Fly me to the Moon: For some, lunar village takes shape

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The 1969-72 Apollo landings left us with an image of a lunar environment that was hostile and sterile. But scientists today says there is bounty in the Moon that can be unlocked with advanced technology, opening the way to a permanent human colony.

By 2040, a hundred people will live on the Moon, melting ice for water, 3D-printing homes and tools, eating plants grown in lunar soil, and competing in low-gravity, "flying" sports.

To those who mock such talk as science fiction, experts such as Bernard Foing, ambassador of the European Space Agency-driven "Moon Village" scheme, reply the goal is not only reasonable but feasible too.

At a European Planetary Science Congress in Riga this week, Foing spelt out how humanity could gain a permanent foothold on Earth's satellite, and then expand.

He likened it to the growth of the railways, when villages grew around train stations, followed by businesses.

By 2030, there could be an initial lunar settlement of six to 10 pioneers—scientists, technicians and engineers—which could grow to 100 by 2040, he predicted.

"In 2050, you could have a thousand and then... naturally you could envisage to have family" joining crews there, Foing told AFP .

Mere decades from now, "there may be the possibility to have children born on the Moon," he enthused.

ESA boss Jan Woerner has mooted replacing the orbiting International Space Station with a permanent lunar colony, a futuristic idea that was high on the agenda at this week's expert meeting in the Latvian capital.

Building a market

The ISS is due to be decommissioned in 2024—the end of an era of unprecedented cooperation in space after the Cold War rivalry between the United States and Soviet Union.

Forty years after humankind set foot on Earth's satellite as a result of that fierce contest of one-upmanship, Woerner has proposed a village on the long-abandoned Moon as the next phase in space teamwork.

Scientists and commercial prospectors are keen on the concept, but politicians have yet to bite—a reluctance that, for now, cripples the idea.

"It is highly frustrating... We still don't have the top leaders interested," said physicist Vidvuds Beldavs of the University of Latvia, who runs a project called the International Lunar Decade, advocating joint

exploration of the Moon.

The missing link? "To demonstrate that industrial activity on the Moon is feasible, that... large markets can emerge."

Potential Moon resources include basalt, a volcanic rock Beldavs said could be used as a raw material for 3D-printing satellites to be deployed from the Moon at a fraction of the cost of a launch from high-gravity Earth.

There is also helium-3, a rare isotope on our planet but common on the Moon, that could theoretically be used to generate cleaner, safer nuclear energy for Earth.

The main target is water, locked up in ice on the Moon's poles.

Water can be separated into hydrogen and oxygen, two gases which explode when mixed—providing rocket fuel.

"To go into Earth orbit... it is 40 times cheaper to go from the Moon than from Earth, because the Earth has such high gravity that you have to fight against it," explained Foing.

'Tough' life

Experts argue that the future lies in collaboration between increasingly cash-strapped national space agencies and the private sector, which can profit from selling resources such as Moon-derived rocket fuel.

Robotic exploration is already underway, with several Moon landers and rovers planned for the coming years.

Woerner told AFP the goal "is to join international efforts and to bridge Earthly borders and crises."

But for those who think the Moon offers an escape from an Earth threatened by climate change and nuclear war, physicist Christiane Heinicke warns it is a "tough" life, and not for everyone.

She had spent a year in a mock Mars environment in Hawaii.

"It is completely devoid of any vegetation, all they see is rocks, regolith (loose rocks and dust), and a sky that is different from ours on Earth," she told AFP by email.

"Being either inside the habitat or inside a suit means that you're never able to actually FEEL the moon/planet you're on. You can't feel the wind (if there is any, like on Mars), you don't feel the Sun on your skin, and whatever you touch feels like the inside of your gloves."

Another problem: "You can never escape your crew mates," she said.

But Foing, who himself spent some time in one of the many earthly modules preparing aspirant Moon or Mars explorers, is undeterred.

He hopes to visit the village by 2040.

As for his family, "that will depend on the price... The price of the ticket is in the order of 100 million euros. That's now, but in 20 years, the price of the ticket could be 100 times less."

This will depend largely on advances made by commercial Moon explorers developing new technologies, boosting demand for lunar resources, or tourism, and driving prices down.

Elon Musk's SpaceX, for example, hopes to send two humans on a trip around the Moon in the next few years, and Blue Origin of Amazon founder Jeff Bezos has plans to deliver five tonnes of cargo to Earth's satellite.

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