Race for Outer Space Resources

A space race to set up colonies on the Moon or dig mines on asteroids, though not in offing yet, is no more remote after the bill called the 'Asteroids Act' was moved last year in the US Congress by two representatives, to give ownership to the companies over any material to be mined from the outer space asteroids. Though the bill could not proceed beyond hearing by the House sub-committee, in September 2014, a spokesman for one of the two proposers has declared his intent to re-introduce the bill, to enable the US space industry stake-holders to own resources extracted from space. India, with its most accurate and very economic space technology, can overtake the US to take a first mover's advantage with its proposed Reusable Launch Vehicle (RLV), involving just one tenth of the international costs. Indian Space Research Organisation (ISRO) has proposed to test a Winged Reusable Launch Vehicle (RLV) this March, capable of drastically cutting cost of space flights to one tenth of what it is today. ISRO has already completed ground tests on this vehicle and is in the final phase of a hypersonic test flight and landing on water. Space orbiting currently costs around 3277 pounds ($5,000) per kg and the Indian space agency plans to bring it down to 10% at 327 pounds ($500), according to Mr. Somnath, the deputy director of Vikram Sarabhai Space Centre (VSSC). India is the only country in the world, to be successfully orbiting the Mars in its first attempt at just 11 percent of the international costs.

At a time when, two US companies, the 'Planetary Resources' and the 'Deep Space Industries' have already announced plans to mine asteroids, India should also expedite its plan of flying our own space shuttle and also evolve a consortium by bringing together an array of aerospace companies, desirous of venturing into outer space in collaboration with ISRO. Moreover, when the Obama Administration is intending to take down NASA's human space flights programme, India's announcement of plans to fly our own space shuttle in a year might realign the power balance in space. The Reusable Launch Vehicle-Technology Demonstration Program or RLV-TD is a series of technology demonstration missions aimed at realising a Two Stage To Orbit (TSTO) fully re-usable and winged vehicle. It will be tested for powered cruise flight, autonomous landing and hypersonic flight, using air-breathing propulsion that will take off vertically like a rocket and glide back horizontally like a plane.

Having come so close to a break-though at an economical cost, India can take a lead in space commerce wherein its costs would be most tempting in the global space craft market as well. Indeed, satellites are typically deployed by expensive rockets which disintegrate in phases enroute to space. However, ISRO has now been working to develop the technology for a winged rocket that can be used repeatedly. This proposed Indian RLV is far superior in technology and unbelievably economical in cost. So it can help India to overtake the US and other super-powers in launch technology. For the US companies, hoping to set up a colony on the Moon, or mining asteroids for platinum, iron, nickel, titanium or other minerals, cost would be quite prohibitive.

The Federal Aviation Administration (FAA), which licenses private space launchings in the United States, too has now begun to provide some legal clarity and facilitate the space industry by stating that it (FAA) would ensure that American companies do not interfere with one another on the Moon or elsewhere. If the US is going to enable its space entrepreneurs and facilitate their ownership over resources excavated in space, why should India stay behind? The FAA's associate administrator for commercial space transportation has already asserted to recognize the private sector's needs to protect

its assets and personnel on the Moon or on other celestial bodies.

The Bigelow Aerospace of the US is already on way to developing inflatable habitats for outer space, and this year, a small Bigelow structure is to be added to the International Space Station. In the coming years, it plans to launch larger inflatables as private space stations to be leased by companies or nations. Bigelow intends to conduct scientific research or commercial endeavors like mining of minerals as well. Robert Bigelow, the company's founder, aims to establish his lunar base around 2025, and the company therefore wants the US laws to be in place for the purpose.

An international agreement of 1979, popularly called the Moon Treaty, emphatically says no to it, and bans ownership of the Moon and other celestial bodies, by declaring that the Moon's riches are to be shared among all nations, especially developing countries. Though, many nations, including the United States, Russia, China, and India have not signed the treaty. Therefore, in practice it is a failed treaty, as it has not been ratified by any state engaged in space explorations or having plans to do so. The United States, some member states of the European Space Agency, Russia, People's Republic of China, Japan, and India are not a party to this treaty.

Therefore, India may endeavour to create a consortium of companies at its own, under the leadership of ISRO for rapid strides in space exploration for common good and also plan a public issue to raise equity capital from across the globe by getting the issue listed on major bourses, to garner requisite equity capital. No wonder if the issue gets oversubscribed, in view of our goodwill built by virtue of the Chandrayaan project, the Mars Orbiter Mission and the proposed space craft trials starting from March 2015, at less than 10 percent of the global costs. A consortium comprising of ISRO, VSSC and desirous Aerospace companies from India and abroad can be pooled to demonstrate India's techno-globalistic potentials.+

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