# NC

### 1

#### The value must be justice, defined as giving each their due, as per the word ‘unjust’ in the resolution. As the resolution is a question of whether or not appropriation is unjust, we should look to which framework best evaluates justice. Justice is distinct from ethics – what’s just is what arises out of a just history of transfers regardless of the outcomes.

Nozick 74 [Robert Nozick, Renowned American Philosopher, “Anarchy, State and Utopia,” Part II, Section I, ]/ lm

If the hypothetical just history involves each person's consenting to the institutional structure and to any limitations on his rights (specified by the moral side constraints on the behavior of others) it embodies, then if some actual person would not consent, one must view the institutional structure as unjust (unless it counts as just via some other hypothetical history). Similarly, one must hold the institutional structure unjust if the hypothetical just history involves some people's consenting who didn't, and some now would not assent to those others having done so. If the institutional structure could arise by some hypothetical just history which does not involve anyone's consent to that structure, then one's evaluation of the structure will depend upon one's evaluation of the process which would give rise to it. If that process is viewed as better (along dimensions other than justice where, by hypothesis, it excels) than the actual history, this probably will improve one's evaluation of the structure. That a just process would have led to the institutional structure, but only if manned by despicable individuals, will not enhance one's evaluation of that institutional structure.

The entitlement principles of justice in holdings that we have sketched are historical principles of justice. To better understand their precise character, we shall distinguish them from another subclass of the historical principles. Consider, as an example, the principle of distribution according to moral merit. This principle requires that total distributive shares vary directly with moral merit; no person should have a greater share than anyone whose moral merit is greater. (If moral merit could be not merely ordered but measured on an interval or ratio scale, stronger principles could be formulated.) Or consider the principle that results by substituting “usefulness to society” for “moral merit” in the previous principle. Or instead of “distribute according to moral merit,” or “distribute according to usefulness to society,” we might consider “distribute according to the weighted sum of moral merit, usefulness to society, and need,” with the weights of the different dimensions equal. Let us call a principle of distribution patterned if it specifies that a distribution is to vary along with some natural dimension, weighted sum of natural dimensions, or lexicographic ordering of natural dimensions. And let us say a distribution is patterned if it accords with some patterned principle. (I speak of natural dimensions, admittedly without a general criterion for them, because for any set of holdings some artificial dimensions can be gimmicked up to vary along with the distribution of the set.) The principle of distribution in accordance with moral merit is a patterned historical principle, which specifies a patterned distribution. “Distribute according to I.Q.” is a patterned principle that looks to information not contained in distributional matrices. It is not historical, however, in that it does not look to any past actions creating differential entitlements to evaluate a distribution; it requires only distributional matrices whose columns are labeled by I.Q. scores. The distribution in a society, however, may be composed of such simple patterned distributions, without itself being simply patterned. Different sectors may operate different patterns, or some combination of patterns may operate in different proportions across a society. A distribution composed in this manner, from a small number of patterned distributions, we also shall term “patterned.” And we extend the use of “pattern” to include the overall designs put forth by combinations of end-state principles.

Whether or not Locke’s particular theory of appropriation can be spelled out so as to handle various difficulties, I assume that any adequate theory of justice in acquisition will contain a proviso similar to the weaker of the ones we have attributed to Locke. A process normally giving rise to a permanent bequeathable property right in a previously unowned thing will not do so if the position of others no longer at liberty to use the thing is thereby worsened. It is important to specify this particular mode of worsening the situation of others, for the proviso does not encompass other modes. It does not include the worsening due to more limited opportunities to appropriate (the first way above, corresponding to the more stringent condition), and it does not include how I “worsen” a seller’s position if I appropriate materials to make some of what he is selling, and then enter into competition with him. Someone whose appropriation otherwise would violate the proviso still may appropriate provided he compensates the others so that their situation is not thereby worsened; unless he does compensate these others, his appropriation will violate the proviso of the principle of justice in acquisition and will be an illegitimate one.\* A theory of appropriation incorporating this Lockean proviso will handle correctly the cases (objections to the theory lacking the proviso) where someone appropriates the total supply of something necessary for life.\*

#### Property rights are a side-constraint on life – in a state of nature, we acquire property through appropriation by mixing our labor with the natural world.

Smith 15 [formerly Senior Research Fellow for the Institute for Humane Studies, a lecturer on American History for Cato Summer Seminars, and Executive Editor of Knowledge Products, George H., "John Locke: The Justification of Private Property," Libertarianism.org, 10-19-15, https://www.libertarianism.org/columns/john-locke-justification-private-property]

My last essay discussed John Locke’s theory of a negative commons. This was the moral status of natural resources prior to the emergence of private property, a situation in which every person had an equal right to use unowned land and other natural goods. I included this topic in my lengthy series on “Freethought and Freedom” because it was germane to understanding how natural‐​law philosophers during the seventeenth century moved from the traditional Christian doctrine of private property to a more secular approach. But it would be an unwarranted stretch to include additional essays on Locke within my series on freethought, so I hereby begin a new series devoted to Locke’s ideas. This series will discuss not only Locke’s theory of property in more detail but also other features of his political theory, such as his theory of government and his defense of the rights of resistance and revolution against established governments.

The most important source for understanding Locke’s justification of private property is the celebrated chapter “Of Property,” which comprises Chapter V of The Second Treatise of Government. But we also find significant remarks about property in Chapter IV (“Of Adam’s Title to Sovereignty by Donation”) of the First Treatise. Although most of my discussion is based on Locke’s treatment in the Second Treatise, I may occasionally draw upon his comments in the First Treatise.

According to Locke, in the “natural state”—that original condition in which every person had an equal right to use natural resources provided by the “spontaneous hand of Nature”—no one had “a private Dominion, exclusive of the rest of Mankind,” over those resources. But such resources would have been useless for human survival and well‐​being unless they could be appropriated by individuals for their personal use. So how can a transition from unowned resources to private ownership be morally justified? How can one person legitimately claim an exclusive right to use a resource that, in its natural state, could be used by anyone? Locke’s treatment of this problem remains highly controversial among scholars. His theory has been used to justify everything from laissez‐​faire to the welfare state to full‐​blown socialism. Which of these conflicting interpretations should be covered in my survey of Locke’s political ideas is a judgment call, and I frankly remain uncertain about my final decision. I fear that many of my readers will have little if any interest in the fine points of Lockean scholarship, however much those points may interest specialists. Fortunately perhaps, I can delay my decision until a later time. Before we can appreciate the ambiguity in some of Locke’s statements about property, we must first understand his overall approach. Hence the purpose of this essay (and probably the next installment as well) is to provide a barebones account of how John Locke justified private property, while postponing a consideration of the more controversial features until a later time.

Locke answered these questions by selecting the last of these options. The acorns became the private property of the owner when he picked them up, for it was in the gathering that labor was first expended. “That labour put a distinction between them and common. That added something to them more than Nature, the common Mother of all, had done, and so they became his private right.” But this raises a crucial question: “Was it a Robbery thus to assume to himself what belonged to all in Common?” Locke replied that to require universal consent would lead to universal starvation. More is involved here than the practical problem of obtaining the permission of every person on earth. Morally speaking, such consent is not required because, according to both reason and revelation, humans “have a right to their Preservation.” Thus if even the right to eat acorns and other natural goods could not be morally justified without first obtaining the consent of every commoner, “Man had starved, notwithstanding the Plenty God had given him.” (It should be noted that self‐​preservation had long been defended as a fundamental right—indeed, as a duty—by natural‐​law philosophers. In the thirteenth century, for example, Thomas Aquinas maintained that “whatever is a means of preserving human life belongs to the natural law, and whatever impedes it is contrary to it.”)

Locke stressed labor as the foundation of private property because some form of labor is the basic method by which we sustain ourselves, even if that labor consists of nothing more than picking up acorns off the ground. Humans cannot survive without labor, so coercively to expropriate the fruits of another man’s labor is to violate his fundamental right of self‐​preservation. Labor is involved in every life‐​sustaining activity.

#### Thus, the standard is consistency with the Self Ownership Proviso.

Feser 05 [Edward C. Feser is an American philosopher. He is Associate Professor of Philosophy at Pasadena City College in Pasadena, California, Social Philosophy and Policy Foundation, “There is no such thing as unjust initial acquisition,” Section II]/ lm

If what I have argued so far is correct, then the way is opened to the following revised case for strongly libertarian Lockean-Nozickian prop erty rights: We are self-owners, having full property rights to our body parts, powers, talents, energies, etc. As self-owners, we also have a right, given the SOP, not to have our self-owned powers nullified—we have the right, that is, to act within the extra-personal world and thus to acquire rights to extra-personal objects that the use of our self-owned powers requires.39 This might involve the buying or leasing of certain rights or bundles of rights and, correspondingly, the acquiring of lesser or greater degrees of ownership of parts of the external world, but as long as one is able to exercise one’s powers to some degree and is not rendered incapable of acting within that world, the SOP is satisfied. In any case, such rights can only be traded after they are first established by initial acquisition. In initially acquiring a resource, an agent does no one an injustice (it was unowned, after all). Furthermore, he has mixed his [their] labor with the resource, significantly altering it and/or bringing it under his control, and is himself solely responsible for whatever [the] value or utility the resource has come to have. Thus, he has a presumptive right to it, and, if his control and/or alteration (and thus acquisition) of it is (more or less) complete, his ownership is accordingly (more or less) full. The system of strong private property rights that follows from the acts of initial acquisition performed by countless such agents results, as a matter of empirical fact, in a market economy that inevitably and dramatically increases the number of resources available for use by individuals, and these benefited individuals include those who come along long after initial acquisition has taken place. (Indeed, it especially includes these latecomers, given that they were able to avoid the hard work of being the first to “tame the land” and draw out the value of raw materials.)40 The SOP is thus, in fact, rarely, if ever, violated. The upshot is that a system of Lockean-Nozickian private property rights is morally justified, with a strong presumption against tampering with existing property titles in general. In any case, there is a strong presumption against any general egalitarian redistribution of wealth, and no case whatsoever to be made for such redistribution from the general theory of property just sketched, purged as it is of the Lockean proviso, with all the egalitarian mischief-making the proviso has made possible.

This outcome has the virtue of restoring to Nozick’s system the theoretical simplicity and elegance that his (rather unsystematically articulated) commitment to the Lockean proviso threatened to distort. At the same time, replacement of the Lockean proviso with the self-ownership proviso allows us to sidestep the (arguably) counterintuitive consequences of rejecting the former. Still, since there is no such thing as an unjust initial acquisition, very strong property rights to unowned external objects come to be quite easy to obtain; and they, together with the thesis of self-ownership, give us Nozick’s principle of justice in transfer, with all its highly anti-egalitarian and anti-redistributionist consequences. The picture that results is very much a libertarianism with foundations.

#### Prefer additionally –

#### 1] Performativity – debate presupposes self-ownership.

Kinsella 11 [Stephan Kinsella, Stephan Kinsella is an attorney in Houston, director of the Center for the Study of Innovative Freedom, and editor of Libertarian Papers., Mises Institute, "Argumentation Ethics and Liberty: A Concise Guide," 05/23/11, https://mises.org/library/argumentation-ethics-and-liberty-concise-guide]

In essence, Hoppe's view is that argumentation, or discourse, is by its nature a conflict-free way of interacting, which requires individual control of scarce resources. In genuine discourse, the parties try to persuade each other by the force of their argument, not by actual force: Argumentation is a conflict-free way of interacting. Not in the sense that there is always agreement on the things said, but in the sense that as long as argumentation is in progress it is always possible to agree at least on the fact that there is disagreement about the validity of what has been said. And this is to say nothing else than that a mutual recognition of each person's exclusive control over his [their] own body must be presupposed as long as there is argumentation (note again, that it is impossible to deny this and claim this denial to be true without implicitly having to admit its truth). ([TSC](http://mises.org/resources/431/A-Theory-of-Socialism-and-Capitalism), p. 158) Thus, self-ownership is presupposed by argumentation. Hoppe then shows that argumentation also presupposes the right to own homesteaded scarce resources as well. The basic idea here is that the body is "the prototype of a scarce good for the use of which property rights, i.e., rights of exclusive ownership, somehow have to be established, in order to avoid clashes" ([TSC](http://mises.org/resources/431/A-Theory-of-Socialism-and-Capitalism), p. 19). As Hoppe explains, “The compatibility of this principle with that of nonaggression can be demonstrated by means of an argumentum a contrario. First, it should be noted that if no one had the right to acquire and control anything except his own body … then we would all cease to exist and the problem of the justification of normative statements … simply would not exist. The existence of this problem is only possible because we are alive, and our existence is due to the fact that we do not, indeed cannot, accept a norm outlawing property in other scarce goods next and in addition to that of one's physical body. Hence, the right to acquire such goods must be assumed to exist.

#### 2] Aspec – Only Self-Ownership explains the legitimacy of government. Independently, protection of property rights are a side constraint on government’s existence.

Tuckness 18 – [Associate Professor of Political Science, Director of the Public Policy and Administration Program, Iowa State University, Alex, "Locke's Political Philosophy", The Stanford Encyclopedia of Philosophy, Summer 2018 Edition, Edward N. Zalta (ed.), https://plato.stanford.edu/archives/sum2018/entries/locke-political/, accessed 6-24-21]

John Locke (1632–1704) is among the most influential political philosophers of the modern period. In the Two Treatises of Government, he defended the claim that men are by nature free and equal against claims that God had made all people naturally subject to a monarch. He argued that people have rights, such as the right to life, liberty, and property, that have a foundation independent of the laws of any particular society. Locke used the claim that men are naturally free and equal as part of the justification for understanding legitimate political government as the result of a social contract where people in the state of nature conditionally transfer some of their rights to the government in order to better ensure the stable, comfortable enjoyment of their lives, liberty, and property. Since governments exist by the consent of the people in order to protect the rights of the people and promote the public good, governments that fail to do so can be resisted and replaced with new governments. Locke is thus also important for his defense of the right of revolution. Locke also defends the principle of majority rule and the separation of legislative and executive powers. In the Letter Concerning Toleration, Locke denied that coercion should be used to bring people to (what the ruler believes is) the true religion and also denied that churches should have any coercive power over their members. Locke elaborated on these themes in his later political writings, such as the Second Letter on Toleration and Third Letter on Toleration.

#### 3] Separateness of persons – justifies a right to self-ownership and property that cannot be aggregated with the interests of others.

Narveson 10 [Narveson, Jan (2010). Property and rights. Social Philosophy and Policy 27 (1):101-134.]

The idea of self ownership—that is, of a general right to liberty—is rooted in our particularity and our individuality. Persons are separate: one person’s purposes are not another’s; there is no necessary normative output from A’s interests to B’s. Consequently, when the pursuit of interests is to be curtailed by consideration of the interests of others, this will have to be due to aspects of interaction, specifically the impinging of some persons on others in such a way as to create a potential for cooperatively derived mutual benefit—or the reverse. This provides genuine reason, seen from each agent’s internal point of view, for restricting one’s own pursuit of benefit: the reason is simply that we stand to do better with such restrictions than without them, provided, of course, that others accept such restrictions as well. This abstract result seems to be viewed with alarm by many theorists, who apparently suppose that morals must require self-abnegatory altruism. The trouble with that, however, is that selves are the only beings with interests; they are, normatively speaking, all we have, and therefore, negating them means, on the face of it, abandoning the whole point of being someone in particular—as we all are, after all. If the point is generalized, then it raises the problem that if my self means nothing, why should anybody else’s mean something? If the satisfaction of some self doesn’t count, independently of who provided the sources of that satisfaction, then the point of altruism is as completely defeated as the initial selfinterest to be abnegated. Our individual persons and pursuits are what we have, and the general principle of liberty protects us in being the persons we are, doing what we want to do, and thus acquiring what we can and want to acquire, compatibly with the similar right of others.

#### Now negate –

#### 1] Appropriation in initial acquisition of space is never unjust.

Feser 05 [Edward C. Feser is an American philosopher. He is Associate Professor of Philosophy at Pasadena City College in Pasadena, California, Social Philosophy and Policy Foundation, “There is no such thing as unjust initial acquisition,” Section II]/ lm

There is a serious difficulty with this criticism of Nozick, however. It is just this: There is no such thing as an unjust initial acquisition of resources; therefore, there is no case to be made for redistributive taxation on the basis of alleged injustices in initial acquisition.

Giving what I shall call “the basic argument” for this audacious claim will be the task of Section II of this essay. The argument is, I think, compelling, but by itself it leaves unexplained some widespread intuitions to the effect that certain specific instances of initial acquisition are unjust and call forth as their remedy the application of a Lockean proviso, or are otherwise problematic. (A “Lockean proviso,” of course, is one that forbids initial acquisitions of resources when these acquisitions do not leave “enough and as good” in common for others.) Thus, Section III focuses on various considerations that tend to show how those intuitions are best explained in a way consistent with the argument of Section II. Section IV completes the task of accounting for the intuitions in question by considering how the thesis of self-ownership itself bears on the acquisition and use of property. Section V shows how the results of the previous sections add up to a more satisfying defense of Nozickian property rights than the one given by Nozick himself, and considers some of the implications of this revised conception of initial acquisition for our understanding of Nozick’s principles of transfer and rectification.

The reason there is no such thing as an unjust initial acquisition of resources is that there is no such thing as either a just or an unjust initial acquisition of resources. The concept of justice, that is to say, simply does not apply to initial acquisition. It applies only after initial acquisition has already taken place. In particular, it applies only to transfers of property (and derivatively, to the rectification of injustices in transfer). This, it seems to me, is a clear implication of the assumption (rightly) made by Nozick that external resources are initially unowned. Consider the following example. Suppose an individual A seeks to acquire some previously unowned resource R. For it to be the case that A [them to] commits an injustice in acquiring R, it [there] would also have to be the case that there is some individual B (or perhaps a group of individuals) against whom A commits the injustice. But for B to have been wronged by A’s acquisition of R, B [they] would have to have had a rightful claim over R, a right to R. By hypothesis, however, B did not have a right to R, because no one had a right to it—it was unowned, after all. So B was not wronged and could not have been. In fact, the very first person who could conceivably be wronged by anyone’s use of R would be, not B, but A himself, since A is the first one to own R. Such a wrong would in the nature of the case be an injustice in transfer—in unjustly taking from A what is rightfully his—not in initial acquisition. The same thing, by extension, will be true of all unowned resources: it is only after someone has initially acquired them that anyone could unjustly come to possess them, via unjust transfer. It is impossible, then, for there to be any injustices in initial acquisition.7

#### 2] There is no relevant difference in appropriation in space.

Baca 93 – [Associate at Gallop, Johnson & Neuman, St Louis, Missouri, Kurt Anderson, Property Rights in Outer Space, 58 J. Air L. & Com. 1041, 1993, <https://scholar.smu.edu/jalc/vol58/iss4/4>, accessed 6-24-21]/ lm

The powers necessary to constitute an efficient system of property rights on Earth have been found, by deduction from first principles by political philosophers influential in the development of the Western institutions and from history and practice in the courts, to be the power to exclude, to use, and to dispose. 98 The resulting system is also inherently equitable as it benefits society as a whole and as it protects investments and expectations. This system would remain equitable so long as the initial allocation of any new resource was, and is, not based on mere usurpation of unclaimed property, but is based on investment in the property that adds to its value. 99

How does the extension of man's activities into space and onto the celestial bodies change the basic necessities of an efficient and equitable property rights system? The movement of activities into space affects only the place of activities. The nature of those activities and of the actor remain unchanged. The nature of efficiency and equity are likewise unchanged, and the need for certain securities and guarantees to foster productive activity by man is unchanged. The same property rights system that is most beneficial on Earth will be most beneficial on the celestial bodies.

The principles of the Outer Space Treaty do not necessarily contradict these property concepts. It has already been shown that the notion of property rights, including the power to use and dispose, are not incompatible with the general principles of the Outer Space Treaty.20 ' The principle of access in space is also appropriate when properly interpreted. ° But, in regulating access, governing bodies must make proper account for the use of various portions of space and of the rights of the user to be free of harmful interference. 3 Although the provision of Article II against national appropriation contradicts these property concepts, it is inconsistent with the notions of jurisdiction and ownership found elsewhere in the treaty.2 0 4 This provision should therefore be modified and replaced with a concept of reasonable use or investment.20 5 Such a provision should provide for initial allocation of unclaimed property only upon productive use or investment. This would allow for the security of national sovereignty while preventing the non-productive reservation of vast resources by non-users.20 6

### 2

#### The private sector is set to start asteroid mining through innovation and investment happening now.

Gilbert 21 [Alex Gilbert is a complex systems researcher and a PhD student in space resources at the Colorado School of Mines. "Mining in Space Is Coming." Milken Institute Review, April 26, 2021, [www.milkenreview.org/articles/mining-in-space-is-coming](http://www.milkenreview.org/articles/mining-in-space-is-coming)]

Space exploration is back. after decades of disappointment, a combination of better technology, falling costs and a rush of competitive energy from the private sector has put space travel front and center. indeed, many analysts (even some with their feet on the ground) believe that commercial developments in the space industry may be on the cusp of starting the largest resource rush in history: mining on the Moon, Mars and asteroids.

While this may sound fantastical, some baby steps toward the goal have already been taken. Last year, NASA awarded contracts to four companies to extract small amounts of lunar regolith by 2024, effectively beginning the era of commercial space mining. Whether this proves to be the dawn of a gigantic adjunct to mining on earth — and more immediately, a key to unlocking cost-effective space travel — will turn on the answers to a host of questions ranging from what resources can be efficiently.

As every fan of science fiction knows, the resources of the solar system appear virtually unlimited compared to those on Earth. There are whole other planets, dozens of moons, thousands of massive asteroids and millions of small ones that doubtless contain humungous quantities of materials that are scarce and very valuable (back on Earth). Visionaries including Jeff Bezos imagine heavy industry moving to space and Earth becoming a residential area. However, as entrepreneurs look to harness the riches beyond the atmosphere, access to space resources remains tangled in the realities of economics and governance.

Start with the fact that space belongs to no country, complicating traditional methods of resource allocation, property rights and trade. With limited demand for materials in space itself and the need for huge amounts of energy to return materials to Earth, creating a viable industry will turn on major advances in technology, finance and business models.`

That said, there’s no grass growing under potential pioneers’ feet. Potential economic, scientific and even security benefits underlie an emerging geopolitical competition to pursue space mining. The United States is rapidly emerging as a front-runner, in part due to its ambitious Artemis Program to lead a multinational consortium back to the Moon. But it is also a leader in creating a legal infrastructure for mineral exploitation. The United States has adopted the world’s first spaceresources law, recognizing the property rights of private companies and individuals to materials gathered in space.

However, the United States is hardly alone. Luxembourg and the United Arab Emirates (you read those right) are racing to codify space-resources laws of their own, hoping to attract investment to their entrepot nations with business-friendly legal frameworks. China reportedly views space-resource development as a national priority, part of a strategy to challenge U.S. economic and security primacy in space. Meanwhile, Russia, Japan, India and the European Space Agency all harbor space-mining ambitions of their own. Governing these emerging interests is an outdated treaty framework from the Cold War. Sooner rather than later, we’ll need new agreements to facilitate private investment and ensure international cooperation.

What’s Out There

Back up for a moment. For the record, space is already being heavily exploited, because space resources include non-material assets such as orbital locations and abundant sunlight that enable satellites to provide services to Earth. Indeed, satellite-based telecommunications and global positioning systems have become indispensable infrastructure underpinning the modern economy. Mining space for materials, of course, is another matter.

In the past several decades, planetary science has confirmed what has long been suspected: celestial bodies are potential sources for dozens of natural materials that, in the right time and place, are incredibly valuable. Of these, water may be the most attractive in the near-term, because — with assistance from solar energy or nuclear fission — H2O can be split into hydrogen and oxygen to make rocket propellant, facilitating in-space refueling. So-called “rare earth” metals are also potential targets of asteroid miners [are] intending to service Earth markets. Consisting of 17 elements, including lanthanum, neodymium, and yttrium, these critical materials (most of which are today mined in China at great environmental cost) are required for electronics. And they loom as bottlenecks in making the transition from fossil fuels to renewables backed up by battery storage.

#### Asteroid mining boosts the economy, solves resource scarcity, lowers costs of space exploration, and solves climate change.

Mallick 19 [Senjuti Mallick graduated from ILS Law College, Pune, in 2016. She was a Law Researcher at the High Court of Delhi from 2016 to 2018 and is currently pursuing LL.M in International Law at The Fletcher School of Law and Diplomacy, USA. She has been doing research on Outer Space Law since she was a student at ILS. Presently, she is working on different aspects of Space Law, in particular, Space debris mitigation and removal, and the law of the commons. She has published articles on Space Law in the All India Reporter Law Journal and The Hindu, Dr Rajeswari (Raji) Pillai Rajagopalan is the Director of the Centre for Security, Strategy and Technology (CSST) at the Observer Research Foundation, New Delhi.  Dr Rajagopalan was the Technical Advisor to the United Nations Group of Governmental Experts (GGE) on Prevention of Arms Race in Outer Space (PAROS) (July 2018-July 2019).  She was also a Non-Resident Indo-Pacific Fellow at the Perth USAsia Centre from April-December 2020.  As a senior Asia defence writer for The Diplomat, she writes a weekly column on Asian strategic issues, Observer Research Foundation, “If space is ‘the province of mankind’, who owns its resources?” January 24th 2019, <https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn8]/> lm

Indeed, the economic imperative for space mining is evident and analysts predict that these extraction activities could translate to a multibillion-dollar industry. NASA estimates, for example, that the [value of asteroids](https://metro.co.uk/2018/06/11/new-asteroid-gold-rush-earn-everyone-earth-75-billion-7622439/)out there could be in the vicinity of US$700 quintillion – that amount is roughly equivalent to US$95 billion for each of us here on Earth.[[iv]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn4)  Another major attraction for the prospective extraterrestrial mining companies is the availability of precious minerals in abundance on the Moon, on Mars and the asteroids (among them—lithium, cobalt, nickel, copper, zinc, niobium, molybdenum, lanthanum, europium, tungsten, and gold).[[v]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn5) After all, these metals and mineral resources have grown scarce on Earth, and both governments and commercial actors are pushing to look to celestial bodies for resources.[[vi]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn6)

Technological innovation—primarily brought about by commercial players such as Elon Musk[[2]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_ftn2) and Jeff Bezos[[3]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_ftn3)—is changing the landscape of space exploration. Leading the way in this new-era race are the startups including Planetary Resources, Deep Space Industries, Ispace, and Kleos Space.[[vii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn7) Research into the feasibility of human and robotic missions to asteroids is being conducted by both governmental organisations, like NASA and JAXA (Japan Aerospace Exploration Agency), as well as private companies such as Planetary Resources.[[viii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn8) However, for realising affordable space travel and space industrialisation, it is essential to find extraterrestrial materials such as metals, minerals and water that do not have to be transported from Earth. Thus, the first objective in carrying out asteroid mining activity is to obtain elements that are critical for basic sustenance on Earth. It has been identified that the asteroid belt in our solar system contains eight-percent metal-rich (M type) asteroids and 75-percent volatile-rich carbonaceous (C type) asteroids.[[ix]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn9)

The second incentive for celestial mining companies is to haul precious minerals and cargo raw materials to Earth to fuel its fast depleting resources. This would significantly increase the mining company’s valuation and greatly impact the global economy. According to a 2012 Reuters interview with Planetary Resources, a 30-meter-long (98-foot) asteroid can hold platinum worth somewhere from US$25 billion to US$50 billion.[[x]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn10)  These metals are highly useful and valuable, both on Earth and in space.[[xi]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn11)

Third, asteroids give humans the potential to create tools in space, since iron, nickel and cobalt are in abundance.[[xii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn12) Chris Lewicki, Planetary Resources CEO, has said, “Using 3D printing technology one can grab material off asteroids and 3D print something that never has to be on a rocket. Tools, machines and even habitats can then be built off Earth, reducing the cost of exploration even further.[[xiii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn13) Fourth, resource extraction is also becoming a focus for many Middle Eastern nations.[[xiv]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn14) The Middle Eastern oil States, such as Saudi Arabia and the United Arab Emirates are investing heavily in this industry as they are looking at space as a way to diversify out of the earthly benefits of fossil fuel.[[xv]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn15) Fifth, countries such as India and China are looking to mine the Moon for extracting Helium-3, which is considered a clean and efficient form of energy. It is thought that th[at]is isotope could provide safer nuclear energy in a fusion reactor, since it is not radioactive and would not produce dangerous waste products.[[xvi]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn16)

Finally, the water available in outer space could be used to make rocket propellants. According to scientists, since water is abundant in outer space, in some or the other form, it could be extracted and electrolysed to derive hydrogen and oxygen, the key ingredients of rocket fuel.[[xvii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn17) Thus, instead of carrying one’s own fuel all the way, asteroids could serve as extraterrestrial/orbital “gas stations” for fuelling future deep space missions. This would simultaneously make space travel more cost-effective and productive. Such ventures are also seen to be intrinsic to further science and discovery, in addition to revolutionising commercial development in outer space. The mining of asteroids could also provide a near-infinite [supply of the precious resources for Earth to use.](https://www.telegraph.co.uk/finance/newsbysector/industry/mining/9222766/Planetary-Resources-unveils-cosmic-plan-to-boldly-go-and-mine-asteroids-for-gold-and-platinum.html)[[xviii]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn18)

#### That’s key to offsetting emissions from terrestrial mining and maintaining the tech advancements necessary to transitioning off fossil fuels and stopping species extinction.

**Bell 19** [Aidan Bell is the co-founder of EnviroBuild, a sustainable building materials company based in London. PhD from Manchester in Inorganic Chemistry. "The Conflict of Tech Innovation and Sustainability." TechNative, 22 Jan. 2019, technative.io/the-conflict-of-tech-innovation-and-sustainability]

The current technological dilemmas that we face today are similar to those of ancient time.  Overuse of a resource for immediate human benefit risks longer-term negative influence.  A report conducted by Greenpeace found that Internet data centres have incredibly large carbon footprints, accounting for 3% of global electricity use, much of it in locations that offer cheap, but dirty, electricity. Likewise, the minerals that are found in electronic devices like mobile phones, such as tantalum and gold, often originate from unregulated mining that releases harmful substances into the surrounding soil, air and water. Mining also contributes hugely to deforestation, which is responsible for 15% of global greenhouse gas emissions.

The negative impacts of technological innovation are increasing and action needs to be taken soon to resolve this crisis for the sake of future generations. The Intergovernmental Panel on Climate Change (IPCC) report last month warned that we have just 12 years to reduce the rate of global warming before widespread flooding and droughts become unavoidable. The demand for minerals and energy brought about by technological advancements shows no sign of slowing down, painting a worrying picture for the future of the planet.

Faced with the consequences of our intelligence, humanity now has to use its incredible versatility to overcome the challenges it has created for itself. For example, wind and solar power are increasingly becoming economically-viable sources of unlimited, free electricity and provide us with the opportunity to reduce our dependence on harmful fossil fuels. Bioengineering should help us protect surface soils and the ecosystems that depend on them by maintaining healthy levels of nutrients and soil salinity. Technological advancements will even help us prevent species extinction events that would otherwise destroy our Earth altogether, with NASA already developing spacecraft to push approaching asteroids out of our orbit.

#### That causes extinction.

Strona 18 Giovanni, Flinders University, Bradshaw, Corey J. A., Scientific Reports, Science Daily, “Climate Change risks ‘extinction domino effect,’” https://www.sciencedaily.com/releases/2018/11/181129122506.htm

New research reveals the extinction of plant or animal species from extreme environmental change increases the risk of an [leads to] 'extinction domino effect' that could annihilate all life on Earth. This would be the worst-case scenario of what scientists call 'co-extinctions', where an organism dies out because it depends on another doomed species, with the findings published today in the journal Scientific Reports. Think of a plant's flower pollinated by only one species of bee -- if the bee becomes extinct, so too will the plant eventually. "Even the most resilient species will inevitably fall victim to the synergies among extinction drivers as extreme stresses drive ecosystems to collapse." says lead author Dr Giovanni Strona of the European Commission's Joint Research Centre based in Ispra in northern Italy. Researchers from Italy and Australia simulated 2,000 'virtual earths' linking animal and plant species. Using sophisticated modelling, they subjected the virtual earths to catastrophic environmental changes that ultimately annihilated all life. Examples of the kinds of catastrophes they simulated included runaway global warming, scenarios of 'nuclear winter' following the detonation of multiple atomic bombs, and a large asteroid impact. "What we were trying to test is whether the variable tolerances to extreme global heating or cooling by different species are enough to explain overall extinction rates," "But because all species are connected in the web of life, our paper demonstrates that even the most tolerant species ultimately succumb to extinction when the less-tolerant species on which they depend disappear." "Failing to take into account these co-extinctions therefore underestimates the rate and magnitude of the loss of entire species from events like climate change by up to 10 times," says co-author Professor Bradshaw of Flinders University in South Australia Professor Bradshaw and Dr Strona say that their virtual scenarios warn humanity not to underestimate the impact of co-extinctions. "Not taking into account this domino effect gives an unrealistic and exceedingly optimistic perspective about the impact of future climate change," warns Professor Bradshaw. It can be hard to imagine how the demise of a small animal or plant matters so much, but the authors argue that tracking species up to total annihilation demonstrates how the loss of one can amplify the effects of environmental change on the remainder. "Another really important discovery was that in the case of global warming in particular, the combination of intolerance to heat combined with co-extinctions mean that 5-6 degrees of average warming globally is enough to wipe out most life on the planet," says Dr Strona. Professor Bradshaw further warns that their work shows how climate warming creates extinction cascades in the worst possible way, when compared to random extinctions or even from the stresses arising from nuclear winter.

### 4

#### Counterplan: Establish an international body to regulate Commercial Space Activity.

**Iliopoulos 20** [Iliopoulos, Nikolaos [University of Tokyo], and Miguel Esteban [Waseda University]. "Sustainable space exploration and its relevance to the privatization of space ventures." Acta Astronautica 167 (2020): 85-92.]

The envisioned legal regime to encourage private firms to undertake the high risk and high cost involved in activities of space exploration would have to explicitly recognize extra-terrestrial property claims of individuals and corporations that meet specified conditions. As such, based on the conclusions made through this paper ,it is considered that with the right negotiation terms, the current treaties can be revised so as to become steppingstones for the advancement of space exploration that could potentially bring forth significant changes to the environment surrounding planet Earth. Finally, one way that such privatization efforts could be seen to benefit of [hu]mankind as a whole is that any taxation resulting from it should be paid directly to the United Nations, or that at least some fraction of the profits should fund this organization.

#### That solves space debris and other concerns of space mining.

Fladeland 19 [Fellow at the Outer Space Institute, Logan, Aaron C. Boley, Michael Byers, Meteoroid Stream Formation Due to the Extraction of Space Resources from Asteroids, Conference paper for the 1st International Orbital Debris Conference, December 2019, <https://arxiv.org/abs/1911.12840>, accessed 6-25-21]

Fortunately, it may be possible to establish simple measures that could mitigate some of these concerns, particularly the formation of debris streams with non-trivial mass fluxes. Examples include establishing an international body with the authority to grant mining permits, much like the International Seabed Authority established under the 1982 United Nations Convention on the Law of the Sea. In any scenario, safety and sustainability requirements should be part of the licensing regime. Some of these requirements could limit mining rates or require a company to produce a risk-to-Earth assessment plan. Some asteroids could even be deemed untouchable for safety or scientific reasons. As space law is redefined in the NewSpace era, it must be fully informed by the astrophysical context.

### Underview

#### Presumption negates – infinite ways for something to be false but only one way for them to be true, and the aff has the burden of proof. Permissibility negates – doing the aff isn’t obligatory then the squo is permissible.

# Case