, for example, as a "threat." Rather, the "China threat" is essentially a specifically social meaning given to China by its U.S. observers, a meaning that cannot be disconnected from the dominant U.S. self-construction. Thus, to fully understand the U.S. "China threat" argument, it is essential to recognize its autobiographical nature. Indeed, the construction of other is not only a product of U.S. self-imagination, but often a necessary foil to it. For example, by taking this *particular* representation of China as Chinese reality per se, those scholars are able to assert their self-identity as "mature," "rational" realists capable of knowing the "hard facts" of international politics, in distinction from those "idealists" whose views are said to be grounded more in "an article of faith" than in "historical experience."41 On the other hand, given that history is apparently not "progressively" linear, the invocation of a certain other not only helps explain away such historical uncertainties or "anomalies" and maintain the credibility of the allegedly universal path trodden by the United States, but also serves to highlight U.S. "indispensability." As Samuel Huntington puts it, "If being an American means being committed to the principles of liberty, democracy, individualism, and private property, and if there is no evil empire out there threatening those principles, what indeed does it mean to be an American, and what becomes of American national interests?" In this way, it seems that the constructions of the particular U.S. self and its other are always intertwined and mutually reinforcing.

\*\*\*DA’s\*\*\*

# Politics/Spending DA Link

**The NASA budget cannot be further expanded – a minimum increase of $3 billion every year would be needed to move beyond LEO by 2020**

**Chyba in 11** (Christopher, planetary scientist, Senate Committee on Commerce testimony, 19 May, <http://www.spaceref.com/news/viewsr.html?pid=37102>)

The Committee examined NASA's existing architecture for going beyond low- Earth orbit--the Constellation program--and concluded that Constellation could not be executed at planned budget levels. The reasons for this were primarily budgetary. These included that Constellation's Exploration Systems Architecture Study (ESAS) of 2005 assumed that human spaceflight funding would increase until reaching a steady state of about $10 billion per year. But the first post-ESAS budget, the FY 2007 budget, provided significantly lower funding for the Ares I rocket and the Orion crew vehicle than ESAS had anticipated. Pushing programs out into the future always increases costs. Differences between anticipated and actual budgets, plus technical problems in the Ares I and Orion programs, had significant impact. The FY 2009 budget was lower than that anticipated by ESAS by at first $1 billion per year, and then lower with a growing disparity that reached $2 billion per year in the steady state. The FY 2010 President's Budget Submittal was lower still, anticipating a final steady state level of funding of about $7 billion per year-- some $3 billion below the annual $10 billion against which ESAS had originally planned. Moreover, it was intended that Shuttle would complete its final flight in 2010, and that the International Space Station (ISS) program would be terminated in early 2016, with corresponding savings becoming available for Constellation. But the ISS termination itself was not budgeted. Yet termination would have to entail the safe de- orbiting of this 350 metric ton structure, requiring either the design, construction and flight of a new de-orbit module to accomplish this task, or the piecemeal de-orbit of the structure via disassembly.3 Taking all this into account, the Human Spaceflight Committee concluded that under the FY 2010 funding profile, the Constellation program would at the least be greatly stretched out in time. The planned heavy-lift vehicle (Ares V) would not be available until the late 2020s, and lunar return could not occur until well into the 2030s, if at all. In short, the Constellation program was not executable at its existing budget. The Committee considered a variety of integrated scenarios: Constellation and variations thereof; less demanding returns to the Moon; and a scenario of increasing deep-space capability that it called "the flexible path." Five principal integrated options (with sub-options) were evaluated against twelve metrics, including science knowledge, technology innovation, economic expansion, workforce impact, public engagement, and mission safety.4 The flexible path had the budget profile advantage of not requiring the simultaneous development of both heavy-lift capability and lunar-landing vehicles. But no architecture would provide missions beyond LEO until close to 2030 under the FY 2010 budget profile. In historical context, this is not surprising. A plot of the human spaceflight annual budget (in FY 2009 dollars) through time shows a sustained peak during the Apollo years in the 1960s of nearly $20 billion per year. That budget is now, and has been for nearly two decades, at a level of half this or less. The Committee concluded that sending astronauts beyond LEO in the 2020s would require ramping up to a steady-state augmentation of NASA's budget by some $3 billion per year.

\*\*\*Property Rights CP\*\*\*

# 1NC

TEXT: The United States federal government should enter into a treaty with other space fairing nations. The treaty would set up an international lunar land management office that would divide the lunar surface into parcels. These parcels, including mineral rights, would be sold to private entities for 99-year leases, to be renewed if and when the parcel is being developed including: mining facility, settlement, or other infrastructure.

The moon will never be mined effectively until a new space treaty is signed

Wall in 11 (Mike, editor of Space.com, “Moon Mining Idea Digs Up Lunar Legal Issues”, 13 Jan, http://www.space.com/10621-moon-mining-legal-issues.html)

While the Outer Space Treaty likely allows mining, it does not set up a system granting explicit title to the extracted resources, according to Nelson. That ambiguity may not cause problems during mining operations, but it could be an issue when companies try to sell the resources. "If you're pouring billions of dollars into extracting something of value, you don't want the risk that a bunch of people are going to sue you, or boycott you, or sanction you if you take it to market," Nelson said. White thinks that companies probably can claim ownership, under the Outer Space Treaty, of the ice they mine from a lunar crater. But he agrees that there is a bit of fuzziness — and fuzziness is daunting to big-dollar operations. "If you really are talking about a multibillion-dollar endeavor, if I were the lawyer for that company, I would say, 'Don't make that [investment](http://www.space.com/10621-moon-mining-legal-issues.html) until we have legislation in place,'" White said. Comprehensive new legislation should aim to take the ambiguity out, White added. "Ideally, you'd really need to do property rights, mining law and salvage law all in one package, because some of the elements are common to all three," he said. Some space entrepreneurs agree that resources on the moon and other celestial bodies won't be used to their full extent unless companies have explicit property rights and title.

**An international agreement that created property rights would allow the best mining of the moon**

**Reynolds in 08** (Glenn, Popular Mechanics contributing Editor, “Who Owns the Moon? The Cause for Lunar Property Rights,” *Popular Mechanics*, 1 June, <http://www.popularmechanics.com/science/space/moon-mars/4264325>)

Ideally, title would be recognized by an international agreement that all nations would endorse. The 1979 Moon Treaty was a flop, but there's no reason the space powers couldn't agree on a new treaty that recognizes property rights and encourages investment. After all, the international climate has warmed to property rights and capitalism over the past 30 years. I'd like to see something along these lines. Property rights attract private capital and, with government space programs stagnating, a lunar land rush may be just what we need to get things going again. I'll take a nice parcel near one of the lunar poles, please, with a peak high enough to get year-round sunlight and some crater bottoms deep enough to hold ice. Come visit me sometime!

**Ownership rights would create the fastest regime for lunar mining**

**Coffey in 08** (Sarah, Executive Articles Editor of the *Case Western Reserve Journal of International Law*, “Establishing a Legal Framework for Property Rights to Natural Resources in Outer Space,” *Case Western Reserve Journal of International Law* v 14:199, <http://www.case.edu/orgs/jil/vol.41.1/41_Coffey.pdf>)

Ownership rights would also provide incentives for expeditions to make the initial treks to the moon. The first expeditions to mine the moon are likely to be the costliest, with ventures prospecting sites, setting up bases, and generally learning from the initial successes and failures that come with being the first humans to work on another celestial body. Ventures that wait, however, will learn from the mistakes of earlier missions and benefit from the knowledge that they have acquired. Under the OST, later ventures would have access to the initial expeditions’ equipment and resources under reciprocity, and the lack of the right to exclude under the OST means that the later ventures could mine the same sites that the earlier ventures found and started. Providing ownership rights to real estate on the moon would prevent these problems. Interested ventures would want to begin their expeditions as soon as possible in order to claim prime real estate and prevent its use by others. Absent an agreement with another expedition, they would need to establish their own base and provide their own resources, which means they gain no advantage by waiting for other ventures to be established. Another advantage is that ownership would allow a free market to develop in property rights. 143 Ventures could buy and sell their facilities in space, so ventures which were unsuccessful in their mining or other commercial goals would have residual value in facility and property rights, which they could sell to recoup expenses.

Leasing the lunar surface would increase the global economy

Whittington in 10 (Mark, author of Children of Apollo and freelance journalist YahooNews, “Privatize government, lease the moon to trim the deficit”, 22 Nov, http://news.yahoo.com/s/ac/20101122/us\_ac/7248226\_outofthebox\_budget\_solutions\_privatize\_government\_lease\_the\_moon)

The Earth's moon isn't usually regarded as an economic asset, but recent scientific discoveries may change that point of view. Recent lunar robotic missions have discovered water on the moon in vast quantities, enough to support a settlement and to provide fuel for space craft voyaging deeper into the solar system. [A Missouri University of Science and Technology researcher, Dr. Leslie Gertsch, suggests](http://us.rd.yahoo.com/dailynews/ac/us_ac/storytext/7248226_outofthebox_budget_solutions_privatize_government_lease_the_moon/38689713/SIG=131r90ld8/*http://www.space-travel.com/reports/Mining_On_The_Moon_Is_A_Not_So_Distant_Possibility_999.html) that lunar mining will not only become economically viable, but will be essential to the long term survival of the human species. Gertsch not only points out the discovery of water, but also the possibility that the moon has deposits of rare-earth minerals such as lithium, useful for a variety of technology, including modern batteries. The lunar surface is not only land not owned by any private person or corporation, but is not subject to the sovereignty of any nation under the Outer Space Treaty. But for the economic development of the moon to take place, some kind of mechanism needs to be found in the form of a new treaty to be concluded by space faring countries like the United States, the European Union, and others to manage economic development and private property on the moon. The treaty would set up an international lunar land management office that would divide the lunar surface into parcels. These parcels, including mineral rights, would be sold to private entities for 99-year leases, to be renewed if and when the parcel is "homesteaded" by a mining facility, settlement, or other infrastructure. The proceeds of such sales would be divided up by the participating countries in the treaty. In return, the countries in the treaty would defend the property rights of private investors.

# Cooperation Net Benefit

**Chinese space development inevitable – cooperation is key to stop future war**

**David in 06** (Leonard, Senior Space Writer, “U.S.-China Cooperation: The Great Space Debate,” *Space.com*, <http://www.space.com/2284-china-cooperation-great-space-debate.html>)

"China civil space plans are ambitious and inevitable," said Joseph Fuller, Jr., President and Chief Executive Officer of the Futron Corporation based in Bethesda, Maryland. "It is not a question of if, but when. For the U.S. exploration vision to succeed on a grand scale, it must include China, India, Russia and other space faring nations," he said. "Substantial collaboration already exists in business and economics," Fuller said, "why not civil space?" As China expands its automated and human spaceflight abilities, how best should the United States look upon this blossoming work--from a military/civilian perspective? Denying NASA and U.S. space commercial vendors the right to work with China is a political, not a security issue, said James Clay Moltz, Deputy Director, Center for Nonproliferation Studies and Professor of International Policy Studies at the Monterey Institute of International Studies in Monterey, California. "Space station technologies are available from other suppliers and are unlikely to lead to any meaningful military advantages," Moltz explained. "On the other hand, forcing China to develop its own space station with Russian or other partners simply sets up a possible competitor where there doesn't need to be one." Moltz told *SPACE.com* that cooperating with China would defuse possible tensions, promote cost-savings for NASA, and level the playing field for U.S. companies. The United States should continue to hold China to account for human rights violations and other problems, but not hold space hostage. "It's simply not in U.S. interests," he said.

**US unilateral space action will not create an effective space law regieme and will lead to conflict**

**Cook in 99** (Kevin, J.D. from Georgetown Law, “The Discovery of Lunar Water: An Opportunity to develop a Workable Moon Treaty,” *Georgetown International Environmental Law Review*, Spring, l/n)

The fourth potential alternative, that of unilateral action by the United States, is not recommended. For technical, economic, and political reasons, the United States is in the leadership position for space exploration. It is possible that the United States could advocate a system of outer space property rights similar to that taken in the Deep Seabed Hard Mineral Resources Act of 1980. [n369](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n369) However, such a unilateral approach will do little to advance the body of international space [\*701]  law and will likely generate a perception on the part of the developing countries that their rights are being threatened. [n370](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n370) The other space-faring states might also take offense at unilateral claims to space resources by the United States. Additionally, the negative repercussions of a unilateral approach could threaten future cooperative ventures, which may be the mode of choice for space development because of the enormous economic and technical investments required.[n371](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n371) Lastly, the uncertainty regarding whether other states would recognize and respect unilateral claims would still cause a chilling effect on private investment.

**Lunar property rights are key to stopping war**

**Cook in 99** (Kevin, J.D. from Georgetown Law, “The Discovery of Lunar Water: An Opportunity to develop a Workable Moon Treaty,” *Georgetown International Environmental Law Review*, Spring, l/n)

The exploitation of outer space, however, is about more than just the maximization of profits. Space offers a chance for humanity to create a new paradigm that avoids the conflicts of the past and promotes peace. [n54](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n54) The American Apollo program, in the words of physicist Freeman Dyson, was the "moral equivalent of war," offering a "bloodless technological competition" with the Soviet Union. [n55](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n55) That paradigm of bloodless conflict has shifted into a new model of international cooperation and joint business ventures, as demonstrated by the multinational launch industry and the International Space Station. [n56](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306871865928&returnToKey=20_T12074365528&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.93471.10586678497" \l "n56) The development of the natural resources of outer space offers another avenue for international cooperation, with the added advantage that moving resource extraction operations off-planet also can reduce environmental impacts here on Earth and protect the terrestrial environment. However, the primary driver for development of outer space resources will be economic gain, and without a stable and predictable legal  [\*656]  regime to foster such profit-making ventures, the ancillary societal benefits that can be derived from space will never be realized.

**Unregulated competition over He-3 leads to nuclear war**

**Beljac in 08** (Marko, professor University of Melbourne, “Arms Race in Space,” *Foreign Policy in Focus*, 31 March, <http://www.fpif.org/articles/arms_race_in_space>)

As noted, China has tested an anti satellite weapon and Russia has stated that it would not allow other states to control space and threaten its own space assets. In Asia a nascent space race seems to be developing between China, Japan and India. In the far future the large deposits of Helium-3 on the moon's surface could lead to a militarized race to colonize the moon to secure Helium-3 for nuclear fusion energy technologies based on anuetronic fusion reactions in the context of depleting hydro-carbons. Washington argues that it has too much commercially riding on space to allow others to have the potential capability of disrupting U.S. space assets. In 1998 the failure of one satellite, the Galaxy IV, made some 80% of pagers in the U.S. malfunction. Though the latest Russian and Chinese space arms control proposal is flawed, because of the clumsy definition of what constitutes a “space weapon,” this doesn’t mean that space arms control is not possible in principle. A global space arms control regime would protect U.S., Russian, Chinese, and even Australian space assets. An arms race in space will eventually lead other states to catch up with the United States and thereby placing Washington's commercial satellites at risk. Space weaponization may well have cataclysmic consequences given the link between space weapons and nuclear weapons strategy. This is because Russia, and the United States, to a certain extent rely on satellites for early warning of nuclear attack. As other space nations with nuclear weapons develop their space capacity it is expected that they will follow suit. The deployment of space weapons means that the first shot in a nuclear war would be fired against these early warning satellites. Currently strategic planners in Moscow have about 10 minutes between warning of an attack and the decision to launch nuclear weapons in response before they impact. Weapons in space would lower this in certain scenarios down to seconds. This would also apply for weapons placed in space that would be considered to be defensive such as say a space based BMD interceptor or a “counter-ASAT” weapon. On occasion, ground warning radars falsely show that a nuclear attack has been launched. In the 1990s a false alarm went all the way up to President Boris Yeltsin and was terminated after approximately eight minutes. We are still here, noted analysts believe, because warning satellites would have given Moscow real time information showing the alarm to be false. Should such a false alarm coincide with an accident involving an early warning satellite when space weapons are known to exist, an accidental nuclear exchange could result. The risk would increase if the false alarm occurred during a crisis. Space weapons could lead to itchy fingers on nuclear triggers. They would therefore significantly increase the importance nuclear weapon states place upon nuclear deterrence.

# Mars Colonization Net Benefit

Moon colonization should be handled through a international corporation this would enable more efficient Mars colonization

Kaplan in 10 (Jeremy, Fox News, “Buzz Aldrin Dreams of Mars”, http://buzzaldrin.com/buzz-aldrin-dreams-of-mars/)

“The U.S. has the most experience in the world, of any nation, in dealing with the moon,” he told FoxNews.com. “It doesn’t take a rocket scientist to see that flexibility is needed here.” Aldrin endorses the formation of an International Lunar Development Corporation to begin commercial enterprises on the moon. And a broad collation of governments — Russia, China, India, the U.S., and others — should form this quasigovernmental organization, which would help private enterprises capitalize on the lunar resources. Together, these nations can build that lunar gas station. “Who should send up the propellant? China, India, Europe. We’re going to Mars, we need propellant. And we could buy propellant from them at our moon gas station,” he told Vanity Fair in June. There are real commercial activities that private enterprises could develop on the moon as well: Helium 3 can be mined, and heavy metal meteorites could be a source of rare earth metals. And the presence of water ice would make great rocket fuel — and rocket fuel is gets us to Mars. Aldrin thinks that base could form part of a transportation infrastructure that would enable us to get to near Earth objects such as asteroids, Martian moon Phobos, even Mars itself and beyond. The space legend, who is launching a new think tank called U.S.S. Enterprise — which stands for Unified, Strategic, Space Enterprise — believes NASA should think about all of the planets for the most efficient travel across the solar system. And a key item for America should be a permanent base on Phobos. “Every twenty-six months, there’s a window of going to Mars that may last for about a month or so. It just so happens that there’s an opportunity to put a habitat on Mars in the fall of 2022,” he told Vanity Fair. “In the spring of 2025, I send a crew and they stay for a year and a half, and then I bring them back. I send another crew in ‘27 and then I bring them back. I send another crew there in ‘29, and they stay. And then in ‘31 I send six more people, three to one of the moons of Mars and three directly to Mars, and now I’ve got nine people there. I can add six every twenty-six months,” he said. The ultimate goal: a permanent presence on Mars, enabled by a system of spacecraft that cycle from Earth to Mars and back. A permanent habitation served by a permanent transportation system. In this dream, a lunar base is useful, but merely a means to an end, Aldrin told FoxNews.com. “For decades, we’ve been misdefining our transitional space programs,” Aldrin said. “A vision like in the early days of the space race showing the logical progression from Mercury to Gemini to Apollo is what is needed today to show why we need to go to Mars — and how we will get there.”

**China is the key partner in Mars colonization**

**Svitak in 11** (Amy, Space.com advisor, “Obama sees China as a partner in Mars mission,” *MSNBC News*, 6 May, <http://www.msnbc.msn.com/id/42934529/ns/technology_and_science-space/>)

U.S. President Barack Obama views China as a potential partner for an eventual human mission to Mars that would be difficult for any single nation to undertake, a senior White House official told lawmakers. Testifying May 4 before the House Appropriations subcommittee on commerce, justice and science, White House science adviser John Holdren said near-term [engagement with China](http://www.space.com/11592-china-space-station-tiangong-details.html) in civil space will help lay the groundwork for any such future endeavor. He prefaced his remarks with the assertion that human exploration of Mars is a long-term proposition and that any discussion of cooperating with Beijing on such an effort is speculative. "(What) the president has deemed worth discussing with the Chinese and others is that when the time comes for [humans to visit Mars](http://www.space.com/11417-mars-missions-space-travel-challenges.html), it's going to be an extremely expensive proposition and the question is whether it will really make sense — at the time that we're ready to do that — to do it as one nation rather than to do it in concert," Holdren said in response to a question from Rep. Frank Wolf, R-Va., a staunch China critic who chairs the powerful subcommittee that oversees NASA spending. Holdren, who said NASA could also benefit from cooperating with China on detection and tracking of orbital debris, stressed that any U.S. collaboration with Beijing in manned spaceflight would depend on future Sino-U.S. relations. "But many of us, including the president, including myself, including (NASA Administrator Charles) Bolden, believe that it's not too soon to have preliminary conversations about what involving China in that sort of cooperation might entail," Holdren said. "If China is going to be, by 2030, the biggest economy in the world … it could certainly be to our benefit to share the costs of such an expensive venture with them and with others."

**Colonizing Mars is essential to the survival of humanity**

**Associated Press in 10** (“’To Boldly Go’: Scientists suggest humans colonize Mars in case of disaster on Earth,” <http://www.pennlive.com/midstate/index.ssf/2010/11/to_boldly_go_scientists_sugges.html>)

"The main point is to get Mars exploration moving," said Dirk Schulze-Makuch of Washington State University, who wrote [the article in the latest Journal of Cosmology](http://journalofcosmology.com/Mars108.html) with Paul Davies of Arizona State University. The colleagues state — in one of 55 articles in the issue devoted to exploring Mars — that humans must begin colonizing another planet as a hedge against a catastrophe on Earth. Mars is a six-month flight away, possesses surface gravity, an atmosphere, abundant water, carbon dioxide and essential minerals. They propose the missions start by sending two two-person teams, in separate ships, to Mars. More colonists and regular supply ships would follow. The technology already exists, or is within easy reach, they wrote. An official for [NASA said the space agency envisions manned missions to Mars](http://mars.jpl.nasa.gov/) in the next few decades, but that the planning decidedly involves round trips. President Obama informed NASA last April that he "'believed by the mid-2030s that we could send humans to orbit Mars and safely return them to Earth. And that a landing would soon follow,'" said agency spokesman Michael Braukus. No where did Obama suggest the astronauts be left behind. "We want our people back," Braukus said. Retired Apollo 14 astronaut Ed Mitchell, who walked on the Moon, was also critical of the one-way idea. "This is premature," Mitchell wrote in an e-mail. "We aren't ready for this yet." Davies and Schulze-Makuch say it's important to realize they're not proposing a "suicide mission." "The astronauts would go to Mars with the intention of staying for the rest of their lives, as trailblazers of a permanent human Mars colony," they wrote, while acknowledging the proposal is a tough sell for NASA, with its intense focus on safety. They think the private sector might be a better place to try their plan. "What we would need is an eccentric billionaire," Schulze-Makuch said. "There are people who have the money to put this into reality." Indeed, [British tycoon Richard Branson](http://www.breitbart.com/article.php?id=080728181832.5lx2cazr&show_article=1), [PayPal founder Elon Musk](http://www.businessinsider.com/elon-musks-space-company-spacex-raises-another-50-million-2010-11) and Amazon.com Inc. CEO Jeff Bezos are among the rich who are involved in private space ventures. Isolated humans in space have long been a staple of science fiction movies, from "Robinson Crusoe on Mars" to "2001: A Space Odyssey" to a flurry of recent movies such as "Solaris" and "Moon." In many of the plots, the lonely astronauts fall victim to computers, madness or aliens. Psychological profiling and training of the astronauts, plus constant communication with Earth, will reduce debilitating mental strains, the two scientists said. "They would in fact feel more connected to home than the early Antarctic explorers," according to the article. But the mental health of humans who spent time in space has been extensively studied. Depression can set in, people become irritated with each other, and sleep can be disrupted, the studies have found. The knowledge that there is no quick return to Earth would likely make that worse. Davies is a physicist whose research focuses on cosmology, quantum field theory, and astrobiology. He was an early proponent of the theory that life on Earth may have come from Mars in rocks ejected by asteroid and comet impacts. Schulze-Makuch works in the Earth Sciences department at WSU and is the author of two books about life on other planets. His focus is eco-hydrogeology, which includes the study of water on planets and moons of our solar system and how those could serve as a potential habitat for microbial life. The peer-reviewed Journal of Cosmology covers astronomy, astrobiology, Earth sciences and life. Schulze-Makuch and Davies contend that Mars has abundant resources to help the colonists become self-sufficient over time. The colony should be next to a large ice cave, to provide shelter from radiation, plus water and oxygen, they wrote. They believe the one-way trips could start in two decades. "You would send a little bit older folks, around 60 or something like that," Schulze-Makuch said, bringing to mind the aging heroes who save the day in "Space Cowboys." That's because the mission would undoubtedly reduce a person's lifespan, from a lack of medical care and exposure to radiation. That radiation would also damage human reproductive organs, so sending people of childbearing age is not a good idea, he said. There have been seniors in space, including John Glenn, who was 77 when he flew on the space shuttle in 1998. Still, Schulze-Makuch believes many people would be willing to make the sacrifice. The Mars base would offer humanity a "lifeboat" in the event Earth becomes uninhabitable, they said. "We are on a vulnerable planet," Schulze-Makuch said. "Asteroid impact can threaten us, or a supernova explosion. If we want to survive as a species, we have to expand into the solar system and likely beyond."

# Lunar Environment Net Benefit

**Lunar property rights would encourage the most effective use of lunar land**

**Coffey in 08** (Sarah, Executive Articles Editor of the *Case Western Reserve Journal of International Law*, “Establishing a Legal Framework for Property Rights to Natural Resources in Outer Space,” *Case Western Reserve Journal of International Law* v 14:199, <http://www.case.edu/orgs/jil/vol.41.1/41_Coffey.pdf>)

Despite the current legal framework barring real property rights in space, proponents of full property rights argue that real estate ownership would have a number of advantages over other systems, and that new laws and treaties must be established to create real property rights on celestial bodies. One argument for this position is that allowing ownership of real property on celestial bodies would reduce wasteful use of the land. If expeditions were allowed to mine the moon or other celestial bodies without ownership rights to the land that they mine, there would be no incentive to use the land in a productive way. 138 Rather, the expeditions would work to extract only what they wanted and in the process potentially destroy other useful resources. 139 If the expeditions owned the land, however, they would have incentive to use it efficiently and carefully consider all of its possible uses to maximize the investment. 140 Even if the expedition did not extract all the possible resources, an owner of celestial property would have an incentive to preserve as much as possible to make it attractive to a future buyer when the expedition sells the land.

Massive irresponsible lunar mining could disrupt tides and hurl rocks at the Earth

Shimkus in 11 (John, writer for Energy Digital, “Mining Helium-3 will Transform Dark Side of the Moon”, 9 May, http://www.energydigital.com/global\_mining/mining-helium-3-will-transform-dark-side-of-the-moon)

There is a dark side, however, to mining the Moon.  Let us not forget that the Moon’s orbit dictates the ebb and flow of various systems here on Earth.  From sea tides to weather patterns, animal mating habits to plant growth, even plate tectonics, a number of the Earth’s systems are reliant on the Moon’s consistent circumnavigation of the planet to function properly.  If we remove millions of tons of helium-3 and other minerals from the moon and bring them to Earth, the celestial balance that drives those patterns may be thrown off.  What’s worse, mining activities tend to use explosives, and in low gravity, who’s to say that we may not fracture the moon entirely, hurling giant lunar meteorites toward Earth?  Transforming the Moon into a mining hub is certainly risky business, but it’s bound to be a profitable reality very soon!

**Loss of lunar tides would destroy life as we know it – it would lead to the Earth rotating off axis**

**Bortz in 03** (Fred, scientist and researcher, “What is the Earth Had No Moon?,” <http://www.fredbortz.com/askmoon.htm>)

You probably know that the Moon's gravity creates tides on Earth by attracting the water of the ocean. It actually creates two high tides daily, one on the side of Earth closest to the Moon, and one directly opposite. You can think about that happening because the ocean bulges outward in both directions when the Earth-Moon system spins around its balance point. If the balance point was almost at the center of the Earth, the bulge would be nearly the same all around and the tide would not vary much during the day. The movements of the tide have always created special environments on Earth. Many life forms have developed in these tidal pools and basins. Without tides, the kinds of plants and animals on Earth would be quite different than those we know today. So we can safely say that life forms would have been different at all times of Earth's history. If Earth didn't have such a large satellite, it wouldn't have had dinosaurs in the Mesozoic Era, and it wouldn't have people today. In fact, no complex life of any kind would have ever emerged. The evolution of complex life forms requires long periods of stable conditions. Without the Moon, the Earth's axis (the imaginary line through the North and South Poles) would wobble like a top that has been hit by a misbehaving child, or like a tightrope walker without a balancing pole. With the Moon, the axis wobbles a little bit but generally stays put. That keeps the seasons more or less the same for periods long enough for complex life forms to develop, adapt, and succeed. The Moon is good for a whole lot more than simply lighting up the night sky. If you wonder what your life would be like without it, the surprising answer is that you wouldn't be here to wonder at all!

# Solvency Extension

**The US should create and endorse a Lunar Homesteading act**

Pop in 09 (Virgiliu, Romanian space lawyer and author, Who Owns the Moon?: Extraterrestrial Aspects of Land and Mineral Resources Ownership, 155)

We have then seen how, from the other end of the political spectrum, scholars and activists maintain that property rights – comprising jus abutendi – are a useful engine and, in all likelihood, a precondition for pushing forward the development of the extraterrestrial realms. In the tradition of the American Frontier, whose settlement was encouraged by governmental plans of privatizing the public domain, the proponents of the private property of space seek a similar privatization of the extraterrestrial realms. We have shown that the frontier spirit can translate in a dual way in the settlement of space. The first approach is that of “crossing the Alleghenies” and establishing an anarcho-capitalist way of life on the Moon, based on individualism – where, as with the Preemption Act and the Spitzbergen Treaty, the possession can be later offered the protection of a sovereign entity. The second approach is that of an authority privatizing the commons, in the manner of the United States Homestead Act of 1862. Together with John Locke, we see such privatization – provided there is still enough left for the others – as an active administration of the public trust stemming from the common heritage. Whereas the CHM paradigm is lex lata for those who ratified the Moon Agreement, the frontier paradigm is, for now, lex ferenda, at least in the United States where the Aldridge Commission called for guaranteeing appropriate property rights for the entities seeking to develop space resources. The frontier paradigm has proven its worth on our planet, and it most likely will do so in the extraterrestrial realms. Securing property rights would be more beneficial to humankind, compared to the alternative of keeping the extraterrestrial realms undeveloped. In the same time, support for property rights in outer space needs to be complemented by support for property rights on earth, given the ongoing erosion of the fee simple ownership on our planet.

Companies will wait to mine from the moon because it is not clear they would own their resources

Wall in 11 (Mike, editor of Space.com, “Moon Mining Idea Digs Up Lunar Legal Issues”, 13 Jan, http://www.space.com/10621-moon-mining-legal-issues.html)

Companies hoping to mine the moon's huge stores of water ice can likely do so legally, experts say, though firms may want to hold off until new legislation grants them explicit title over whatever lunar muck they dredge up. The Outer Space Treaty of 1967 seems to permit extractive activities on the moon and other celestial bodies, according to space-law experts. But it's not entirely clear that mining companies would own the stuff that they extract. That fuzziness could be a problem for outfits contemplating a [moon mining endeavor](http://www.space.com/news/moon-mining-space-exploration-101030.html), which could have initial costs running into the tens of billions of dollars.

**Reviving lunar property rights is essential to creating lunar mining and development**

**Wasser in 97** (Alan, Chairman of The Space Settlement Institute and a former CEO of the National Space Society, “Moon Miners' Manifesto”, #103 March 1997, <http://www.asi.org/adb/06/09/03/02/103/space-race.html>)

Although it is now often forgotten, the international law created by the 1967 treaty is not the norm in human history. The right to claim newly settled property has always provided the economic incentive for human expansion. (Would Europeans have ever settled America if they couldn't claim ownership of the land they settled?) In this case, immediately re-saleable property deeds are the only possible "product" that can be profitably brought back from space at current launch costs. Space settlement will not occur until we get the historically normal condition restored. To really "enable the space frontier", we will have to re-establish a rule of law something like this: Any private entity (presumably a consortium of companies) which establishes a permanently inhabited base on the Moon or Mars, (or any planet or asteroid), with guaranteed regular transportation shuttling between the base and the Earth, open to any paying passenger, immediately acquires full legally recognized and saleable title to hundreds of thousands of square miles around the base. The land grant for the first such base on the Moon would need to be at least the size of Alaska, which would be worth almost four billion dollars at even $10 an acre. That's big enough to allow the winning consortium to begin earning back their expenditure immediately by selling off pieces of it, but still less than 4% of the Moon's surface.

**Creating property rights under the OST is the best way to solve lunar property rights.**

**Coffey in 08** (Sarah, Executive Articles Editor of the *Case Western Reserve Journal of International Law*, “Establishing a Legal Framework for Property Rights to Natural Resources in Outer Space,” *Case Western Reserve Journal of International Law* v 14:199, <http://www.case.edu/orgs/jil/vol.41.1/41_Coffey.pdf>)

The plans of five nations to go to the moon within the next ten years and extract helium-3—a substance that could change the way the world gets its energy—illustrates the urgent need to form a clear, stable legal framework to govern property rights regarding natural resources in space. A stable legal framework will encourage progress by assuring expeditions that they will legally own the resources they extract. It will also prevent ventures from setting bad precedent by performing expeditions outside of firmly established international law. The proper framework may even help nations that will not directly be participating in missions to the moon, in compliance with the Outer Space Treaty’s provision that the operations benefit all of mankind. Under this proposal, an authoritative body would oversee the space property laws, act as a point of contact between nations, and act as a forum for proposing and discussing space property law. The credit system would depend on individual contracting between nations, so the body would not generally be involved in everyday affairs of reviewing and approving proposals. Nations must merely alert the council before exercising their credits to ensure that that area is not already being used by another nation. Short of enforcing environmental rules, the council would otherwise only be directly involved in operations when resolving disputes. In short, the plan should appeal to all nations and benefit all of mankind while encouraging mankind’s next giant leap.

Mining the moon requires signing international agreements or there will be international litigation to bind the resources acquired on the moon

Boyle in 11 (Rebecca, “Who Owns the Moon’s Water? Future Moon Mining Missions May Face Legal Disputes,” Popular Science, 19 Jan, http://www.popsci.com/science/article/2011-01/moon-miners-would-need-good-lawyers-shore-extracted-resources)

Would-be moon miners will need good lawyers if they want to keep the lunar resources they’re harvesting, according to space policy experts. The Outer Space Treaty of 1967 appears to permit extraction of lunar water and other resources, but it’s not clear [who would own the materials](http://www.space.com/10621-moon-mining-legal-issues.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:+spaceheadlines+(SPACE.com+Headline+Feed)&utm_content=Google+Reader) once they’re extracted. Not long after NASA confirmed the moon has plenty of water, scientists and entrepreneurs started hatching plans to harvest it, either for lunar colonists or for rocket fuel. There are plenty of ways to do it — you could [microwave the lunar soil](http://www.popsci.com/technology/article/2009-10/interview-nasa-scientists-plan-extract-moon-water-affordably-using-common-household-appliance) to turn the ice into water vapor, you could use robots to harvest frozen chunks of ice, and so on. Space.com talked to space law experts who said determining ownership of those resources may be a more complicated matter. The [Moon Treaty of 1979](http://en.wikisource.org/wiki/Moon_Treaty) was intended to govern how the moon’s resources would be used, Space.com reports. But none of the spacefaring nations has signed it, rendering it moot. This leaves countries to rely on the Outer Space Treaty, and because it doesn’t explicitly ban resource extraction, it can probably be interpreted to mean it’s allowed. Still, this doesn’t address who owns the title to the materials. On this planet, when you mine for precious resources, you’d want to make sure you own them after you take them out of the ground, because then you can sell them. Figuring this out will probably require legislation or international agreements, according to Space.com. And a nice payday for space lawyers. Hey, what do you call 5,000 lawyers sent to the moon? A good start!

**The US must take the lead for effective property rights implementation**

**Wasser in 08** (Alan, Chairman of The Space Settlement Institute and a former CEO of the National Space Society, “The Space Settlement Initiative”, September 2008, [http://www.spacesettlement.org/#](http://www.spacesettlement.org/#25)20)

The United States will probably be the first and most important market where land deeds will be sold to the public. In that case, it will be the U.S. courts that will rule on whether Lunar land sales are valid transactions or frauds. What this legislation does is tell the U.S. courts what standard to use in making that ruling. Further, it is not at all unusual for quite a few other nations to follow the U.S.'s lead on things like this. However, this legislation is most definitely not just for the benefit of Americans! Given today's global economy, it is almost certain that all entrants in the race to establish a settlement will be multi-national consortia. The investor/owners will be drawn from all around the world, as will the land buyers. Most particularly, the teams of aerospace companies cooperating to build the ships will be from many nations. It is just too big a job for one company, or even one nationality, to undertake alone.

# Cooperation Key to Mining

Moon harvesting relies on international cooperation

Kazan in 07 (Casey, editorial staff of the Daily Galaxy, “The Moon & Heluim 3 – Earth’s Energy Salvation”, http://www.dailygalaxy.com/my\_weblog/2007/08/helium-3--could.html)

The harvesting of Helium-3 on the could start by 2025. Our lunar mining could be but a jumping off point for Helium 3 extraction from the atmospheres of our Solar System gas giants, Saturn and Jupiter. UN Treaties in place state that the moon and its minerals are the common heritage of mankind,  so the quest to use Helium-3 as an energy source would likely demand joint international co-operation. Hopefully, we won't need another Potsdam Conference to work things out.

# No Property Rights = Violence

**No property rights on the moon leads to violence**

**White in 97** (Wayne, attorney in Space Law, “Real Property Rights in Outer Space,” *American Institute of Aeronautics and Astronautics*, <http://www.space-settlement-institute.org/Articles/research_library/WayneWhite98-2.pdf>)

A development regime which provides some form of property rights will become increasingly necessary as space develops. Professionals foresee an integrated system of solar power generation, lunar and asteroidal mining, orbital industrialization, and habitation in outer space. In the midst of this complexity, the right to maintain a facility in a given location relative to another space object may create conflict. Such conflicts may arise sooner than we expect, if private companies begin building subsidiary facilities around space stations. Eventually large public facilities will become the hub of private space development, and owners will want to protect the proximity value of their facility location. It also seems likely that at some point national governments and/or private companies will clash over the right to exploit a given mineral deposit. Finally, the geosynchronous orbit is already crowded with satellites, and other orbits with unique characteristics may become scarce in the future. The institution of real property is the most efficient method of allocating the scarce resource of location value. Space habitats, for example, will be very expensive and will probably require financing from private as well as public sources. Selling property rights for living or business space on the habitat would be one way of obtaining private financing. Private law condominiums would seem to be a particularly apt financing model -- inhabitants could hold title to their living space and pay a monthly fee for life-support services and maintenance of common areas. Even those countries which do not have launch capability would benefit from a property regime. Private entities from the developing nations could obtain property rights by purchasing obsolete facilities from foreign entities that are more technologically advanced. A regime of real property rights would provide legal and political certainty. Investors and settlers could predict the outcome of a conflict with greater certainty by analogizing to terrestrial property law. Settlers and developers would also be reassured, knowing that other nations would respect their right to remain at a given location.

# Space Key Property Rights

Space is a key site for property right development

Pop in 09 (Virgiliu, Romanian space lawyer and author, Who Owns the Moon?: Extraterrestrial Aspects of Land and Mineral Resources Ownership, 24-25)

In commenting on the matter of extraterrestrial real estate, NASA’s news chief Brian Welch recognized that the otherwise trivial issue could get more serious in the future: when people actually are going to these places and the resources found have some value. More complicated issues will have to be resolved between countries or between companies (CNN, 1997). Indeed, the extraterrestrial realms are not only, as Apollo 8 astronaut Frank Borman views it – “a vast, lonely, forbidding type of existence or expanse of nothing” or, in the words of Apollo 11 astronaut Buzz Aldrin, “magnificent desolation” (Chaikin, 1994, pp. 121 and 211). According to the Science Advisor to the US President and Director of the Office of Science and Technology Policy John Marburger (2006), “[t]he greatest value of the Moon lies neither in science nor in exploration, but in its material” – anything that can be made from lunar resources at a cost compared to terrestrial manufacture having a tremendous cost advantage over objects launched from Earth. Whereas the Apollo program turned out to be a flagand- footprints endeavour, Marburger envisages a lunar industry dealing with the extraction of minerals and elements and their processing into “fuel or massive components of space apparatus”, in a future when the Solar System and its materials are incorporated in the terrestrial economic sphere and way of life. Mark Sonter (1998) too deems that, in order to overcome the high cost of launch from earth, the large scale commercial activities in space will require raw materials obtained from space. Volatiles for manufacturing propellants and metals for construction in space appear to be readily recoverable from asteroids and dormant cometary bodies. The space materials, considers Declan O’Donnell (1998a, p. 29) will be used for building habitats, transportation systems, hotels, factories and so on. Outer space is abundant in such resources; according to John S. Lewis (1996, pp. 195–196), the asteroids, comets and planets contain untold riches. His calculations show that using asteroidal iron and steel would generate wealth amounting to $7 billion per person; adding in this equation the other ingredients composing the asteroidal belt – such as gold, silver, uranium, etc. – the total would rise to over $100 billion for each person on Earth. But – should humans be billionaires in asteroidal metals –, how is this wealth going to be appropriated and shared? Who, after all, really owns the Moon and the other celestial bodies? What is the place and significance of property rights in the context of space activities? The existing space activities, as well as their further development, have fundamental property implications; their dimension spans both the terrestrial and the extraterrestrial realms. Important questions are raised by many endeavours – from the stratospheric platforms interaction with the subjacent land to the property status of space debris; from the intellectual property status of inventions, industrial processes and new materials created in the extraterrestrial realms to the ownership of data obtained through remote sensing. The limited dimensions of this book do not allow however a thorough analysis of all these aspects. The research will focus therefore only on the legal situation of the landed extensions, by examining the property status of the celestial bodies per se, with reference to the legal nature of the planetary surfaces, of the natural resources thereon, and of the “legal interaction” between planetary surfaces and facilities placed thereon. This field of study is very fertile, the question of “real property rights in outer space” or “planetary land law” posing intriguing problems. One such issue is jurisdictional, and it concerns the search for an appropriate lex situs in the extraterrestrial realms. Other issues concern the untold mineral riches of other worlds, projects existing for the establishment of extraterrestrial mines. Are the extraterrestrial minerals “for taking” and, if so, would the first to come be also first in right? May land in outer space be occupied and subject to exclusive control? Other projects anticipate the permanent human settlement of the Moon and Mars, colonies evolving out of temporary facilities. Ideas have been advanced for the building of lunar hotels; blueprints for the utilization of vast lunar areas as solar energy collectors have been presented, as well as projects for the conversion of a lunar crater into a radioastronomy observatory. Most important, Dietrich and Goldstein (1998, p. 9) consider obvious that, absent an answer to the question of “whose writ runs up there”, not many commercial activities will occur in outer space, being “irresponsible to encourage space development without some solution”. They believe that the developed states will not advance the huge amounts necessary for developing the space resources while the developing countries claims on those benefits remain unsettled. As seen from the outline supra, a thorough analysis is needed regarding the extent of permissibility and viability of property rights in the extraterrestrial realms, especially concerning the property status of landed extensions. This book will attempt to offer an answer to the above questions.

# Mars Colonization Impact Extensions

**Mars would be the best planet to colonize – multiple reasons**

**Zubrin in 96** (Robert, Chairman of the National Space Society, “The Case for Colonizing Mars”, <http://www.nss.org/settlement/mars/zubrin-colonize.html>)

Mars is the best target for colonization in the solar system because it has by far the greatest potential for self-sufficiency. Nevertheless, even with optimistic extrapolation of robotic manufacturing techniques, Mars will not have the division of labor required to make it fully self-sufficient until its population numbers in the millions. Thus, for decades and perhaps longer, it will be necessary, and forever desirable, for Mars to be able to import specialized manufactured goods from Earth. These goods can be fairly limited in mass, as only small portions (by weight) of even very high-tech goods are actually complex. Nevertheless, these smaller sophisticated items will have to be paid for, and the high costs of Earth-launch and interplanetary transport will greatly increase their price. What can Mars possibly export back to Earth in return? It is this question that has caused many to incorrectly deem Mars colonization intractable, or at least inferior in prospect to the Moon. For example, much has been made of the fact that the Moon has indigenous supplies of helium-3, an isotope not found on Earth and which could be of considerable value as a fuel for second generation thermonuclear fusion reactors. Mars has no known helium-3 resources. On the other hand, because of its complex geologic history, Mars may have concentrated mineral ores, with much greater concentrations of precious metal ores readily available than is currently the case on Earth — because the terrestrial ores have been heavily scavenged by humans for the past 5,000 years. If concentrated supplies of metals of equal or greater value than silver (such as germanium, hafnium, lanthanum, cerium, rhenium, samarium, gallium, gadolinium, gold, palladium, iridium, rubidium, platinum, rhodium, europium, and a host of others) were available on Mars, they could potentially be transported back to Earth for a substantial profit. Reusable Mars-surface based single-stage-to-orbit vehicles would haul cargoes to Mars orbit for transportation to Earth via either cheap expendable chemical stages manufactured on Mars or reusable cycling solar or magnetic sail-powered interplanetary spacecraft. The existence of such Martian precious metal ores, however, is still hypothetical. But there is one commercial resource that is known to exist ubiquitously on Mars in large amount — deuterium. Deuterium, the heavy isotope of hydrogen, occurs as 166 out of every million hydrogen atoms on Earth, but comprises 833 out of every million hydrogen atoms on Mars. Deuterium is the key fuel not only for both first and second generation fusion reactors, but it is also an essential material needed by the nuclear power industry today. Even with cheap power, deuterium is very expensive; its current market value on Earth is about $10,000 per kilogram, roughly fifty times as valuable as silver or 70% as valuable as gold. This is in today's pre-fusion economy. Once fusion reactors go into widespread use deuterium prices will increase. All the in-situ chemical processes required to produce the fuel, oxygen, and plastics necessary to run a Mars settlement require water electrolysis as an intermediate step. As a by product of these operations, millions, perhaps billions, of dollars worth of deuterium will be produced. Ideas may be another possible export for Martian colonists. Just as the labor shortage prevalent in colonial and nineteenth century America drove the creation of "Yankee ingenuity's" flood of inventions, so the conditions of extreme labor shortage combined with a technological culture that shuns impractical legislative constraints against innovation will tend to drive Martian ingenuity to produce wave after wave of invention in energy production, automation and robotics, biotechnology, and other areas. These inventions, licensed on Earth, could finance Mars even as they revolutionize and advance terrestrial living standards as forcefully as nineteenth century American invention changed Europe and ultimately the rest of the world as well. Inventions produced as a matter of necessity by a practical intellectual culture stressed by frontier conditions can make Mars rich, but invention and direct export to Earth are not the only ways that Martians will be able to make a fortune. The other route is via trade to the asteroid belt, the band of small, mineral-rich bodies lying between the orbits of Mars and Jupiter. There are about 5,000 asteroids known today, of which about 98% are in the "Main Belt" lying between Mars and Jupiter, with an average distance from the Sun of about 2.7 astronomical units, or AU. (The Earth is 1.0 AU from the Sun.) Of the remaining two percent known as the near-Earth asteroids, about 90% orbit closer to Mars than to the Earth. Collectively, these asteroids represent an enormous stockpile of mineral wealth in the form of platinum group and other valuable metals. Miners operating among the asteroids will be unable to produce their necessary supplies locally. There will thus be a need to export food and other necessary goods from either Earth or Mars to the Main Belt. Mars has an overwhelming positional advantage as a location from which to conduct such trade.

**Mars colonization would lead to internation cooperation**

**Red Colony in No Date** (<http://www.redcolony.com/features.php?name=whycolonizemars>)

It is obvious that the world isn't perfect, but we've been trying for the entirety of our civilized existence. We've reached a point now where the majority of the world's superpowers are on good enough terms to begin an international joint-project to colonize Mars. This was much the theory with the International Space Station, but dirty politics proved how immature the world's superpowers are. Ending the quarrelling and going to space might sound like ignorant idealism, but imagine the diplomatic potential. When we become united in a goal, not just as Americans or as Russians but as mankind, all of humanity puts aside its differences. Even if the initial trip to Mars is sponsored by one nation or one space agency, in the end Mars will be for everyone. The Old World's boundaries will not be able to restrain the emigration. Who knows, the concept of countries might remain a thing of the Earth, an archaic reminder of castles and kings and the battle for power. Mars could be the beginning of a new era in human diplomacy.

**Colonizing Mars would provide resources and provide massive economic benefits**

**Red Colony in No Date** (<http://www.redcolony.com/features.php?name=whycolonizemars>)

Mars is worth a lot of money. There are 144 trillion square meters of surface area, roughly the land area of the Earth, available for development. I'm not going to tell you how great all that land is for residential, commercial, and industrial use... go play Sim City. An important part of the fusion reaction process is deuterium, a stable isotope of hydrogen. Once we can contain a fusion reaction, the deuterium-tritium reaction has a high yield of energy for the small amount of fuel put in. Deuterium, or heavy hydrogen, is hard to obtain on Earth, but on Mars it is five times more abundant in the form of Hydrogen-Deuterium-Oxygen (See Also: Compositions). A milliliter of liquid heavy-hydrogen fuel would produce as much energy as 20 tons of coal. Deuterium is also important in chemistry because it reacts the same way as hydrogen, but can be distinguished from hydrogen by its mass. These reactions occur slower than normal hydrogen reactions. There is an abundance of rare metals on Mars such as platinum, gold, silver, and others. Shipping from Mars to Earth, as mentioned above, is much easier than the other way around. Even more promising is the proximity of the asteroid belt to Mars. Dactyl, the moon orbiting the asteroid Ida shown in this picture, is 1.4 kilometers in diameter, yet it contains more iron that the human race has used in its entire existence. These asteroids could be mined near Mars and shipped from the planet for little cost. What we could see develop is a triangle trade route, much like the one in the 18th century between Britain, the West Indies, and America. The economic potential is colossal.

**Colonizing Mars would be humankind’s greatest achievement**

**Red Colony in No Date** (<http://www.redcolony.com/features.php?name=whycolonizemars>)

Colonizing Mars will no doubt be the most difficult thing that humanity has ever pursued. Like building a bridge or a skyscraper, it will represent the pinnacle of human achievement up to that time. We can begin colonization now with technology that exists now; this is not science fiction anymore. Before he began his fateful expedition to Mount Everest, George Mallory was asked why man kept trying to reach the summit of that mountain. "Because it is there," he said. In the words of the great science fiction author Kim Stanley Robinson, "We are the consciousness of the universe, and our job is to spread that around, to go look at things, to live everywhere we can. It's too dangerous to keep the consciousness of the universe on one planet; it could be wiped out. Mars will always remain Mars, different from Earth, colder and wilder. But it can be Mars and ours at the same time. And it will be. There is this about the human mind: if it can be done, it will be done. We can do it, so we will do it. So we might as well start."

# AT: Perm: Government Agency Involvement Bad

Government space agency involvement in He-3 projects would only raise costs and prolong the success of the mission

Johnstone in 11 (Bruce, Staff writer, “Astronaut has $15 billion plan to mine moon,” Montreal Gazette, 3 May, http://www.montrealgazette.com/technology/Astronaut+billion+plan+mine+moon/4718531/story.html)

Schmitt believes the commercial feasibility of He-3 as a fuel source for nuclear fusion could be proven with a $5-billion US demonstration plant. Another $5 billion US could "re-create" the Saturn V-class launch vehicle or rockets used to propel the Apollo astronauts into space. The lunar settlement required to mine the He-3 -"basically a company town on the moon" -would cost another $2.5 billion US. As an added bonus, the helium-3 initiative would also help the U.S. send human beings to Mars. "I believe the first human mission to Mars could be launched in 2025 because the development of the helium-3 initiative would also develop just about everything we would need to do in order to start that process of going to Mars -large rockets, the ability to work and live on another space body and the like.'' Following his speech, Schmitt said his $15-billion project, which he outlined in his 2006 book, Return to the Moon, could be implemented over 15 or 20 years. Far from being "out of this world,'' Schmitt believes this lunar mining venture could be financed primarily by the private sector. "If NASA or some other government space agency decides they're going to support technology development, then that will improve the financial position (of the helium-3 project). Unfortunately, when you start getting governments involved, it also prolongs the time and also raises the cost. So I'd rather see it entirely done by the private sector."

\*\*\*Random Cards\*\*\*

# US Courts are Key

**US court action is key – litigation is inevitable, and US court precedent uniquely gives space property rights credibility internationally**

**Listner in 01** (Michael, JD Regent University School of Law, “The Ownership and Exploration of Outer Space: A Look at Foundation Law and International Trade Society,” 1 Regent Journal of International Law. 75, l/n)

VIII. THE FUTURE LEGAL CHALLENGES While the four major space law treaties lay out the law concerning the **ownership** and activities of nations in space, they have left gaps where individual [\*88] persons or legal entities are concerned. UNCOPOUS attempted to rectify this through the provisions of the Moon Treaty. However, it is of little value while the U.S. and the Russian Federation continue to refuse to sign it. [n139](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n139) The fact that a loophole allowing private entities to own extraterrestrial property still exists in the Outer Space Treaty has motivated one private corporation to enter into the business of selling real estate on the Moon and other extraterrestrial property within the confines of our solar system.[n140](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n140) Lunar Embassy was founded in 1980 by Dennis M. Hope to sell parcels of celestial property to private entities. [n141](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n141) To form a legal basis for passing good title to private entities for the property they sell, Lunar Embassy filed a declaration of **ownership** with the U.S. government. [n142](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n142)Subsequently, Lunar Embassy also informed the U.N. and the Russian Federation of its claim; a claim which has never been contested. [n143](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n143) For the price of $ 19.99 plus a minimal tax and handling fee, a private entity can purchase a one acre parcel of lunar property from Lunar Embassy.[n144](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n144) When it first began sales of lunar property, the first 150,000 purchasers of 1777.58 acre lots were guaranteed to receive all minerals rights to their parcel. [n145](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n145) Additionally, the individual will receive a lunar site map, a lunar constitution outlining the laws and rights of an owner of lunar property, and a short story entitled "You Own What?". [n146](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n146) The company has been selling lunar real estate since 1996. The legal validity of such ventures remains untested, leaving the numerous legal questions that it evokes unanswered. For example, Lunar Embassy believes that by filing a declaration of **ownership** with the U.S. government, it has a created a legal basis for ensuring its customers can claim **ownership** of the property it sells to them. [n147](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n147) However, it is unclear upon which legal theory of property law they are relying. [n148](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n148) Since there has been no legal action on behalf of any of the signatories of the Outer Space Treaty regarding such a claim, one might presume that it is considered [\*89] legitimate. On the other hand, it may be that no signatory feels the case is sufficiently ripe to file suit. [n149](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n149) The U.N., the Russian Federation, and even the U.S. government could conceivably file suits challenging the veracity of Lunar Embassy's claims at a future date. The problem of title could be further complicated in the event that citizens of other countries purchase extraterrestrial real estate from a U.S. corporation, i.e., Lunar Embassy. What happens when this purchaser's home country is not a signatory of the Moon Treaty? [n150](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n150) Does that country's obligation to the Moon Treaty trump any private **ownership** right the individual might have, or can the individual still claim title operating under the umbrella of Lunar Embassy's authorization from the U.S.? Aside from the problem of title to lunar property, there is the problem of enforcement. For example, suppose that a private individual from a country that has not recognized the Moon Treaty claims the same piece of extraterrestrial property that an individual from the U.S. has purchased from Lunar Embassy. How is the conflict of title resolved? Clearly the U.S. could not enforce the private claim purchased through Lunar Embassy since the U.S. cannot claim territorial jurisdiction. [n151](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n151) Furthermore, any attempt to enforce a private claim through the private use of force, (force without the delegated authority of a sovereign government), could be construed as the space equivalent of piracy on the high seas. [n152](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n152) Even if the private owners attempted to use force, the U.S., being the nation responsible for Lunar Embassy's activities, could be considered as sponsoring piracy or possibly terrorism by allowing them to do so. [n153](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n153) The most obvious threat to Lunar Embassy and its customers would be the ratification of the Moon Treaty or a derivative by the U.S. and other developed countries. [n154](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n154) The ratified treaty would be the constitutional equivalent of a federal statute. [n155](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n155) However, the U.S. Constitution could be used in U.S. courts to find that such a treaty provision was unconstitutional [n156](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n156) based on the action being construed as a "taking" under the Fifth Amendment. [n157](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n157) Alternatively, a federal statute promulgated after ratification of this kind of a treaty would prevail over the treaty itself. [n158](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n158) Sufficient lobbying could persuade the U.S. Congress to promulgate a statute that would prevail over such a treaty, thereby preserving any title to extraterrestrial property rights that otherwise might be [\*90] invalidated by the treaty. Presuming that title to extraterrestrial property is valid, and the means become available to reach the moon and other celestial bodies, the jurisdictional issue involved in a legal challenge and the question of which laws to apply to the facts become prominent issues. According to the Outer Space Treaty, while no nation can extend its sovereignty to outer space, [n159](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n159) it does hold member states responsible for overseeing the outer space activities of non-governmental entities. [n160](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n160) Perhaps Dennis Hope and Lunar Embassy are attempting to establish sovereignty for their own self-proclaimed principality [n161](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n161) by providing a constitution [n162](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n162) that outlines laws and rights for that particular celestial body claimed by Lunar Embassy. [n163](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n163) However, in the absence of a Lunar Embassy constitution that provides a forum selection clause and remedies for torts, criminal activity, or other infractions committed against extraterrestrial property owners, the question of jurisdiction is still a valid one. While the Outer Space Treaty vests jurisdiction over space objects in the state of registry, [n164](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n164) the private physical possession of extraterrestrial property was not presupposed in its drafting. [n165](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n165) However, U.S. federal courts, in cases where U.S. citizens own extraterrestrial property, could potentially assume jurisdiction. In deciding a case involving a tort claim that arose in Antarctica, the United States Court of Appeals for the District of Columbia Circuit referred to Article VIII of the Outer Space Treaty and recognized that while "the Space Treaty is obviously not couched in terms of tort claims, the basic principle is that in the sovereignless reaches of outer space, each state party to the treaty will retain jurisdiction over its own objects and persons." [n166](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n166) Therefore, it is reasonable to conclude that even if Lunar Embassy provides a forum selection clause or methods of dispute resolution in its laws and constitutions, it, along with those property owners who are U.S. citizens, would likely have to bring their disputes in a U.S. federal court. While such legal action may seem far-fetched given the current realities of space travel, there exists the potential for an action of trespass on, and conversion of, moon property within the next few years that could determine the veracity of the legal title of the moon held by Lunar Embassy and its customers. Applied Space Resources is sponsoring the Lunar Retriever I mission, [n167](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n167) a commercial venture with the goal of sending a lander to the Moon; retrieving a [\*91] quantity of lunar soil; and returning it to earth where it would be sold for profit. The company bases the legality of its plans on the precedent set by the former Soviet Union's sale of a small sample of lunar material that it obtained from an unmanned probe. [n168](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n168) Here is how one scenario might develop. Lunar Embassy has claimed **ownership** of the moon and sold certain parcels of its surface to private entities. Since the validity of the title held by Lunar Embassy has not been challenged, it and its customers could seek an injunction against Applied Space Resources to prevent such a mission. They could claim that Applied Space Resources must have the permission of the entity holding constructive title to the applicable parcel of the moon's surface before landing its probe and retrieving lunar material. To do so without permission is arguably trespass of land and conversion of property. [n169](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n169) Such a challenge to Applied Space Resources' mission could gain judicial approval for Lunar Embassy's and its customers' title claims. Commencement of such a suit could be accomplished in several ways. Lunar Embassy could file suit against Applied Space Resources as a corporate entity or the entities that purchased property from it could file suit. [n170](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n170) The plaintiffs in such a suit would be expected to have standing to appear before the Court. To prove standing, they could claim that there is an imminent threat of irreparable injury from trespass to property and conversion. The court could grant a remedy in the form of an injunction barring Applied Space Resources from carrying out their mission without permission from Lunar Embassy or the entity that holds title. [n171](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n171) Applied Space Resources could cross file a motion to challenge the validity of title to the moon held by Lunar Embassy and its customers, or file a separate motion for a declaratory judgment [n172](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n172) to determine whether Lunar Embassy and its customers hold a valid property right to the land they claim over the moon. However, a legal challenge is always fraught with danger and a case such as this is no exception. Lunar Embassy and its customers face the very real possibility of having their legal claim to the moon and other celestial bodies in the solar system declared void, as well as the possibility that a court may rule that the collection of lunar soil samples for profit runs contrary to international law and is prohibited. [\*92] Further, if a federal court denied the private **ownership** claims of Lunar Embassy and its customers, it could give proponents of the Moon Treaty a much needed boost towards its ratification and general acceptance of its principles, [n173](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n173) or it may give the signatories the incentive to press ahead with legal action of their own. Specifically, the signatories of the Moon Treaty could bring suit against the U.S. under the Outer Space Treaty in the International Court of Justice and ask for an injunction requiring the U.S. to suspend its authorization [n174](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n174) to commercial ventures involving the **exploitation** of **outer space** in regards to **ownership** and removal of soil from celestial bodies, including the moon and its soil. Such a suit could lead to a legally binding interpretation of the right to private **ownership** of real property located in outer space. Conversely, the U.S. might seek an amendment to the Outer Space Treaty to reverse such a finding by the International Court of Justice, or they could simply ignore the ruling as one of the most powerful nations in the world today. [n175](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n175) More ominous, is the possibility that the U.N. could declare a moratorium on all commercial ventures that seek to exploit real property in space until a final resolution on space property rights is reached. Such a suit could potentially solidify Lunar Embassy's claim to celestial body titles, provide the first case of space law that deals with the private**Ownership** rights, and would set a much needed precedent. Perhaps an initial firestorm of litigation is necessary to advance the jurisprudence of outer space, as no cases have been brought before the International Court of Justice dealing with the space law treaties; and domestic space law cases in the U.S. have been limited to liability issues surrounding satellite launches. [n176](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n176) Furthermore, positive domestic precedent would give the U.S. more leverage in negotiating for a Moon Treaty redraft with its signatories and thwart future suits by other countries. One action that would almost certainly precipitate an international controversy would be an application by Dennis Hope and Lunar Embassy to the United Nations for a seat in the General Assembly. If successful, it would provide Lunar Embassy with a voice in the development of outer space law concerning real property **ownership** and the exploitation of profitable resources thereon. [n177](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n177) While Lunar Embassy is not presently recognized as a State, its attempt to seek admission and participation in the U.N. would undoubtedly cause considerable debate even before the application was given general consideration by the General Assembly. [n178](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n178) A major weakness in Lunar Embassy's claim is its lack of a permanent [\*93] population to qualify it as a sovereign state. Arguably, Lunar Embassy's customers would constitute such a population. However, while its customers have constructive possession of lunar property, they do not presently physically occupy the land in question. [n179](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n179) A factor in Lunar Embassy's favor is that its customers do share a common destiny, i.e. the colonization of the moon and other celestial bodies. This "common destiny" approach was an important consideration to the Administrative Court of Cologne in determining whether a German national's claim to be a citizen of the Principality of Sealand [n180](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n180) was valid. [n181](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n181) The Court held that the citizens of Sealand lacked a common destiny and were merely a blend of individuals who were only involved in a furtherance of common hobbies and interests. [n182](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n182) While the "nationals" of the Moon may have a common vision, they still do not physically exist in a communal life. They are currently scattered across the Earth living in numerous countries. Their legal title to celestial property is questionable at best, since they only hold constructive possession of "their land" without any permanent or physical residence having been established on it; nor will they have the means to establish such a residence for some time into the future. Nor does Lunar Embassy have a government independent of another sovereign nation. Despite Dennis Hope's creation of a "Lunar Constitution" and a "bill of rights," [n183](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n183) Lunar Embassy is a U.S. corporation subject to the jurisdiction of the U.S. and its courts. While Dennis Hope and the United States both denounce the Moon Treaty, Hope fails to consider or simply ignores the provisions within the Outer Space Treaty that give the U.S. jurisdiction over its citizens and any domestic corporation performing activities in space or on a celestial body. [n184](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n184) Dennis Hope is an American citizen; Lunar Embassy is an American corporation. If and when Dennis Hope and his customers ever actually set foot on the Moon, the authority vested by Article VIII of the Outer Space Treaty will overshadow any claim to sovereignty. Therefore, since the United States governmental authority eclipses Lunar Embassy's activities on the Moon, it is improbable that Lunar Embassy can claim to have a government that would be recognized as independent under international law. Ultimately, it will be the question of property rights and Lunar Embassy's claim to the Moon that will grab the attention of the U.N. There are two points of attack. First, the territory that Lunar Embassy claims is in outer space is not situated at any fixed point on the earth, nor is it in anyway part of the Earth's surface. Analogizing this to the Administrative Court of Cologne's review of Sealand's claim that the [\*94] gunnery platform constituted "territory" where it recognized that "the preponderant view of legal writers is that only part of the surface of the earth can be regarded as State territory." [n185](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n185) Using this rationale, the Court found that since the gunnery platform was not fixed upon the earth, but rather anchored to the seabed, it did not constitute territory. [n186](http://www.lexisnexis.com.er.lib.k-state.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1306867372431&returnToKey=20_T12073935181&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.138391.23438155165" \l "n186) Second and most determinative is the likelihood that the U.N. will demonstrate that while Lunar Embassy may claim that it has legal title to the Moon, its claim is in direct contradiction to international law. It is certainly the U.N.'s strongest argument against Lunar Embassy and it is not likely it will abandon that position. In the end, Lunar Embassy may actually do more to help validate the Moon Treaty as international law than deny its legitimacy. **IX. CONCLUSION** Whether the ultimate decision of property rights in outer space and on celestial bodies is determined domestically or on the international level, the fact is that controversy and litigation are inevitable. Plans by private organizations and countries other than Lunar Embassy and Applied Space Resources are trying to exploit the resources of outer space. Permanent stations on the Moon and the interception and mining of near-earth asteroids are just two ideas being researched and financed. Some may ask, "Who cares? We can't get there, so why worry about it now?" Twenty years ago, few people knew about the Internet. Today, advances in computer and telecommunications technology have caught the legal community off guard. The world of computers and telecommunications was mistakenly believed to be inhabited only by the few who lived and worked there. So it is with space law and its implications for private **ownership** rights and commercial exploitation. When someone breaks the technological barriers to make space travel affordable, practical, and profitable, we will find ourselves playing catch-up in dealing with the explosion of legal challenges that will arise.