

## **Space Lawyer Frans von der Dunk: A Less Strict Form of the Law of the Sea Might Be the Way to Go for Asteroid Mining**

This is the second part of our interview with Frans von der Dunk. In the [first part](#), we talked mostly about the very profession of a space lawyer, and covered some of the general questions regarding the further evolution of the space industry as a whole. In part two, we focused more on some practical issues with the emerging commercial use of outer space, namely mining resources from asteroids, and space tourism. Both of those endeavors are hardly a thing right now, and are yet to evolve into a booming industry. Still, as the technical problems get resolved, and space operations get increasingly cheaper, it looks like all of it becoming a reality is only a matter of time.

### **Asteroid Mining**

**lawless.tech:** There is a concept of “[common heritage of mankind](#),” referring to things that cannot be appropriated by governments or legal and physical persons. This concept strongly relates to the resources coming from the seabed. Still, the seabed legal framework is stricter than the one we have in relation to outer space. In your opinion, should asteroid mining regulations be as strict as those we have for the seabed, should they be less strict, or should it be something completely different?

**Frans von der Dunk:** If you talk about the seabed, it depends a little bit on what version you are focusing on. The original version in the [1982 Convention](#) [on the Law of the Sea] was very strict, because there was an international authority which had the exclusive right to license, and if you wanted that license you had to share benefits, you had to share technology, and that was a regime that was very strict. I certainly think that would be too strict for space mining, at least if you want the private sector to be interested in investing many billions in it, because we are not talking about small investment. If you are happy to leave the resources untouched until maybe 50 or 100 years from now, than you'd probably like a strict regime like that.

Yet, going back to the law of the sea, the strict regime of the 1982 has been considerably loosened by way of the [1994 New York Agreement](#). This has allowed most of the Western states, except for the US, to accept the common heritage of mankind provisions, as they relate to the law of the sea. Therefore, a less strict form of the law of the sea might be the way to go for asteroid mining.

And if you then try to look at what happened in space law, first of all, we should recognize that the [Moon Agreement](#), which is the only treaty in space law where the common heritage of mankind was mentioned, was only ratified by 18 countries, and the only real space-faring country among those is Australia. If you look at big space-faring nation states — the US, Russia, China, India, Brazil, Nigeria, the UK, France, Germany, Canada, Japan, and so on, — they are all not parties to the Moon agreement. So, number two, if you look at the Moon Agreement, it only refers to the common heritage of mankind. It doesn't indicate any of the details. It just talks about the international regime. And that still leaves the question open. Are we going for a very tight heavyweight international regime, such the one originally

intended for the law of the sea? Are we going for a very lightweight international regime?

If you look at ITU, the [International Telecommunication Union](#), there is a sort of a lightweight coordination regime for the use of frequencies and orbits. The ITU can't impose anything, it just hopes that states party to the ITU conventions will recognize the value of complying with the coordination process. Somewhere in between is the amended version of the law of the sea. So, the Moon Agreement doesn't specify how strict, the international regime should be. Because many of the Western countries were afraid that the regime under the Moon Agreement would follow too much the strict regime under the law of the sea, most of them decided not to ratify the Moon Agreement. Of course, countries such as Russia or China did not do so either. That's why we are in a sort of open-ended situation right now.

**lawless.tech: The Moon Agreement, unlike the 1967 Outer Space Treaty, [prohibits](#) resource extraction from celestial and space bodies. Still, you've [mentioned](#) that the extracted resources could legitimately become one's property under the Moon Agreement. Could you explain your position in details?**

**Frans von der Dunk:** First of all, I don't agree that the Moon Agreement prohibits resource extraction. What the Moon Agreement says is that such resources are a common heritage of mankind, that's Article 11, paragraph 1, which includes the need for an international regime, as per paragraph 5. An international regime has never been developed. As we discussed before, it can be very light and very open. If you take the ITU example, individual states can license private satellite operators to use frequencies as long as they comply with the lightweight international regime of the ITU. When it comes to resources, the only thing that is said about the natural resources in terms of appropriation is paragraph 3, and it doesn't say that you can not extract them, it says that the resources in place can not become the property of any state, international, intergovernmental, or a non-governmental organization, or a national, or a non-governmental entity. So, it only says that natural resources in place can not be the property, and that means that in legal terms you could well make the argument that even if the Moon Agreement would apply to major countries, like the US of Russia, — which it doesn't, because they are not parties, — after the natural resource has been extracted it could become the property of an individual state, because the only reference is made to natural resources in place.

In this context I often use the comparison with the law of the sea and the fish which is floating in it. No country can point at a certain part of the high seas and say "that area is mine and everybody else needs to stay out." However, the moment when a private fisherman goes to that particular part, and catches the fish therein and takes that fish in their net, nobody disagrees that the fisherman, as long as they comply with all the rules of the international law about overfishing, whaling, and pollution, etc, is entitled to own the fish.

In my perspective, the Moon Agreement does allow the extraction, because it does allow the ownership of extracted resources, it just doesn't allow the state to reserve it and say "hey, this asteroid is mine, everybody stays out and I will make a decision to harvest those resources whenever I like." That is, in my view, the appropriate reading. That means that the fact that the US and Luxembourg have created a law allowing space mining to happen would

not be in violation of the Moon Agreement, noting of course furthermore that neither Luxembourg, nor the US are parties to the Moon Agreement. That's a long story, but that's my interpretation.

**lawless.tech:** Imagine that a space mining company unintentionally changes the trajectory of an asteroid being mined. The asteroid or its part is now going to damage satellite or, even worse, it's going to hit the Earth. Who should be liable or responsible in this case: the state from the territory or facility of which the company's spacecrafts were launched, or the private companies operating those spacecrafts?

**Frans von der Dunk:** I think it's one of the things we should start thinking about in the international community. If you ask me who should be liable and responsible, I would prefer to hold the state from the territory or facility of which it was launched responsible and liable. That would make the most sense, considering the way current space treaties address liabilities, which of course, puts all the liability to the state, even though the actual case of damage is caused by the private operator. This requires the state also to make sure that the private operator is as safe as possible. The only problem in a legal sense is that the [Liability Convention](#) drafted in 1972 did not foresee this kind of scenario, because it talks about damage caused by space objects. The complicated question here is "if an asteroid or parts of asteroid hit the Earth, because some private operator changed its trajectory, can we still make the argument that the damage caused directly by the asteroid is still caused indirectly by the spacecraft which caused the asteroid to change its trajectory."?

I would hope that we could make that argument, because it would be a good thing if these operators and their states would be very careful in doing stuff with asteroids to minimize chances of incidents. But I'm not entirely at ease that that is going to be the case. We do run a risk that if something like that happens the launching state will try to argue that "the damage wasn't caused by a space object, so there is no launching state, the damage was caused by the asteroid, bad luck, sorry, nobody pays for the damage." I think that is a bad consequence. Yet, because that interpretation is not entirely excluded, as the Liability Convention is not specific enough, and because the Convention didn't foresee those scenarios, I would hope the international community could work towards an interpretation which then is accepted by everyone, which is in line your and mine interpretation. Namely, that the launching state should also be liable even if it caused harm indirectly.

## Space Tourism

**lawless.tech:** Up until now, the people who travel to outer space, except for [millionaires](#), who spent the enormous amount of money to see the Earth from the International Space Station, have the status of astronauts. Nevertheless, considering the rapid technological development, soon more people will be able to afford the round ticket to space in the following decades. Would (or should) those people have the legal status of astronauts? Should the provisions of the [Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space](#) be applied to "non-astronaut" space tourists in case of an accident?

**Frans von der Dunk:** In my view the answer should be "no." The whole idea of astronauts comes from the idea that outer space is to be used and explored to the benefit of all mankind. Astronauts, cosmonauts, and taikonauts that have visited space so far were paid employees of space agencies, who went through a very rigorous selection process and who have taken years and decades of training, before they actually went into outer space. And the things they were doing there, at least the things they were supposed to be doing there, would be for the benefit of all mankind. I mean things like science and Earth and space exploration, and so. And that is the main reason why, first of all, Article 5 of the [Outer Space Treaty](#), and the Rescue Agreement you've mentioned, were drafted to give those astronauts, who were risking their lives to do something that would benefit the whole mankind, would be entitled for some special level of protection. I don't think that just the fact that you are rich enough to pay for a trip to outer space entitles you to the same level of protection.

In the international legal field you already see a separation between a classical concept of astronauts and something called "spaceflight participants", which includes people like space tourists. So, for example, the few tourists on the ISS [[International Space Station](#)] were given a separate status under the ISS agreements. They were called "spaceflight participants" and not "crew."

That doesn't automatically imply that they are not astronauts under the Rescue Agreement. That has never been specified. But that would be, I think, the most local and the most legitimate conclusion. I know that there are some people who disagree with that and think "but, of course, these spaceflight participants should also be rescued, if possible." And I would say "yes," but that's part of the general human rights, that is not the special, the additional rights that the Rescue Agreement provides them with.

**lawless.tech:** In your opinion, do we need a special explicit bill or a protection agreement about protection and rescue of space tourists in particular or we are good with the existing conventions?

**Frans von der Dunk:** I would say, at some point we might need a special convention. But the concept of space tourism is too experimental yet to have a profound idea of where we are going to. But once we have a number of tourists in outer space, once we have the first tourists who actually are in danger and we have more of a closer idea of what happens, then, I think, it might be appropriate to start working. Maybe not even to a legal convention, although that might help, but some sort of protocol.

The best way to compare this is to high mountaineering. For example, climbing mount Everest and dangerous mountains like that. There are certain protocols and guidelines as to what to do if someone near the top of mount Everest suddenly can't walk any further and somebody has to come to the rescue. That's because there has been a lot of experience with climbing mount Everest and, unfortunately, a number of accidents. In some cases people have died and have not been able to be rescued. Before we have a little bit of that kind of experience, I don't think it makes sense to discuss this issue, but once that happens, yes, I could see the relevance. It may not be a binding international treaty, but at least a

common understanding that if something like that happens, operators should follow certain guidelines and protocols, and, if you will, moral obligations, to do certain things and try to come to the rescue.

The mountaineering example is very interesting, because everyone climbing mount Everest knows that it is potentially deadly. Obviously, if something happens, other mountaineers are required to try and help you, but there is a very important limit to that, and that is only to the extent that they don't risk their own lives. If they will also freeze to death trying to carry you, it has been accepted, in laws as well, that people are entitled to rescue themselves first and not to endanger their own lives only to save someone else. Something like that could be developed with regards to space once we see more tourists getting to the outer space.

**lawless.tech:** In your [TEDxVienna](#) speech you said that the international and national air laws define that the private company should be liable for the damage caused to passengers on board. However, the situation with international space law is completely different. According to the Article VII of the 1967 [Outer Space Treaty](#), the state should be held liable for all the damage that might be caused by space objects launched from its territory or facility. You also mentioned that international space law “does not address damage suffered by passengers on the board of spacecraft.” So, how to overcome this situation: should the liability be defined on the international level or national laws would be enough? If to regulate the issue states need to adopt appropriate laws, would those laws stay in line with the international regulations and how?

**Frans von der Dunk:** As an international lawyer and an academic, I would prefer an international regime. To me, in the last resort all humans are equal, regardless of which country they live in. It would make most sense if the rights they have as passengers would be equal all over the world. But that's not a very realistic approach.

The way I actually see things happening is a little bit like air law, where a hundred years ago the discussion of liabilities of airlines was started. Originally it was part of national legal regimes. To some extent it still is part of national legal regimes. However, because of international character of aviation, we have agreed that it would be not fair if a passenger on a flight in one part of the world have died and his wife receives \$50 000, while in another part of the world if the very same passenger would die, his widow would get \$200 000. That's not fair, so we've come to international agreements, whereby, essentially, nation states harmonize their national laws. But, unfortunately, depending on from where you're flying and what airline do you fly there is still difference in possible compensations.

If you look at space law, I see something similar happening, but even more complex. At this point in time, the only country where you really see a law in development in this area is the US, because most of the far-developed plans for space tourism, one way or another, all focus on the US. When other states start to plan this kind of activities, the way it will happen is that the Russian Federation will address this issue by means of national law which fits logically with the broader part of the liability system, and then it will start some discussion about harmonization with the US and probably some other states that are also in the game,

because they wouldn't want American tourists flying on Russian vehicles because of better compensation, or the other way around.

That's the kind of discussions you will be getting, but in reality I see this happening bottom up. Meaning that the states who are confronted with these flights will develop laws, firstly on the national level, because they know how to do that. And if space tourism becomes somewhat of a truly international sector, then we may see efforts to get international harmonization going.

**lawless.tech: If choosing between space law and air law, what would be the best fit for regulating space tourism? Why?**

**Frans von der Dunk:** I think the answer is not black and white. I think the way to go is to start seeing space tourism as a space-related activity, to which space laws apply, but recognizing that many elements are more alike to aviation, and that we can certainly learn from aviation in certain aspect. We should create something like a hybrid regime.

**lawless.tech: As was [said](#) in one of your articles regarding space tourism, there are several regulators in the US that could impose restrictions and adopt laws regarding space tourism, such as NASA, the Federal Communication Commission (FCC), the National Oceanic and Atmospheric Administration (NOAA), and the Federal Aviation Administration (FAA). So, who should be “the main” regulator on space tourism activities? Is there any need in creating a new authority like “the Federal Space Tourism Agency”?**

**Frans von der Dunk:** I would oppose creating yet another agency. I think that because of an unfortunate set of historical reasons in the US you don't have one regulatory agency for all space activities. Time and again, you see that there's intra-agency conflict about who actually does what. I'm not naive enough to think that there will be just one regulatory agency for space in the US anytime soon, because all this existing agencies want to keep their powers.

Within that framework, I would say the [FAA](#) would make the most sense, because, as I said, there are some elements of space tourism that could be addressed from an aviation perspective and air law. And the commission dealing with aviation for more than half a century is the best expert in this area.

## Conclusion

As we are wait for space tourism to fully bloom and for a technically feasible way to extract resources from space bodies, the argument in favour of preparing and amending our existing laws for the future of space exploitation is getting stronger. Yet, it isn't something completely unknown and different, as some of the existing legal frameworks applied to air and sea might as well become a foundation for the future space laws.

