
Down to Earth – Labor Issues and Human Rights in Outer Space

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The anticipated commercialization of outer space underscores the [growing need](#) for human rights protections for those living and working in space, predicated upon established rights under international human rights law (IHRL), but attuned to the unique challenges of outer space to a workers’ health, safety and dignity.

As space exploration and development becomes more commercialized, an increasing number of private citizens are going to be living and working in space. This new reality has already been realized, to some extent, by the increasing number of private commercial space missions travelling to the International Space Station. This has resulted in a growing concern that, as with other significant social changes and revolutions in commercialization and industrialization, workers may end up disadvantaged and exploited.

Given the extreme and hazardous environments of outer space, the future reality of living and working in space will likely involve a significant degree of dependency upon one’s employers. As space workers will be reliant upon their employers to provide the most basic necessities of life - including breathable air, drinkable water, and a pressurized environment - it is essential that the international community take proactive steps to develop international and extraterrestrial norms and standards to keep non-military and non-governmental workers safe in space.

While, at present there are no specific international treaties or laws governing the rights and protections of space workers, the existence of traditional IHRL focused international conventions and general space agreements provide for a variety of methods by which a new legal foundation for workers’ rights in outer space can be laid.

Context

Throughout human history, workers have often faced exploitation at the hands of employers. Although the most extreme examples of slavery and indentured servitude have been largely eliminated on Earth, there remain many examples of inhumane and unethical treatment of workers around the globe.

Many migrant and foreign domestic workers working in [Hong Kong](#) and across the [Middle East](#) often live in environments completely controlled by their employers, with numerous well-documented cases of the gross mistreatment of these workers. This includes not having enough living space to comfortably sleep in, being denied the right to have rest days, the inability to cease employment when they want, and even instances of physical and sexual abuse.

And there are significantly more opportunities for similar exploitation and abusive practices in space, where the unique outer space environment creates a completely different power dynamic between employees and employers. Particularly given the potential challenges surrounding the affordability of life sustaining elements; limitations on physical space and privacy within space habitats; and where the right to rest and leisure may be limited. On Earth, one is not normally reliant on their employer for



oxygen, food, or a habitable place to live. In contrast, in space an employee may be completely reliant upon their employer for the ability to breathe, survive, and thrive. This type of dynamic may facilitate a return of coercive labor practices in the development and emergence of “space company towns”.

[Company towns](#) used to be prevalent in early industrialized America of the 19th century, where workers would essentially end up owing large sums of money to the company they worked for after being forced to purchase food, equipment, and other necessities directly from the company’s store. The cost of these necessary supplies was often highly inflated by these companies, to the extent that employees would essentially end up working for free and trapped within a cycle of debt. And this cycle was sometimes impossible to break as many workers could never earn enough money to leave their jobs due to the significant debts they owed to the company. The result was fundamentally a return to serfdom.

International Space Law

With this potential for inhumane exploitation, the need for some sort of workers’ rights protections for outer space laborers becomes apparent. And the foundation for the development of a framework for space workers’ rights could begin with the [1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies](#) (the “Moon Agreement”). Although, the Big Three Space Powers (the United States, Russia, and China), who are most likely to set up any initial facilities on the moon and/or other celestial bodies, are not parties to this agreement, the basic principles included within the agreement expand upon more commonly accepted international customs and norms.

Article 2 of the Moon Agreement states that “All activities on the moon [. . .] shall be carried out in accordance with international law...” This extends pre-existing international law into the domain of outer space by challenging state parties to interpret and apply international agreements and principles to activities upon the lunar surface. While most of the Agreement speaks largely in terms of just the Moon, the terms of the agreement are generally considered applicable to all other celestial bodies. Additionally, Article 10 requires that state parties “adopt all practicable measures to safeguard the life and health of persons on the moon.” This may be interpreted as requiring states to create a minimum standard of protection for space workers, ensuring their right to life and health while working in space. However, aside from these two references, the Moon Agreement is largely silent on human or workers’ rights in space.

However, the Moon Agreement does provide some guidance on how we can approach employment relationships in space by creating an analogous legal framework to other existing terrestrial legal systems. Article 11 prohibits the Moon from being claimed by any sovereignty, establishing that no portion of the surface of the moon or subsurface can become the property of any one state, despite permitting the installation of facilities on the Moon. Additionally, Article 12 makes clear that states “retain jurisdiction and control over their personnel, space vehicles, equipment, facilities, stations and installations on the moon.” Thus, the Moon and its subsurface are essentially considered *Res Nullius* – effectively “international waters” within which any installations are akin to boats in international waters, the interior of which is considered the sovereign territory of the controlling state. Article 14 then extends these basic concepts to non-governmental entities.

This parallel between space and international waters allows us to build off existing international maritime law in shaping how one envisions the future of workers’ rights in space. We can then extrapolate from the current legal protections provided for seaman working on an ocean bound vessel. Under international maritime law, ships are typically registered with countries that provide them with the most favorable legal and jurisdictional rights. Transposing this scenario to space, there is a concern that spaceships, installations, and other facilities in space will attempt to do the same, thereby creating a so-called race to the bottom as privately owned enterprises look to minimize costs and maximize profits by registering within select terrestrially-based countries with lax human rights and employment laws.

Yet, because the ability to launch into space remains limited to a small handful of states that have the requisite technical and financial resources to support such launches, these states (as often done with



ships that make port in their territory) may require the application of additional protections for individuals embarking on any space vehicles launching from their territory. For example, the [1920 Jones Act](#) in America protects American sailors who are injured on ships or need medical care and maintenance aid for living expenses while recovering from injuries or illnesses sustained while working onboard a ship. Consequently, similar provisions may therefore be extended to American space laborers departing from United States territories, or aboard American registered space vehicles, installations, and facilities.

International Human Right Law

Another key source of international law which we can draw upon in the formation of a baseline for space workers' rights is the [1990s International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families](#) (the "Migrant Workers' Rights Convention"). While only 56 states are party to this convention, and the Big Three Space Powers are not parties, the convention exists as an authoritative international agreement related to the protection, and establishment, of basic norms for individuals working abroad or onboard vessels registered to states which they are not nationals of.

Akin to the Moon Agreement, the Migrant Workers' Rights Convention includes some foundational basic protections - including the right to life (Article 9) and health (Article 70) of migrant workers. And we can pull from these most fundamental rights underlying core values that would require employers to provide space workers with oxygen, food and water, an atmosphere and habitable environment, and some sort of physically adequate living space. Because without such rudimentary staples of human life, neither the life nor the health of space workers would be secure. And there is a good argument that such resources would need to be provided free of cost by the employer to their employees given the fact that these things are not easily accessible in space, and it would be cost prohibitive for any traditional worker to be able to afford these most basic necessities in space. In fact, requiring one to pay for one's oxygen, living quarters, etc. would end up amounting to something similar to indentured servitude as it is unlikely that most space workers would be able to pay for such things from their meager wages

The Migrant Workers' Rights Convention also provides for numerous human rights protections designed to prevent exploitative employment practices. Concerning civil and political considerations: Article 11 prohibits slavery, forced labor, and indentured servitude; Article 10 prohibits cruel, inhuman, or degrading treatment of migrant workers; and Article 14 protects against "arbitrary or unlawful interference with his or her privacy, family, correspondence or other communications". Maintaining a clear and accurate means of communication intertwines with the need to preserve individual mental health and wellbeing, particularly important in space where one might be millions of miles from their home and families for months or years at a time.

And additional key workers' rights protections include Article 20, which prohibits a migrant worker from being "imprisoned merely on the ground of failure to fulfil a contractual obligation"; Article 67, which obligates states to adopt measures to allow for the orderly return of migrant workers to their states of origin; Article 28, which entitles migrant workers to emergency medical care, also of particular import in space where accidents can quickly turn deadly; and Article 25, which requires that migrant workers enjoy employment circumstances "not less favorable" than that enjoyed by nationals of the employer State.

In interpreting these protections, employers would be obligated to repatriate space workers back to Earth once their employment relationship concluded, whether mutual or one sided. Further, the requirement for employers to treat space migrant workers on equal footing with their workers on Earth would expand to other conditions of work - including "overtime, hours of work, weekly rest, holidays with pay, safety, [and] health," with employees prohibited from contracting these protections away.

This draws further attention to the temporal aspects of life and work in space and upon other celestial bodies, where the duration of a day or week may vary depending upon the place of work. A "day" is over 700 Earth hours long on the Moon and 25 Earth hours long on Mars, while a "year" on Mars is



defined as 687 Earth days. Yet our contemporary concept of workdays and weeks on Earth is based solely on a 24-hour day cycle, a 7-day week cycle, and the belief that working over a certain number of hours in a day or week can result in negative health impacts, endanger the safety of other employees, and decrease overall productivity.

While this temporal issue is of minor concern when orbiting Earth or upon similar celestial bodies, such questions must be addressed as humanity ventures farther from the Earth. Existing legal conventions may prevail in enforcing the concept of an 8-hour workday and a 40-hour work week in space and upon other celestial bodies. Businesses in space must also consider cultural holidays, overtime payments, and additional concerns such as “on-call” work.

Essential Humanitarian Workers’ Rights in Space

In summary, existing international agreements and labor protections can be used to establish a core group of basic human rights that all space workers should be entitled to enjoy. These would include:

1. A free and easily accessible supply of breathable atmosphere - allowing workers to live and work while in space and while aboard spaceships, installations, or other facilities owned and operated by their employer.
2. Free food and water - sufficient to allow workers to maintain their health while in space and while aboard spaceships, installations, or other facilities owned and operated by their employer.
3. A habitable environment - around which they can move freely, particularly when off-duty, but while aboard spaceships, installations, or other facilities owned and operated by their employer.
4. A fair and just wage - adequately compensating workers for the equivalent hours worked on Earth, and for the increased health and safety risks they experience while in space.
5. Reasonable workdays and work weeks - equivalent to Earth workdays and work weeks.
6. The right of return to Earth after the termination of their employment.
7. Health and safety guidelines - designed to minimize the long-term negative impacts of living and working in space so that space workers can return to Earth and resume their life back on their home planet.

Where the state the private company hales from is a party to the relevant IHRL agreements, such basic human rights norms for space workers should be enforceable through the appropriate tribunals. This has been demonstrated by how existing international treaties and agreements have been given extraterritorial force through international tribunals, such as the International Court of Justice. This provides the opportunity for a space worker, or their government, to potentially bring suit for violations of these core space workers’ rights, based on the well accepted [extra-territorial extension](#) of IHRL pursuant to direct sovereignty and effective, or physical, control.

Conclusion

In summary, the prevailing international framework for workers’ rights on Earth provides numerous opportunities for the extension of these rights, values, and principles into outer space through the normal extraterritorial extension of international law. However, as with all international legal systems, the strength and enforceability of these norms in space will ultimately only be as strong as the states who agree to be bound by these agreements and conventions. This is complicated by the fact that none of the Big Three Space Powers are parties to either the Moon Agreement or the Migrant Workers’ Rights Convention and the recent creation of alternative agreements (i.e. The Artemis Accords) remain silent on workers’ rights in space.

Thus, in much the same way that companies pledged to reduce carbon emissions following the United



States' withdrawal from the Paris Agreement Climate Accords, it may fall upon private employers to self-regulate and take the initial steps of ensuring basic essential rights for their space workers, including minimum safety and health standards. As such, it may be that workers' rights in space will initially be enforced primarily by public sentiment and pressure versus international conventions and agreements.

