

Star laws: how UAE law is boldly going into the final frontier

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The UAE's Centennial vision, boldly aims to make the country the "best in the world by 2071". With its futuristic outlook and robust government strategies, the UAE is well placed to tackle some of the 21st century's most pressing challenges.

From the first Apollo moon landing, to Space X's successful astronaut launch, our use of space is changing. Today, space is being used for all kinds of peaceful purposes such as environmental monitoring, broadcast communications, delivering the internet, weather prediction, navigation and scientific exploration. Space exploration, followed by the prospect of eventually becoming a multi planet species. could also help us address some of the 21st century's unique set of challenges, such as overpopulation and climate change, to name but a few.

"From the first Apollo moon landing, to Space X's successful astronaut launch, our use of space is changing."

Our changing relationship with space however, is not reflected in the law. Unlike the 1970s, when the first space treaties were drafted, the commercialisation of space travel is no longer science fiction.

Leading by example to other countries in the region, the UAE enacted the Federal Law No.12 of 2019 on Regulation of the Space Sector ('Space Law') in December 2019, which supplemented, and consequently clarified many of the conceptual difficulties with the treaty framework, while at the same time ensuring compliance.

A unique challenge, for the UAE's next 50 years is to ensure that it continues to take the right policy and regulatory initiatives to accommodate this change in the landscape.

Earth to Mars: a multi-planet legal system?

The notion that our laws transcend the realm of planet earth is perhaps somewhat surprising.

According to the United Nations Office for Outer Space Affairs ('UNOOSA'), "the primary goals of space laws are to ensure a rational and responsible approach to the exploration and use of outer space for the benefits and interest of all human kind".

As such, space law covers a variety of diverse matters such as preservation of the space and earth's environment, liability for damages caused by space objects, settlement of disputes, protection of national interests, rescue of astronauts, sharing of information about potential dangers in outer space, use of

space-related technologies, and international co-operation.

To that end, on an international level, the UAE is signatory of 4 out of 5 key following treaties that govern activity in space.

1. The Outer Space Treaty 1967

Entered into force on 10 October 1967, the treaty forms the main framework of space law. It recognises the importance of the use and scientific exploration of outer space for the benefit and interest of all countries.

Under the treaty, outer space is only to be used for peaceful purposes. Specifically, it prevents the placing of weapons of mass destruction in orbit or on the moon or other celestial bodies. The treaty also rules that outer space is not subject to 'national appropriation'. Moreover, it does not allow the establishment of military infrastructure, manoeuvres or the testing of any type of weapon on planets or moons.

2. The Rescue Agreement 1968

Elaborating on elements of the Outer Space Treaty the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space provides that a state that is a party to the agreement shall take all possible steps to rescue and assist astronauts in distress and promptly return them to the "launching" state, and that states shall, upon request, provide assistance to launching states in recovering space objects that return to earth outside the territory of the launching state.

3. Space Liability Convention 1972

Elaborating on parts of the Outer Space Treaty, the Convention on International Liability for Damage Caused by Space Objects provides that a launching state shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft, and liable for damage due to its faults in space. The convention also includes the settlement procedure for damage claims.

4. Registration Convention 1975

Entered into force in 1976, the Convention on Registration of Objects Launched into Outer Space serves as a mechanism to assist states in classifying and identifying space objects. The convention acknowledged the importance of maintaining a register that was openly accessible to states and international organisations. Specifically, states are required to register details about the orbit of each space object with the United Nations.

5. The Moon Agreement 1979 (UAE is not party to this Agreement)

The Agreement Governing the Activities of States on the Moon and other Celestial Bodies entered into force in June 1984, and further elaborated on the Outer Space Treaty as applied to the Moon and other celestial bodies, providing that those bodies should be used exclusively for peaceful purposes, that their environments should not be disrupted, that the United Nations should be informed of the location and

purpose of any station established on those bodies.

In addition, the 1979 Moon Agreement provides that the Moon and its natural resources are the common heritage of mankind and that an international regime should be established to govern the exploitation of such resources when such exploitation is about to become feasible.

Where to from here? Celestial property rights, cyber-attacks, and other new challenges for our use of outer space

Since the enactment of the initial space treaties, our use of space has changed dramatically, meaning that the international treaty framework is now not necessarily fit for purpose.

For instance, today, there are more satellites than ever, and the once farfetched idea of having accidental collisions in space is now a reality. Further, almost every country uses information generated from space.

However, unlike the focus of those treaties, the majority of today's satellite owners are not international organisations or countries, but rather the commercial sector. Soon, the changing cost benefit equation of satellite ownership will also mean that ownership of satellites may even be extended to individuals through the mass market availability of small "mini-satellites" deployed in space.

Another major change in how we, as a species interact with outer space lies in the rise in commercial asteroid mining. We mentioned above that the Outer Space Treaty has a non-appropriation clause. As it stands, international law prohibits the sovereign ownership of celestial bodies, but it is uncertain as to whether ownership by private bodies is equally prohibited. This then leads us to the question, who owns what in space? And what property rights, if any, go into the final frontier? The law is in need of clarity. Furthermore, states are already positioning "defensive" space weaponry. Today's reality, whether we like it or not, is that contrary to the provisions of the state treaties, outer space is militarised.

The amount of information that is generated or transmitted through space is also on the rise, and so is our vulnerability to the manipulation of space data. Cyber-attacks in space are now occurring constantly.

Finally, despite its currently exorbitant cost, space tourism is currently on the rise, with the potential of becoming a multi-billion dollar industry. As such, national laws need to step in where the international treaty framework falls short. A proper legislative framework is needed to pave the way for future investments, and new opportunities within this sector.

The UAE's Space Law: transformational times call for transformational measures

National laws have stepped in to regulate space operations conducted by private companies where the international treaty framework falls short in light of our changing use of space.

International law remains the main framework for space activities. However, it is national space legislation that ties the link between the private space sector and the international framework.

Accordingly, many countries have enacted their own space laws. For example, in France, space activities

fall under Law No. 518 of June 2008 (*LOI n° 2008-518 du 3 juin 2008 relative aux opérations spatiales*), which addresses issues linked to the privatisation of space activities, and the authorisation and supervision of all space operations performed by French operators. Moreover, it takes into account the long term implications of space activities, such as increase in space debris. Likewise, in the US, the Commercial Space Launch Act was enacted in 1984 to incentivise and regulate the commercial space launch industry. Key attributes included imposing and enforcing insurance and financial responsibility on licensees.

The UAE enacted Space Law in 2019 to directly tackle many of the challenges we have highlighted regarding the commercialisation of space. The Space Law seeks to go above and beyond many other national space regulations in many respects.

The Space Law aims to address the interest of private companies within outer space, as well as many of the other challenges which have emerged from our changing use of outer space. Notably, the law fills in the gaps of the international treaty framework, which previously took precedence, and brings much needed clarity to the subject.

The UAE had already inaugurated the nation's first space agency, the UAE Space Agency, in 2014, which is responsible for regulating and supporting the national space sector. The Space Law has replaced the UAE Space Agency's establishment law but specifically provides that the UAE Space Agency is tasked with overseeing the nation's space sector development and lays out some of its objectives which include encouraging and developing the uses of technology and space science in the state, and to work to spread awareness of the importance of the space sector.

Further, it is prohibited to own a "Space Object", carry out or participate in "Space Activities", or establish, use or possess related facilities or utilities without obtaining an authorization from the UAE Space Agency.

Space exploration, followed by the prospect of eventually becoming a multi planet species could also help us address some of the 21st century's unique set of challenges, such as overpopulation and climate change, to name but a few.

Key provisions of the Space Law include the regulation of the ownership of space objects, sending astronauts to space and operating space tourism flights.

As such, the Space Law recognises the challenges and opportunities posed by the commercialisation of space travel, and aims to create the right regulatory infrastructure for achieving the objectives of the state's national policy, which include:

1. stimulating investment,
2. implementing the necessary safety, security and environmental measures to enhance space activities; and
3. supporting the principle of transparency and the commitment of the State to implement the provisions of international conventions and treaties related to Outer Space, to which the UAE is a party.

The regulated activities which come under the law include the launch, the removing or disposal of an object from the orbit, operating Space Objects through monitoring and controlling them, satellite communication activities, extracting or exploiting "Space Resources", space exploration for scientific purposes, and conducting space-related scientific experiments.

The Space Law sets the legislative framework for our evolving use of space in the next centennial where we are expected to see a surge in manned spaceflights, or even long-term human residence in space. It also regulates the construction or use of facilities in space or on the surface of celestial bodies. Another important feature is regulating "Space Data" management activities, which includes receiving, storing, processing, distributing, archiving or disposing of any Space Data.

The territorial scope of application of the Space Law applies to space activities that are carried out: 1) in

the State's Territory or the State's establishments outside the State's Territory, 2) from ships or aircraft registered with the State or Space Objects registered by the State; or 3) by persons who hold the nationality of the State, or companies that have a headquarters in the State.

Regarding environmental issues, provisions of the Space Law are focused on Space Debris mitigation by imposing a requirement on every operator to mitigate Space Debris and reduce its effect and to minimise risks of collisions.

The future of space in the next 50 years is going to see an increase in manned spaceflight activities. As such, the Space Law sets out certain precautions that must be followed before a physical person is permitted to participate in spaceflight. For example, it imposes the requirement of submitting to the agency. proof that the physical person is aware and informed of all risks, and has had the necessary training and reaches the required standard of health necessary for such a flight. Such standard laws and procedures are going to be crucial in paving the way for an increase in safe space travel, or space tourism.

The Space Law clarifies the issue of liability, which is expected to gain relevance as our use of space increases, and the risk of collision of space objects compounds. It provides for liabilities between contracting parties (Art 20) and also provides that the operator shall be liable for any damage caused to others on the surface of the earth or in the aircraft while flying inside or outside the State's Territory (Art 21). Damages are defined as "any loss of life, personal injury, or any other harm to health, or the loss or damage that is caused to the property of the State, the property of Persons, or the property of intergovernmental organisations." The Space Law prescribes liability for hitting another space object (Art.22) and sets out the requirement for adequate insurance and guarantees caused (Art.25). It requires any operator to have an insurance contract with one of the insurance companies approved by the UAE Space Agency.

As the number of commercial space launches is set to increase, the Space Law also imposes the requirement of registering all space objects. Space Object must be registered with Space Agency and also be registered with United Nation space objects, with the Space Agency and also register with the United Nations register to comply with the international treaty framework.

Emirates Mars Mission

The Mohammed Bin Rashid Space Centre ('MBRSC') is a Dubai government entity working on the UAE space programme, including space satellite projects, the UAE astronaut programme and the Emirates Mars Mission (or Hope Probe).

The probe was launched in July 2020, and reached Mars' orbit on 9 February 2021, making the UAE the first Arab country to reach the red planet. The success of the mission comes in the 50th anniversary of the union of the UAE. The probe will study the atmosphere of Mars. Goals of the mission include establishing a sustainable knowledge-based economy, promoting diversification and encouraging innovation, elevating the UAE's status in the space race and further widen benefits.

Conclusion

The UAE has one of the largest space sectors in terms of size of investment, comprising more than AED 20 billion (approximately US\$5.5 billion) of national investments in space technologies, according to TDRA, UAE operates 9 satellites. The UAE's Space Law cements the country's pioneering edge in the region in

developing its national space sector. The legislation clarifies many of the shortfalls of the international treaty framework and is expected to further boost investment, research and development within the space sector as we embark on the next 50 years.

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