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ByInvitation

The new geopolitics of the Moon

More space-faring countries and tech tycoons are new players in a new space race, raising questions of rights to celestial bodies

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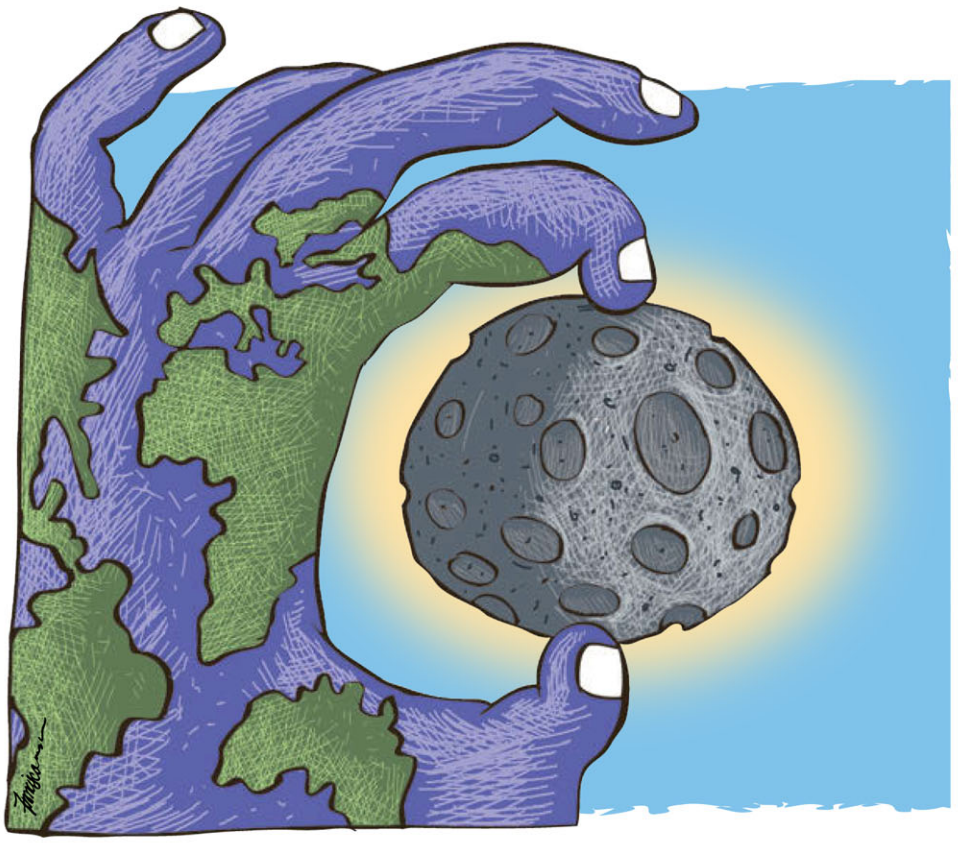
For The Straits Times



When the Apollo 11 spacecraft landed the first humans – Neil Armstrong and Buzz Aldrin – on the Moon five decades ago today, the lunar mission was very much part of a sweeping political rivalry with the Soviet Union on Earth.

Yet, despite the Cold War competition, the Moon mission and, more broadly, the United States' space adventure in the 20th century were both tempered by a sense of scientific internationalism, an awareness of man's cosmic insignificance and the belief that outer space will eventually be a stage for human cooperation, rather than competition.

Today, as we celebrate the 50th anniversary of Apollo 11, there is an uneasy sense that humans are beginning to take many of their familiar political problems to outer space.

The near-Earth space is becoming a contested zone among nations; the passive militarisation of the 20th century in the form of communication and intelligence gathering is shifting towards active weaponisation in the 21st. Plans are afoot to develop and deploy weapons in space.

Farther still from Earth's orbit, a different form of great power rivalry in space is unfolding – in the scramble for the Moon.

The contest is raising a host of difficult questions, including the nature of permitted and prohibited activity on the Moon, and whether the new strategic rivalries in space can be effectively regulated.

At the same time, the quest for commercial exploitation of the Moon is generating questions about property rights on the Earth's only satellite. Who owns the Moon?

THE FIRST LUNAR RACE

President John F. Kennedy's proclamation in May 1961 that America would land a man on the Moon "within the decade" was about correcting the perception that the US was falling behind the Soviet Union in the race for space.

That impression, in turn, was driven by Russia's initial successes: orbiting the first satellite in 1957, landing the first man-made object on the Moon in 1959, and putting the first man in space in 1961.

The fear that the Russians were winning the space race was never really true. While the Soviet Union was making symbolic gains, the US was making big progress on a secret project to build remote-sensing satellites. The publicly known US space missions such as Mercury, Gemini and Apollo were all impressive evidence of the country's abilities on the scientific and technological fronts. Few experts doubted America's lead in microelectronics, computing and aerospace technologies – the product of its strong pool of scientific talent.

It was the logic of politics, however, that drove president Kennedy into setting a spectacular target for America – a successful manned Moon mission. Prestige was very much part of it and so was what we now call "soft power"; the Apollo missions were accompanied by huge space diplomacy and public outreach.

Although the Moon mission dispelled any doubts about America's technological prowess, considerations of prestige and propaganda value were not strong enough to sustain the Apollo programme after the early 1970s. At the peak of the Apollo mission, the National Aeronautics and Space Administration (Nasa) was consuming nearly 4 per cent of the US federal budget.

After 10 other astronauts – all American men – followed in the footsteps of Armstrong and Aldrin on the Moon, Washington decided to shut down the costly Apollo programme. Russia's competing lunar mission also ran into serious trouble and had to be cancelled.

But the competition of the 1960s turned into a measure of space cooperation in the 1970s, amid a brief relaxation of political tensions between Washington and Moscow.

After the collapse of the Soviet Union, the cooperation flowered. One notable example has been the US-built International Space Station (ISS). Scores of Russians have worked on it, and in recent years, the US has relied on Russian rockets to get its scientists to the ISS. Along the way, interest in the Moon waned and it fell off the priority lists of both nations.

NEW PLAYERS, GRANDER PLANS

The current focus on the Moon is being restored by new space-faring nations and private companies.

The idea is not to simply return to the Moon in a repeat of the Apollo mission. The idea is to build "Moon villages" that can be sustained by resources available there. The grander ambition is to make the Moon into a way station for man's exploration of Mars and deep space.

Among the new players, India orbited its Chandrayaan-1 spacecraft around the Moon in 2008. It hopes the Chandrayaan-2 launch, which was suspended last week due to a technical glitch, will lift off smoothly later this month.

A successful soft landing of a rover on the Moon will make India only the fourth country to do so, after the US, Russia and China. Other parties, including Japan and the European Union, are beginning to put the Moon on their national space agenda, and Russia too has plans to return to the Moon.

But it is the Chinese programme that is drawing concerns in Washington. Beijing's lunar mission, named after the Chinese Moon goddess Chang'e, was unveiled in 2007. Since then, China has put two spacecraft in lunar orbit – Chang'e 1 and 2 – and landed two rovers on the Moon: Chang'e 3 and 4.

Chang'e 4 had the distinction of being the first landing on the far side of the Moon that can't be seen from the Earth; Chang'e 5 – expected to be launched later this year or early next year – is expected to bring lunar material back to Earth. And that is not all. China is expected to land crews on the Moon in the early 2030s, with plans for a research station at the lunar South Pole.

To support China's space-faring ambitions, the State Council has come up with a five-year plan that includes a powerful rocket able to lift huge payloads into orbit, as well as a space station expected to be fully operational in about three years. As President Xi Jinping made clear in a speech earlier this year, the Chinese Communist Party will push hard in pursuit of the country's "unyielding dream of flying into the sky and reaching for the Moon".

The broad advance of China's space programme, across the civilian and military domains, has given at least some in the US establishment the feeling of being left behind.

Spurred by the growing rivalry with Beijing, the Trump administration is taking a fresh look at the Moon.

In a major speech in March, Vice-President Mike Pence announced Washington's ambition to put Americans back on the Moon in 2024. Although the deadline may be unrealistic, there is no doubt about the intent and the urgency in Washington about restoring America's primacy in space, in the face of the Chinese challenge.

"Make no mistake about it: We're in a space race today, just as we were in the 1960s, and the stakes are even higher," said Mr Pence.

The Trump administration is seeking an extra US$1.6 billion (S$2.2 billion) for the current fiscal year to fund Artemis, the programme for the country's return to the Moon.

PRIVATE-SECTOR INTERESTS

While the US government may be late in rethinking the possibilities on the Moon, that is not the case for US companies. Amazon's Jeff Bezos and Tesla's Elon Musk have been pressing the agenda for some years now, and have put time and money into their space projects.

In the Trump administration's lunar drive, the government's space agency will not be going it alone. Instead, Nasa will be looking to the likes of Mr Musk's Space Exploration Technologies and Mr Bezos' Blue Origin to power America's return to the Moon.

Blue Origin, for instance, has a Nasa contract to build lunar lander systems, while Mr Musk's engineers are focused on rockets that can transport space voyagers to the Moon and beyond.

The bold plans of both tech billionaires reflect the new weight of the US private sector in a business that was once driven entirely by the state.

Nasa contracts aside, the US government is also buttressing its efforts in other ways. In 2015, the US Congress passed an Act permitting American companies that find minerals on the Moon to extract and trade them.

The measure, however, runs into trouble with the main legal instrument of international space law: the 1967 Outer Space Treaty (OST). The OST says that outer space, including the Moon and other celestial bodies, "is not subject to "national appropriation by claim of sovereignty, by means of use or occupation, or by any other means". It declares that outer space shall be the "province of all mankind" and its use "be carried out for the benefit and in the interests of all countries".

The US argues that the OST does not apply to private corporations and entities, and that they should be free to exploit lunar resources.

Tiny but rich Luxembourg has also passed a similar law to attract future space businesses to its territory. The United Arab Emirates is reportedly following suit. The moves by the US and Luxembourg are based on the interpretation that the OST does not explicitly prohibit states and private entities from exploiting celestial resources.

Many countries, including Russia and China, oppose this interpretation. But they are unlikely to hold back if they think some states and their companies are gaining unilateral advantage.

NEW RULES NEEDED

Many of the propositions of the OST, drafted more than five decades ago, are now being strained amid advances in technology. The international community then could not have imagined what might be possible in the future. Few in the 1960s thought of the prospect for property development on the Moon. Today, it is a real possibility.

Mining in outer space is still at an exploratory stage, but is also no longer a remote proposition. Such activities need a clearer understanding among nations on the rules of the road for managing space resources.

This is not a problem that is entirely unfamiliar to the international community. In the past, it has addressed legal questions on managing the so-called commons – territories that were under no nation's sovereign control, such as Antarctica and the seabed.

But the notion of outer space as a "commons" is being publicly challenged in the US. And the contestation could express itself first on the Moon.

The Moon could also become a theatre for military rivalry. The OST, of course, insists that the Moon and other celestial bodies shall be used "exclusively for peaceful purposes". It also prohibits the deployment of weapons of mass destruction or the establishment of military bases on the Moon.

As in the commercial domain and the military, the world has experience in regulating new technologies. But the tension between technological change and international law is a perennial one.

That the spirit of internationalism and the imperative of cooperation survived some of the most difficult times of the Cold War offers hope, as humanity enters a new phase in the exploration of space and celestial bodies such as the Moon.

But the answers are less likely to come from multilateral agreements such as the OST, with its sweeping but simplistic propositions. They can emerge only out of sustained consultations among the major space-faring nations.

The initial focus must be on small confidence-building measures that can pave the way for a new set of practical guidelines on regulating the commercial and military uses of the Moon.

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