

Trawling in Outer Space

Luxembourg is the first European country to pass a law guaranteeing companies entitlement to raw materials obtained in outer space – as long as the companies are based in the country. The Grand Duchy is also using loans and research investments as incentives. The rationale behind this is Luxembourg’s desire to become the leading international center for mining in outer space, in the hope that the companies involved will then pay tax on their profits there. However, this farsighted policy is more than a little dubious with respect to international law, as our author explains.

TEXT **LORENZO GRADONI**

In 1973, the President of the United States of America sent an unusual gift to the Grand Duchy of Luxembourg – the nation’s flag in the size of a handkerchief, and a slightly smaller piece of rock. The flag had just travelled to the Moon and back on the *Apollo 17* mission, and the rock came from a Moon valley near Mare Tranquillitatis. The fragment of the Moon’s surface, which is now housed

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 The words “in accordance with international law” were omitted

at the National Museum of Natural History, was presented to Luxembourg “as a symbol of the unity of human endeavor.”

Today, the right to own and sell such rocks can be obtained in Luxembourg, regardless of whether they come from the Moon, a near-Earth asteroid or a mining facility on Mars. The only requirement is that they be extracted by a company under Luxembourg

law that has obtained “written authorization for the mission” from the competent ministry. The procedure is governed by a law adopted on July 20, 2017, Article 1 of which states: “Resources in outer space may be appropriated.”

This statement will come as a surprise to anyone who believed that outer space was the province of mankind under international law. How can it be lawful for somebody to own space resources and exploit them for their own advantage? Aside from the US, which adopted similar legislation in 2015, and the United Arab Emirates, where a comparable bill is being prepared, what are other countries doing?

Let’s say that a company is the owner, under Luxembourg law, of a ton of heavy metals obtained from an asteroid. Doesn’t it run the risk of having its valuable assets seized in the port of Antwerp? Belgium, which is a member of the United Nations Committee on the Peaceful Uses of Outer Space, has clearly opposed unilaterally promoting the privatiza-

No shoal of fish: The Outer Space Treaty seemingly prohibits the appropriation of entire asteroids. Whether international law permits them to be mined is a contentious issue.



tion of resources in outer space. One need only look at the Benelux countries to witness this “extraterrestrial” dispute. But the new law is controversial in Luxembourg, too.

On November 15, 2016, Etienne Schneider, Luxembourg’s Deputy Prime Minister, presented to parliament a draft bill whose first article stated: “The resources of outer space may be appropriated in accordance with international law.” Readers will undoubtedly notice the difference between this provisional wording and the final version of the law cited above. In the final version, there is no reference to international law, as if it had been overlooked. The Luxembourg government seems convinced, however, that international law can’t stand in the way of its “space resources” project. So why was the reference to international law removed? Doesn’t it look like an admission of culpability?

The headquarters of the Conseil d’Etat, which was responsible for deleting it – involuntarily as we will see – is just a few hundred meters away from Parliament. Its task is to check whether bills comply

Are asteroids like small islands, boulders or icebergs?

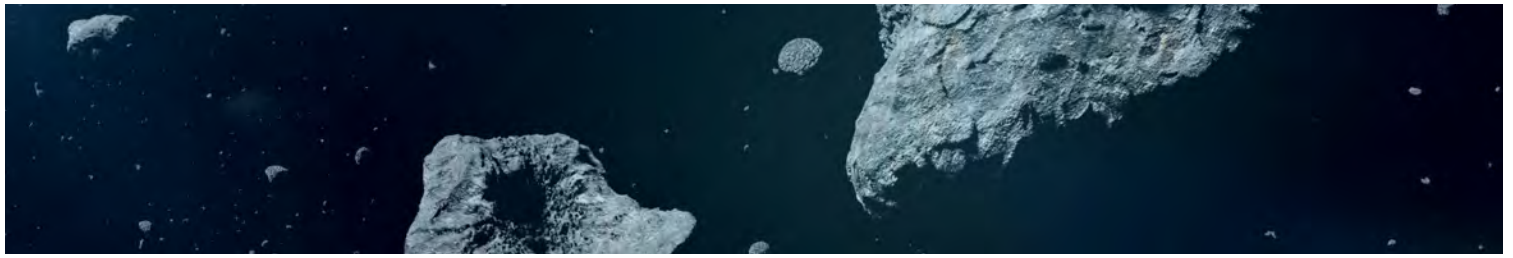
with Luxembourg’s Constitution, as well as with international agreements and EU law. While the Conseil didn’t find any significant discrepancy between the bill and international law in its position statement issued on April 7, 2017, it did question the project’s *raison d’être*.

The Conseil couldn’t conceal its unease about international law on outer space – a law it deems to be vague. Nevertheless, the government of the Grand Duchy declared that the “primary aim” of the bill was to “establish legal certainty as regards the ownership of minerals and other valuable resources obtained in outer space and, in particular, from asteroids.” But Luxembourg law can’t offer this legal

certainty alone if international law itself doesn’t provide it. The practical conclusion drawn by the Conseil was quite radical: “Article 1 of the bill” – the emblem of the entire project – “had to be deleted.” At the same time, it didn’t wish to torpedo the legislation. Instead, its message to parliament was this: a bill that indicates that international law generally tolerates the appropriation of space resources would simply be misleading, and the legislator should confine itself to introducing an approval procedure to decide on outer space “permits” on a case-by-case basis.

As outlined above, only half of the message was taken on board. Article 1 of the bill was retained, albeit without any reference to international law, as if to protect the Luxembourg legal system and investors hoping to take advantage of Article 1 from the legal uncertainty highlighted by the Conseil. It is therefore not by chance that the bill’s legal basis, as spelled out in the commentary thereto, refers not so much to international law as to domestic and natural law. It is the Napoleonic code that paved the way for the appropriation of space resources, to which it is said to apply by analogy. According to the bill’s authors, the “analogy between outer space and the ocean” is “legally [...] evident.” They seemingly took a decisive cue from François Laurent, a famous lawyer born in Luxembourg in 1810, who wrote a 33-volume “Principles of Civil Law” (*Principes de droit civil*) and the 18-volume *Studies on the history of humanity* (*Études sur l’histoire de l’humanité*). According to Laurent, who had a good understanding of the “nature of things,” one couldn’t assert that ownerless things, such as crustaceans and fish, “are intended by nature for use by all mankind. In reality, they are of no use to anyone unless they have an owner, and as soon as they have an owner, they are of use only to those who have appropriated them.”

In the view of the Luxembourg government, the resources of outer space can, therefore, “like fish and crustaceans,” be appropriated, but “celestial bodies and asteroids can’t, in the same way that the oceans can’t be appropriated.” According to Article 116 of



the United Nations Convention on the Law of the Sea, “All States have the right for their nationals to engage in fishing on the high seas.” The same rule would apply to outer space. This is provided that they can locate what counts as a fishing ground in outer space and distinguish it from things that can’t be appropriated.

Anyone wishing to cast their nets to capture an asteroid would, according to the Luxembourg government, be trying to catch a celestial body that – even if relatively small – isn’t legally the same as a tuna fish. What position would the extremely diverse family of asteroids occupy in the analogy between ocean and outer space? Should they be regarded as uninhabited small islands or as underwater boulders or pebbles washed up on the beach? Perhaps they should be viewed as icebergs? Can they be distracted from their orbit or mined until they are just empty shells without this being deemed illegal appropriation? More importantly, can we really be certain that François Laurent himself wouldn’t have seen them as fish? Investors in space resource exploration and exploitation would be delighted to treat an asteroid like a big fish, but what does international law say? Nothing specific, according to the authors of the draft legislation. In their view, the “predominant school of thought suggests that appropriation of these resources is possible.”

The notion of interpreting outer space law through the categories of law of the sea is certainly not arbitrary; international lawyers have frequently relied on that analogy. Yet its applicability is far from being uncontroversial. This is clearly reflected by the problems encountered when attempting to define the maritime equivalent of an asteroid. It is also worth remembering that the cornerstone of the law on outer space – that is, the exclusion of sovereignty – was established, not on the basis of the analogy between the sea and outer space, but rather in contrast to it.

“Outer space is to Earth what the ocean is to the continents,” wrote René-Jean Dupuy, a famous French international lawyer, in 1989. But if celestial bodies were the equivalents of continents or islands,

then states could make them their own, as they did when they sailed their ships across the oceans in search of unknown lands. “A planet becomes the extraterrestrial possession of the state that acquired it through conquest or peaceful occupation,” wrote Joseph Kroell in 1953 in a journal on outer space law.

Only 18 states expressly recognize the Moon as the common heritage of mankind

But the international community took a different view in the first half of the 1960s. That was the decade in which the international community began to establish the law of outer space – a positive law that could sometimes run contrary to the “nature of things” and seemingly supported the call for justice coming from the nations that had just freed themselves from colonial rule. What does this law say about the legal status of space resources?

Outer space law can be found in five major treaties concluded under the auspices of the United Nations between 1967 and 1979. Only two of them matter for our discussion. The first of these agreements, the Outer Space Treaty, entered into force in 1967. Today, it has 107 signatory states, including Luxembourg and all the space-faring nations. The Agreement Governing the Activities of States on the Moon and other Celestial Bodies, known as the Moon Agreement, entered into force in 1984, but it has only been ratified by 18 countries, none of which are space powers. So far, it has been a failure.

How can these very different outcomes be explained? The two treaties don’t contradict each other, but the second one goes further in advocating a collective approach to the use of space resources, generally in the interests of newly independent states. And that sealed its fate as the conservative revolution set in in the 1980s. Not only does the



Moon Agreement state that “the Moon and its natural resources” are “the common heritage of mankind” (which also applies to other celestial bodies in the solar system, except for the Earth), it also directs the small group of signatory states to establish “an international regime, including appropriate procedures,” to govern the exploitation of natural resources in outer space, “as such exploitation is about to become feasible.” The reasons why this paragraph has come to nothing are of a political rather than a technical nature.

Just how contentious the idea to create an international authority to administrate “the common heritage of mankind” had become by then is illustrated by the discussions on the legal regime of the deep seabed at the third United Nations Conference on the Law of the Sea. In 1982, the negotiations ended in an atmosphere of gloomy hostility between the states

Russia reacted with outrage to a similar law in the US

that were ready to invest in the exploitation of seabed resources, but less ready to share the proceeds thereof, and the numerically superior emerging nations. This eventually forced the adoption of a treaty text that provided for the creation of a powerful International Seabed Authority to act on behalf of “all mankind.” It was a Pyrrhic victory. The agreement didn’t enter into force until 12 years later, when a supplementary agreement was adopted that significantly weakened the Authority and the redistributive mechanism it was intended to govern.

Article II of the Outer Space Treaty, to which Luxembourg is a party, states: “Outer space, including the Moon and other celestial bodies, isn’t subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”

Does the new Luxembourg law comply with this principle? While Article II has often been interpreted in contradictory ways, it doesn’t say much about the question as to whether resources in outer space can be appropriated. It could be argued that the term “national appropriation” was chosen to also exclude appropriation by non-state actors. That would also apply, for example, to a company based in a signatory state seeking to take ownership of a plot of land on the Moon.

However, it could also be contended that the wording refers only to states and perhaps also to new states that future settlers in outer space may establish, or to indirect expansions of states’ sovereignty, for instance through the occupation of territories by contemporary equivalents of chartered companies. The only thing that can be said with certainty is that the authors’ main aim was to ban sovereignty from outer space and that the cautious wording of Article II (“by any other means”) simply aimed to prevent the ban from being circumvented.

The exclusion of sovereignty may nevertheless have consequences when it comes to the establishment of proprietary rights to resources in outer space. This is because the acquisition and protection of property depends on a state exercising sovereignty. In order to establish itself in outer space, property would first have to emancipate itself from sovereignty. According to Article VI of the Outer Space Treaty, on which much of the Luxembourg law on outer space is based, activities of non-governmental entities in outer space require “authorization and continuing supervision by the appropriate State Party.” However, as a State performs this task, there is a danger that it will overstep the boundary between legitimate exercise of authority and what would be in essence a claim of sovereignty.

To date, the Luxembourg law on space resources hasn’t attracted much interest in diplomatic circles, and it is difficult to predict how many states – apart from the US and the United Arab Emirates – will share Luxembourg’s approach, but the issue is very

likely to prove contentious, as Russia's outraged reaction to the US legislation already suggested. In Russia's view, the US initiative was an "arbitrary self-extension of its own 'freedom'" and the result of the "notorious doctrine of supremacy in outer space." In the eyes of a leading space-faring nation, Luxembourg is therefore acting in the shadows of a self-proclaimed hegemon that seems to ignore the fact that mining in outer space – especially if small asteroids are deflected from their orbits in the process – "presents a high risk for the population of the entire world and should be regulated at the international level."

The issue hasn't yet been discussed within the EU; nevertheless, it is clear that the few EU states bound by the Moon Agreement (Austria, Belgium and the Netherlands) can't support Luxembourg without violating their international obligations. Belgium, in particular, has clearly expressed opposition to nations going it alone in this field. Instead, the country supports the negotiation of new international regulations to break the deadlock the international community faces due to the ambiguity of the Outer Space Treaty and the failure of the Moon Agreement. The fact that two countries (Armenia and Venezuela) recently ratified the long-neglected Moon Agreement may indicate that unilateral initiatives such as those in the US and Luxembourg are increasingly being viewed with skepticism, making it unlikely that other states will follow suit.

Andrew G. Haley, a pioneer in the law of outer space, prophesied in 1963 that "some day in the future companies will want to mine meteorite ore and then all the old law-of-the-sea problems will resurface under much more complicated circumstances." Luxembourg's law on space resources presents a good opportunity to tackle this issue and to define new shared approaches to international outer space law. ◀

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